



Woodbury County Courthouse LED Lighting Retrofit

SPECIFICATIONS & PLANS FOR INSTALLERS
SIOUX CITY, IOWA
WPE PROJECT #BS15114

"This Project Manual provides for liquidated delay damages in the amount of the dollar difference in the 2015 & the 2016 rebates that the owner would have received from MidAmerican Energy for the Contractor's delay in completion of the work. See the Bid Form, Article 8 of the General Conditions, and Form of Contract for details."


Bidders are required to have a physical business establishment located in Woodbury County, IA.

Project: Woodbury County LED Lighting Retrofit

WPE # BS15114

Date: October 8th, 2015

Project Manual Sections prepared by or under the supervision of Melanie J. Raap-Eitrem, Eng. Reg. No. 18930, include Sections of Division 00, 26

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <p><u>Melanie J. Raap-Eitrem 10-8-15</u> Melanie J. Raap-Eitrem</p> <p>My license renewal date is December 31, <u>2015</u>.</p> <p>Pages or sheets covered by this seal: <u>E1.1, E1.2, E1.3, E1.4, E1.5, E1.6, E1.7, E1.8, E1.9, E2.1, E3.1, E3.2, E4.1, E4.2,</u> <u>E4.3, E4.4, E4.5, E4.6, E5.1, E5.2, E5.3, E5.4, E5.5, E5.6, E5.7, E6.1, E7.1, E7.2,</u> <u>E8.1, E9.1, E9.2, E9.3, E10.1, E10.2, E10.3, E10.4, E10.5, E11.1, E11.2, E11.3,</u> <u>E11.4, E11.5, E11.6, E11.7, E12.1, E13.1, E13.2</u></p>
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ADVERTISEMENT FOR BIDS

NOTICE OF LETTING

BID DATE: October 20, 2015 for Equipment Providers
November, 2nd 2015 for Installation Contractors

PROJECT: LED Lighting Retrofit

WOODBURY COUNTY COURT HOUSE, WOODBURY COUNTY JAIL LAW ENFORCEMENT CENTER, TROSPER-HOYT, SIOUXLAND SOCIAL SERVICES, DORTHY PECAUT NATURE CENTER, EAGLES BUILDING, VA/SOCIAL SERVICES AND VARIOUS OOTHER COUNTY BUILDINGS AS DEFINED IN THE PROJECT SPECIFICATIONS.

SIOUX CITY, IOWA AND WOODBURY COUNTY IOWA

PROJECT NO: _____

ENGINEERS: West Plains Engineering

4609 S. Techlink Circle

Sioux Falls, SD 57106

CONSTRUCTION MANAGER: Baker Group

4224 Hubbell Ave.

Des Moines, IA 50317

Sealed Proposals will be received by the Woodbury County Board of Supervisors at the County Board Administration Office, First Floor, Woodbury County Courthouse, 620 Douglas Street, Sioux City, Iowa, until 2:00 p.m., Tuesday, October 20th, 2015 for Equipment Providers and until 2:00 PM, Monday, November 2nd, 2015 for the Installation Contractors furnishing of all labor, incidental materials, tools, and other incidentals for work on the above improvements, as described in the drawings and specifications therefore, now on file for public inspection at the Board of Supervisors Office and at the offices of the Engineer.

All Bids shall be in accordance with Bid Documents prepared by West Plains Engineering Inc., which documents are hereby incorporated into this Notice by reference. Interested Contractors may obtain one copy of the Bid Documents from the Engineers or Construction Manager upon payment of a refundable deposit of \$100 or approved Plan Deposit Card.

Each Bid shall be submitted on a form furnished by the Engineer, and must be accompanied in a separate sealed envelope by Bid Security in the form of a Cashier's Check or Certified Check drawn on a

solvent Iowa Bank, or a Bid Bond executed by a corporation authorized to act as surety in the State of Iowa. Bid Security shall be in an amount equal to five per cent (5%) of the amount of the Bid, made payable to Woodbury County, Iowa. Bid Security shall be forfeited to the Board of Supervisors as liquidated damages in the event the successful Bidder fails or refuses to enter into a Contract and furnish Bond, as specified, satisfactory to the Board of Supervisors, assuring the faithful fulfillment of the Contract and the payment of all just claims, within ten (10) days after acceptance of the Bid.

At 9:00 AM on Thursday, October 22, 2015, a mandatory Pre- Bid meeting will be held at the First Floor Meeting Room (across the corridor from the court rooms), Woodbury County LEC Building, 407 Seventh St., Sioux City, Iowa. Attendance at this meeting is required for all Installation Contractors interested in the project. All bids must provide the names of subcontractors from each of the disciplines listed above who will be performing the work. No Prime Contractor and no Subcontractor from any of the listed disciplines who does not attend this meeting will be allowed to work on the project. Following the meeting a tour of all buildings will be conducted and will start in the jail facility. For additional information contact Shane Albrecht at the Baker Group, (515) 208-3014.

Following the bid dates and times as declared above, at the Board of Supervisors' Meeting Room on First Floor, Woodbury County Courthouse, the proposals will be opened publicly and read aloud. The proposals will be acted upon by the Woodbury County Board of Supervisors at their regular meeting on Tuesday, November 3rd for the Equipment Providers and Tuesday, November 10th for the Installation Contractors, or at some other time and place as may then be established by the Board.

The Board of Supervisors reserves the right to reject any or all Bids, re-advertise for Bids, or waive any formalities if they deem such actions to be in the interest of Woodbury County.

Contracts will be awarded to the lowest responsible bidder on the basis of a combination of the Base Bid and selected Alternate Proposals.

Published by order of the Woodbury County Board of Supervisors, Sioux City, Iowa.

(Signed)

Mark Monson, Chair

Woodbury County Board of Supervisors

Woodbury County Courthouse

Sioux City, Iowa

DIVISION 0 – CONTRACTUAL REQUIREMENTS

DIVISION 0 - CONTRACTUAL REQUIREMENTS

00035 ISSUE OF DOCUMENTS

A. DISTRIBUTION TO BIDDERS

1. Prime Contractors, Subcontractors, and Material Suppliers may obtain one (1) set of Bid Forms, Drawings, and Specifications upon payment of a refundable deposit of Two Hundred Dollars (\$ 200.00.) Deposits will be returned provided that the document sets are returned to the Engineer complete, unmutilated, and in usable condition within fourteen (14) days following award of the construction contracts.
 - a.. Members of Master Builders of Iowa in good standing may use a current year "Plan Deposit Card" in lieu of a check for a refundable deposit.
2. Should the Contractor decide not to submit a bid it shall return the drawings and specifications within twenty four (24) hours after it receives them.
3. The Contractor shall return the drawings and specifications as soon as the contract is awarded or it is definitely established that it is out of the competition. All drawings and specifications shall be returned to the office of the Engineer in an unmutilated condition without any marks or notations.
4. On completion of the project, all drawings and specifications shall be returned to the Engineer except for the Contract Set.

B. DISTRIBUTION TO OTHERS

1. a. Contractors or Subcontractors and Material Suppliers who wish to receive more sets than those provided for in preceding paragraphs may obtain extra documents by paying the cost of printing and postage.

