



**Request for Bid
For
Lighting Installation for 6 Iowa DOT Maintenance Facilities various
locations throughout the State
Issued by:**

IOWA DEPARTMENT OF TRANSPORTATION
Purchasing Section
Proposal No. **16119**

Letting Date: **March 16 2016**

Must be submitted no later than 1:00 PM Central Time
Bid Responses received after this date will be rejected

***For information about this notice, and during this procurement,
interested persons shall contact only:***

Jody McNaughton
800 Lincoln Way
Ames, Iowa 50010
Phone: 515-239-1298
Fax: 515-239-1538
E-Mail: jody.mcnaughton@dot.iowa.gov

**Issued addenda and all other correspondence
will be posted to Iowa DOT's website:
<http://www.iowadot.gov/purchasing>**

Procurement Timetable

The following dates are set forth for informational and planning purposes. The Iowa DOT reserves the right to revise the dates as needed. All times listed are Central Time.

Event/Dates	Section Reference	Date/Time
Issue RFB	cover	March 3, 2016
Number of Copies of Bid Responses Required	4.1.3	1
Bidders Conference (Pre-Bid) <input type="checkbox"/> <i>Box will be checked when attendance is mandatory</i> Location:	2.28	
DOT Response from Bidder's Conference Questions	2.28	N/A
Bidder Questions, Requests for Clarification, & Changes <i>(no later than)</i>	2.2/2.5	March 8, 2016
DOT Response to Questions Issued <i>(no later than)</i>	2.2/2.5	March 11, 2016
Bid Opening/Proposal Due	2.8/2.9	March 16, 2016
Presentations & Demonstrations "Short list" <i>(by invitation only)</i>	2.22/ 5.3	N/A
Announce Successful Bidder Intent to Award* <i>see note below</i>	2.22	March 17, 2016
Completion of Contract Negotiations & Execution of the Contract	2.22	April 1, 2016
Contract Begin Date	6.2	April 11, 2016
Contract End Date	6.2	June 24, 2016

*Intent to Award - See Section 2.22

It is intended that Bid Responses will be evaluated and a notice of "intent to award" will be issued within thirty (30) days of the bid opening date. Bid Responses prices, terms and conditions must be held firm for a 180-day period from the date of the notice of "intent to award" the contract.

		Bid Opening Date March 16, 2016	Time of Bid Opening 1:00 P.M.	Bid Opening Location 800 Lincoln Way, Ames, IA	
Proposal Number 16119	Description Lighting Installation at 6 Various Garage Location Statewide				
Contract Begin Date April 11, 2016	Contract Completion Date June 24, 2016	Bid Bond (\$) N/A		Performance Bond (Y/N) Y	Liquidated Damages \$150.00 per day
Purchasing Agent Jody McNaughton		E-mail Address Jody.mcnaughton@iowa.dot.gov		Phone 515-239-1298	Fax 515-239-1538
Company Name				Federal Tax ID	
Street Address		City	State	Zip Code	
Bidder Contact		E-mail Address		Phone	Fax
Supplier agrees to sell items/services at the same prices, terms and conditions to any other Iowa state agency. Regent or Political Subdivision upon request. Please check Yes or No. <input type="checkbox"/> Yes <input type="checkbox"/> No				Bidder is an Iowa Targeted Small Business <input type="checkbox"/> Yes <input type="checkbox"/> No	

GENERAL INFORMATION

This solicitation includes the Bid Response cover page, Schedule of Prices, Standard Terms and Conditions, Supplemental terms (if any), Specifications, Plans and Drawings, mailing label and all other information needed to prepare and submit a bid response. Information in the "Bid Response" above must be typed or completed in ink, signed, and returned in a flat style envelope along with any other information required in the bid proposal prior to the bid opening date and time. Please use the furnished mailing label, or label the bid response as "Iowa Department of Transportation, proposal number and bid opening date on the outside of the return envelope. Bidders may personally deliver, mail, or select a carrier that ensures timely delivery.

Faxed or e-mail bids will not be accepted.

If required, each bid response must be accompanied by a proposal guaranty in an accepted form, in the sum indicated above. Refer to the Standard Terms and Conditions for the accepted forms in which the proposal guaranty requirement may be fulfilled. **Bids lacking a required proposal guaranty will not be considered for award.** If the intended awarded bidder fails to enter into a formal contract within fifteen (15) days after award is made for any reason on their part, the proposal guaranty may be retained by the State.

The entire contents of this solicitation, Addendums, Schedule of Prices, Specifications, Plans and Drawings, Supplemental Terms and Conditions, Standard Terms and Conditions, shall become part of the contract.

We certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a bid; that this bid has been independently arrived at without collusion with any other bidder, competitor, or potential competitor; and that this bid has not been knowingly disclosed prior to the opening of bids to any other bidder or competitor.

We certify that all materials, equipment and/or services proposed meet or exceed the specifications and will be supplied in accordance with the entire contents of this solicitation including delivery schedules.

We promise to complete the contract within the contract period, or pay any liquidated damages, if stipulated, for each calendar day as set forth in the bid documents.

Signed _____ Date _____



Iowa Department of Transportation
Standard Terms and Conditions For
Submission of Quotations, Bids or Proposals
-FORMAL-

Formal is the procurement process required by Iowa law when the estimated, aggregate amount of the purchase equals or exceeds \$50,000.

The entire contents of this bid solicitation shall become a part of a contract or purchase order. In case of a discrepancy between the contents of the bid documents, the following items listed by descending order shall prevail:

- Addendums to the bid solicitation
- Bid Solicitation-
- Schedule of Prices
- Specifications
- Plans and Drawings
- Supplemental Terms and Conditions
- Standard Terms and Conditions

(Example - if a statement in the specifications contradicts a statement in the Standard Terms and Conditions, the statement in the specifications shall apply)

Preparation of Bid Response: All bid responses must address all aspects of the solicitation including clearly responding to the contents of the bid solicitation. Bid responses must be typed or completed in ink and submitted on the forms supplied by the Iowa DOT.

Bid responses must be signed and received prior to the bid opening date and time as indicated on the Bid Response cover page or bid opportunity. The signed, submitted quotation or bidder's proposal shall become the official bid response to be considered for award.

No email, fax or web link bid responses will be accepted. Bid Responses must be signed, sealed and delivered in person or by a mail courier that ensures timely delivery.

A. Solicitation

1. **Bid Opening:** Bid openings are made public and conducted at the Iowa DOT, Ames complex unless otherwise specified. Quotations, Bids or Proposals received after the time of the bid opening will be returned unopened and considered non-compliant.
2. **Communications:** Questions concerning this solicitation should be directed to the purchasing agent listed on the bid solicitation. Inquiries can be written, phoned, or faxed. In all cases, written communication will take precedence over verbal communication.
3. **Bid Bond:** If required, the Bid Response page will indicate the dollar amount required to be included in the bid response. A Bid Bond can be supplied in one of the following ways: **(1)** Certified check or credit union certified share draft, cashier's check, or bank draft, drawn on a solvent bank or credit union. Certified checks and certified share drafts shall be drawn and endorsed in the amount indicated. Checks or drafts shall be made payable either to the Iowa Department of Transportation (Iowa DOT) or to the bidder. If payable to the bidder, the check or draft shall be endorsed without qualifications to the Iowa DOT by the bidder or an authorized agent. **(2)** An insurance or surety company may be retained to provide a bond in fulfillment of the Bid Bond requirement. A properly completed and signed copy of the Bid Bond (*Form 131084*) must accompany the bid. **The Iowa DOT's Bid Bond form must be used; no other forms or formats will be accepted.**
4. **Pricing and Discount:** Unit prices shown on the bid/response shall be quoted as the price per unit (e.g., gal., case, each, etc.) as stated in the bid solicitation. If there is a discrepancy between the unit bid prices, extension, or total amount of bid, the unit prices shall prevail. Unless otherwise indicated, prices shall be firm for the duration of the contract or purchase. Discounts for early payment are allowed, but not considered in award of the contract.

5. **Acceptance/Rejection:** The Iowa DOT reserves the right to accept or reject any or all bids and to waive irregularities or technicalities, provided such waiver does not substantially change the offer or provide a competitive advantage to any supplier(s). The Iowa DOT also reserves the right to accept that bid which is deemed to be in the best interests of the state. Any unauthorized changes, additions, or conditional bids including any ties to another Quotation, Bid or Proposal or any reservations about accepting an award or entering into a contract, may result in rejection of the bid. Quotations, Bids or Proposals must remain available for award for thirty (30) days from date of bid opening.
6. **Bid Results & Disclosure:** Bid tabulations will be posted on the Iowa DOT website at www.iowadot.gov/purchasing under the *Bid Award* link referencing the Solicitation number with an award recommendation indicated. At the conclusion of the selection process, the contents of all received bid responses will be placed in the public domain and be open to inspection by interested parties, according to state law. Trade secrets or proprietary information that are recognized as such and are protected by law may be withheld if clearly identified as such in the Bid Response.
7. **Quality:** All material shall be new and of first quality. Items which are used, demonstrators, refurbished, obsolete, seconds, or which have been discontinued are unacceptable without prior written approval by the Iowa DOT.
8. **Recycled Content:** The Iowa Code encourages purchase of products and materials with recycled content, including but not limited to paper products, oils, plastic products, compost materials, aggregate, solvents, and rubber products. Recycled items or alternatives must be noted in the bid response, if known.
9. **Shipping Terms:** Deliveries shall be F.O.B. Destination unless otherwise specified. All deliveries shall be accompanied by a packing slip indicating the Supplier, quantities shipped, and the purchase order number(s). All delivery charges shall be included in the bid price and paid by the Supplier. No collect C.O.D. deliveries shall be accepted. When entering into a contract, the Supplier shall notify the freight company that all freight and delivery charges are to be prepaid by the Supplier. Goods delivered to the Iowa DOT Distribution Center at 800 Lincoln Way, Ames, IA shall be received between the hours of 7:00 a.m. and 3:00 p.m. on any day except Saturday, Sunday, or a holiday. For deliveries to other Iowa DOT locations, the Supplier may contact the destination location for available times to deliver as not all Iowa DOT locations have the same business hours. The Iowa DOT will not be liable for any freight claims or unpaid freight bills arising from contract or purchase order issues.

B. Award

The binding agreement (award) may be issued in the form a purchase order or contract or both depending on the requirements and complexity of the agreement.

1. **Method of Award:** Award shall be made to the responsible, responsive bidder whose Quotation, Bid or Proposal meets the requirements of the solicitation and is the most advantageous to the Iowa DOT. An Iowa bidder will be given preference over an out-of-state bidder when bid responses are equal in all aspects and are tied in price. By virtue of statutory authority preference will be given to products and provisions grown and coal produced within the State of Iowa.
2. **Award Protests:** Protests of award recommendations are to be addressed to the Director of Purchasing, and shall be made in accordance with paragraph 761--20.4(6)"e" of the Iowa Administrative Code.
3. **Contracts:** Successful contractor(s) may be sent either a formal Contract, Notification of Award or Purchase Order as confirmation of acceptance and award. Any of these binding agreements shall be for the term stated in the bid solicitation or on a purchase order and may be renewed for additional period(s) under the same terms and conditions upon mutual agreement as defined. The successful bidder may not assign a contract to another party without written authorization from the Iowa DOT Purchasing Section. The Iowa DOT may offer a contract extension to the Contractor when a scheduled target date cannot be met.
4. **Consumer Price Index (CPI-U):** A CPI may be allowed as specified in the terms of the bid solicitation and at the discretion of the Iowa DOT based on currently posted CPI-U, US City Average, All Items – non seasonally adjusted unless otherwise specified. This applies each of any subsequent renewals, extensions, amendments issued under the contract for the duration of the contract.

5. **Payment Terms:** The Iowa DOT typically pays properly submitted vendor invoices within thirty (30) days of receipt, providing goods and/or services have been successfully delivered, installed or inspected (if required), and accepted. Invoices presented for payment must be only for quantities received by the Iowa DOT and must reference the purchase order number to be submitted for processing.
6. **Default (Supplier):** Failure of the Supplier to adhere to specified delivery schedules or to promptly replace rejected materials shall render the Supplier liable for all costs in excess of the bid price when alternate procurement is necessary. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of the binding agreement.
7. **Default (Contractor):** Failure of a Contractor other than a Supplier to meet any specified project completion deadline shall render the Contractor liable for all costs incurred by the Iowa DOT that were: a) necessary to meet said deadline; or b) necessary to complete said project after said deadline. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of the agreement.

C. General

1. **Administrative Rules:** For Additional details on the rules governing the actions of the Iowa DOT Purchasing Section, refer to 761 IAC, Chapter 20, Iowa Administrative Code, entitled "Procurement of Equipment, Materials, Supplies and Services".
2. **Affirmative Action:** The Contractor (and also subcontractor, vendor or supplier) is prohibited from engaging in discriminatory employment practices forbidden by federal and state law, executive orders and rules of the Iowa Department of Management, pertaining to equal employment opportunity and affirmative action. Contractor may be required to have on file a copy of their affirmative action program, containing goal and time specifications. Contractors doing business with Iowa in excess of \$5,000 annually and employing 50 or more full time employees may be required to file with the Iowa Department of Management a copy of their affirmative action plan. Failure to fulfill these non-discrimination requirements may cause the contract to be canceled and the contractor declared ineligible for future state contracts or subject to other sanctions as provided by law or rule.
3. **Applicable Law:** The contract shall be governed under the laws of the State of Iowa. The contractor shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of a contract and which in any manner affect the work or its conduct. Any legal action relating to a contract shall only be commenced in the Story County, Iowa, District Court or the United States District Court for the Southern District of Iowa.
4. **Conflict of Interest:** No state or county official or employee, elective or appointive shall be directly or indirectly interested in any contract issued by the Iowa DOT, see Code of Iowa 314.2.
5. **Debarment and Vendor Suspension:** By submitting a Bid Response, the contractor is certifying that it and its principals and/or subcontractors are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by the State of Iowa or any Federal department or agency.
6. **Equal Opportunity:** Firms submitting bids must be an "Equal Opportunity Employer" as defined in the Civil Rights Act of 1964 and in Iowa Executive Order Number Thirty-four.
7. **Indemnification-Goods:** To the extent the goods are not manufactured in accordance with Iowa DOT's designs, Supplier shall defend, indemnify and hold harmless Iowa DOT, its assignees, and other users of the goods from and against any claim of infringement of any letters patent, trade names, trademarks, copyright or trade secrets by reason of sale or use of any articles purchased. Iowa DOT shall promptly notify Supplier of any such claim.
8. **Infringement:** Goods shall be delivered free of the rightful claim of any third party by way of infringement. Contractor shall indemnify and save harmless the State of Iowa and the Iowa DOT against all claims for infringement of, and/or royalties claimed under, patents or copyrights on materials and equipment furnished under this bid.
9. **Iowa Open Records Law:** All Bid Responses are subject to terms and provisions of Iowa Code Chapter 22 Examination of Public Records (Open Records), specifically 22.7- Confidential Records.

10. **Records Audit:** The contractor agrees that the Auditor of the State of Iowa or any authorized representative of the state, and where federal funds are involved, the Comptroller General of the U.S. Government, shall have access to and the right to examine, audit, excerpt, and transcribe any directly pertinent books, documents, papers, and records of the contractor relating to orders, invoices, or payments of a contract or purchase order.
11. **Targeted Small Businesses:** The Iowa DOT seeks to provide opportunities for women and/or minority small business enterprises. To apply for certification as an Iowa Targeted Small Business, contact the Iowa Department of Inspection and Appeals (515-281-5796). Contractors shall take documented steps to encourage participation from Targeted Small Businesses for the purpose of subcontracting and supplying of goods or services or both.
12. **Taxes:** Prices quoted shall not include state or federal taxes from which the state is exempt. Exemption certificates will be furnished upon request.

13. **Termination:**

•**Termination Due to Lack of Funds or Change in Law**

The Iowa DOT shall have the right to terminate this Contract without penalty by giving thirty (30) days written notice to the vendor as a result of any of the following:

- Adequate funds are not appropriated or granted to allow the Iowa DOT to operate as required and to fulfill its obligations under contract.
- Funds are de-appropriated or not allocated or if funds needed by the Iowa DOT, at the Iowa DOT's sole discretion, are insufficient for any reason.
- The Iowa DOT's authorization to operate is withdrawn or there is a material alteration in the programs administered by the Iowa DOT.
- The Iowa DOT's duties are substantially modified.

Following a 30 day written notice, the Iowa DOT may terminate a binding agreement in whole or in part without the payment of any penalty or incurring any further obligation to the Supplier. Following termination upon notice, the Supplier shall be entitled to compensation upon submission of invoices and proper proof of claim for goods and services under contract up to and including the date of termination.

Schedule of Prices

**Project Description: Lighting Installation at 6 Various Garage Locations
Albia, Bloomfield, Council Bluffs, Mount Pleasant, Urbana, Washington**

Locations are not tied.