Note: Documents are circulated only as complete sets. Partial sets are not available.

- b. Document sets may also be obtained in electronic form (Adobe PDF "Portable Document Format"). A complete set will be provided on CD upon request. Acceptance of the CD means the Contractor accepts the electronic indemnification clause attached to the drawing which states:

"The document(s) to which this Notice is attached was sent to you electronically and in an unprotected format. Accordingly, West Plains Engineering. Inc. disclaims any liability whatsoever regarding any use made of the document to which this is attached and the user agrees to indemnify and hold West Plains Engineering. Inc. harmless from any liability whatsoever in the use of the document.

"This drawing and all information thereon is the property of West Plains Engineering. Inc. and is protected by laws governing confidentiality and patent of products. This drawing is not to be used for purposes other than those specifically agreed to by West Plains Engineering. Inc."

DIVISION 0 - CONTRACTUAL REQUIREMENTS

- c. Printed document sets must be returned to the Engineer at the close of the bidding process. Documents transferred electronically need not be returned.

END OF SECTION

DIVISION 0- CONTRACTUAL REQUIREMENTS

00100 INSTRUCTIONS TO BIDDERS

00100.01. STANDARD FORM

1. AIA Standard Document A701, 1997 Edition, entitled "Instructions to Bidders" is a part of this Specification. A copy of said Standard Form may be seen at the office of the Engineer.
2. The following is an index to the Standard Form referred to above. It is included herein for reference.
 - a. Definitions
 - b. Bidder's Representation
 - c. Bidding Documents
 - d. Bidding Procedures
 - e. Consideration of Bids
 - f. Post Bid Information
 - g. Performance Bond and Payment Bond
 - h. Form of Contract

00100.02. PROPOSALS

1. Bidders are required to have a physical business establishment located in Woodbury County, IA.
2. Sealed proposals will be received by Woodbury County Board of Supervisors, first floor Woodbury County Courthouse, Sioux City, Iowa, until 2:00 p.m., Monday, November 2nd, 2015, for the furnishing of all labor, materials (other than the lighting package), tools, equipment, and incidentals for construction of the LED Lighting Retrofit, for the Woodbury County Courthouse, Sioux City, Iowa.
3. Proposals shall be submitted on a copy of the enclosed form.
4. Each proposal shall be enclosed in an envelope, sealed, endorsed "Bid for LED Lighting Retrofit - Installer", addressed to "Woodbury County Board of Supervisors", and filed before the time set for receiving bids. Fax bids are also acceptable.
5. No Bidder may withdraw its Bid for at least thirty (30) days after the scheduled closing time for receiving Bids.
6. The Owner reserves the right to reject any or all Bids or to waive any irregularities or formalities therein if it is in his interest to do so.

00100.03 PRE- BID MEETING

1. At 9:00 AM on Thursday, October 22nd, 2015, a mandatory Pre- Bid meeting will be held at the First Floor Meeting Room (across the corridor from the court rooms), Woodbury County LEC Building, 407 Seventh St., Sioux City, Iowa. Attendance at this meeting is required for all Installation Contractors interested in the project. All bids must provide the names of subcontractors from each of the disciplines listed above who will be performing the work. No Prime Contractor and no Subcontractor from any of the listed disciplines who does not attend this meeting will not be allowed to work on the project. Following the meeting a tour of all buildings will be conducted and will start in the jail facility. For additional information contact Shane Albrecht at the Baker Group, (515) 208-3014.

DIVISION 0- CONTRACTUAL REQUIREMENTS

2. All contractors and Subcontractors are required to attend the mandatory Pre-Bid meeting.

00100.04 SECURITY BACKGROUND CHECKS

1. Full Background checks for all workers are required for work in Woodbury County LEC, Woodbury County Courthouse, and Trospen Hoyt.

00100.05 BID SECURITY

1. Bid Security shall be in an amount equal to five per cent (5%) of the amount of the Bid, made payable to Woodbury County, Iowa. Bid Security shall be forfeited to the Board of Supervisors as liquidated damages in the event the successful Bidder fails or refuses to enter into a Contract and furnish Bond, as specified, satisfactory to the Board of Supervisors, assuring the faithful fulfillment of the Contract and the payment of all just claims, within ten (10) days after acceptance of the Bid.

00100.06 ADDENDA

1. Any Addenda issued during the time of bidding shall be covered in the Proposal; in the closing of the Contract they will become a part thereof.

END OF SECTION

DIVISION 0 - CONTRACTUAL REQUIREMENTS

00300 PROPOSAL FORM - INSTALLER

Woodbury County Board of Supervisors
Courthouse Building
Sioux City, IA

Proposals to be filed not later than 2:00 p.m. November 2nd, 2015.

Bidders are required to have a physical business establishment located in Woodbury County, IA.

Having carefully examined the drawings, specifications, and premises Woodbury County LED Lighting Retrofit, Woodbury County, Iowa, as prepared by West Plains Engineering, the undersigned proposes to furnish all materials (other than lighting package), and labor and comply with all requirements for the Work in accordance with said Documents.

This Project provides for liquidated delay damages. For the owner to obtain MidAmerican Rebates, the Light fixtures, and lamps shall be invoiced by the Supplier by December 31, 2015. The contractor shall install all fixtures and lamps within 6 months of invoice of the materials for the rebate to be valid. Entire project shall be completed by May 1, 2016. Liquidated delay damages in the amount of the dollar difference in the 2015 & the 2016 rebates that the owner would have received from MidAmerican Energy for the Contractor's delay in completion of the work.

PROPOSAL TOTAL FOR ALL BUILDINGS _____

_____ \$ _____

Eagles Building _____

_____ \$ _____

Climbing Hills Building _____

_____ \$ _____

Court House Building _____

_____ \$ _____

LEC Building _____

_____ \$ _____

DIVISION 0 - CONTRACTUAL REQUIREMENTS

LEC-Jail Only Building_____

_____ \$ _____

Conservation Mid Am Building_____

_____ \$ _____

Dorothy Pecaut Building_____

_____ \$ _____

Molville Engineer Ofc Building_____

_____ \$ _____

Secondary Road Sheds Building_____

_____ \$ _____

Siouxland Health Building_____

_____ \$ _____

Trosper Hoyt Building_____

_____ \$ _____

VA/Social Services Building_____

_____ \$ _____

Conservation REC Building_____

_____ \$ _____

DIVISION 0 - CONTRACTUAL REQUIREMENTS

Receipt of the following Addenda acknowledged:

Submitted by:

Signed: _____

Company _____

END OF SECTION

DRAFT AIA® Document A232™ - 2009

General Conditions of the Contract for Construction, Construction Manager as Adviser Edition

for the following PROJECT:

Woodbury County Lighting Retrofit

THE CONSTRUCTION MANAGER:

The Baker Group»«→
4224 Hubbell
Des Moines, Iowa 50317→

THE OWNER:

Woodbury County Board of Supervisors
620 Douglas Street -- Room 104
Sioux City, IA 50317

«

THE PROFESSIONAL ENGINEER:

West Plains Engineering
4609 S. Techlink Circle
Sioux Falls, SD 57106

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

This document is intended to be used in conjunction with AIA Documents A132™-2009, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™-2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™-2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 **The Contract Documents.** The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement), and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Professional Engineer. The Contract Documents also include the bidding requirements (advertisement or invitation to bid and Instruction to Bidders). Unless specifically enumerated in the agreements, the Contract Documents do not include the Contractor's Bid.

§ 1.1.2 **The Contract.** The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Professional Engineer or the Professional Engineer's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Professional Engineer or the Professional Engineer's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Professional Engineer, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Professional Engineer shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

§ 1.1.2.1 The Contract documents shall be signed by the Owner and Contractor. If either the Owner or Contractor or both do not sign all of the Contract Documents, the Construction Manager shall identify such unsigned documents. No Contract shall be formed between the parties until all Contract Documents are executed by both parties.

§ 1.1.3 **The Work.** The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 **The Project.** The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Multiple Prime Contractors and by the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

§ 1.1.5 **The Drawings.** The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 **The Specifications.** The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 **Instruments of Service.** Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Professional Engineer and the Professional Engineer's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 **Initial Decision Maker.** The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as

binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results in proper operating condition.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.2.4 If discrepancies or omissions are discovered in the Contract Documents, immediately notify the Professional Engineer for interpretation.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service

§ 1.5.1 The Construction Documents, regardless of the media or format, as instruments of service, are the property of the Owner, whether the work for which they are made is executed or not. The Owner reserves the right to use the Construction Documents developed for the Project in such manner as the Owner may desire, subject to the provisions herein. The Owner shall not use or alter the Construction Documents without first notifying the Professional Engineer of its intended use or alteration of the Construction Documents. If Owner uses the Construction Documents to construct a new facility at another site, the Professional Engineer shall not be liable for Owner’s subsequent use of the Construction Documents. Unless otherwise provided in this Agreement, nothing contained herein shall be construed as in derogation of the Professional Engineer’s copyright rights.

§ 1.6 Transmission of Data in Digital Form

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner’s approval or authorization. Except as otherwise provided in Article 4, the Construction Manager and the Professional Engineer do not have such authority. The term “Owner” means the Owner or the Owner’s authorized representative.

§ 2.2 Information and Services Required of the Owner

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner’s obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner’s ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. Unless otherwise provided under the Contract Documents, the Owner, through the Construction Manager, shall secure and pay for the building permit.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall compare information furnished by the Owner (including surveys and soil tests with observable physical conditions) and the Contract Documents, and on the basis of such review shall report to Owner, Professional Engineer and Construction Manager any conflicts, errors or omissions. Contractor shall be responsible for any additional costs, delays and damages resulting from the Contractor's failure to immediately report any such errors, inconsistencies or omissions.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.2.6 The Owner shall endeavor to forward all communications to the Contractor through the Construction Manager and shall contemporaneously provide the same communications to the Professional Engineer about matters arising out of or relating to the Contract Documents.

§ 2.3 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Professional Engineer's and their respective consultants' additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Professional Engineer, after consultation with the Construction Manager. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The plural term "Multiple Prime Contractors" refers to persons or entities who perform construction under contracts with the Owner that are administered by the Construction Manager. The term does not include the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

§ 3.1.3 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.4 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Professional Engineer in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents. The Contractor also represents that all Contract Documents for the Project have been examined, including those intended for work of trades not normally performed by the Contractor's own forces, and has become thoroughly familiar with all conditions which may pertain to or affect the Work under the Contract.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Professional Engineer any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Professional Engineer may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Professional Engineer any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Professional Engineer may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Professional Engineer issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Professional Engineer for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instruction concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner, the Construction Manager, and the Professional Engineer and shall not proceed with that portion of the Work without further written instructions from the Professional Engineer, through the Construction Manager. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.3.4 Contractor shall perform the Work so as to cause a minimum of inconvenience to and interruption of the Owner's operations. Any and all interruptions of the operations of the Owner necessary for the performance of the Work shall be noted in the progress schedule and the Contractor shall additionally give the Owner sufficient advance notice of such interruption so as to allow the Owner to adjust operations accordingly. Contractor's failure to give the Owner timely notice of such intentions shall place the responsibility of any resulting delays or additional costs solely with the Contractor.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. Work required by the Contract Documents to be performed after working hours or work the Contractor elects to perform after hours shall be completed at no additional cost to the Owner.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Professional Engineer in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Professional Engineer, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive. By making requests for substitutions, the Contractor (1) represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified; (2) represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified; (3) certifies that the cost data presented is complete and includes all related costs under this Contract except the Professional Engineer, or Professional Engineer's Consultants, re-design costs and waives all claims for additional costs related to the substitution which subsequently become apparent; and (4) will coordinate the installation of the accepted substitute making such changes as may be required for the Work to be complete in all respects.

§ 3.4.3 The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Professional Engineer or Professional Engineer's Consultants, to evaluate the Contractor's proposed substitutions and to make agreed-upon changes in the Contract Documents made necessary by the Owner's acceptance of such substitutions.

§ 3.4.4 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.4.5 The Contractor, and those working under their jurisdiction, shall conform to local labor laws of the State of Iowa and all other laws, ordinances and legal requirements affecting the Work. Prior to starting Work, the Contractor shall become familiar with local labor and trade conditions, skilled and unskilled, and shall conform to local conditions. The Contractor shall consider the availability of labor in the area and import labor as may be required to meet the Schedule for the Work.

§ 3.4.6 Contractor shall strictly abide by all laws relating to employment eligibility verification and shall employ only persons who are legally eligible to work.

§ 3.5 Warranty

The Contractor, or those under its jurisdiction, warrants to the Owner, Construction Manager, and Professional Engineer that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform with the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of

the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Professional Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. The quality required under this warranty shall, as a minimum, equal all standards or requirements of form, function, durability, performance, type, strength, efficiency, service, appearance, or other criteria established by the requirements of the Contract Documents.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.6.1 The Contractor shall be responsible for informing themselves of tax laws, requirements, regulations and interpretations as they apply to this Project.

§ 3.6.2 The Contractor shall not include in the bid State of Iowa and Local Option Sales and Use Tax for building materials that will be incorporated into real property for this Project. Each Bid Package Contractor shall provide a list of Subcontractors and Sub-subcontractors with their Federal Identification Number to the Owner. The Owner will issue exemption certificate to Contractors, Subcontractors and Sub-subcontractors in order to eliminate tax from the construction materials following award of contract. If material is purchased outside the State of Iowa and the other state requires that the Contractors, Subcontractors, Sub-subcontractors and suppliers pay sales tax, they are recommended to include this price in their bid unless they are able to obtain a sales tax refund from said state.

§ 3.6.3 The Contractor shall submit required sales tax exemption information within ten (10) days of the date of the Agreement between Owner and Contractor.

§ 3.7 Permits, Fees, Notices, and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit for its portion of the work. The Contractor shall secure and pay for other permits, fees, licenses and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction. The Contractor shall take note and comply with all governing laws, rules and regulations affecting the Work. This may include such laws, rules and regulations as: (1) Licensing of Contractors for special requirements, e. g. hazardous waste removal; (2) Requirements for special construction permits; (3) Exemption from sales tax, if applicable; (4) Wage rates and employment requirements when required by law or by Owner; (5) Local labor requirements; and (6) Non-discriminatory hiring practices. Contractor shall participate in all equal employment opportunity programs applicable to the Project.