Item No.	Description	Quantity	Unit/Price	Total Bid Amount
1	<p>Albia Garage 501 South C Street Albia, IA 52531</p> <p>Contractor to provide materials, demolition and labor to install IA DOT furnished lights as indicated in the plans and specifications 33 high bay, 6 wet location high bay. Contractor to furnish 5 workbench LED, 3 combination exit/emergency</p>	1	Lump/Sum	\$ _____
2	<p>Bloomfield Garage 20836 HWY 2, Bloomfield, IA 52537</p> <p>Contractor to provide as per plans (Base Bid) supply materials, demolition and labor for the following fixtures 33 high bay LED, 6 wet locations high bay LED, 5 workbench LED, 3 combination exit/ emergency, this includes miscellaneous install and materials for circuit new fixtures.</p>	1	Lump/Sum	\$ _____
2A	<p>Alt1- E1 for Bloomfield Contractor to provide alternate (1) as per plans LED fixtures as scheduled on the Drawings. All other aspects of the work remain the same.</p>	1	Lump/ Sum	\$ _____
3	<p>south Council Bluffs Garage 3540 South Express Way Council Bluffs, IA 51502</p> <p>Contractor to provide materials, demolition and labor to install IA DOT will furnish 43 high bay, 9 wet locations high bay. Contractor furnished 8 work bench led, 3 combination exit/ emergency</p>	1	Lump/Sum	\$ _____
4	<p>Mt Pleasant Garage 906 East Harvest Dr Mt Pleasant, IA 52641</p> <p>Contractor to provide materials, demolition and labor to install, IA DOT furnished 42 high bay, 9 wet locations high bay. Contractor to furnish 8 workbench LED, 3 Combination exit/ emergency</p>	1	Lump/Sum	\$ _____

5	Urbana Garage 5397 31 st Street Urbana, IA 52345 Contractor to provide materials, demolition and labor to install IA DOT to furnished 60 high bay, Contractor to furnish 18 wet location high bay. Contractor to furnish 10 workbench LED, 4 Combination exit/ emergency	1	Lump/Sum	\$ _____
6	Washington Garage 1148 East 11 th Street Washington, IA 52323 Contractor to provide materials, demolition and labor to install IA DOT furnished lights as indicated in the plans and specifications. IA DOT furnished 61 high bay, 6 wet location high bay. Contractor to furnish 12 work bench LED, 3 Combination exit/ Emergency.	1	Lump/Sum	\$ _____

I hereby certify that this Bid Response meets or exceeds the minimum requirements including specifications and addendums.

Contact Person: _____

(Print Name)

Contractors
Registration No _____

Email: _____

Authorized
Signature:

Company:

Address:

(City) (State) (Zip Code)

Phone No: _____

Fax No.: _____

I acknowledge receipt of addendums: _____

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Section 1 Introduction

1.1 Purpose & Overview of the RFB Process

The purpose of this Request for Bid (RFB) is to solicit Bid Responses from responsible, responsive Bidders to provide the goods and/or services identified on the RFB cover page and described further in Section 3 of this RFB. The Iowa DOT intends to award a contract(s) beginning and ending on the dates listed on the Procurement Timetable. The Iowa DOT may renew the contract(s) for up to the number of annual extensions identified on the Procurement Timetable at the sole discretion of the Iowa DOT. Any contract(s) resulting from the RFB shall not be an exclusive contract.

Bidders will be required to submit Bid Responses according to the Procurement Timetable. The Iowa DOT will evaluate all responsible Bidders that submit timely responsive Bid Responses to be considered for award.

OverView

The Iowa Department of Transportation is seeking Contractors to provide lighting upgrades to 6 different Garage locations in Iowa. The IA DOT will be providing lights in various quantities, in various locations, as well as needing the Contractors to provide materials, demolition and labor in various locations as per the specifications and plans.

All Contractors need to be aware that the plans are original plans and over the years lighting changes may have occurred which are not depicted on the original plans. IA DOT has including photos of each location to help contractors have a better understanding of what currently exists and any potential obstructions that need to be worked around.

The plans call for vendors to visit the sites prior to bidding, in the event you have already visited the sites during the first letting under **proposal 15801** and you feel your bid response is accurate and free of changes you may email Jody McNaughton prior to 4:00 p.m. on March 15, 2016, indicating your Company has no changes in your bid response from letting 15801 and you will continue to honor the pricing.

If DOT receives your written response we will accept this as your bid response to **proposal 16119**.

The DOT does highly recommend contractors visit the sites prior to bidding however it is not mandatory and we will accept bid responses based on the plans, specifications and current photos supplied.

1.2 Definitions

The terms used in individual sections of this document are intended to be consistent with those commonly used in the application field in question. When responding, use the terms and acronyms used in this document, and define any terms or conditions that require further clarification.

1.2.1 “Bid Response” means the bid document submitted by the bidder in response to the RFB.

1.2.2 “Contract” or “Resulting Contract” means the contract(s) entered into with the successful Bidder(s) as described in section 4.

1.2.3 “Bidder” means individual, company or entity submitting a response in response to the RFB.

1.2.4 “Iowa DOT” means the Iowa Department of Transportation.

1.2.5 “Participating Agency” or “Participating Agencies” means the all state boards, and commissions, and any political subdivisions as identified on the RFB

cover sheet as Participating Agencies and any other agency that decides to utilize the executed contract.

1.2.6 “Procurement Timetable” *(on the page immediately following the RFB cover)* provide timeline, event and date information.

1.2.7 “Purchase Order” means the documentation issued by the State to the Contractor for a purchase of goods and/or services in accordance with the terms and conditions of the Contract. It may include an identification of the items to be purchased, the delivery date and location, the address where the supplier should submit the invoices, and any other requirements deemed necessary by the State. Any preprinted contract terms and conditions included on Bidder’s forms or invoices shall be null and void.

1.2.8 “Responsible Bidder” means a bidder that has the capability in all respects to perform the requirements of the Bid Proposal specifications. In determining whether a Bidder is a responsible, responsive Bidder, the Iowa DOT may consider various factors including, but not limited to, the Bidder’s competence and qualifications to provide the goods or services requested, the Bidder’s integrity and reliability, the past performance of the Bidder relative to the quality of the goods or services offered by the Bidder, the proposed terms of delivery, and the best interest of the Iowa DOT and Participating Agencies.

1.2.9 “RFB” means Request for Bid and any attachments, exhibits, schedules or addenda hereto. A written response by a Bidder shall be considered a bid and referred to as a Bid Response.

1.2.10 “State” means the Iowa DOT, State of Iowa, and Participating Agencies identified on the title page and all state agencies, boards, and commissions, and any political subdivisions making purchases off of the resulting Contract as permitted by this RFB.

1.2.11 “Subcontractor” Includes every person furnishing material, equipment or performing labor as a sublet of any part of contract.

1.3 General

1.3.1 Owner:

The Owner of these projects is the Iowa Department of Transportation, 800 Lincoln Way, Ames, Iowa 50010.

Project Location: Six (6) different project locations as identified in the schedule of prices.

1.4 Bidding Documents

1.4.1 Addenda

- Addenda, if issued, will be posted to the Iowa DOT’s website. All addendums must be acknowledged by bidders and included in the Bid Response.
- All addenda so issued shall become part of the contract documents.

1.4.2 Withdrawal Period

Prime Contractors, subcontractors and material suppliers on these projects agree to guarantee their proposal costs and work to be performed for a period of thirty (30) days after the date of receipt of bids.

Section 2 Administrative Information

2.1 Issuing Agent

The Issuing Agent, identified on the cover page is the sole point of contact regarding the RFB from the date of issuance until the notice of intent to award is issued (selection of the successful contractor).

2.2 Restriction on Communication

From the issue date of this RFB until the notice of intent to award is issued (announcement of the successful bidder), bidders may contact only the Issuing Agent.

The Issuing Agent will respond only to questions regarding the procurement process. Questions related to the interpretation of this RFB must be submitted in writing to the Issuing Officer by the deadline found in the Procurement Timetable listed immediately after the cover sheet. Verbal questions related to the interpretation of this RFB will not be accepted. Questions related to the interpretation of this RFB must be submitted as provided in section 2.5. Contractors may be disqualified if they contact any state employee other than the Issuing Agent. *Exception: Contractors may contact the State Targeted Small Business Office on issues related to the preference for Targeted Small Businesses.*

In NO CASE shall verbal communication override written communications. Only written communications are binding on the State.

The Iowa DOT assumes no responsibility for representations concerning conditions made by its officers or employees prior to the execution of a contract, unless such representations are specifically incorporated into this RFB. Verbal discussions pertaining to modifications or clarifications of this RFB shall not be considered part of the RFB unless confirmed in writing. All such requests for clarification shall be submitted in writing. Any information provided by the Contractor verbally shall not be considered part of that Contractor's proposal. Only written communications from the Contractor and received by the Department shall be accepted.

With the exception of the written Bid Response which must be submitted by Contractors in accordance with Section 2 herein, communications between the Issuing Agent and Contractors may be conducted by regular prepaid US mail, courier service, e-mail or facsimile transmission.

2.3 Downloading the RFB from the Internet

All correspondence for this Bid Proposal will be posted on the Iowa DOT's website at www.iowadot.gov/purchasing/lettingschedule. **Bidders are required** to visit the Iowa DOT's home page periodically for any and all addendums or other pertinent information regarding this bid opportunity.

2.4 Procurement Timetable

The dates listed in the Procurement Timetable (on the page immediately following the RFB cover) are set forth for informational and planning purposes; however, the Iowa DOT reserves the right to change the dates. If a change is made to any of the deadlines for Contractor submission, the Iowa DOT will issue an addendum to the RFB. All times listed are Central Times.

2.5 Questions, Requests for Clarification, and Suggested Changes

Contractors are invited to submit written questions and requests for clarifications regarding the RFB during the time indicated in the Procurement Timetable. Contractors may also submit suggestions for changes to the requirements of this RFB. The questions, requests for clarifications or suggestions must be in writing and received by the Issuing Agent on or before the deadline stated in the Procurement Timetable. Oral questions will not be permitted. If the questions, requests for clarifications, or suggestions pertain to a specific section of the RFB must be referenced.

Written responses to questions, requests for clarifications or suggestions will be posted on or before the deadline stated in the Procurement Timetable and posted on the Iowa DOT's website (see Section 2.3) If the Iowa DOT decides to adopt a suggestion, the Iowa DOT will issue an addendum to the RFB.

The Iowa DOT assumes no responsibility for verbal representations made by its officers or employees unless such representations are confirmed in writing and incorporated into the RFB.

Each bidder must inform themselves fully of the conditions relating to the proposal. Failure to do so will not relieve a successful bidder of their obligation to furnish all services required to carry out the provisions of his contract. Insofar, as possible, the Contractor, in carrying out the work, must employ such methods or means as will not cause any interruption of, or interference with the work of any other contractor.

If a bidder discovers any significant ambiguity, error, conflict, discrepancy, omission, or other deficiency in this RFB, the bidder should immediately notify the Issuing Agent in writing of such error and request modification or clarification of the RFB document.

2.6 Revisions to Contractor Bid Response

Contractors who submit Bid Proposals in advance of the bid opening date may withdraw, modify, and resubmit Bid Proposals at any time until the bid opening date and time. Contractors must notify the Issuing Agent in writing if they wish to withdraw their Bid Response. A Contractor shall not withdraw its Bid Response or its prices prior to the end of the one hundred and eighty (180) day period immediately following the notice of intent to award a contract.

2.7 Submission of Bid Responses

The Iowa DOT must receive Bid Responses addressed to the Department of Transportation, Purchasing Section, 800 Lincoln Way, Ames, Iowa 50010 before the deadline stated in the Procurement Timetable. **This is a mandatory requirement and will not be waived by the Iowa DOT.** Any Bid Response received after this deadline will be rejected and returned unopened to the contractor.

Contractors mailing Bid Responses must allow ample mail delivery time to ensure receipt by the Iowa DOT on or before the due date. Postmarking by the due date will not substitute for actual receipt of the Bid Response.

Electronic mail and faxed Bid Responses will not be accepted.

Contractors must furnish all information necessary to evaluate the Bid Response. Bid Responses that fail to meet the mandatory requirements of the RFB will be disqualified. Verbal information provided by the Contractor shall not be considered part of the Contractor's Bid Response.

2.8 Bid Response Opening

The Iowa DOT will open Bid Responses on the date and time stated in the Procurement Timetable. Bid Responses will remain confidential until a bid tabulation has been posted on the Iowa DOT's website for all bidders to view the results in the form of "Intent to Award" See Iowa Code Section 72.3.

The names of the Contractors who submit compliant Bid Responses within the time frame permitted will be available for public review after the contract has been awarded.

2.9 Costs of Preparing the Bid Response

The costs of preparation and delivery of a Bid Response are solely the responsibility of the Contractor.

No payments shall be made by the State to cover costs incurred by any Contractor in the preparation of or the submission of this RFB or any other associated costs.

2.10 Reasonable Accommodations

Upon request, the Iowa DOT will provide reasonable accommodations, including the provision of informational material in an alternative format, for individuals with disabilities. If accommodations are required at time of a bid opening, contact the Issuing Agent designated on the cover page.

2.11 Rejection of Bid Responses

The Iowa DOT reserves the right to reject any or all Bid Responses, in whole or in part, received in response to this RFB at any time prior to the execution of a written contract. Issuance of this RFB in no way constitutes a commitment by the Iowa DOT to award a contract. This RFB is designed to provide Contractors with the information necessary to prepare a competitive Bid Response. This RFB process is for the Iowa DOT benefit and is intended to provide the Iowa DOT with competitive information to assist in the selection of a Contractor to provide services.

It is not intended to be comprehensive and each Contractor is responsible for determining all factors necessary for submission of a comprehensive Bid Response.

The Iowa DOT reserves the right to negotiate the terms of the contract, including the award amount, with the awarded Contractor prior to entering into a contract. If contract negotiations cannot be concluded successfully, the Iowa DOT reserves the right to negotiate a contract with the next lowest Bidder.

2.12 Disqualification

The Iowa DOT may reject outright and shall not evaluate proposals for any one of the following reasons:

2.12.1 The Contractor states that a requirement of the RFB cannot be met.

2.12.2 The Contractor's Bid Response materially changes a requirement of the RFB or the Bid Response is not compliant with the requirements of the RFB.

2.12.3 The Contractor's response limits the rights of the Iowa DOT.

2.12.4 The Contractor fails to include a *proposal guarantee*, also known as bid bond or bid security, *if required*. See Bid Response cover page and **Section 2.33**.

2.12.5 The Contractor fails to include any signature, certification, authorization, stipulation, disclosure or guarantee (if required).

2.12.6 The Contractor presents the information requested by this RFB in a format inconsistent with the instructions of the RFB or otherwise fails to comply with the requirements of this RFB.

2.12.7 The Contractor initiates unauthorized contact regarding the RFB with state employees.

2.12.8 The Contractor provides misleading or inaccurate responses.

2.12.9 The Contractor fails to attend the mandatory Contractors Conference or Pre-Bid meeting.

2.12.10 The Contractor's Bid Response is materially unbalanced.

2.12.11 There is insufficient evidence (including evidence submitted by the Contractor and evidence obtained by the Iowa DOT from other sources) to satisfy the Iowa DOT that the Contractor is a "Responsible Contractor".

2.12.12 The Contractor alters the Bid Proposal language in any way.

2.13 Nonmaterial and Material Variances

The Iowa DOT reserves the right to waive or permit cure of nonmaterial variances in the Bidder's Bid Response if, in the judgment of the Iowa DOT, it is in the Iowa DOT best interest to do so. Nonmaterial variances include minor informalities that do not affect responsiveness; that are merely a matter of form or format; that do not change the relative standing or otherwise prejudice other Contractors; that do not change the meaning or scope of the RFB; or that do not reflect a material change in the services. In the event the Iowa DOT waives or permits cure of nonmaterial variances, such waiver or cure will not modify the RFB requirements or excuse the Contractor from full compliance with RFB specifications or other contract requirements if the Contractor is awarded the contract. The determination of materiality is in the sole discretion of the Iowa DOT.

2.14 Reference Checks

The Iowa DOT reserves the right to contact any reference to assist in the evaluation of the Bid Response, to verify information contained in the Bid Response and to discuss the Contractor's qualifications and the qualifications of any subcontractor identified in the bidders Bid Response.

2.15 Information From Other Sources

The Iowa DOT reserves the right to obtain and consider information from other sources concerning a Contractor, such as the Contractor's capability and performance under other contracts, the qualifications of any subcontractor identified in the Contractor's Bid Response, specifically, the Contractor's financial stability, past or pending litigation, and publicly available information.

2.16 Verification of Bid Response Contents

The content of a Bid Response submitted by a Contractor is subject to verification. Misleading or inaccurate responses shall result in disqualification and rejection of the Bid Response.

2.17 Criminal History and Background Investigation

The Contractor hereby explicitly authorizes the Iowa DOT to conduct criminal history and/or other background investigation(s) of the Contractor, its officers, directors, shareholders, partners and managerial and supervisory personnel retained by the Contractor for the performance of the contract.

2.18 Bid Response Clarification Process The Iowa DOT reserves the right to contact a Contractor after the submission of Bid Response for the purpose of clarification to ensure mutual understanding.

This contact may include written questions, interviews, site visits, a review of past performance if the Contractor has provided goods or services to the Iowa DOT or any other political subdivision wherever located, or requests for corrective pages in the Contractor's Bid Response. The Iowa DOT will not consider information received if the information materially alters the content of this Bid Proposal or alters the type of goods and services the Contractor is offering to the Iowa DOT. An individual authorized to legally bind the Contractor shall sign responses to any request for clarification. Responses shall be submitted to the Iowa DOT within the time specified in the Iowa DOT request. Failure to comply with requests for additional information may result in rejection of the Bid Response as non-compliant.

2.19 Disposition of Bid Responses

At the conclusion of the selection process, the contents of all Bid Responses will be in the public domain and be open to inspection by interested parties except for information for which Contractor properly requests confidential treatment or is subject to exceptions provided in Iowa Code Chapter 22 or other applicable law.

2.20 Public Records and Requests for Confidential Treatment

The Iowa DOT may treat all information submitted by a Contractor as public information following the conclusion of the Intent to Award. Iowa DOT release of information is governed by Iowa Code chapter 22. Contractors are encouraged to familiarize themselves with chapter 22 before submitting a Bid Response. The Iowa DOT will copy and produce public records as required to comply with the public records laws.

2.21 Release of Claims

By submitting a Bid Response, the Contractor agrees that it will not bring any claim or cause of action against the Iowa DOT based on any misunderstanding concerning the information provided herein or concerning the Iowa DOT failure, negligent or otherwise, to provide the Contractor with pertinent information as intended by this RFB.