§ 3.7.4 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Professional Engineer before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Professional Engineer and Construction Manager will promptly investigate such conditions and, if the Professional Engineer, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Professional Engineer, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated

in the Contract Documents and that no change in the terms of the Contract is justified, the Professional Engineer shall promptly notify the Owner, Construction Manager, and Contractor in writing, stating the reasons. If the Owner or Contractor disputes the Professional Engineer's determination or recommendation, either party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, and Professional Engineer. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.7.6 The Contractor is responsible for scheduling inspections related to the performance of its work and ensuring work is complete for inspections. Any costs associated with reinspection caused by irregularities, deficiencies or non-conforming work will be borne by the responsible contractor including all architectural and engineering Services related to evaluation of the problem and development of an acceptable solution.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

- .1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site at all times during performance of the Work, including work of the Contractor's subcontractors. Any change in superintendent personnel must be approved by the Owner. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Other communications shall be similarly confirmed on written request in each case. This individual shall be fluent in all languages necessary to communicate with Contractor's employees and subcontractors. Owner and Construction Manager shall be furnished with the e-mail address and pager, home and cell phone numbers for the Superintendent.

§ 3.9.2 The Contractor, within ten (10) days of the date of the Agreement between Owner and Contractor, shall furnish in writing to the Owner and Professional Engineer through the Construction Manager, the name and qualifications of a proposed superintendent. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager, or the Professional Engineer has reasonable objection to the proposed superintendent or (2) that any of them require additional time to review. Failure of the Construction Manager to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent or other key personnel to whom the Owner, Construction Manager or Professional Engineer has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction Schedules

§ 3.10.1 The Contractor, within twenty (20) days of the date of the Agreement between Owner and Professional Engineer, shall prepare and submit for the Owner's and Professional Engineer's information and the Construction Manager's approval a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project or as requested by the Owner, Professional Engineer or Construction Manager, shall be related to the entire Project schedule to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Multiple Prime Contractors or the construction or operations of the Owner's own forces.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter update it as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Construction Manager's and Professional Engineer's approval. The Professional Engineer and Construction Manager's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Construction Manager and Professional Engineer reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall participate with other Contractors, the Construction Manager and Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager and Professional Engineer and incorporated into the approved Project schedule.

§ 3.11 Documents and Samples at the Site

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These documents shall be available to the Professional Engineer and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed. The record documents shall be a separate set of documents used only for record purposes and kept clean and undamaged.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Professional Engineer and Construction Manager is subject to the limitations of Sections 4.2.9 through 4.2.11. Informational submittals upon which the Construction Manager and Professional Engineer are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Professional Engineer without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Construction Manager Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the Project submittal schedule approved by the Construction Manager and Professional

Engineer, or in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Multiple Prime Contractors or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples and similar submittals with related documents submitted by other Multiple Prime Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner, Construction Manager, and Professional Engineer, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed and approved by the Professional Engineer.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Professional Engineer's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Construction Manager and Professional Engineer in writing of such deviation at the time of submittal and (1) the Professional Engineer has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Professional Engineer's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Construction Manager and Professional Engineer on previous submittals. In the absence of such written notice, the Professional Engineer's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Professional Engineer will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Professional Engineer. The Owner and the Professional Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Professional Engineer have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Professional Engineer will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 3.13.3 The Contractor shall not bring or permit any subcontractor, supplier or anyone else for whom the Contractor is responsible, to bring on the site any asbestos, PCBs petroleum, hazardous waste or radioactive materials (except for proper use in performing the Work).

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. Contractors shall be responsible for cutting and patching not specifically indicated on the drawings but required for completion of their Work. Cutting and patching shall be kept to a minimum by careful planning and through providing holes, sleeves, anchors, inserts, or other built-in items as Work progresses and then only to the extent required to properly place, support, hang, anchor, or install materials and equipment. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents. Note that the Courthouse is a National Historical Landmark and may require special permission from the Professional Engineer and/or the State Historical Preservation Office and/or the National Park Service before any sort of cutting or drilling or anchoring not specifically called for in the Project Plans and Specifications is done. All patching is subject to Professional Engineer and Construction Manager's acceptance. Unauthorized or careless cutting will not be permitted. No structural member shall be cut unless approved by the Professional Engineer or Professional Engineer's Consultants.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner's own forces or of other Multiple Prime Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner's own forces or by other Multiple Prime Contractors except with written consent of the Construction Manager, Owner and such other Multiple Prime Contractors; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the other Multiple Prime Contractors or the Owner the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor, and their subcontractors (and each separate subcontractor if there are more than one), shall keep the premises and surrounding area free from accumulation of waste materials, fire hazards or rubbish caused by operations under the Contract and shall keep their work area neat and orderly through the construction period. At completion of the Work the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner, Construction Manager and Professional Engineer access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager and Professional Engineer harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner, Professional Engineer, or Construction Manager. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Professional Engineer through the Construction Manager.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Construction Manager, Professional Engineer, Construction Manager's and Professional Engineer's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) but only to the extent caused by the negligent acts or omissions of the Contractor, a

Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 PROFESSIONAL ENGINEER AND CONSTRUCTION MANAGER

§ 4.1 General

§ 4.1.1 The Owner shall retain a Professional Engineer lawfully licensed to practice Professional Engineer or an entity lawfully practicing Professional Engineer in the jurisdiction where the Project is located. That person or entity is identified as the Professional Engineer in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Professional Engineer will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Professional Engineer issues the final Certificate for Payment. The Construction Manager and Professional Engineer will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Professional Engineer will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to observe and evaluate the Work, to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, and to determine in general whether the Work observed is proceeding in accordance with the Contract Documents. However, the Professional Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Professional Engineer will keep the Owner and Construction Manager reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner and Construction Manager in writing any (1) known deviations from the Contract Documents and from the most recent Project schedule prepared by the Construction Manager, and (2) defects and deficiencies observed in the Work. The Professional Engineer will provide the Owner with written reports and construction update minutes as the Project progresses.

§ 4.2.3 The Construction Manager shall provide a staffing plan to include one or more representatives who shall be in attendance at the Project site whenever the Work is being performed and when otherwise necessary even when work is not being performed as mutually determined by the Owner and Construction Manager. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner reasonably informed of the progress of the Work, and will report to the Owner and Professional Engineer (1) known deviations from the Contract Documents and the most recent Project schedule, and (2) defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Multiple Prime Contractors in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Professional Engineer will not have control over, or charge of, construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Professional Engineer will have control over or charge of or be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work. The Professional Engineer shall report to the Owner known deviations from the Contract Documents.

§ 4.2.6 **Communications Facilitating Contract Administration.** Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Construction Manager, and shall contemporaneously provide the same communications to the Professional Engineer about matters arising out of or relating to the Contract Documents. Communications by and with the Professional Engineer's consultants shall be through the Professional Engineer. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with other Multiple Prime Contractors shall be through the Construction Manager and shall be contemporaneously provided to the Professional Engineer if those communications are about matters arising out of or related to the Contract Documents. Communications by and with the Owner's own forces shall be through the Owner.