2.22 Award Notice and Acceptance Period

Notice of intent to award will be posted on the Iowa DOT's website at www.iowadot.gov/purchasing/bidaward. Final negotiation and execution of the contract(s) shall be completed no later than thirty (30) days from the date of the Notice of Intent to Award or such other time as designated by the Iowa DOT.

If the successful Contractor fails to negotiate and deliver an executed contract by that date, the Iowa DOT in its sole discretion may cancel the award and redirect the contract to the next lowest bidder meeting the specifications.

2.23 No Contract Rights until Execution

The full execution of a written contract shall constitute the making of a contract for services and no Contractor shall acquire any legal or equitable rights relative to the contract services until the contract has been fully executed by the successful Contractor and the Iowa DOT.

2.24 Restrictions on Gifts and Activities

Iowa Code Chapter 68B restricts gifts which may be given or received by state employees and requires certain individuals to disclose information concerning their activities with state government. Contractors are responsible to determine the applicability of this Chapter to their activities and to comply with the requirements. In addition, pursuant to Iowa Code section 722.1, it is a felony offense to bribe or attempt to bribe a public official.

The laws of Iowa provide that it is a felony to offer, promise, or give anything of value or benefit to a state employee with the intent to influence that employee's acts, opinion, judgment or exercise of discretion with respect to that employee's duties. Evidence of violations of this statute will be submitted to the proper prosecuting attorney.

2.25 No Minimum Guaranteed

The Iowa DOT anticipates that the selected Contractor will provide services as requested by the Iowa DOT. The Iowa DOT will not guarantee any minimum compensation will be paid to the Contractor or any minimum usage of the Contractor's services.

2.26 Conflicts Between Terms

The Iowa DOT reserves the right to accept or reject any exception taken by the Contractor to the terms and conditions contained in this RFB. Should the Contractor take exception to the terms and conditions required by the Iowa DOT, the Contractor's exceptions may be rejected and the entire proposal declared nonresponsive. The Iowa DOT may elect to negotiate with the Contractor regarding contract terms that do not materially alter the substantive requirements of the request for proposals or the contents of the Contractor's Bid Response.

2.27 News Releases

No news releases or other materials pertaining to this procurement, or any part of this proposal, will be made available to the media or the public, the Contractor's clients or potential clients without the prior written approval of the Iowa DOT.

2.28 Pre-Bid Conference

If the Procurement Timetable indicates a Contractor's Pre-Bid Conference will be held in conjunction with this RFB, it will be held at the date, time, and location listed on the Procurement Timetable immediately following the cover page. If Attendance at the Contractor's Pre-Bid Conference is a mandatory requirement to submit a Bid Response, it will be indicated on the Procurement Timetable. The purpose of the Pre-Bid conference is to discuss with prospective Contractors the work to be performed and allow prospective Contractors an opportunity to ask questions regarding the RFB. Verbal discussions at the Pre-Bid conference shall not be considered part of the RFB unless confirmed in writing by the Iowa DOT and incorporated into this RFB. The conference may be recorded. Questions asked at the conference that cannot be adequately answered during the conference may be deferred.

A copy of the questions and answers will be posted on the DOT website for viewing.

In an effort to seek competitive bids the DOT reserves the right to schedule a second pre-bid meeting in the event only one or no vendors are in attendance at the scheduled mandatory pre-bid. The Potential bidder in attendance at the scheduled pre-bid will not be required, but is welcome to attend the second pre-bid if they choose.

2.29 Contractors Responsibilities

2.29.1 Codes, Laws and Regulations

The laws of the State of Iowa in relation to and pertaining to public improvements shall apply to these projects. All construction, materials and methods shall comply with the State and Local Building Codes and with Local Ordinances, except where plans and specifications establish a higher standard.

2.29.2 Licenses, Permits and Inspections

The Bidders shall comply with all codes, laws, ordinances, rules and regulations of any public authority having jurisdiction that bears on the performance of its work. Bidders shall pay for all licenses, permits and inspection fees required for its work. Bidders must furnish copies of all approved inspection certificates and approvals from authorities having jurisdiction in a timely fashion upon completion of the work.

2.30 Consideration of Bids

2.30.1 Rejection of Bids

The Iowa DOT reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Iowa DOT that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.

2.30.2 Qualification of Bidder

The Iowa DOT may make such investigations as they deem necessary to determine the ability of the Bidder to perform the required work, and the bidder shall furnish to the Iowa DOT all such information and data for this purpose as the Iowa DOT may request.

2.31 Performance and Payment Bonds

2.31.1 Bonds

If the contracted estimated value is \$25,000 or more, the successful Bidder shall furnish bonds covering the faithful performance of 100% of the Contract and the payment of all obligations arising thereunder. One copy of the bond shall be submitted on Iowa Department of Transportation **Form 131070**. All items must be properly filled in, including Bidder's signature. Resident commission agent or attorney-in-fact must file a copy of the power of attorney.

2.31.2 Power of Attorney

Attorney-in-fact who signs the Proposal Guarantee, Performance Bond, and Labor and Material Payment Bond must file with each bond a certified and effectively dated copy of the Power of Attorney.

2.32 Labor Regulations

All Bidders, before entering into a contract with the Department, must be registered with the Division of Labor in the Iowa Department of Workforce Development (515-281-3606) according to chapter 91C, Code of Iowa 2015. This pertains to contractor's who engage in the business of construction.

2.33 Bid Bond

If required each bid must be supported by a Bid Bond in the sum indicated on the Bid Response cover page. See Standard Terms and Conditions included in the Bid Proposal section A-3.

Certified checks and credit union share drafts shall be certified, or the cashier's check shall be drawn and endorsed, in an amount not less than indicated in the Bid Proposal. If a Bid Bond is submitted, it must be submitted on **Iowa DOT Form No. 131084 or bid will be rejected.**

The Bid Bond from the qualified responsive low bidder will be retained until a contract is entered into and the required Bonds and Insurance Certificates are filed. All other bid securities will be returned after the award has been made.

Section 3 General Requirements

3.1 Scope of Work

- 3.1.1 Successful Bidder shall be required to provide all materials, labor, and equipment necessary for the lighting upgrade projects for the following DOT garage locations in Iowa. Albia, Bloomfield, Council Bluffs, Mt. Pleasant, Urbana, Washington. These locations are not tied together.

The project consists of modifying the existing lighting system as specified in the specifications and plans for the following locations **Albia, Bloomfield, South Council Bluffs, Mt. Pleasant, Urbana and Washington.**

Contractors will be responsible for being in compliance with applicable codes and requirements of governmental authorities having jurisdiction.

Contractors to provide all materials, labor, equipment, and miscellaneous materials for a fully functional lighting system as indicated in the specifications and plans including:

- Demolition and disposal of selected existing lighting fixtures and associated switches.
- Installation of Owner furnished lighting fixtures as identified below
- Furnish and install new lighting fixtures and lamps, furnished by the contractor, as noted on the plans and identified below
- Provide hanger materials and fixture whips for all fixtures, except emergency/exit fixtures, as noted on the plans.
- Provide an extension of existing lighting circuits and associated materials. Furnish and install new lighting switches in existing locations.

Albia IA DOT furnished lights (33) high bay, (6) wet location high bay
Contractor furnished (5) workbench LED, (3) combination exit/emergency

Bloomfield -Contractor to provide as per plans (Base Bid) supply materials, demolition and labor for the following fixtures (33) high bay LED, (6) wet locations high bay LED, (5) workbench LED, (3) combination exit/ emergency, this includes miscellaneous install and materials for circuit new fixtures.

Bloomfield Alt1-Contractor to provide alternate (1) as per plans LED fixtures as scheduled on the Drawings. All other aspects of the work remain the same.

Council Bluffs IA DOT furnished lights (43) high bay, (9) wet locations high bay.
Contractor furnished (8) work bench led, (3) combination exit/ emergency

Mount Pleasant IA DOT furnished (42) high bay, (9) wet locations high bay.
Contractor to furnish (8) workbench LED, (3) Combination exit/ emergency

Urbana IA DOT to furnished (60) high bay,
Contractor to furnish (18) wet location high bay.
(10) workbench LED, (4) Combination exit/ emergency

Washington IA DOT furnished (61) high bay, (6) wet location high bay.
Contractor to furnish (12) work bench LED, (3) Combination exit/ Emergency.

3.2 Adoption of General Conditions

- 3.2.1 The General Requirements of this Contract shall include the "General Conditions", "Plans and Specifications" and any and all requirements of this RFB, as herein stated.

3.2.2 "THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION", A.I.A. FORM #A-201, LATEST EDITION AND A.I.A. DOCUMENT, "INSTRUCTIONS TO BIDDERS", FORM #A-701, LATEST EDITION, SHALL BE INCLUDED, AS MODIFIED IN THE "SUPPLEMENTARY INSTRUCTIONS TO BIDDERS" AND "SUPPLEMENTARY GENERAL CONDITIONS", AND BOUND WITH THE STANDARD FORM OF AGREEMENT BETWEEN THE CONTRACTOR AND OWNER", A.I.A. FORM #101, LATEST EDITION, AS A PART OF THIS CONTRACT SPECIFICATION.

3.2.3 All bidder information and conditions, bid check lists and similar documents included in the specifications issued by the Iowa DOT, Ames, Iowa are hereby made a part of the General Conditions.

3.3 Contractor Response

3.3.1 Guidelines

- Contractors shall comply with Iowa Occupational Safety and Health Standards as found in 29 C FR Parts 1910 and 1926. Of particular importance are those standards referring to the use of personal protective equipment (PPE), fall protection and ventilation.
- Contractor may be required to make available to the Iowa DOT all Material Safety Data Sheets (MSDS) for all products provided at time the apparent low bidder has been determined. MSDS shall be sent to the Issuing Agent (when applicable) prior to issuance of the contract.

3.3.2 Guarantee

The Contractor shall guarantee all work executed under this contract, both as the workmanship and materials, for a period of twelve (12) months after the substantial completion date. Neither the final payment nor any provision of the contract documents shall relieve the Contractor of responsibility for faulty materials or workmanship. The Contractor shall remedy any defect thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from the date of the final acceptance. With one month remaining in the guarantee period, the Contractor shall notify the Iowa DOT and set up a complete walk-through inspection.

- All materials, items of equipment, and workmanship furnished under this division of the specifications shall carry the standard warranty against all defects in material and workmanship. Any fault due to defective or improper material, equipment, or workmanship which may develop, shall be made good, forthwith.
- The Guarantee shall include, but not be limited to the following elements and services:
 - a. Repair or replace defective materials, equipment, workmanship and installation that develops within the guarantee period, promptly and to Iowa DOT's satisfaction and correct damage caused in making necessary repairs and replacements, including all other damage done to areas, materials, and other systems resulting from the failure or defect, under guarantee by and at the expense of the Contractor.

- b. Replace material or equipment that requires excessive service during guarantee period, as defined and as directed by the Iowa DOT.
- c. Make all service calls, replacements, repairs and adjustments during the guarantee period without cost to the Iowa DOT.

3.3.3 Use of Premises

- All Contractors shall confine all apparatus, storage of materials and construction to areas as directed by the Iowa DOT and shall not encumber the premises with materials.
- Notwithstanding any approvals or instructions which must be obtained by the Contractors from the Iowa DOT in connection with use of premises, the responsibility for the safe working conditions at the site shall remain that of the Contractors.

3.3.4 Inspection and Supervision

- All work shall be according to the approved design and shall be under the direct supervision of the Iowa DOT.
- Periodic site inspections will be carried on by the Iowa DOT with the Contractor to ensure coordination of the project.
- The Iowa DOT will provide a list of items requiring inspection prior to or during installation. The Contractor is to give the Iowa DOT notice no less than 24 hours in advance of installation.
- The Iowa DOT contact after the contract is awarded shall be: Daniel Apatiga

3.3.5 Contractors Construction Schedule

The Successful Bidder will, at the pre-construction meeting, submit a detailed construction schedule including dates of commencement and completion on each phase of the proposed construction. Upon acceptance of the schedule, the Contractor will be expected to adhere to these dates as proposed.

3.3.6 Verifying Work of Other Contractors

- When a Contractor's work depends on proper execution of work by other contractors, such Contractor shall promptly report to the Iowa DOT project lead any defects in such work and/or discrepancies between executed work plans, drawings or specifications.
- Contractors shall employ such methods and means in carrying out work as will not cause interruption or interference with any other Contractor. General Contractors shall give other Contractors sufficient notice to permit installation of sleeves, piping, conduit, and other items, prior to placing concrete or laying masonry. Any Contractor failing to comply with above shall be responsible for expense caused by such failure.

3.4 Sub-Contractors

- Specific attention shall be given by the Contractor to Article 5 of the A.I.A. Document A-201, "The General Conditions of the Contract for Construction".
- The Successful Bidder for the project shall furnish the Iowa DOT with a complete list of subcontractors, schedule of values, and major material suppliers at the pre-construction meeting.
- The Iowa DOT shall approve and maintain the list of subcontractors and major suppliers and issue a general approval of same after official award of the contract, subject to the specific requirements of the Plans, Specifications and the "General Conditions of the Contract, and of these supplementary Conditions," "Special Provisions," and elsewhere with contract documents, as applicable. Deviations from the list of subcontractors and material suppliers shall be made only with the specific approval of, or at the request of the Iowa DOT.

3.5 Protection of Persons and Property

3.5.1 Safety and Health Regulations

The Contractor, serving in the role of the employer for the project, shall exercise at all times the protection of all persons and property. Contractor shall comply with all requirements of the Occupational Safety and Health Act of 1970, Iowa Bureau of Labor and all applicable state and municipal laws, as well as building and construction codes. It is the Contractor's responsibility to enforce all regulations that apply to these projects.

3.5.2 Protection of Site

The Contractor shall furnish all permanent and temporary guards, signs, fencing, shoring, and underpinning and other protection necessary in the performance of the contract and for the necessary protection of all public and private property and shall be responsible for any damage caused by failure to comply with this requirement.

- After building operations are completed, the Contractor shall replace or satisfactorily repair all damaged walks or pavements which shall have become damaged due to operations of these projects.
- The Contractor shall take care of all underground pipes, conduits, etc., encountered in the excavations, and protect same from damage until such time as they can be permanently disposed of.
- The Contractor shall continuously maintain adequate protection of all work from damage and shall protect the Owner's property and adjacent property from damage arising in connection with this contract.

3.6 Miscellaneous Provisions

3.6.1 Iowa State Building Code

- All construction under this section shall conform to the requirements of the Iowa State Building Code. The provisions of the Iowa State Building Code will be strictly adhered to, and will take precedence over any local Governmental Body Regulations. Work not regulated by the Iowa State Building Code shall be performed in accordance with local Governmental

3.6.2 Discriminatory Practices

- All Contractors or subcontractors working under the terms of these projects are prohibited from engaging in discriminatory employment practices as forbidden by the Iowa Civil Rights Act of 1965. These provisions shall be fully enforced, as directed through Executive Order Number 34 dated July 22, 1988. Any breach of the provisions contained in the Iowa Civil Rights Acts of 1965 shall be regarded as a material breach of contract.
- Bidder agrees that if awarded a contract to construct and/or remodel any portion of the project described in these Specifications, neither the Contractor nor any subcontractors will engage in any discriminatory employment practices based on race, color, creed, religion of natural origin and that they will in all contracts comply with all statutes of the State of Iowa against discrimination. Failure to do so could be deemed a material breach of contract.

3.7 Contractor Responsibilities.

3.7.1 Pre- bid / Site Visit Put an X in the applicable box.

- Mandatory Pre-bid with site visit is required. Prospective bidders must attend this meeting if they are interested in participating in this bid proposal.
- Non- Required Pre- bid meeting with site visit. This is not a mandatory meeting but is highly recommended that prospective bidders attend the following scheduled meeting where DOT staff will be available. To address any questions or concerns regarding the project.
Pre-bid Date: **Time:** **Location:**
(In cases where DOT staff have to travel it is acceptable to ask that interested bidders contact the purchasing agent by a certain date and time to avoid traveling and having nobody attend.)
- No Pre-bid meeting is scheduled
- Site Visit Only- Any prospective bidder interested in visiting a DOT site **MUST** seek prior approval through the project manager. Please contact (Jody McNaughton 1-515-239-1298) to schedule an appointment prior **March 14, 2016.**
- No considerations or revision in the contract price or scope of the project will be considered by the Iowa DOT for any item which could have been revealed by a thorough on-site inspection and examination or pre- bid meeting.

3.7.2 Conditions of Work

Bidders must inform themselves fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve successful bidders of their obligation to furnish all material and labor necessary to carry out the provisions of this contract. Insofar as possible, the Contractor, in carrying out the work, must employ such methods or means as will not cause any interruption of, or interference with the work of any other Contractor.

3.7.3 Obligation

At the time of the bid opening, each bidder will be presumed to have read and become thoroughly familiar with the drawings, specifications, and other contract documents, including all addenda.

Bidders are responsible for the proper submission of bids. Omissions by a bidder to examine a form, instrument, or document shall in no way relieve that bidder from any obligations in respect to their bid.

3.8 Bid Proposal Documents

3.8.1 Plans and Specifications

Electronic Plans and specifications are available on the Iowa DOT's website, www.iowadot.gov/purchasing. The Bidder is responsible for all copies of plans and specifications necessary for the execution of the work.

In the event of a conflict between the specifications and the drawings, the specifications shall take precedence.

3.8.2 Materials and Equipment

Manufacturers and products, in addition to those specifically listed, may be acceptable when it is proven to the satisfaction of the Iowa DOT that:

- A. The level of quality proposed is equal to or better than that of the referenced manufacturer/Bidder's quality.
- B. The technical characteristics of the proposed product meet or exceed the requirements of the drawings and specifications.
- C. The use of the materials or equipment does not require major revisions of the drawings and specifications to permit their use.
 - Any additional cost in other work incurred as a result of these approvals shall be borne by the Contractor, including all costs for modifying other related materials/systems and the cost of any additional engineering or design fees required to accommodate the substitution/approval.
 - Contractors must be confident that a proposed product or material meets or exceeds the requirements shown on the drawings and specifications. It will be the responsibility of the Contractor to verify and demonstrate that a proposed product meets or exceed the drawings and specifications at time of shop drawing reviews. If a proposed product or material is determined to be technically unacceptable as judged by the Iowa DOT, the Contractor shall be required to supply products or materials that meet the requirements required to supply products or materials that meet the requirements

stated in the drawings and specifications at no cost increase to the Iowa DOT. Under no circumstances will the Iowa DOT be required to prove that proposed substitutions is not equal to the project requirements. The decision of the Iowa DOT on all requested proposals/substitutions is final.

- 3.8.3** Alternates or exceptions must be evaluated prior to the letting date listed in this proposal.

Section 4 Contract Terms & Conditions

4.1 Contract Award

It is the intent of the Iowa DOT to award the contract to the responsible bidder whose submitted quotation is the most advantageous to the Iowa DOT, cost and other factors considered. Other factors include, but are not limited to: meeting or exceeding mandatory requirements, proposed staffing, and meeting required time schedule.

These locations are not tied so awards will be also based on the Maintenance Facility Garage Location.

Bid price will include all requirements listed in Section 3 to complete this proposed project. The Prime Contractor shall be responsible for taking all sub-bids and for all coordination between trades.

A "Prime" contract shall be awarded for each project for all work shown on the Drawings and described in the Specifications including Site work, General construction, Demolition, Plumbing, Mechanical, Energy management and control and Electrical work. The Prime Contractor shall be responsible for taking all sub-bids and for all coordination between trades.

Protests of award recommendations shall be made in accordance with Paragraph 761--20.4(6)"e", Iowa Administrative Code.

4.2 Contract Period

See Bid Proposal timeline for dates. The date of completion shall be stated in calendar days on the Bidder's Bid Response, and if necessary, adjusted by mutual agreement between the Iowa DOT and successful bidder prior to executing the contract documents.

The Iowa DOT realizes that deliveries and site conditions have a definite bearing on the completion date. The Iowa DOT will demand diligence in the prosecution of the work, but with good cause and satisfactory past performance by the Contractor, the Iowa DOT may revise the completion date to another mutually-acceptable date, when requested in writing and in good faith by the Contractor.

4.3 Liquidated Damages

Time is an essential component of the contract, and it is important that the work be completed on the or before the dates listed on the Procurement Timetable. For each calendar day that any work shall remain uncompleted beyond the substantial completion date and beyond the final completion date or any extension granted under Extension of Contract Period, the amount per calendar day specified in the Bid Response cover page will be assessed, not as a penalty but as predetermined and agreed upon liquidated damages. If work remains uncompleted on more than one portion for which calendar days and liquidated damages have been specified, the liquidated damages assessed will be the total of the damages per day listed for each uncompleted portion. The Iowa DOT shall prepare and forward to the Contractor an invoice or credit change order for such liquidated damages. The final payment shall be withheld until payment of the invoice has been made or the credit change order has been agreed upon.

Assessment of liquidated damages will be based only on the number of calendar days required to complete the contract beyond the contract completion date, plus authorized extensions.

The provision for the assessment of liquidated damages for failure to complete work within the contract period does not constitute a waiver of the Iowa DOT's right to collect any additional damages other than time delays, which the Iowa DOT may sustain by the failure of the Contractor to carry out the terms of the contract.

4.4 Immunity of Iowa Department of Transportation

The Contractor shall defend, indemnify and hold harmless the Iowa DOT and its officials and employees from liability arising out of or resulting from the Contractor's activities at the designated work site, its performance or attempted performance of the contract, as well as the Contractor's activities with Sub-Contractors and all other third parties.

4.5 Payments and Completion of Contract

4.5.1 Payments on contract will be made monthly by means of state warrants to the extent of ninety-five percent (95%) of the value of work performed, including acceptable material stored at the building site, as determined by the Contractor as governed by the Iowa DOT Standard Specifications for Highway and Bridges Construction, Series 2012 and General Supplemental Specifications.

4.5.2 At the Pre-Construction Conference, the contractor shall submit a schedule of values of the various parts of the work, aggregating the total sum of the contract, made out in such form as the Iowa DOT may direct and, if required, supported by evidence as to its correctness. This schedule, when approved by the Iowa DOT, shall be used as a basis for requests for payment.

4.5.3 Final payment shall be authorized not later than thirty (30) days following the completion and final acceptance of the contract, provided that the provisions herein and all other contract requirements have been fulfilled, accepted and approved, where no claims have been filed or following adjudication or release of claims as provided in Chapter 573 of the Code of Iowa.

4.5.4 No notification of payment being processed, no payment made to the Contractor, no partial payment, nor the entire use or occupancy of the work by the Iowa DOT shall be held to constitute an acceptance, in whole or in part, by the Iowa DOT prior to making the final payment and acceptance in full completion of the contract.

4.6 Insurance Requirements

Contractor's Insurance

- It shall be the Contractor's responsibility to have liability insurance covering all of the project operations incident to contract completion and the Contractor(s) must have on file with the Contracting Authority a current "Certificate of Insurance" prior to award of contract. The certificate shall identify the

insurance company firm name and address, contractor firm name, policy period, type of policy, limits of coverage, and scope of work covered (single contract or statewide). This requirement shall apply with equal force, whether the work is performed by persons employed directly by the Contractor(s) including a subcontractor, persons employed by a subcontractor(s), or by an independent contractor(s).

- In addition to the above, the Iowa DOT shall be included as an insured party, or a separate owner's protective policy shall be filed showing the Iowa DOT as an insured party.
- The liability insurance shall be written by an insurance company (or companies) qualified to do business in Iowa. For independent contractors engaged solely in the transportation of materials, the minimum coverage provided by such insurance shall be not less than that required by Chapter 325A, Code of Iowa, for such truck operators or contract carriers as defined therein. For all other contractors, subcontractors, independent contractors, and the Contracting Authority, the minimum coverage by such insurance shall be as follows:
 - Commercial General Liability including Contractual Liability;
 - Damage; Occurrence Basis Bodily Injury: Broad Form Personal Injury; Broad Form Property Damage.

Bodily Injury

The contractor will purchase and maintain throughout the term of this contract the following minimum limits and coverage:

- Each person \$750,000
- Each accident/occurrence \$750,000
- Workers Compensation \$750,000
- Statutory Limits \$750,000
- Employer's liability \$750,000
- Occupation Disease \$750,000

Operations

- Property Damage \$250,000 each occurrence

Builders Risk Insurance

- Each Contractor holding a valid contract with the Iowa DOT shall furnish and pay for builder's risk insurance, providing coverage for at least the following losses: fire, extended coverage, vandalism and malicious damage to materials incorporated in the project, and materials purchased to be incorporated in the project, either stored on or off the permanent job site. If this insurance coverage is not provided, the Contractor shall assume all responsibility for the perils outlined above which may occur prior to project completion and acceptance.
- Failure on the part of the Contractor(s) to comply with the requirements

of this Article will be considered sufficient cause to suspend the work, withhold estimates, and to deny the Contractor(s) any further contract awards, as provided in Article 1103.01.

- The Contractor(s) shall require all subcontractor(s) meet the above insurance requirements.

The Certificate of Insurance must include the following

- Iowa Department of Transportation must be listed as an additional insured
- Proposal Number
- Proposal Description
- Letting Date
- Contract Period

4.7 Public Contract Termination

The provisions of Iowa law as contained in Chapter 573A of the Code of Iowa, an Act to provide for termination of contracts for the construction of public improvements when construction or work thereon is stopped because of national emergency, shall apply to and be a part of this Contract, and shall be binding upon all parties hereto, including sub-contractors and sureties upon any bond given or filed in connection herewith.

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

SECTION INCLUDES

Basic Electrical Requirements specifically applicable to Division 16 Sections, in addition to Division 1 - General Conditions.

SUMMARY OF WORK

Modify the existing lighting system as specified herein, as shown on the Drawings, and in compliance with applicable codes and requirements of governmental authorities having jurisdiction.

Provide all materials, labor, equipment, and miscellaneous materials for a fully functional lighting system as shown on the Drawings and specified herein including:

- Demolition of selected existing lighting fixtures and associated switches.

- Installation of Owner furnished lighting fixtures.

- Furnish and install new lighting fixtures and lamps, furnished by the contractor, as noted on the Drawings.

- Provide hanger materials and fixture whips for all fixtures, except emergency/exit fixtures, as noted on the Drawings.

- Extension of existing lighting circuits and associated materials.

- Furnish and install new lighting switches in existing locations.

SPECIAL CONDITIONS

The project building will be occupied by the Owner and in normal use through standard business days and times (Monday-Friday, 7:00 AM -4:00 PM).

Work, including any significant power outage, must be performed without major disruption to the Owner's normal activities. As a result, work that requires or results in a power disruption must be performed during weekends, extended holiday weekends, and/or after 5:00 PM and before 6:00 AM.

Coordinate any proposed power outage(s) with the facility administrator.

Protect all Owner's equipment and fixtures from dust, dirt and debris using clean drop clothes, tarps, or other acceptable means.

SITE VISIT

Visit the project site to verify existing conditions prior to bidding.

DEMOLITION

Demolish existing lighting fixtures and associated switches as shown on the Drawings.

Note the requirement to verify existing conditions prior to bidding.

Include miscellaneous materials associated with the demolished items and not needed for the new installation.

Remove demolished materials from the site and dispose of properly. Comply with all applicable State and Local requirements regarding the disposal, with attention drawn to the disposal of lamps and ballasts.

CODES AND PERMITS

Apply and pay for state and/or local permits, in the name of the Owner.

Comply with all applicable provisions of codes and local requirements that pertain to this project. Know code and local requirements prior to bidding.

In the event of a conflict between the contract documents and a code requirement, the more stringent requirement applies.

Codes that apply to this project include, but are not limited to, the following:

National Electrical Code (2014)

Arrange for inspections by governmental authorities having jurisdiction.

NO SMOKING POLICY

The Owner requires that no smoking be permitted in any part of the building at any time.

PRIOR APPROVAL

When an item of equipment is given as a quality and performance standard, or when the phrase "or approved equal" appears, a manufacturer's representative of an unlisted item may submit for approval to bid as an equal to the listed item.

Include product specifications and other literature as required to demonstrate that the submitted product is at least equal to the listed item.

Submit Request for Prior Approval at least 10 days before the bid date to allow inclusion in an addendum.

SUBMITTALS

Submit shop drawings in conformance with requirements in Division 1.

Submit shop drawings for contractor-furnished fixtures, switches, and fixture hangers. Indicate the specific product proposed with all pertinent information shown to match that specified.

Submit shop drawings by email in Adobe pdf format files.

OPERATION AND MAINTENANCE MANUALS (O&M)

Submit operation and maintenance documents for contractor-furnished light fixtures and switches.

Submit two (2) copies of O&M manuals in vinyl covered 3-ring binders, with project title on the front cover and spine.

WARRANTY

Warrant the work to be free of defects for a period of one year from the date of Substantial Completion. Repair defects within the warranty period in a timely manner without additional charge to the Owner.

Do not warrant damage from improper maintenance or use by the owner.

QUALITY ASSURANCE

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

PART 2 – PRODUCTS

MATERIALS

Provide only products that are new, and of the type and quality specified.

UL APPROVAL AND LISTING

Provide only products that are approved and listed by Underwriter's Laboratories, Inc.

PART 3 - EXECUTION

INSTALLATION IN GENERAL

Coordinate scheduling of work with the Owner's local representative.

Do not disrupt power during normal business hours without first scheduling work with the Owner's local representative.

Provide all required slots, chases, and openings in the building structures. Do not cut structural members without the written permission of the Engineer.

Install fixtures in strict accordance with manufacturers' installation instructions and recommendations. Provide copies of these instructions in the O & M manuals.

Provide all structural supports and mounting accessories for fixtures.

Provide all required adjustments for proper operation of the electrical systems. Check all safety devices and associated wiring for safe and proper operation.

At the completion of the project provide thorough instruction to the Owner's personnel on the proper operation and maintenance of the modified electrical system.

CLEANING

Keep the premises clear of unnecessary accumulation of debris during the project. On completion, remove all rubbish and debris resulting from the work or the work of subcontractors and dispose of properly.

Clean all equipment and fixtures at the completion of the project of accumulated plaster, dust, or other dirt and leave in a condition satisfactory for use. Vacuum chips, insulation stubs, and other debris from all panelboards, switches, and other enclosures.

END OF SECTION

SECTION 16110**CONDUIT**PART 1 - GENERAL**SECTION INCLUDES**

Electrical metallic tubing and fittings.

Non-metallic conduit and fittings.

REFERENCES

ANSI C80.3 - Electrical Metallic Tubing, Zinc-Coated.

ANSI C80.4 - Fittings for Rigid Metal Conduit and Electrical Metallic Tubing

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

UL 514B - Fittings for Conduit and Outlet Boxes

UL 797- Electrical Metallic Tubing

NEMA TC 2 - Conduit (EPC-40 and EPC-80).

NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

NEC - National Electric Code (2014)

PART 2 - PRODUCTS**ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS**

EMT: galvanized tubing that conforms to UL 797 and ANSI C80.3. Conduit shall bear UL label.

Fittings and Conduit Bodies: conform to ANSI/NEMA FB 1 and UL 514B; steel, insulated throat compression or set screw type except in poured concrete or wet locations use only the compression type.

Cast or crimp (indent) type fittings are not acceptable.

RIGID NON-METALLIC CONDUIT AND FITTINGS

Conduit: Schedule 80 PVC, UL listed for 90°C; NEMA TC 2, conform to NEC Article 347.

Fittings and Conduit Bodies: PVC sleeve type, suitable for, and manufactured specifically for use with the conduit by the manufacturer; NEMA TC 3.

Plastic cement for joining conduit and fittings shall be supplied by the manufacturer of the conduit and shall be suitable for the ambient temperature at the time of installation.

PART 3 - EXECUTION**CONDUIT SIZING**

Size conduit for conductor type installed in compliance with the NEC.

Conduit sizes shall change only at the entrance or exit to a junction box.

CONDUIT ARRANGEMENT

Arrange conduit to maintain headroom and present a neat appearance. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls, structure, and adjacent piping.

Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, and heating appliances.

Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

CONDUIT SUPPORTS

Provide plated steel conduit hangers and associated hardware. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

Conduit shall be held in place by the correct size of conduit clamps or straps, or other support devices specifically designed for conduit support. Support conduit in compliance with the NEC.

Do not support conduit from lay-in ceiling hanger wires, ceiling support channels, ductwork, or piping.

On concrete or masonry construction, use insert anchors or expansion shields installed with plated steel

CONDUIT INSTALLATION SCHEDULE

Indoor dry locations: Electrical metallic tubing (EMT) and fittings

Indoor wet locations (Wash Bay): Schedule 40 rigid PVC non-metallic conduit and fittings.

END OF SECTION

SECTION 16120

WIRE

PART 1 - GENERAL

SECTION INCLUDES

Building wire

Wiring connections and terminations

REFERENCES

NEC - National Electric Code (2014)

NEMA WC 5 - Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

PART 2 - PRODUCTS

BUILDING WIRE

Thermoplastic-insulated Building Wire: NEMA WC 5.

Feeders and branch circuits 10 AWG and smaller: Solid or stranded copper conductor, 600 volt insulation:

Dry locations: THHN-2

Wet locations: THWN-2.

PART 3 - EXECUTION

GENERAL WIRING METHODS

Use no wire smaller than 12 AWG for switch and lighting circuits.

Splice only in junction or outlet boxes.

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

Make conductor lengths for parallel circuits equal.

Use industry standard color code for all conductors.

Provide green equipment grounding conductor in all conduits.

WIRING INSTALLATION IN RACEWAYS

Pull all conductors into a raceway at the same time. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.

Completely and thoroughly swab raceway system before installing conductors.

Wires shall not be laid on ground before pulling nor dragged over the ground.

Only nylon rope shall be used for pulling wires or cables.

Leave at least 6" ends in device or fixture boxes for connections.

WIRING CONNECTIONS AND TERMINATIONS

Splice only in accessible junction boxes.

Use solderless pressure connectors with metal inserts and insulating covers for copper wire splices and taps, 8 AWG and smaller. Use insulated spring wire connectors with plastic caps, 10 AWG or smaller. All plastic or ceramic wire nuts are not acceptable.

Thoroughly clean wires before installing lugs and connectors.

Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

Terminate spare conductors with electrical tape.

FIELD QUALITY CONTROL

Inspect wire and cable for physical damage and proper connection.

Torque test conductor connections and terminations to manufacturers recommended values.

Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

END OF SECTION

SECTION 16130**BOXES**PART 1 - GENERAL**SECTION INCLUDES**

Pull and junction boxes.

RELATED SECTIONS

Section 16110 - Conduit

Section 16141 - Wiring Devices

REFERENCES

UL 514A - Metallic Outlet Boxes, Electrical

UL 514B - Fittings for Conduit and Outlet Boxes

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

ANSI/NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports

ANSI/NFPA 70 - National Electrical Code (2014)

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70.

Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and shown.

PART 2 - PRODUCTS**PULL AND JUNCTION BOXES-INDOORS**

Sheet Metal Boxes: galvanized code gage stamped knockouts, threaded screw holes, and accessories as required for each location including mounting brackets and straps, cable clamps, conform to UL 514A, UL 514B, and ANSI/NEMA OS 1.