§ 4.2.7 The Construction Manager and Professional Engineer will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Professional Engineer and Construction Manager have authority to reject Work that does not conform to the Contract Documents and will notify each other about the rejection. The Construction Manager shall determine in general whether the Work of the Contractor is being performed in accordance with the requirements of the Contract Documents and notify the Owner, Contractor and Professional Engineer of defects and deficiencies in the Work. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require additional inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, upon written authorization of the Owner, whether or not such Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Professional Engineer. However, neither the Professional Engineer's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Professional Engineer or the Construction Manager to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data and Samples. Where there are Multiple Prime Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from Contractor and other Multiple Prime Contractors, and transmit to the Professional Engineer those recommended for approval. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Construction Manager represents to the Owner and Professional Engineer that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Professional Engineer or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Professional Engineer.

§ 4.2.10 The Professional Engineer will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Professional Engineer or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Professional Engineer's professional judgment to permit adequate review. Upon the Professional Engineer's completed review, the Professional Engineer shall transmit its submittal review to the Construction Manager.

§ 4.2.11 Review of the Contractor's submittals by the Construction Manager and Professional Engineer is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Professional Engineer's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Construction Manager and Professional Engineer's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Construction Manager and Professional Engineer, of any construction means, methods, techniques, sequences or procedures. The Professional Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.12 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.13 The Construction Manager and the Professional Engineer will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7. and the Professional Engineer will have authority to order minor changes in the Work as provided in Section 7.4. The Professional Engineer, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.14 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Professional Engineer and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.15 The Construction Manager will assist the Professional Engineer in conducting inspections to determine the dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Professional Engineer pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Professional Engineer a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.16 The Professional Engineer will interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of the Construction Manager, Owner or Contractor. The Professional Engineer's response to such requests will be made with reasonable promptness and within any time limits agreed upon. If no agreement is made concerning the time within which interpretations required of the Professional Engineer shall be furnished in compliance with this Section 4.6, then delay shall not be recognized on account of failure by the Professional Engineer to furnish such interpretations until 15 days after written request is made for them.

§ 4.2.17 Interpretations and decisions of the Professional Engineer shall be consistent with the intent of and reasonably inferable from the Contract Documents and shall be in writing or in the form of drawings. When making such interpretations and initial decisions, the Professional Engineer shall endeavor to secure faithful performance by the Contractors and shall not be liable for results of interpretations or decisions so rendered in good faith. The Professional Engineer covenants with the Owner to furnish his/her skill and judgment, and to cooperate with the Owner in a manner consistent with that degree of skill, care and learning ordinarily possessed by members of the same profession in similar circumstances. The Professional Engineer agrees to furnish efficient administration and observation of the Project and to perform all duties in the sound, expedient, and economical manner consistent with its professional standard of care.

§ 4.2.18 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Professional Engineer, with the Construction Manager's recommendation. The Professional Engineer will review and respond in writing to the Construction Manager to requests for information about the Contract Documents. The Construction Manager's recommendation and the Professional Engineer's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Professional Engineer will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Multiple Prime Contractors or subcontractors of other Multiple Prime Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, within ten (10) days after the award of contract, shall furnish in writing to the Construction Manager for review by the Owner, Construction Manager and Professional Engineer the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design), along with a list of actual materials or equipment they will be furnishing, proposed for each principal portion of the Work. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager or the Professional Engineer has reasonable objection to any such proposed person or entity or, (2) that the Construction Manager, Professional Engineer or Owner requires additional time for review. Failure of the Construction Manager, Owner, or Professional Engineer to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Professional Engineer has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner, Construction Manager or Professional Engineer has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Professional Engineer has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required. Acceptance or rejection of any subcontractor shall not relieve the Contractor of performance of Work as called for under the Contract Documents, nor shall acceptance of a particular subcontractor be construed as acceptance of any particular process or material.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner, Construction Manager or Professional Engineer makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner, Construction Manager and Professional Engineer. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Professional Engineer under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, which include persons or entities under separate contracts not administered by the Construction Manager, and to award other contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces including persons or entities under separate contracts not administered by the Construction Manager, the Owner shall provide for coordination of such forces with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11 and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor and their Subcontractors shall cooperate with and coordinate their Work with all other Multiple Prime Contractors and their Subcontractors, Construction Manager and Owner to facilitate the general progress of the Project and to prevent delay of others. The Contractor shall afford the Owner's own forces, Construction Manager and other Multiple Prime Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents. Each Contractor or Subcontractor shall provide and obtain layout drawings, rough-in detail sheets and other pertinent information directly from the Construction Manager to coordinate all phases of the work. For coordination with the Owner's equipment or materials, information shall be obtained from the Owner, through the Construction Manager. After timely notification by the Contractor of the need to accomplish a particular phase or element of the Work, other contractor's shall, within reasonable time, perform their Work so as not to delay or impede the Contractor.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces or other Multiple Prime Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Construction Manager and Professional Engineer apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's own forces or other Multiple Prime Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a separate contractor or to other Multiple Prime Contractors because of the Contractor's delays, improperly timed activities, defective construction or lack of coordination with other Contractors. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work, defective construction or lack of coordination by the Owner's own forces or other Multiple Prime Contractors.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner, separate contractors, or other Multiple Prime Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and other Multiple Prime Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, other Multiple Prime Contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Professional Engineer, will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Professional Engineer and Contractor; a Construction Change Directive requires agreement by the Owner, Construction Manager and Professional Engineer and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Professional Engineer alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager, Professional Engineer and Contractor, stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum (Methods used in determining adjustments to the Contract Sum shall include those listed in Subparagraph 7.3.3.); and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.2.2 The forms used to process a Change Order will include AIA Document G732 (2009), Change Order.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Professional Engineer, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order, and upon approval of the Owner.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager and Professional Engineer of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Cost of Subcontracted work, computed in the same way as provided for under this Subparagraph;
- .4 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .5 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .6 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The maximum that will be allowed for overhead and profit or commission shall be (values are expressed as a percentage of the basic cost of the change) Fifteen percent (15%) maximum mark-up for work performed by employees of the Contractor, Subcontractor, or Sub-Subcontractor; Five percent (5%) maximum Contractor mark-up for work performed by a Subcontractor.

§ 7.3.9 In any proposal with material, equipment and supply credits, the credit shall be based on the actual Contract cost of the material (including trade and quantity discounts) less any charges actually incurred for handling or returning a material which has been delivered. No cancellation, restocking or similar charge will be allowed unless actually incurred by the purchaser and generally will not be allowed when the product has not been shipped.

§ 7.3.10 Cost changes shall be computed by determining the basic costs indicated under Subparagraph 7.3.7, to which the overhead and profit or commission may be added.

§ 7.3.11 Subcontractors or Sub-subcontractors shall compute their costs in the same way and are subject to the same conditions of what may be included in the cost and same maximum percentages for overhead and profit or commission. To the Sub-Subcontractor's proposal, the Subcontractor may add bond cost, if applicable, and up to five percent commission. To the Subcontractors proposal, the Contractor may add bond cost and up to five percent commission.