PART 3 - EXECUTION**INSTALLATION**

Install electrical boxes as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

Install electrical boxes to maintain headroom and to present neat mechanical appearance.

Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

Support boxes independently of conduit.

Remove knockouts only as required. Knockouts mistakenly removed shall be properly plugged.

END OF SECTION

SECTION 16141**WIRING DEVICES**PART 1 - GENERAL**SECTION INCLUDES**

Switches

Device plates and box covers

RELATED SECTIONS

Section 16110 - Conduit

Section 16120 - Wire

Section 16130 - Boxes

REFERENCES

NEMA WD 1 - General Purpose Wiring Devices

NEMA WD 6 - Wiring Device Configurations

SUBMITTALS

Submit under provisions of Section 16010.

Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70 - National Electric Code (2014).

Provide products listed and classified by Underwriters Laboratories, Inc.

PART 2 - PRODUCTS**WIRING DEVICES - ACCEPTABLE MANUFACTURERS & MODELS**

DEVICE	P&S
Wall Switch, single pole, 20A	PS20AC1
Wall Switch, 3-way, 20A	PS20AC3
Wall Switch, 4-way, 20A	PS20AC4
Wall Switch, single pole, 15A	PS15AC1
Wall Switch, 3-way, 15A	PS15AC3

Equivalent devices from Hubbell or Leviton are acceptable. All devices shall be from the same manufacturer.

SWITCHES

Description: NEMA WD 1, heavy-duty, AC only general use toggle handle snap action switch with colored Nylon™ thermoplastic face.

Color: Grey

Rating: 120 volts, AC, 20A

WALL PLATES

Satin finish stainless steel.

PART 3 - EXECUTION

PREPARATION

Clean debris from boxes.

INSTALLATION

Install products in accordance with manufacturer's instructions.

Install devices plumb and level.

FIELD QUALITY CONTROL

Inspect each wiring device for defects.

ADJUSTING

Adjust devices and wall plates to be flush and level.

END OF SECTION

SECTION 16190

SUPPORTING DEVICES

PART 1 - GENERAL

SECTION INCLUDES

Conduit and equipment supports
Fastening hardware

SUMMARY OF WORK

Furnish and install hangers, struts, and brackets required to support electrical work.

Furnish and install foundations, bases, and supports for items of equipment involved in the Work.

RELATED SECTIONS

Section 16110 – Conduit
Section 16130 – Boxes

PART 2 - PRODUCTS

STEEL STRUTS- ACCEPTABLE MANUFACTURERS

B-Line
Unistrut
T&B Superstrut/Kindorf

Inside Installation

Steel Struts, Inside: Corrosion resistant galvanized steel, nominally 1-5/8" square size.

Fasteners: Corrosion resistant, galvanized steel.

Hanger Rods: Corrosion resistant, galvanized steel threaded rods.

Conduit Clamps: UL listed for application, galvanized steel.

PART 3 - EXECUTION

INSTALLATION

Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors, preset inserts, or beam clamps.

Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or ceiling hanger wires.

Do not drill structural members without written permission of the Engineer.

Do not use powder actuated (explosive) anchors without specific permission from the Engineer.

Provide supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

Install surface mounted cabinets and panelboards with a minimum of four anchors. Provide steel support channels to stand cabinets and panelboards away from wall.

END OF SECTION

SECTION 16510

LIGHTING FIXTURES & LAMPS

PART 1 - GENERAL

SECTION INCLUDES

Interior lighting fixtures
Exit/emergency lighting fixtures

RELATED SECTIONS

Section 16110 - Conduit
Section 16120 - Wire
Section 16130 - Boxes
Section 16190 - Supporting Devices

REGULATORY REQUIREMENTS

Conform to NFPA 101 for installation requirements.

NFPA 70 - National Electric Code (2014)

SUBMITTALS-CONTRACTOR FURNISHED FIXTURES

Submit product data and manufacturer's installation instructions under provisions of Section 16010. Include outline drawings, lamp and ballast data, ETL photometric curves, support points, weights, and accessory information for each lighting fixture type.

DELIVERY, STORAGE, AND HANDLING

Owner furnished fixtures are stored on-site.

Store new fixtures indoors in a dry, conditioned space.

Coordinate with the Owner's representative to arrange for on-site storage space.

Contractor furnished fixtures-Replace lenses, and other fixture components furnished as part of this project, if broken or damaged after arriving on site.

PART 2 - PRODUCTS

FIXTURES, LAMPS, AND SUPPORT HANGERS

Refer to the Fixture schedule and notes on the Drawings.

High bay fixtures and lamps will be furnished by the Owner as noted on the Drawings.

Provide workbench and emergency/exit fixtures and lamps as noted on the Drawings.

Provide fixture hangers and miscellaneous support materials for all fixtures as noted on the Drawings.

FIXTURE WHIPS

Provide fixture whips for all fixtures, except emergency/exit fixtures.

Provide fixture whips that meet the requirements of the 2014 NEC: Articles 348.20(A)(2), 348.22, 410.177(A), (B), and (C), and 410.137(C).

Fixture whips: UL Listed, with die cast metal screw-In connectors on each end, stranded copper wire, 3/8" flexible armored cable, 3-12 AWG Stranded Wire: 6-FT - Black, White, Green.

PART 3 - EXECUTION

DEMOLITION

Demolish the existing lighting fixtures that will be replaced by new fixtures, as shown on the Drawings. Include miscellaneous materials associated with the removed fixtures and not needed for the new installation. Remove demolished materials from the site and dispose properly.

INSTALLATION

Owner furnished fixtures are stored on-site in a building different from the project area. Move the fixtures to the project area, unbox the fixtures, and properly dispose of the packing materials off site.

Install fixtures furnished by the Owner and contractor as shown on the Drawings. Provide boxes, cover plates, conduit, wire, supports, fixture whips, and miscellaneous materials as required for a complete, fully functional lighting system.

Comply with the National Electric Code and the manufacturer's instructions.

Support lighting fixtures directly from building structure. Provide mounting accessories as required to support fixtures.

Install units plumb and level.

Ground fixture bodies to conduit system and connect outer shells of lamp sockets to neutral conductors.

Test all fixtures for proper operation.

ADJUSTING AND CLEANING

Align emergency lighting fixtures to illuminate the egress path and lock into position.

Clean fixture bodies and lenses at completion of Work.

END OF SECTION

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

SECTION INCLUDES

Basic Electrical Requirements specifically applicable to Division 16 Sections, in addition to Division 1 - General Conditions.

SUMMARY OF WORK

Modify the existing lighting system as specified herein, as shown on the Drawings, and in compliance with applicable codes and requirements of governmental authorities having jurisdiction.

Provide all materials, labor, equipment, and miscellaneous materials for a fully functional lighting system as shown on the Drawings and specified herein including:

Demolition of selected existing lighting fixtures and associated switches.

Furnish and install new lighting fixtures and lamps, furnished by the contractor, as noted on the Drawings.

Provide hanger materials and fixture whips for all fixtures, except emergency/exit fixtures, as noted on the Drawings.

Extension of existing lighting circuits and associated materials.

Furnish and install new lighting switches in existing locations.

ALTERNATE E-1

Provide alternate LED fixtures as scheduled on the Drawings.

All other aspects of the work remain the same.

SPECIAL CONDITIONS

The project building will be occupied by the Owner and in normal use through standard business days and times (Monday-Friday, 7:00 AM -4:00 PM).

Work, including any significant power outage, must be performed without major disruption to the Owner's normal activities. As a result, work that requires or results in a power disruption must be performed during weekends, extended holiday weekends, and/or after 5:00 PM and before 6:00 AM.

Coordinate any proposed power outage(s) with the facility administrator.

Protect all Owner's equipment and fixtures from dust, dirt and debris using clean drop clothes, tarps, or other acceptable means.

SITE VISIT

Visit the project site to verify existing conditions prior to bidding.

DEMOLITION

Demolish existing lighting fixtures and associated switches as shown on the Drawings.

Note the requirement to verify existing conditions prior to bidding.

Include miscellaneous materials associated with the demolished items and not needed for the new installation.

Remove demolished materials from the site and dispose of properly. Comply with all applicable State and Local requirements regarding the disposal, with attention drawn to the disposal of lamps and ballasts.

CODES AND PERMITS

Apply and pay for state and/or local permits, in the name of the Owner.

Comply with all applicable provisions of codes and local requirements that pertain to this project. Know code and local requirements prior to bidding.

In the event of a conflict between the contract documents and a code requirement, the more stringent requirement applies.

Codes that apply to this project include, but are not limited to, the following:

National Electrical Code (2014)

Arrange for inspections by governmental authorities having jurisdiction.

NO SMOKING POLICY

The Owner requires that no smoking be permitted in any part of the building at any time.

PRIOR APPROVAL

When an item of equipment is given as a quality and performance standard, or when the phrase "or approved equal" appears, a manufacturer's representative of an unlisted item may submit for approval to bid as an equal to the listed item.

Include product specifications and other literature as required to demonstrate that the submitted product is at least equal to the listed item.

Submit Request for Prior Approval at least 10 days before the bid date to allow inclusion in an addendum.

SUBMITTALS

Submit shop drawings in conformance with requirements in Division 1.

Submit shop drawings for lighting fixtures, switches, and fixture hangers. Indicate the specific product proposed with all pertinent information shown to match that specified.

Submit shop drawings by email in Adobe pdf format files.

OPERATION AND MAINTENANCE MANUALS (O&M)

Submit operation and maintenance documents for lighting fixtures and switches.

Submit two (2) copies of O&M manuals in vinyl covered 3-ring binders, with project title on the front cover and spine.

WARRANTY

Warrant the work to be free of defects for a period of one year from the date of Substantial Completion. Repair defects within the warranty period in a timely manner without additional charge to the Owner.

Do not warrant damage from improper maintenance or use by the owner.

QUALITY ASSURANCE

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

PART 2 – PRODUCTS

MATERIALS

Provide only products that are new, and of the type and quality specified.

UL APPROVAL AND LISTING

Provide only products that are approved and listed by Underwriter's Laboratories, Inc.

PART 3 - EXECUTION**INSTALLATION IN GENERAL**

Coordinate scheduling of work with the Owner's local representative.

Do not disrupt power during normal business hours without first scheduling work with the Owner's local representative.

Provide all required slots, chases, and openings in the building structures. Do not cut structural members without the written permission of the Engineer.

Install fixtures in strict accordance with manufacturers' installation instructions and recommendations. Provide copies of these instructions in the O & M manuals.

Provide all structural supports and mounting accessories for fixtures.

Provide all required adjustments for proper operation of the electrical systems. Check all safety devices and associated wiring for safe and proper operation.

At the completion of the project provide thorough instruction to the Owner's personnel on the proper operation and maintenance of the modified electrical system.

CLEANING

Keep the premises clear of unnecessary accumulation of debris during the project. On completion, remove all rubbish and debris resulting from the work or the work of subcontractors and dispose of properly.

Clean all equipment and fixtures at the completion of the project of accumulated plaster, dust, or other dirt and leave in a condition satisfactory for use. Vacuum chips, insulation stubs, and other debris from all panelboards, switches, and other enclosures.

END OF SECTION

SECTION 16110**CONDUIT**PART 1 - GENERAL**SECTION INCLUDES**

Electrical metallic tubing and fittings.

Non-metallic conduit and fittings.

REFERENCES

ANSI C80.3 - Electrical Metallic Tubing, Zinc-Coated.

ANSI C80.4 - Fittings for Rigid Metal Conduit and Electrical Metallic Tubing

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

UL 514B - Fittings for Conduit and Outlet Boxes

UL 797- Electrical Metallic Tubing

NEMA TC 2 - Conduit (EPC-40 and EPC-80).

NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

NEC - National Electric Code (2014)

PART 2 - PRODUCTS**ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS**

EMT: galvanized tubing that conforms to UL 797 and ANSI C80.3. Conduit shall bear UL label.

Fittings and Conduit Bodies: conform to ANSI/NEMA FB 1 and UL 514B; steel, insulated throat compression or set screw type except in poured concrete or wet locations use only the compression type.

Cast or crimp (indent) type fittings are not acceptable.

RIGID NON-METALLIC CONDUIT AND FITTINGS

Conduit: Schedule 80 PVC, UL listed for 90°C; NEMA TC 2, conform to NEC Article 347.

Fittings and Conduit Bodies: PVC sleeve type, suitable for, and manufactured specifically for use with the conduit by the manufacturer; NEMA TC 3.

Plastic cement for joining conduit and fittings shall be supplied by the manufacturer of the conduit and shall be suitable for the ambient temperature at the time of installation.

PART 3 - EXECUTION**CONDUIT SIZING**

Size conduit for conductor type installed in compliance with the NEC.

Conduit sizes shall change only at the entrance or exit to a junction box.

CONDUIT ARRANGEMENT

Arrange conduit to maintain headroom and present a neat appearance. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls, structure, and adjacent piping.

Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, and heating appliances.

Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

CONDUIT SUPPORTS

Provide plated steel conduit hangers and associated hardware. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

Conduit shall be held in place by the correct size of conduit clamps or straps, or other support devices specifically designed for conduit support. Support conduit in compliance with the NEC.

Do not support conduit from lay-in ceiling hanger wires, ceiling support channels, ductwork, or piping.

On concrete or masonry construction, use insert anchors or expansion shields installed with plated steel

CONDUIT INSTALLATION SCHEDULE

Indoor dry locations: Electrical metallic tubing (EMT) and fittings

Indoor wet locations (Wash Bay): Schedule 40 rigid PVC non-metallic conduit and fittings.

END OF SECTION

SECTION 16120

WIRE

PART 1 - GENERAL

SECTION INCLUDES

Building wire

Wiring connections and terminations

REFERENCES

NEC - National Electric Code (2014)

NEMA WC 5 - Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

PART 2 - PRODUCTS

BUILDING WIRE

Thermoplastic-insulated Building Wire: NEMA WC 5.

Feeders and branch circuits 10 AWG and smaller: Solid or stranded copper conductor, 600 volt insulation:

Dry locations: THHN-2

Wet locations: THWN-2.

PART 3 - EXECUTION

GENERAL WIRING METHODS

Use no wire smaller than 12 AWG for switch and lighting circuits.

Splice only in junction or outlet boxes.

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

Make conductor lengths for parallel circuits equal.

Use industry standard color code for all conductors.

Provide green equipment grounding conductor in all conduits.

WIRING INSTALLATION IN RACEWAYS

Pull all conductors into a raceway at the same time. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.

Completely and thoroughly swab raceway system before installing conductors.

Wires shall not be laid on ground before pulling nor dragged over the ground.

Only nylon rope shall be used for pulling wires or cables.

Leave at least 6" ends in device or fixture boxes for connections.

WIRING CONNECTIONS AND TERMINATIONS

Splice only in accessible junction boxes.

Use solderless pressure connectors with metal inserts and insulating covers for copper wire splices and taps, 8 AWG and smaller. Use insulated spring wire connectors with plastic caps, 10 AWG or smaller. All plastic or ceramic wire nuts are not acceptable.

Thoroughly clean wires before installing lugs and connectors.

Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

Terminate spare conductors with electrical tape.

FIELD QUALITY CONTROL

Inspect wire and cable for physical damage and proper connection.

Torque test conductor connections and terminations to manufacturers recommended values.

Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

END OF SECTION

SECTION 16130

BOXES

PART 1 - GENERAL

SECTION INCLUDES

Pull and junction boxes.

RELATED SECTIONS

Section 16110 - Conduit

Section 16141 - Wiring Devices

REFERENCES

UL 514A - Metallic Outlet Boxes, Electrical

UL 514B - Fittings for Conduit and Outlet Boxes

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

ANSI/NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports

ANSI/NFPA 70 - National Electrical Code (2014)

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70.

Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and shown.

PART 2 - PRODUCTS

PULL AND JUNCTION BOXES-INDOORS

Sheet Metal Boxes: galvanized code gage stamped knockouts, threaded screw holes, and accessories as required for each location including mounting brackets and straps, cable clamps, conform to UL 514A, UL 514B, and ANSI/NEMA OS 1.

PART 3 - EXECUTION

INSTALLATION

Install electrical boxes as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

Install electrical boxes to maintain headroom and to present neat mechanical appearance.

Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

Support boxes independently of conduit.

Remove knockouts only as required. Knockouts mistakenly removed shall be properly plugged.

END OF SECTION

SECTION 16141**WIRING DEVICES**PART 1 - GENERAL**SECTION INCLUDES**

Switches
Device plates and box covers

RELATED SECTIONS

Section 16110 - Conduit
Section 16120 - Wire
Section 16130 - Boxes

REFERENCES

NEMA WD 1 - General Purpose Wiring Devices
NEMA WD 6 - Wiring Device Configurations

SUBMITTALS

Submit under provisions of Section 16010.

Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70 - National Electric Code (2014).

Provide products listed and classified by Underwriters Laboratories, Inc.

PART 2 - PRODUCTS**WIRING DEVICES - ACCEPTABLE MANUFACTURERS & MODELS**

DEVICE	P&S
Wall Switch, single pole, 20A	PS20AC1
Wall Switch, 3-way, 20A	PS20AC3
Wall Switch, 4-way, 20A	PS20AC4
Wall Switch, single pole, 15A	PS15AC1
Wall Switch, 3-way, 15A	PS15AC3

Equivalent devices from Hubbell or Leviton are acceptable. All devices shall be from the same manufacturer.

SWITCHES

Description: NEMA WD 1, heavy-duty, AC only general use toggle handle snap action switch with colored Nylon™ thermoplastic face.

Color: Grey

Rating: 120 volts, AC, 20A

WALL PLATES

Satin finish stainless steel.

PART 3 - EXECUTION

PREPARATION

Clean debris from boxes.

INSTALLATION

Install products in accordance with manufacturer's instructions.

Install devices plumb and level.