§ 7.3.12 For changes involving work self-performed by the Contractor and work by a Subcontractor or Sub-Subcontractor, the commission shall be applied directly to the Subcontractor's proposal with the overhead and profit figure applied only to the Work self-performed by the Contractor.

§ 7.3.13 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Professional Engineer. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.14 In the event individual credits exceed \$5,000, a reasonable credit for overhead and profit or commission shall be provided to the Owner.

§ 7.3.15 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Professional Engineer will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Professional Engineer determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.16 When the Owner and Contractor agree with a determination made by the Construction Manager and Professional Engineer concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Professional Engineer has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order issued through the Construction Manager and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement, or the date in the Notice to Proceed, whichever is later.

§ 8.1.3 The date of Substantial Completion is the date certified by the Professional Engineer in accordance with Section 9.8.

§ 8.1.4 The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial and Final Completion within the Contract Times specified. The Work shall not be suspended or shut down but shall progress continuously with sufficient labor and supervision at all times unless otherwise approved by the Owner.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner, Owner's own forces, Construction Manager, Professional Engineer, any of the other Multiple Prime Contractors or an employee of any of them, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration, or by other causes that the Professional Engineer, based on the recommendation of the Construction Manager, determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Professional Engineer may determine. A time extension shall be Contractor's sole remedy and compensation for all such delays other than those resulting from the acts or negligence of the Owner, the Professional Engineer, the Construction Manager or the Owner's separate contractors (collectively

Owner Caused Delays). For proven Owner Caused Delays, the Contractor may recoup the actual costs resulting from such delays, but not for any additional profit or fee.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

§ 8.4 LIQUIDATED DAMAGES

§8.4.1 It is understood and agreed that completion of the entire project within the time stated in the Contract Agreement is a matter of vital necessity to the Owner, that the Owner will suffer substantial damages if the entire project is not completed within that time, and that it would not be possible to accurately determine the amount of such damages. In view of these facts, the Contractor agrees to pay the Owner liquidated damages in the sum set forth in the Construction Agreement for each calendar day, if any, which elapses between the date stated in the Construction Agreement, as extended by any extensions of time under the provisions of the General Conditions of the Contract, and the date when the entire project is Substantially Complete within the meaning of the General Conditions of the Contract. If the Contractor shall fail to pay such liquidated damages promptly upon demand therefor, the surety on his performance bond shall pay such damages. Also, the Owner may withhold all or any part of such liquidated damages from any payments due the Contractor. No changes in the work shall extend the time for completion unless set forth on a properly approved field order/change order.

§ 8.4.2 The Contractor and the Contractor's surety, shall be liable for and shall pay the Owner for any extra costs for engineering or architectural services, construction observation services and related expenses necessitated by the delayed prosecution of the work by the Contractor after Substantial Completion but before the date of Final Completion required by the Agreement. Such costs are in no way a penalty, but represent additional expenses to the Owner caused by the Contractor's delay in completing the Work.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 Schedule of Values

The Contractor shall submit to the Construction Manager, before the first Application for Payment, or as directed by other requirements of the Contract Documents, a schedule of values prepared in a form acceptable to the Construction Manager and the Owner allocating the entire Contract Sum to the various portions of the Work and prepared in such form on the form attached to the Agreement as Exhibit "L" and supported by such data to substantiate its accuracy as the Construction Manager and Professional Engineer may require. This schedule, unless objected to by the Construction Manager or Professional Engineer, shall be used as a basis for reviewing the Contractor's Applications for Payment. In the event there is one Contractor, the Construction Manager shall forward to the Professional Engineer the Contractor's schedule of values. If there are Multiple Prime Contractors responsible for performing different portions of the Project, the Construction Manager shall forward the Multiple Prime Contractors' schedules of values only if requested by the Professional Engineer.

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§ My recommendation for the item related to Section 9.2 on page 29 would be to remove the reference to an exhibit and state that the schedule of values shall be prepared in a form acceptable to the Construction Manager and the Owner.

§ 9.3 Applications for Payment

§ 9.3.1

At least 10 days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment for operations completed in accordance with the Schedule of Values. Such application shall be on the form attached as Exhibit "K" to the Agreement, notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner, Construction Manager or Professional Engineer may require, such as copies of requisitions from Subcontractors and material suppliers. All applications for payment shall be accompanied by notarized Lien Waivers attesting to payment of all sums owing for work for which payment has already been made to Contractor by Owner on the forms that are attached to the

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Agreement as **Exhibit "D"**. If the Contract Documents required the Owner to retain a portion of the payments until some future time, the Applications for Payment shall clearly state the percentage and the amount to be retained. Once the Application is approved by the Professional Engineer, the Application For Payment must be submitted for approval to the [REDACTED] ~~School Board~~Board of Supervisors at its next regularly scheduled meeting. The application must be received at the Board office at least two weeks prior to the scheduled meeting for it to be included in that meeting's scheduled business.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Professional Engineer, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work and for which Bills of Sale & Bailment Agreements on the forms attached to the Agreement as **Exhibits "E" and "F"** have been submitted to the Construction Manager. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.3.4 The Owner, in making partial payment, will retain five percent (5%) of the approved value of the work performed under the Contract as of the date of the application for payment until final completion and acceptance of all work covered by the Contract, or as otherwise required by law.

§ 9.4 Certificates for Payment

§ 9.4.1 Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Professional Engineer. Within seven days after the Professional Engineer receives the Contractor's Application for Payment from the Construction Manager, the Professional Engineer will either issue to the Owner a Certificate for Payment, with a copy to the Construction Manager, for such amount as the Professional Engineer determines is properly due, or notify the Construction Manager and Owner in writing of the Professional Engineer's reasons for withholding certification in whole or in part as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Professional Engineer's notice of withholding certification.

§ 9.4.2 Where there are Multiple Prime Contractors performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives the Multiple Prime Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Multiple Prime Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Multiple Prime Contractors' application with information from similar applications for progress payments from other Multiple Prime Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Multiple Prime Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Professional Engineer.

§ 9.4.3 Within seven days after the Professional Engineer receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Professional Engineer will either issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager, for such amount as the Professional Engineer determines is properly due, or notify the Construction Manager and Owner in writing of the Professional Engineer's reasons for withholding certification in whole or in part as provided in Section 9.5.1. The Construction Manager will promptly forward the Professional Engineer's notice of withholding certification to the Contractors.

§ 9.4.4 The Construction Manager's certification of an Application for Payment or, in the case of Multiple Prime Contractors, a Project Application and Certificate for Payment shall be based upon the Construction Manager's evaluation of the Work and the information provided as part of the Application for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information and belief, the Work has progressed to the point indicated and the quality of the Work is in accordance with the Contract Documents. The certification will also constitute a recommendation to the Professional Engineer and Owner that the Contractor be paid the amount certified.

§ 9.4.5 The Professional Engineer's issuance of a Certificate for Payment or in the case of Multiple Prime Contractors, Project Application and Certificate for Payment, shall be based upon the Professional Engineer's evaluation of the Work, the recommendation of the Construction Manager, and information provided as part of the Application for Payment or Project Application for Payment. The Professional Engineer's certification will constitute a representation that, to the best of the Professional Engineer's knowledge, information and belief, the Work has progressed to the point indicated, that the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified.