FIELD QUALITY CONTROL

Inspect each wiring device for defects.

ADJUSTING

Adjust devices and wall plates to be flush and level.

END OF SECTION

SECTION 16190
SUPPORTING DEVICES

PART 1 - GENERAL

SECTION INCLUDES

Conduit and equipment supports
Fastening hardware

SUMMARY OF WORK

Furnish and install hangers, struts, and brackets required to support electrical work.

Furnish and install foundations, bases, and supports for items of equipment involved in the Work.

RELATED SECTIONS

Section 16110 – Conduit
Section 16130 – Boxes

PART 2 - PRODUCTS

STEEL STRUTS- ACCEPTABLE MANUFACTURERS

B-Line
Unistrut
T&B Superstrut/Kindorf

Inside Installation

Steel Struts, Inside: Corrosion resistant galvanized steel, nominally 1-5/8" square size.

Fasteners: Corrosion resistant, galvanized steel.

Hanger Rods: Corrosion resistant, galvanized steel threaded rods.

Conduit Clamps: UL listed for application, galvanized steel.

PART 3 - EXECUTION

INSTALLATION

Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors, preset inserts, or beam clamps.

Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or ceiling hanger wires.

Do not drill structural members without written permission of the Engineer.

Do not use powder actuated (explosive) anchors without specific permission from the Engineer.

Provide supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

Install surface mounted cabinets and panelboards with a minimum of four anchors. Provide steel support channels to stand cabinets and panelboards away from wall.

END OF SECTION

SECTION 16510

LIGHTING FIXTURES & LAMPS

PART 1 - GENERAL

SECTION INCLUDES

Interior lighting fixtures
Exit/emergency lighting fixtures

RELATED SECTIONS

Section 16110 - Conduit
Section 16120 - Wire
Section 16130 - Boxes
Section 16190 - Supporting Devices

REGULATORY REQUIREMENTS

Conform to NFPA 101 for installation requirements.

NFPA 70 - National Electric Code (2014)

SUBMITTALS

Submit product data and manufacturer's installation instructions under provisions of Section 16010. Include outline drawings, lamp and ballast data, ETL photometric curves, support points, weights, and accessory information for each lighting fixture type.

DELIVERY, STORAGE, AND HANDLING

Store new fixtures indoors in a dry, conditioned space.

Coordinate with the Owner's representative to arrange for on-site storage space.

Contractor furnished fixtures-Replace lenses, and other fixture components furnished as part of this project, if broken or damaged after arriving on site.

PART 2 - PRODUCTS

FIXTURES, LAMPS, AND SUPPORT HANGERS

Refer to the Fixture schedule and notes on the Drawings.

Provide fixture whips, hangers, and miscellaneous support materials for all fixtures as noted on the Drawings.

FIXTURE WHIPS

Provide fixture whips for all fixtures, except emergency/exit fixtures.

Provide fixture whips that meet the requirements of the 2014 NEC: Articles 348.20(A)(2), 348.22, 410.177(A), (B), and (C), and 410.137(C).

Fixture whips: UL Listed, with die cast metal screw-In connectors on each end, stranded copper wire, 3/8" flexible armored cable, 3-12 AWG Stranded Wire: 6-FT - Black, White, Green.

PART 3 - EXECUTION

DEMOLITION

Demolish the existing lighting fixtures that will be replaced by new fixtures, as shown on the Drawings. Include miscellaneous materials associated with the removed fixtures and not needed for the new installation. Remove demolished materials from the site and dispose properly.

INSTALLATION

Install fixtures as shown on the Drawings. Provide boxes, cover plates, conduit, wire, supports, fixture whips, and miscellaneous materials as required for a complete, fully functional lighting system.

Comply with the National Electric Code and the manufacturer's instructions.

Support lighting fixtures directly from building structure. Provide mounting accessories as required to support fixtures.

Install units plumb and level.

Ground fixture bodies to conduit system and connect outer shells of lamp sockets to neutral conductors.

Test all fixtures for proper operation.

ADJUSTING AND CLEANING

Align emergency lighting fixtures to illuminate the egress path and lock into position.

Clean fixture bodies and lenses at completion of Work.

END OF SECTION

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

SECTION INCLUDES

Basic Electrical Requirements specifically applicable to Division 16 Sections, in addition to Division 1 - General Conditions.

SUMMARY OF WORK

Modify the existing lighting system as specified herein, as shown on the Drawings, and in compliance with applicable codes and requirements of governmental authorities having jurisdiction.

Provide all materials, labor, equipment, and miscellaneous materials for a fully functional lighting system as shown on the Drawings and specified herein including:

Demolition of selected existing lighting fixtures and associated switches.

Installation of Owner furnished lighting fixtures.

Furnish and install new lighting fixtures and lamps, furnished by the contractor, as noted on the Drawings.

Provide hanger materials and fixture whips for all fixtures, except emergency/exit fixtures, as noted on the Drawings.

Extension of existing lighting circuits and associated materials.

Furnish and install new lighting switches in existing locations.

SPECIAL CONDITIONS

The project building will be occupied by the Owner and in normal use through standard business days and times (Monday-Friday, 7:00 AM -4:00 PM).

Work, including any significant power outage, must be performed without major disruption to the Owner's normal activities. As a result, work that requires or results in a power disruption must be performed during weekends, extended holiday weekends, and/or after 5:00 PM and before 6:00 AM.

Coordinate any proposed power outage(s) with the facility administrator.

Protect all Owner's equipment and fixtures from dust, dirt and debris using clean drop clothes, tarps, or other acceptable means.

SITE VISIT

Visit the project site to verify existing conditions prior to bidding.

DEMOLITION

Demolish existing lighting fixtures and associated switches as shown on the Drawings.

Note the requirement to verify existing conditions prior to bidding.

Include miscellaneous materials associated with the demolished items and not needed for the new installation.

Remove demolished materials from the site and dispose of properly. Comply with all applicable State and Local requirements regarding the disposal, with attention drawn to the disposal of lamps and ballasts.

CODES AND PERMITS

Apply and pay for state and/or local permits, in the name of the Owner.

Comply with all applicable provisions of codes and local requirements that pertain to this project. Know code and local requirements prior to bidding.

In the event of a conflict between the contract documents and a code requirement, the more stringent requirement applies.

Codes that apply to this project include, but are not limited to, the following:

National Electrical Code (2014)

Arrange for inspections by governmental authorities having jurisdiction.

NO SMOKING POLICY

The Owner requires that no smoking be permitted in any part of the building at any time.

PRIOR APPROVAL

When an item of equipment is given as a quality and performance standard, or when the phrase "or approved equal" appears, a manufacturer's representative of an unlisted item may submit for approval to bid as an equal to the listed item.

Include product specifications and other literature as required to demonstrate that the submitted product is at least equal to the listed item.

Submit Request for Prior Approval at least 10 days before the bid date to allow inclusion in an addendum.

SUBMITTALS

Submit shop drawings in conformance with requirements in Division 1.

Submit shop drawings for contractor-furnished fixtures, switches, and fixture hangers. Indicate the specific product proposed with all pertinent information shown to match that specified.

Submit shop drawings by email in Adobe pdf format files.

OPERATION AND MAINTENANCE MANUALS (O&M)

Submit operation and maintenance documents for contractor-furnished light fixtures and switches.

Submit two (2) copies of O&M manuals in vinyl covered 3-ring binders, with project title on the front cover and spine.

WARRANTY

Warrant the work to be free of defects for a period of one year from the date of Substantial Completion. Repair defects within the warranty period in a timely manner without additional charge to the Owner.

Do not warrant damage from improper maintenance or use by the owner.

QUALITY ASSURANCE

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

PART 2 – PRODUCTS

MATERIALS

Provide only products that are new, and of the type and quality specified.

UL APPROVAL AND LISTING

Provide only products that are approved and listed by Underwriter's Laboratories, Inc.

PART 3 - EXECUTION

INSTALLATION IN GENERAL

Coordinate scheduling of work with the Owner's local representative.

Do not disrupt power during normal business hours without first scheduling work with the Owner's local representative.

Provide all required slots, chases, and openings in the building structures. Do not cut structural members without the written permission of the Engineer.

Install fixtures in strict accordance with manufacturers' installation instructions and recommendations. Provide copies of these instructions in the O & M manuals.

Provide all structural supports and mounting accessories for fixtures.

Provide all required adjustments for proper operation of the electrical systems. Check all safety devices and associated wiring for safe and proper operation.

At the completion of the project provide thorough instruction to the Owner's personnel on the proper operation and maintenance of the modified electrical system.

CLEANING

Keep the premises clear of unnecessary accumulation of debris during the project. On completion, remove all rubbish and debris resulting from the work or the work of subcontractors and dispose of properly.

Clean all equipment and fixtures at the completion of the project of accumulated plaster, dust, or other dirt and leave in a condition satisfactory for use. Vacuum chips, insulation stubs, and other debris from all panelboards, switches, and other enclosures.

END OF SECTION

SECTION 16110**CONDUIT**PART 1 - GENERAL**SECTION INCLUDES**

Electrical metallic tubing and fittings.

Non-metallic conduit and fittings.

REFERENCES

ANSI C80.3 - Electrical Metallic Tubing, Zinc-Coated.

ANSI C80.4 - Fittings for Rigid Metal Conduit and Electrical Metallic Tubing

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

UL 514B - Fittings for Conduit and Outlet Boxes

UL 797- Electrical Metallic Tubing

NEMA TC 2 - Conduit (EPC-40 and EPC-80).

NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

NEC - National Electric Code (2014)

PART 2 - PRODUCTS**ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS**

EMT: galvanized tubing that conforms to UL 797 and ANSI C80.3. Conduit shall bear UL label.

Fittings and Conduit Bodies: conform to ANSI/NEMA FB 1 and UL 514B; steel, insulated throat compression or set screw type except in poured concrete or wet locations use only the compression type.

Cast or crimp (indent) type fittings are not acceptable.

RIGID NON-METALLIC CONDUIT AND FITTINGS

Conduit: Schedule 80 PVC, UL listed for 90°C; NEMA TC 2, conform to NEC Article 347.

Fittings and Conduit Bodies: PVC sleeve type, suitable for, and manufactured specifically for use with the conduit by the manufacturer; NEMA TC 3.

Plastic cement for joining conduit and fittings shall be supplied by the manufacturer of the conduit and shall be suitable for the ambient temperature at the time of installation.

PART 3 - EXECUTION**CONDUIT SIZING**

Size conduit for conductor type installed in compliance with the NEC.

Conduit sizes shall change only at the entrance or exit to a junction box.

CONDUIT ARRANGEMENT

Arrange conduit to maintain headroom and present a neat appearance. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls, structure, and adjacent piping.

Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, and heating appliances.

Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

CONDUIT SUPPORTS

Provide plated steel conduit hangers and associated hardware. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

Conduit shall be held in place by the correct size of conduit clamps or straps, or other support devices specifically designed for conduit support. Support conduit in compliance with the NEC.

Do not support conduit from lay-in ceiling hanger wires, ceiling support channels, ductwork, or piping.

On concrete or masonry construction, use insert anchors or expansion shields installed with plated steel

CONDUIT INSTALLATION SCHEDULE

Indoor dry locations: Electrical metallic tubing (EMT) and fittings

Indoor wet locations (Wash Bay): Schedule 40 rigid PVC non-metallic conduit and fittings.

END OF SECTION

SECTION 16120

WIRE

PART 1 - GENERAL

SECTION INCLUDES

Building wire

Wiring connections and terminations

REFERENCES

NEC - National Electric Code (2014)

NEMA WC 5 - Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

PART 2 - PRODUCTS

BUILDING WIRE

Thermoplastic-insulated Building Wire: NEMA WC 5.

Feeders and branch circuits 10 AWG and smaller: Solid or stranded copper conductor, 600 volt insulation:

Dry locations: THHN-2

Wet locations: THWN-2.

PART 3 - EXECUTION

GENERAL WIRING METHODS

Use no wire smaller than 12 AWG for switch and lighting circuits.

Splice only in junction or outlet boxes.

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

Make conductor lengths for parallel circuits equal.

Use industry standard color code for all conductors.

Provide green equipment grounding conductor in all conduits.

WIRING INSTALLATION IN RACEWAYS

Pull all conductors into a raceway at the same time. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.

Completely and thoroughly swab raceway system before installing conductors.

Wires shall not be laid on ground before pulling nor dragged over the ground.

Only nylon rope shall be used for pulling wires or cables.

Leave at least 6" ends in device or fixture boxes for connections.

WIRING CONNECTIONS AND TERMINATIONS

Splice only in accessible junction boxes.

Use solderless pressure connectors with metal inserts and insulating covers for copper wire splices and taps, 8 AWG and smaller. Use insulated spring wire connectors with plastic caps, 10 AWG or smaller. All plastic or ceramic wire nuts are not acceptable.

Thoroughly clean wires before installing lugs and connectors.

Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

Terminate spare conductors with electrical tape.

FIELD QUALITY CONTROL

Inspect wire and cable for physical damage and proper connection.

Torque test conductor connections and terminations to manufacturers recommended values.

Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

END OF SECTION

SECTION 16130

BOXES

PART 1 - GENERAL

SECTION INCLUDES

Pull and junction boxes.

RELATED SECTIONS

Section 16110 - Conduit

Section 16141 - Wiring Devices

REFERENCES

UL 514A - Metallic Outlet Boxes, Electrical

UL 514B - Fittings for Conduit and Outlet Boxes

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

ANSI/NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports

ANSI/NFPA 70 - National Electrical Code (2014)

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70.

Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and shown.

PART 2 - PRODUCTS

PULL AND JUNCTION BOXES-INDOORS

Sheet Metal Boxes: galvanized code gage stamped knockouts, threaded screw holes, and accessories as required for each location including mounting brackets and straps, cable clamps, conform to UL 514A, UL 514B, and ANSI/NEMA OS 1.

PART 3 - EXECUTION

INSTALLATION

Install electrical boxes as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

Install electrical boxes to maintain headroom and to present neat mechanical appearance.

Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

Support boxes independently of conduit.

Remove knockouts only as required. Knockouts mistakenly removed shall be properly plugged.

END OF SECTION

SECTION 16141**WIRING DEVICES**PART 1 - GENERAL**SECTION INCLUDES**

Switches

Device plates and box covers

RELATED SECTIONS

Section 16110 - Conduit

Section 16120 - Wire

Section 16130 - Boxes

REFERENCES

NEMA WD 1 - General Purpose Wiring Devices

NEMA WD 6 - Wiring Device Configurations

SUBMITTALS

Submit under provisions of Section 16010.

Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70 - National Electric Code (2014).

Provide products listed and classified by Underwriters Laboratories, Inc.

PART 2 - PRODUCTS**WIRING DEVICES - ACCEPTABLE MANUFACTURERS & MODELS**

DEVICE	P&S
Wall Switch, single pole, 20A	PS20AC1
Wall Switch, 3-way, 20A	PS20AC3
Wall Switch, 4-way, 20A	PS20AC4
Wall Switch, single pole, 15A	PS15AC1
Wall Switch, 3-way, 15A	PS15AC3

Equivalent devices from Hubbell or Leviton are acceptable. All devices shall be from the same manufacturer.

SWITCHES

Description: NEMA WD 1, heavy-duty, AC only general use toggle handle snap action switch with colored Nylon™ thermoplastic face.

Color: Grey

Rating: 120 volts, AC, 20A

WALL PLATES

Satin finish stainless steel.

PART 3 - EXECUTION

PREPARATION

Clean debris from boxes.

INSTALLATION

Install products in accordance with manufacturer's instructions.

Install devices plumb and level.

FIELD QUALITY CONTROL

Inspect each wiring device for defects.

ADJUSTING

Adjust devices and wall plates to be flush and level.

END OF SECTION

SECTION 16190
SUPPORTING DEVICES

PART 1 - GENERAL

SECTION INCLUDES

Conduit and equipment supports
Fastening hardware

SUMMARY OF WORK

Furnish and install hangers, struts, and brackets required to support electrical work.

Furnish and install foundations, bases, and supports for items of equipment involved in the Work.

RELATED SECTIONS

Section 16110 – Conduit
Section 16130 – Boxes

PART 2 - PRODUCTS

STEEL STRUTS- ACCEPTABLE MANUFACTURERS

B-Line
Unistrut
T&B Superstrut/Kindorf

Inside Installation

Steel Struts, Inside: Corrosion resistant galvanized steel, nominally 1-5/8" square size.

Fasteners: Corrosion resistant, galvanized steel.

Hanger Rods: Corrosion resistant, galvanized steel threaded rods.

Conduit Clamps: UL listed for application, galvanized steel.

PART 3 - EXECUTION

INSTALLATION

Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors, preset inserts, or beam clamps.

Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or ceiling hanger wires.

Do not drill structural members without written permission of the Engineer.

Do not use powder actuated (explosive) anchors without specific permission from the Engineer.

Provide supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

Install surface mounted cabinets and panelboards with a minimum of four anchors. Provide steel support channels to stand cabinets and panelboards away from wall.

END OF SECTION

SECTION 16510

LIGHTING FIXTURES & LAMPS

PART 1 - GENERAL

SECTION INCLUDES

Interior lighting fixtures
Exit/emergency lighting fixtures

RELATED SECTIONS

Section 16110 - Conduit
Section 16120 - Wire
Section 16130 - Boxes
Section 16190 - Supporting Devices

REGULATORY REQUIREMENTS

Conform to NFPA 101 for installation requirements.

NFPA 70 - National Electric Code (2014)

SUBMITTALS-CONTRACTOR FURNISHED FIXTURES

Submit product data and manufacturer's installation instructions under provisions of Section 16010. Include outline drawings, lamp and ballast data, ETL photometric curves, support points, weights, and accessory information for each lighting fixture type.

DELIVERY, STORAGE, AND HANDLING

Owner furnished fixtures are stored on-site.