§ 9.4.6 The representations made pursuant to Sections 9.4.4 and 9.4.5 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Construction Manager or Professional Engineer.

§ 9.4.7 The issuance of a separate Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Professional Engineer has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed the Contractor's construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Professional Engineer may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Professional Engineer's opinion the representations to the Owner required by Section 9.4.4 and 9.4.5 cannot be made. If the Construction Manager or Professional Engineer is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.3. If the Contractor, Construction Manager and Professional Engineer cannot agree on a revised amount, the Professional Engineer will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Professional Engineer is able to make such representations to the Owner. The Construction Manager or Professional Engineer may also withhold a Certificate for Payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Professional Engineer's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Professional Engineer or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Professional Engineer and the Construction Manager and both will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Professional Engineer has reviewed and recommended a Certificate for Payment and after the Construction Manager has issued the Certificate of Payment and released it to the Owner, the Owner shall approve payment with Contractor to receive payment by the last day of the following month. Until Substantial Completion, the Owner will pay ninety-five percent (95%) of the amount due the Contractor on account of Progress Payments, and the Owner will withhold five percent (5%) retainage.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Construction Manager will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Professional Engineer on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Professional Engineer shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 Issuance of a Contractor's Application and Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents. The Contractor and its Surety agree any issuance of a project certificate for payment, payment on the Contract Sum, or any use or occupancy of the Work will in no way relieve them of the obligation to completely fulfill or accomplish all obligations of the Contract, including warranty of the Work, and that they waive any actual or alleged rights of subrogation or action against the Owner, Professional Engineer, or Construction Manager as a result of any such occupancy. At any time the Surety shall have the right to examine the status of the Work, as well as any payments, and may request the Owner to withhold additional sums as it considers appropriate to protect its interests.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Payment to the Contractor will be made by the Owner from cash on hand from such sources as may be legally available.

§ 9.7 Failure of Payment

If the Construction Manager and Professional Engineer do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, provided it has been properly submitted as specified, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Construction Manager and Professional Engineer or awarded by the dispute resolution process, then the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager and Professional Engineer, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use, subject only to completion of minor punch list items, the absence of completion of which does not interfere with the Owners intended use of the Project.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Professional Engineer a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the list, the Professional Engineer, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Professional Engineer's inspection discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the requirements of the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Professional Engineer. In such case, the Contractor shall then submit a request for another inspection by the Professional Engineer, assisted by the Construction Manager, to determine Substantial Completion.

§ 9.8.4 When the Professional Engineer, assisted by the Construction Manager, determines that the Work or designated portion thereof is substantially complete, the Construction Manager will prepare, and the Construction Manager and Professional Engineer shall execute a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon receipt of the fully executed Certificate of Substantial Completion, the Contractor may request release of all or part of retained funds due in accordance with Iowa Code Chapter 26 provisions. Remaining retained funds shall not become due until Contractor submits to the Construction Manager (1) a sworn statement that ten calendar days prior to filing request for release of retained funds, a notice was given to all known subcontractors, sub-subcontractors and suppliers that Contractor was requesting release of retained funds; (2) an itemized list of Work left to complete, including estimated value of labor and materials; (3) an itemized list of Iowa Code Chapter 573 claims currently on file at time request for release of retained funds is received; (4) outstanding change orders fully executed; (5) Operation, Maintenance and Warranty Manuals and Record Drawings and Specifications; (6) AIA Document G704/CMA – Certificate of Substantial Completion; (7) AIA Document G707 – Consent of Surety to Final Payment; and (8) AIA Document G707A – Consent of Surety to Reduction on Partial Release of Retainage.

§ 9.8.6 The Contractor shall reimburse the Owner for any additional professional services (including the Professional Engineer and Construction Manager) made necessary by the Contractor's failure to finally complete the Work within sixty (60) days after the date specified in the Contract Documents for Project Substantial Completion.

§ 9.8.6.1 The Contractor shall also be responsible for reimbursing the Owner for any costs, including attorney fees, which arise out of the filing of any Iowa Code Chapter 573 claims.

§ 9.8.7 If documentation requested in Subparagraph 9.8.5 is received from Contractor, Owner shall make payment due Contractor at Owner's next monthly board meeting or within thirty days, whichever is less, except the Owner may retain (1) an amount equal to 200% of the value of labor and materials yet to be provided on the Project (final values to be withheld shall be determined by the Construction Manager and Professional Engineer based on the estimates provided by the Contractor and the Construction Manager's and Professional Engineer's onsite visits, observations and inspections); (2) Double the amount of any Iowa Code Chapter 573 claims currently on file; (3) An amount equal to 0.5% of the total value of the Contract or \$500, whichever is greater, will be withheld for Operation, Maintenance and Warranty Manuals and Record Drawings and Specifications not submitted fifteen (15) days prior to Substantial Completion Inspection.

§ 9.8.8 If the Owner withholds any amount of retained funds, the Construction Manager and/or Professional Engineer shall provide an itemization and list of reasons why amounts are being withheld within thirty (30) calendar days of receipt of request.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Professional Engineer as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Professional Engineer after consultation with the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor and Professional Engineer shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a written notice that the Work is ready for final inspection and acceptance and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager will evaluate the completion of Work of the Contractor and then forward the notice and Application, with the Construction Manager's recommendations, to the Professional Engineer who will promptly make such inspection. When the Professional Engineer finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Professional Engineer will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Professional Engineer's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Professional Engineer through the Construction Manager such substantiation of the Contractor's Right to Payment as the Owner may require such as and including (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied and a Final Waiver of Liens and Release of Claims on the form attached to the Agreement as **Exhibit "G"**, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees. Final payment or remaining retained percentage shall be made no earlier than thirty-one (31) days after completion and final acceptance of the Work by Owner, contingent on stated requirements for final payment at a regularly scheduled Board Meeting, contingent on stated requirements for final payment and subject to the conditions of and in accordance with the provisions of Iowa Code Chapter 573 and Iowa Code Chapter 26.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Professional Engineer so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Professional Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Professional Engineer through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims. The Owner may at its option retain a maximum of two times the value of the incomplete or uncorrected parts of the Work, as estimated by the Construction Manager and the Professional Engineer, provided the remaining work is minor and cannot be completed or corrected due to weather, unsuitable conditions for testing or other circumstances beyond the Contractor's control, as agreed upon by the Professional Engineer and Construction Manager.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors;
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
- .4 construction or operations by the Owner or other Contractors.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

- .1 Contractors shall comply with the Iowa Smoke Free Air Act while on Owner Property and shall not smoke or use any tobacco product while on Owner property. Owner property shall include, but not be limited to, inside private Contractor or employee owned vehicles while parked on Owner property.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel and shall give Owner reasonable advance notice.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4, except damage or loss attributable to acts or omissions of the Owner, Construction Manager or Professional Engineer or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault, acts, operations, methods or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Professional Engineer.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 The Contractor shall have a written safety program for the protection of persons and property. Contractor's safety program shall be submitted to the Construction Manager within ten (10) days of the date of the Agreement between Owner and Contractor. The Construction Manager will review the safety program and monitor Contractor implementation. The Contractor, not the Owner, shall be entirely responsible and liable for the safety of persons and property. The review of the safety program and monitoring of Contractor implementation by the Construction Manager does not shift that responsibility and liability to the Owner or Construction Manager.