Store new fixtures indoors in a dry, conditioned space.

Coordinate with the Owner's representative to arrange for on-site storage space.

Contractor furnished fixtures-Replace lenses, and other fixture components furnished as part of this project, if broken or damaged after arriving on site.

PART 2 - PRODUCTS

FIXTURES, LAMPS, AND SUPPORT HANGERS

Refer to the Fixture schedule and notes on the Drawings.

High bay fixtures and lamps will be furnished by the Owner as noted on the Drawings.

Provide workbench and emergency/exit fixtures and lamps as noted on the Drawings.

Provide fixture hangers and miscellaneous support materials for all fixtures as noted on the Drawings.

FIXTURE WHIPS

Provide fixture whips for all fixtures, except emergency/exit fixtures.

Provide fixture whips that meet the requirements of the 2014 NEC: Articles 348.20(A)(2), 348.22, 410.177(A), (B), and (C), and 410.137(C).

Fixture whips: UL Listed, with die cast metal screw-In connectors on each end, stranded copper wire, 3/8" flexible armored cable, 3-12 AWG Stranded Wire: 6-FT - Black, White, Green.

PART 3 - EXECUTION

DEMOLITION

Demolish the existing lighting fixtures that will be replaced by new fixtures, as shown on the Drawings. Include miscellaneous materials associated with the removed fixtures and not needed for the new installation. Remove demolished materials from the site and dispose properly.

INSTALLATION

Owner furnished fixtures are stored on-site in a building different from the project area. Move the fixtures to the project area, unbox the fixtures, and properly dispose of the packing materials off site.

Install fixtures furnished by the Owner and contractor as shown on the Drawings. Provide boxes, cover plates, conduit, wire, supports, fixture whips, and miscellaneous materials as required for a complete, fully functional lighting system.

Comply with the National Electric Code and the manufacturer's instructions.

Support lighting fixtures directly from building structure. Provide mounting accessories as required to support fixtures.

Install units plumb and level.

Ground fixture bodies to conduit system and connect outer shells of lamp sockets to neutral conductors.

Test all fixtures for proper operation.

ADJUSTING AND CLEANING

Align emergency lighting fixtures to illuminate the egress path and lock into position.

Clean fixture bodies and lenses at completion of Work.

END OF SECTION

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

SECTION INCLUDES

Basic Electrical Requirements specifically applicable to Division 16 Sections, in addition to Division 1 - General Conditions.

SUMMARY OF WORK

Modify the existing lighting system as specified herein, as shown on the Drawings, and in compliance with applicable codes and requirements of governmental authorities having jurisdiction.

Provide all materials, labor, equipment, and miscellaneous materials for a fully functional lighting system as shown on the Drawings and specified herein including:

Demolition of selected existing lighting fixtures and associated switches.

Installation of Owner furnished lighting fixtures.

Furnish and install new lighting fixtures and lamps, furnished by the contractor, as noted on the Drawings.

Provide hanger materials and fixture whips for all fixtures, except emergency/exit fixtures, as noted on the Drawings.

Extension of existing lighting circuits and associated materials.

Furnish and install new lighting switches in existing locations.

SPECIAL CONDITIONS

The project building will be occupied by the Owner and in normal use through standard business days and times (Monday-Friday, 7:00 AM -4:00 PM).

Work, including any significant power outage, must be performed without major disruption to the Owner's normal activities. As a result, work that requires or results in a power disruption must be performed during weekends, extended holiday weekends, and/or after 5:00 PM and before 6:00 AM.

Coordinate any proposed power outage(s) with the facility administrator.

Protect all Owner's equipment and fixtures from dust, dirt and debris using clean drop clothes, tarps, or other acceptable means.

SITE VISIT

Visit the project site to verify existing conditions prior to bidding.

DEMOLITION

Demolish existing lighting fixtures and associated switches as shown on the Drawings.

Note the requirement to verify existing conditions prior to bidding.

Include miscellaneous materials associated with the demolished items and not needed for the new installation.

Remove demolished materials from the site and dispose of properly. Comply with all applicable State and Local requirements regarding the disposal, with attention drawn to the disposal of lamps and ballasts.

CODES AND PERMITS

Apply and pay for state and/or local permits, in the name of the Owner.

Comply with all applicable provisions of codes and local requirements that pertain to this project. Know code and local requirements prior to bidding.

In the event of a conflict between the contract documents and a code requirement, the more stringent requirement applies.

Codes that apply to this project include, but are not limited to, the following:

National Electrical Code (2014)

Arrange for inspections by governmental authorities having jurisdiction.

NO SMOKING POLICY

The Owner requires that no smoking be permitted in any part of the building at any time.

PRIOR APPROVAL

When an item of equipment is given as a quality and performance standard, or when the phrase "or approved equal" appears, a manufacturer's representative of an unlisted item may submit for approval to bid as an equal to the listed item.

Include product specifications and other literature as required to demonstrate that the submitted product is at least equal to the listed item.

Submit Request for Prior Approval at least 10 days before the bid date to allow inclusion in an addendum.

SUBMITTALS

Submit shop drawings in conformance with requirements in Division 1.

Submit shop drawings for contractor-furnished fixtures, switches, and fixture hangers. Indicate the specific product proposed with all pertinent information shown to match that specified.

Submit shop drawings by email in Adobe pdf format files.

OPERATION AND MAINTENANCE MANUALS (O&M)

Submit operation and maintenance documents for contractor-furnished light fixtures and switches.

Submit two (2) copies of O&M manuals in vinyl covered 3-ring binders, with project title on the front cover and spine.

WARRANTY

Warrant the work to be free of defects for a period of one year from the date of Substantial Completion. Repair defects within the warranty period in a timely manner without additional charge to the Owner.

Do not warrant damage from improper maintenance or use by the owner.

QUALITY ASSURANCE

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

PART 2 – PRODUCTS

MATERIALS

Provide only products that are new, and of the type and quality specified.

UL APPROVAL AND LISTING

Provide only products that are approved and listed by Underwriter's Laboratories, Inc.

PART 3 - EXECUTION

INSTALLATION IN GENERAL

Coordinate scheduling of work with the Owner's local representative.

Do not disrupt power during normal business hours without first scheduling work with the Owner's local representative.

Provide all required slots, chases, and openings in the building structures. Do not cut structural members without the written permission of the Engineer.

Install fixtures in strict accordance with manufacturers' installation instructions and recommendations. Provide copies of these instructions in the O & M manuals.

Provide all structural supports and mounting accessories for fixtures.

Provide all required adjustments for proper operation of the electrical systems. Check all safety devices and associated wiring for safe and proper operation.

At the completion of the project provide thorough instruction to the Owner's personnel on the proper operation and maintenance of the modified electrical system.

CLEANING

Keep the premises clear of unnecessary accumulation of debris during the project. On completion, remove all rubbish and debris resulting from the work or the work of subcontractors and dispose of properly.

Clean all equipment and fixtures at the completion of the project of accumulated plaster, dust, or other dirt and leave in a condition satisfactory for use. Vacuum chips, insulation stubs, and other debris from all panelboards, switches, and other enclosures.

END OF SECTION

SECTION 16110**CONDUIT**PART 1 - GENERAL**SECTION INCLUDES**

Electrical metallic tubing and fittings.

Non-metallic conduit and fittings.

REFERENCES

ANSI C80.3 - Electrical Metallic Tubing, Zinc-Coated.

ANSI C80.4 - Fittings for Rigid Metal Conduit and Electrical Metallic Tubing

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

UL 514B - Fittings for Conduit and Outlet Boxes

UL 797- Electrical Metallic Tubing

NEMA TC 2 - Conduit (EPC-40 and EPC-80).

NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

NEC - National Electric Code (2014)

PART 2 - PRODUCTS**ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS**

EMT: galvanized tubing that conforms to UL 797 and ANSI C80.3. Conduit shall bear UL label.

Fittings and Conduit Bodies: conform to ANSI/NEMA FB 1 and UL 514B; steel, insulated throat compression or set screw type except in poured concrete or wet locations use only the compression type. Cast or crimp (indent) type fittings are not acceptable.

RIGID NON-METALLIC CONDUIT AND FITTINGS

Conduit: Schedule 80 PVC, UL listed for 90°C; NEMA TC 2, conform to NEC Article 347.

Fittings and Conduit Bodies: PVC sleeve type, suitable for, and manufactured specifically for use with the conduit by the manufacturer; NEMA TC 3.

Plastic cement for joining conduit and fittings shall be supplied by the manufacturer of the conduit and shall be suitable for the ambient temperature at the time of installation.

PART 3 - EXECUTION**CONDUIT SIZING**

Size conduit for conductor type installed in compliance with the NEC.

Conduit sizes shall change only at the entrance or exit to a junction box.

CONDUIT ARRANGEMENT

Arrange conduit to maintain headroom and present a neat appearance. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls, structure, and adjacent piping.

Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, and heating appliances.

Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

CONDUIT SUPPORTS

Provide plated steel conduit hangers and associated hardware. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

Conduit shall be held in place by the correct size of conduit clamps or straps, or other support devices specifically designed for conduit support. Support conduit in compliance with the NEC.

Do not support conduit from lay-in ceiling hanger wires, ceiling support channels, ductwork, or piping.

On concrete or masonry construction, use insert anchors or expansion shields installed with plated steel

CONDUIT INSTALLATION SCHEDULE

Indoor dry locations: Electrical metallic tubing (EMT) and fittings

Indoor wet locations (Wash Bay): Schedule 40 rigid PVC non-metallic conduit and fittings.

END OF SECTION

SECTION 16120

WIRE

PART 1 - GENERAL

SECTION INCLUDES

Building wire

Wiring connections and terminations

REFERENCES

NEC - National Electric Code (2014)

NEMA WC 5 - Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

PART 2 - PRODUCTS

BUILDING WIRE

Thermoplastic-insulated Building Wire: NEMA WC 5.

Feeders and branch circuits 10 AWG and smaller: Solid or stranded copper conductor, 600 volt insulation:

Dry locations: THHN-2

Wet locations: THWN-2.

PART 3 - EXECUTION

GENERAL WIRING METHODS

Use no wire smaller than 12 AWG for switch and lighting circuits.

Splice only in junction or outlet boxes.

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

Make conductor lengths for parallel circuits equal.

Use industry standard color code for all conductors.

Provide green equipment grounding conductor in all conduits.

WIRING INSTALLATION IN RACEWAYS

Pull all conductors into a raceway at the same time. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.

Completely and thoroughly swab raceway system before installing conductors.

Wires shall not be laid on ground before pulling nor dragged over the ground.

Only nylon rope shall be used for pulling wires or cables.

Leave at least 6" ends in device or fixture boxes for connections.

WIRING CONNECTIONS AND TERMINATIONS

Splice only in accessible junction boxes.

Use solderless pressure connectors with metal inserts and insulating covers for copper wire splices and taps, 8 AWG and smaller. Use insulated spring wire connectors with plastic caps, 10 AWG or smaller. All plastic or ceramic wire nuts are not acceptable.

Thoroughly clean wires before installing lugs and connectors.

Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

Terminate spare conductors with electrical tape.

FIELD QUALITY CONTROL

Inspect wire and cable for physical damage and proper connection.

Torque test conductor connections and terminations to manufacturers recommended values.

Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

END OF SECTION

SECTION 16130

BOXES

PART 1 - GENERAL

SECTION INCLUDES

Pull and junction boxes.

RELATED SECTIONS

Section 16110 - Conduit

Section 16141 - Wiring Devices

REFERENCES

UL 514A - Metallic Outlet Boxes, Electrical

UL 514B - Fittings for Conduit and Outlet Boxes

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

ANSI/NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports

ANSI/NFPA 70 - National Electrical Code (2014)

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70.

Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and shown.

PART 2 - PRODUCTS

PULL AND JUNCTION BOXES-INDOORS

Sheet Metal Boxes: galvanized code gage stamped knockouts, threaded screw holes, and accessories as required for each location including mounting brackets and straps, cable clamps, conform to UL 514A, UL 514B, and ANSI/NEMA OS 1.

PART 3 - EXECUTION

INSTALLATION

Install electrical boxes as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

Install electrical boxes to maintain headroom and to present neat mechanical appearance.

Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

Support boxes independently of conduit.

Remove knockouts only as required. Knockouts mistakenly removed shall be properly plugged.

END OF SECTION

SECTION 16141**WIRING DEVICES**PART 1 - GENERAL**SECTION INCLUDES**

Switches

Device plates and box covers

RELATED SECTIONS

Section 16110 - Conduit

Section 16120 - Wire

Section 16130 - Boxes

REFERENCES

NEMA WD 1 - General Purpose Wiring Devices

NEMA WD 6 - Wiring Device Configurations

SUBMITTALS

Submit under provisions of Section 16010.

Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70 - National Electric Code (2014).

Provide products listed and classified by Underwriters Laboratories, Inc.

PART 2 - PRODUCTS**WIRING DEVICES - ACCEPTABLE MANUFACTURERS & MODELS**

DEVICE	P&S
Wall Switch, single pole, 20A	PS20AC1
Wall Switch, 3-way, 20A	PS20AC3
Wall Switch, 4-way, 20A	PS20AC4
Wall Switch, single pole, 15A	PS15AC1
Wall Switch, 3-way, 15A	PS15AC3

Equivalent devices from Hubbell or Leviton are acceptable. All devices shall be from the same manufacturer.

SWITCHES

Description: NEMA WD 1, heavy-duty, AC only general use toggle handle snap action switch with colored Nylon™ thermoplastic face.

Color: Grey

Rating: 120 volts, AC, 20A

WALL PLATES

Satin finish stainless steel.

PART 3 - EXECUTION

PREPARATION

Clean debris from boxes.

INSTALLATION

Install products in accordance with manufacturer's instructions.

Install devices plumb and level.

FIELD QUALITY CONTROL

Inspect each wiring device for defects.

ADJUSTING

Adjust devices and wall plates to be flush and level.

END OF SECTION

SECTION 16190
SUPPORTING DEVICES

PART 1 - GENERAL

SECTION INCLUDES

Conduit and equipment supports
Fastening hardware

SUMMARY OF WORK

Furnish and install hangers, struts, and brackets required to support electrical work.

Furnish and install foundations, bases, and supports for items of equipment involved in the Work.

RELATED SECTIONS

Section 16110 – Conduit
Section 16130 – Boxes

PART 2 - PRODUCTS

STEEL STRUTS- ACCEPTABLE MANUFACTURERS

B-Line
Unistrut
T&B Superstrut/Kindorf

Inside Installation

Steel Struts, Inside: Corrosion resistant galvanized steel, nominally 1-5/8" square size.

Fasteners: Corrosion resistant, galvanized steel.

Hanger Rods: Corrosion resistant, galvanized steel threaded rods.

Conduit Clamps: UL listed for application, galvanized steel.

PART 3 - EXECUTION

INSTALLATION

Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors, preset inserts, or beam clamps.

Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or ceiling hanger wires.

Do not drill structural members without written permission of the Engineer.

Do not use powder actuated (explosive) anchors without specific permission from the Engineer.

Provide supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

Install surface mounted cabinets and panelboards with a minimum of four anchors. Provide steel support channels to stand cabinets and panelboards away from wall.

END OF SECTION

SECTION 16510

LIGHTING FIXTURES & LAMPS

PART 1 - GENERAL

SECTION INCLUDES

Interior lighting fixtures
Exit/emergency lighting fixtures

RELATED SECTIONS

Section 16110 - Conduit
Section 16120 - Wire
Section 16130 - Boxes
Section 16190 - Supporting Devices

REGULATORY REQUIREMENTS

Conform to NFPA 101 for installation requirements.

NFPA 70 - National Electric Code (2014)

SUBMITTALS-CONTRACTOR FURNISHED FIXTURES

Submit product data and manufacturer's installation instructions under provisions of Section 16010. Include outline drawings, lamp and ballast data, ETL photometric curves, support points, weights, and accessory information for each lighting fixture type.

DELIVERY, STORAGE, AND HANDLING

Owner furnished fixtures are stored on-site.

Store new fixtures indoors in a dry, conditioned space.

Coordinate with the Owner's representative to arrange for on-site storage space.

Contractor furnished fixtures-Replace lenses, and other fixture components furnished as part of this project, if broken or damaged after arriving on site.

PART 2 - PRODUCTS

FIXTURES, LAMPS, AND SUPPORT HANGERS

Refer to the Fixture schedule and notes on the Drawings.

High bay fixtures and lamps will be furnished by the Owner as noted on the Drawings.

Provide workbench and emergency/exit fixtures and lamps as noted on the Drawings.

Provide fixture hangers and miscellaneous support materials for all fixtures as noted on the Drawings.

FIXTURE WHIPS

Provide fixture whips for all fixtures, except emergency/exit fixtures.

Provide fixture whips that meet the requirements of the 2014 NEC: Articles 348.20(A)(2), 348.22, 410.177(A), (B), and (C), and 410.137(C).

Fixture whips: UL Listed, with die cast metal screw-In connectors on each end, stranded copper wire, 3/8" flexible armored cable, 3-12 AWG Stranded Wire: 6-FT - Black, White, Green.

PART 3 - EXECUTION

DEMOLITION

Demolish the existing lighting fixtures that will be replaced by new fixtures, as shown on the Drawings. Include miscellaneous materials associated with the removed fixtures and not needed for the new installation. Remove demolished materials from the site and dispose properly.

INSTALLATION

Owner furnished fixtures are stored on-site in a building different from the project area. Move the fixtures to the project area, unbox the fixtures, and properly dispose of the packing materials off site.

Install fixtures furnished by the Owner and contractor as shown on the Drawings. Provide boxes, cover plates, conduit, wire, supports, fixture whips, and miscellaneous materials as required for a complete, fully functional lighting system.

Comply with the National Electric Code and the manufacturer's instructions.

Support lighting fixtures directly from building structure. Provide mounting accessories as required to support fixtures.

Install units plumb and level.

Ground fixture bodies to conduit system and connect outer shells of lamp sockets to neutral conductors.

Test all fixtures for proper operation.

ADJUSTING AND CLEANING

Align emergency lighting fixtures to illuminate the egress path and lock into position.

Clean fixture bodies and lenses at completion of Work.

END OF SECTION

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

SECTION INCLUDES

Basic Electrical Requirements specifically applicable to Division 16 Sections, in addition to Division 1 - General Conditions.

SUMMARY OF WORK

Modify the existing lighting system as specified herein, as shown on the Drawings, and in compliance with applicable codes and requirements of governmental authorities having jurisdiction.

Provide all materials, labor, equipment, and miscellaneous materials for a fully functional lighting system as shown on the Drawings and specified herein including:

- Demolition of selected existing lighting fixtures and associated switches.

- Installation of Owner furnished lighting fixtures.

- Furnish and install new lighting fixtures and lamps, furnished by the contractor, as noted on the Drawings.

- Provide hanger materials and fixture whips for all fixtures, except emergency/exit fixtures, as noted on the Drawings.

- Extension of existing lighting circuits and associated materials.

- Furnish and install new lighting switches in existing locations.

SPECIAL CONDITIONS

The project building will be occupied by the Owner and in normal use through standard business days and times (Monday-Friday, 7:00 AM -4:00 PM).

Work, including any significant power outage, must be performed without major disruption to the Owner's normal activities. As a result, work that requires or results in a power disruption must be performed during weekends, extended holiday weekends, and/or after 5:00 PM and before 6:00 AM.

Coordinate any proposed power outage(s) with the facility administrator.

Protect all Owner's equipment and fixtures from dust, dirt and debris using clean drop clothes, tarps, or other acceptable means.

SITE VISIT

Visit the project site to verify existing conditions prior to bidding.

DEMOLITION

Demolish existing lighting fixtures and associated switches as shown on the Drawings.

Note the requirement to verify existing conditions prior to bidding.

Include miscellaneous materials associated with the demolished items and not needed for the new installation.

Remove demolished materials from the site and dispose of properly. Comply with all applicable State and Local requirements regarding the disposal, with attention drawn to the disposal of lamps and ballasts.

CODES AND PERMITS

Apply and pay for state and/or local permits, in the name of the Owner.

Comply with all applicable provisions of codes and local requirements that pertain to this project. Know code and local requirements prior to bidding.

In the event of a conflict between the contract documents and a code requirement, the more stringent requirement applies.

Codes that apply to this project include, but are not limited to, the following:

National Electrical Code (2014)

Arrange for inspections by governmental authorities having jurisdiction.

NO SMOKING POLICY

The Owner requires that no smoking be permitted in any part of the building at any time.

PRIOR APPROVAL

When an item of equipment is given as a quality and performance standard, or when the phrase "or approved equal" appears, a manufacturer's representative of an unlisted item may submit for approval to bid as an equal to the listed item.

Include product specifications and other literature as required to demonstrate that the submitted product is at least equal to the listed item.

Submit Request for Prior Approval at least 10 days before the bid date to allow inclusion in an addendum.

SUBMITTALS

Submit shop drawings in conformance with requirements in Division 1.

Submit shop drawings for contractor-furnished fixtures, switches, and fixture hangers. Indicate the specific product proposed with all pertinent information shown to match that specified.

Submit shop drawings by email in Adobe pdf format files.

OPERATION AND MAINTENANCE MANUALS (O&M)

Submit operation and maintenance documents for contractor-furnished light fixtures and switches.

Submit two (2) copies of O&M manuals in vinyl covered 3-ring binders, with project title on the front cover and spine.

WARRANTY

Warrant the work to be free of defects for a period of one year from the date of Substantial Completion. Repair defects within the warranty period in a timely manner without additional charge to the Owner.

Do not warrant damage from improper maintenance or use by the owner.

QUALITY ASSURANCE

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

PART 2 – PRODUCTS

MATERIALS

Provide only products that are new, and of the type and quality specified.

UL APPROVAL AND LISTING

Provide only products that are approved and listed by Underwriter's Laboratories, Inc.

PART 3 - EXECUTION

INSTALLATION IN GENERAL

Coordinate scheduling of work with the Owner's local representative.

Do not disrupt power during normal business hours without first scheduling work with the Owner's local representative.

Provide all required slots, chases, and openings in the building structures. Do not cut structural members without the written permission of the Engineer.

Install fixtures in strict accordance with manufacturers' installation instructions and recommendations. Provide copies of these instructions in the O & M manuals.

Provide all structural supports and mounting accessories for fixtures.

Provide all required adjustments for proper operation of the electrical systems. Check all safety devices and associated wiring for safe and proper operation.

At the completion of the project provide thorough instruction to the Owner's personnel on the proper operation and maintenance of the modified electrical system.

CLEANING

Keep the premises clear of unnecessary accumulation of debris during the project. On completion, remove all rubbish and debris resulting from the work or the work of subcontractors and dispose of properly.

Clean all equipment and fixtures at the completion of the project of accumulated plaster, dust, or other dirt and leave in a condition satisfactory for use. Vacuum chips, insulation stubs, and other debris from all panelboards, switches, and other enclosures.

END OF SECTION

SECTION 16110**CONDUIT**PART 1 - GENERAL**SECTION INCLUDES**

Electrical metallic tubing and fittings.

Non-metallic conduit and fittings.

REFERENCES

ANSI C80.3 - Electrical Metallic Tubing, Zinc-Coated.

ANSI C80.4 - Fittings for Rigid Metal Conduit and Electrical Metallic Tubing

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

UL 514B - Fittings for Conduit and Outlet Boxes

UL 797- Electrical Metallic Tubing

NEMA TC 2 - Conduit (EPC-40 and EPC-80).

NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

NEC - National Electric Code (2014)

PART 2 - PRODUCTS**ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS**

EMT: galvanized tubing that conforms to UL 797 and ANSI C80.3. Conduit shall bear UL label.

Fittings and Conduit Bodies: conform to ANSI/NEMA FB 1 and UL 514B; steel, insulated throat compression or set screw type except in poured concrete or wet locations use only the compression type. Cast or crimp (indent) type fittings are not acceptable.

RIGID NON-METALLIC CONDUIT AND FITTINGS

Conduit: Schedule 80 PVC, UL listed for 90°C; NEMA TC 2, conform to NEC Article 347.

Fittings and Conduit Bodies: PVC sleeve type, suitable for, and manufactured specifically for use with the conduit by the manufacturer; NEMA TC 3.

Plastic cement for joining conduit and fittings shall be supplied by the manufacturer of the conduit and shall be suitable for the ambient temperature at the time of installation.

PART 3 - EXECUTION**CONDUIT SIZING**

Size conduit for conductor type installed in compliance with the NEC.

Conduit sizes shall change only at the entrance or exit to a junction box.

CONDUIT ARRANGEMENT

Arrange conduit to maintain headroom and present a neat appearance. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls, structure, and adjacent piping.

Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, and heating appliances.

Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

CONDUIT SUPPORTS

Provide plated steel conduit hangers and associated hardware. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

Conduit shall be held in place by the correct size of conduit clamps or straps, or other support devices specifically designed for conduit support. Support conduit in compliance with the NEC.

Do not support conduit from lay-in ceiling hanger wires, ceiling support channels, ductwork, or piping.

On concrete or masonry construction, use insert anchors or expansion shields installed with plated steel

CONDUIT INSTALLATION SCHEDULE

Indoor dry locations: Electrical metallic tubing (EMT) and fittings

Indoor wet locations (Wash Bay): Schedule 40 rigid PVC non-metallic conduit and fittings.

END OF SECTION

SECTION 16120

WIRE

PART 1 - GENERAL

SECTION INCLUDES

Building wire

Wiring connections and terminations

REFERENCES

NEC - National Electric Code (2014)

NEMA WC 5 - Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

PART 2 - PRODUCTS

BUILDING WIRE

Thermoplastic-insulated Building Wire: NEMA WC 5.

Feeders and branch circuits 10 AWG and smaller: Solid or stranded copper conductor, 600 volt insulation:

Dry locations: THHN-2

Wet locations: THWN-2.

PART 3 - EXECUTION

GENERAL WIRING METHODS

Use no wire smaller than 12 AWG for switch and lighting circuits.

Splice only in junction or outlet boxes.

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

Make conductor lengths for parallel circuits equal.

Use industry standard color code for all conductors.

Provide green equipment grounding conductor in all conduits.

WIRING INSTALLATION IN RACEWAYS

Pull all conductors into a raceway at the same time. Use UL listed wire pulling lubricant for pulling 4 AWG and larger wires.

Completely and thoroughly swab raceway system before installing conductors.

Wires shall not be laid on ground before pulling nor dragged over the ground.

Only nylon rope shall be used for pulling wires or cables.

Leave at least 6" ends in device or fixture boxes for connections.

WIRING CONNECTIONS AND TERMINATIONS

Splice only in accessible junction boxes.

Use solderless pressure connectors with metal inserts and insulating covers for copper wire splices and taps, 8 AWG and smaller. Use insulated spring wire connectors with plastic caps, 10 AWG or smaller. All plastic or ceramic wire nuts are not acceptable.

Thoroughly clean wires before installing lugs and connectors.

Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

Terminate spare conductors with electrical tape.

FIELD QUALITY CONTROL

Inspect wire and cable for physical damage and proper connection.

Torque test conductor connections and terminations to manufacturers recommended values.

Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

END OF SECTION

SECTION 16130

BOXES

PART 1 - GENERAL

SECTION INCLUDES

Pull and junction boxes.

RELATED SECTIONS

Section 16110 - Conduit

Section 16141 - Wiring Devices

REFERENCES

UL 514A - Metallic Outlet Boxes, Electrical

UL 514B - Fittings for Conduit and Outlet Boxes

ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

ANSI/NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports

ANSI/NFPA 70 - National Electrical Code (2014)

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70.

Furnish products listed and classified by Underwriters Laboratories, Inc., as suitable for purpose specified and shown.

PART 2 - PRODUCTS

PULL AND JUNCTION BOXES-INDOORS

Sheet Metal Boxes: galvanized code gage stamped knockouts, threaded screw holes, and accessories as required for each location including mounting brackets and straps, cable clamps, conform to UL 514A, UL 514B, and ANSI/NEMA OS 1.

PART 3 - EXECUTION

INSTALLATION

Install electrical boxes as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

Install electrical boxes to maintain headroom and to present neat mechanical appearance.

Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

Support boxes independently of conduit.

Remove knockouts only as required. Knockouts mistakenly removed shall be properly plugged.

END OF SECTION

SECTION 16141**WIRING DEVICES**PART 1 - GENERAL**SECTION INCLUDES**

Switches
Device plates and box covers

RELATED SECTIONS

Section 16110 - Conduit
Section 16120 - Wire
Section 16130 - Boxes

REFERENCES

NEMA WD 1 - General Purpose Wiring Devices
NEMA WD 6 - Wiring Device Configurations

SUBMITTALS

Submit under provisions of Section 16010.

Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

REGULATORY REQUIREMENTS

Conform to requirements of ANSI/NFPA 70 - National Electric Code (2014).

Provide products listed and classified by Underwriters Laboratories, Inc.

PART 2 - PRODUCTS**WIRING DEVICES - ACCEPTABLE MANUFACTURERS & MODELS**

DEVICE	P&S
Wall Switch, single pole, 20A	PS20AC1
Wall Switch, 3-way, 20A	PS20AC3
Wall Switch, 4-way, 20A	PS20AC4
Wall Switch, single pole, 15A	PS15AC1
Wall Switch, 3-way, 15A	PS15AC3

Equivalent devices from Hubbell or Leviton are acceptable. All devices shall be from the same manufacturer.

SWITCHES

Description: NEMA WD 1, heavy-duty, AC only general use toggle handle snap action switch with colored Nylon™ thermoplastic face.

Color: Grey

Rating: 120 volts, AC, 20A

WALL PLATES

Satin finish stainless steel.

PART 3 - EXECUTION

PREPARATION

Clean debris from boxes.

INSTALLATION

Install products in accordance with manufacturer's instructions.

Install devices plumb and level.

FIELD QUALITY CONTROL

Inspect each wiring device for defects.

ADJUSTING

Adjust devices and wall plates to be flush and level.

END OF SECTION

SECTION 16190
SUPPORTING DEVICESPART 1 - GENERAL**SECTION INCLUDES**

Conduit and equipment supports
Fastening hardware

SUMMARY OF WORK

Furnish and install hangers, struts, and brackets required to support electrical work.

Furnish and install foundations, bases, and supports for items of equipment involved in the Work.

RELATED SECTIONS

Section 16110 – Conduit
Section 16130 – Boxes

PART 2 - PRODUCTS**STEEL STRUTS- ACCEPTABLE MANUFACTURERS**

B-Line
Unistrut
T&B Superstrut/Kindorf

Inside Installation

Steel Struts, Inside: Corrosion resistant galvanized steel, nominally 1-5/8" square size.

Fasteners: Corrosion resistant, galvanized steel.

Hanger Rods: Corrosion resistant, galvanized steel threaded rods.

Conduit Clamps: UL listed for application, galvanized steel.

PART 3 - EXECUTION**INSTALLATION**

Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using expansion anchors, preset inserts, or beam clamps.

Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or ceiling hanger wires.

Do not drill structural members without written permission of the Engineer.

Do not use powder actuated (explosive) anchors without specific permission from the Engineer.

Provide supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

Install surface mounted cabinets and panelboards with a minimum of four anchors. Provide steel support channels to stand cabinets and panelboards away from wall.

END OF SECTION

SECTION 16510

LIGHTING FIXTURES & LAMPS

PART 1 - GENERAL

SECTION INCLUDES

Interior lighting fixtures
Exit/emergency lighting fixtures

RELATED SECTIONS

Section 16110 - Conduit
Section 16120 - Wire
Section 16130 - Boxes
Section 16190 - Supporting Devices

REGULATORY REQUIREMENTS

Conform to NFPA 101 for installation requirements.

NFPA 70 - National Electric Code (2014)

SUBMITTALS-CONTRACTOR FURNISHED FIXTURES

Submit product data and manufacturer's installation instructions under provisions of Section 16010. Include outline drawings, lamp and ballast data, ETL photometric curves, support points, weights, and accessory information for each lighting fixture type.

DELIVERY, STORAGE, AND HANDLING

Owner furnished fixtures are stored on-site.

Store new fixtures indoors in a dry, conditioned space.

Coordinate with the Owner's representative to arrange for on-site storage space.

Contractor furnished fixtures-Replace lenses, and other fixture components furnished as part of this project, if broken or damaged after arriving on site.

PART 2 - PRODUCTS

FIXTURES, LAMPS, AND SUPPORT HANGERS

Refer to the Fixture schedule and notes on the Drawings.

High bay fixtures and lamps will be furnished by the Owner as noted on the Drawings.

Provide workbench and emergency/exit fixtures and lamps as noted on the Drawings.

Provide fixture hangers and miscellaneous support materials for all fixtures as noted on the Drawings.

FIXTURE WHIPS

Provide fixture whips for all fixtures, except emergency/exit fixtures.

Provide fixture whips that meet the requirements of the 2014 NEC: Articles 348.20(A)(2), 348.22, 410.177(A), (B), and (C), and 410.137(C).

Fixture whips: UL Listed, with die cast metal screw-In connectors on each end, stranded copper wire, 3/8" flexible armored cable, 3-12 AWG Stranded Wire: 6-FT - Black, White, Green.

PART 3 - EXECUTION

DEMOLITION

Demolish the existing lighting fixtures that will be replaced by new fixtures, as shown on the Drawings. Include miscellaneous materials associated with the removed fixtures and not needed for the new installation. Remove demolished materials from the site and dispose properly.

INSTALLATION

Owner furnished fixtures are stored on-site in a building different from the project area. Move the fixtures to the project area, unbox the fixtures, and properly dispose of the packing materials off site.

Install fixtures furnished by the Owner and contractor as shown on the Drawings. Provide boxes, cover plates, conduit, wire, supports, fixture whips, and miscellaneous materials as required for a complete, fully functional lighting system.

Comply with the National Electric Code and the manufacturer's instructions.

Support lighting fixtures directly from building structure. Provide mounting accessories as required to support fixtures.

Install units plumb and level.

Ground fixture bodies to conduit system and connect outer shells of lamp sockets to neutral conductors.

Test all fixtures for proper operation.

ADJUSTING AND CLEANING

Align emergency lighting fixtures to illuminate the egress path and lock into position.

Clean fixture bodies and lenses at completion of Work.

END OF SECTION



Bidders Request for Alternatives or Exceptions (BRAE)

Letting Date: March 16, 2016 _____

Proposal No.: 16119 _____

BRAE form due on or before: March 9, 2016 _____

Item: _____

Spec. No.: _____

Request: _____

Bidder Proposes to furnish in lieu of above: _____

NOTE: The determination of acceptance of this BRAE request is only valid for the bid for which it was submitted. BRAE approvals received for this bid do not determine or set a precedent for what is acceptable in any other bid posted by the State of Iowa.

Email/Fax to:

Iowa Department of Transportation
Purchasing Section
Attention: Jody McNaughton
Email: jody.mcnaughton@dot.iowa.gov

Fax No.: 515-239-1538

Submitted By _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone No. _____

Fax No. _____

=====
DOT USE ONLY

Approved _____

Disapproved _____

Reason _____

Signature: _____

Date: _____

Bidder _____

SEALED BID

LETTING DATE: March 16, 2016

PROPOSAL NO: 16119

PROPOSAL DESCRIPTION: Installation of new light fixtures 6 locations

**Iowa Department of Transportation
PURCHASING - SEALED BID PROPOSAL
800 Lincoln Way
Ames, IA 50010**