- .1 The Construction Manager reserves the right to suspend work activity or deny access to the site of the work Contractor's, Subcontractor's, Sub-subcontractor's and their employees for repeated safety program rules violations.

§ 10.3 Hazardous Materials

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the

Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to, asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner, Construction Manager and Professional Engineer in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify a presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Professional Engineer the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor, the Construction Manager and the Professional Engineer will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Professional Engineer has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Professional Engineer have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resumed upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Professional Engineer, their consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, ~~including but not limited to attorneys' fees~~, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is not due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Liability Insurance- see **Exhibit "H"** to the Agreement

§ 11.2 Owner's Liability Insurance See Exhibit "H"

§11.3 (not used)

§ 11.4 Performance Bond and Payment Bond

§ 11.4.1 The Contractor shall furnish bonds covering faithful performance of the contract and payment of obligations arising thereunder. Bonds may be obtained through the Contractor's usual source and the cost shall be included in the Contract sum. The amount of each bond shall be equivalent to 100 percent of the Contract Sum and shall be on the forms attached to the Agreement as **Exhibits "I" and "J."**

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.4.3 The Contractor shall deliver the required bonds to the Owner not later than three days following the date the Agreement is entered into, or if the work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to commencement of the work, submit evidence satisfactory to the Owner that such bonds will be furnished.

§ 11.4.4 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Professional Engineer's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their observation and be replaced at the Contractor's expense without change in the Contract Time. The Contractor shall give timely notice to the Professional Engineer through the Construction Manager of the readiness of the Work to be observed.

§ 12.1.2 If a portion of the Work has been covered which the Construction Manager or Professional Engineer has not specifically requested to observe prior to its being covered, the Construction Manager or Professional Engineer may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or one of the other Contractors in which event the Owner shall be responsible for payment of such costs.

§ 12.2 Correction of Work

§ 12.2.1 Before or After Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager or Professional Engineer or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed, unless the Owner elects to accept the Work as provided for under Section 12.3. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Professional Engineer's services and expenses made necessary thereby, shall be at the Contractor's expense. Work rejected before final completion shall be corrected prior to processing of the final Contractor's Application and Certificate for Payment.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Professional Engineer, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors or other Multiple Prime Contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the state of Iowa.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 Written Notice

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity or to an officer of the corporation for which it was intended; or if delivered at or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 Rights and Remedies

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Construction Manager, Professional Engineer or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

§ 13.5 Tests and Inspections

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Construction Manager and Professional Engineer timely notice of when and where tests and inspections are to be made so that the Construction Manager and Professional Engineer may schedule the inspection and be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Construction Manager, Professional Engineer, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Construction Manager and Professional Engineer will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Professional Engineer of when and where tests and inspections are to be made so that the Construction Manager and Professional Engineer may be present for such procedures. Such costs except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Construction Manager's and Professional Engineer's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Professional Engineer.

§ 13.5.5 If the Construction Manager or Professional Engineer is to observe tests, inspections or approvals required by the Contract Documents, the Construction Manager or Professional Engineer will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the then current interest rate in effect for stamped warrants pursuant to Iowa Code 74A.2.

§ 13.7 Time Limits on Claims

As to acts or failures to act, any applicable statute of limitation shall commence to run and any alleged causes of action shall be deemed to have accrued in any and all events not later than the date of Owner approval of the Final Certificate for Payment.

§ 13.8 Rebates

The Owner shall have the right to apply for and secure all rebates which are available when Bids are received. Contractor shall provide invoices, itemizations and cooperation to the Owner in this regard.

§ 13.9 Conformance with Laws.

The Contractor shall conform in all respects with the provisions of the Federal Civil Rights Act, the Code of Iowa, Chapter 216 Civil Rights Commission and the rules and regulations adopted thereto by the Iowa Civil Rights Commission. The Contractor shall not discriminate against any employee or applicant because of race, color, religion, sex, national origin, ancestry, age, marital status, physical or mental handicap, sexual orientation and gender identity. The Contractor shall comply with all applicable federal, state and local, laws, rules, regulations, ordinances, policies and procedures, including the [REDACTED] ~~School District~~ Woodbury County policies and procedures. The Contractor shall require similar clauses in all of its subcontracts for service or materials.

§ 13.10 Employees

The Contractor and its Subcontractors shall at all times enforce strict discipline and good order among its employees and shall not employ on the work any person considered by the Owner or its Construction Manager to be unfit or not skilled in the work assigned. ~~The Contractor shall also keep its employees and those of its subcontractor from socializing upon the site of the work after normal work hours and from fraternizing at any time with staff, students, parents and other persons who are at the school or the site of the work.~~

The Contractor or their Subcontractors shall not be owned, operated, or managed by a registered sex offender who has been convicted of a sex offense against a minor in accordance with Iowa Code 692A.113. In addition, the Contractor or their Subcontractors shall not permit an employee who is a registered sex offender convicted of a sex offense against a minor on real property ~~of the schools~~ of the Owner in accordance with Iowa Code 692A.113. ~~The Contractor and their subcontractors shall further acknowledge and certify services provided under this Contract comply with Iowa Code 692A.113 and shall fully execute and deliver copies of Acknowledgement and Certification to the Owner prior to any work commencing under this contract.~~

§ 13.11 Drug Free and Smoke Free Zone

The ~~_____~~ School District Woodbury County buildings are is a drug-free and tobacco-free zone. In furtherance of this standard, the Contractor shall establish and maintain a safe and efficient work environment for all employees, free from the effects of smoke, alcohol, controlled substances and illicit drugs.

- .1 Smoking and the use of smokeless tobacco shall be prohibited at all times on school County property, including parking lots and inside of any private vehicles on school County property.
- .2 The manufacture, distribution, dispensing, possession, or use of alcohol, controlled substances and illicit drugs is prohibited on or adjacent to the project site and all of the Owner's property at all times.
- .3 Illicit drug use is the use of illegal drugs and the abuse of alcohol and other drugs, including anabolic steroids.
- .4 Controlled substances are drugs specifically identified and regulated under state and federal law and include, but are not limited to, opiates, narcotics, cocaine, methamphetamines, and other stimulants, depressants, hallucinogenic substances and marijuana.
- .5 The Contractor will strictly enforce these prohibitions among its own employees and its Subcontractor's and their employees at all times. Employees who violate these prohibitions will be subject to disciplinary action by their employers up to and including termination and may be denied access to the site of the work.
- .6 Violation of Section 13.11 shall also constitute sufficient grounds for termination of the Contract or any subcontract without damages or penalty to Owner.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- .3 Because the Construction Manager has not certified or the Professional Engineer has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the

Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner, Construction Manager and Professional Engineer, terminate the Contract and recover from the Owner payment for Work executed ~~including reasonable overhead and profit, costs incurred by reason of such termination, and damages through the date of termination.~~

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager and Professional Engineer, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, after consultation with the Construction Manager, and upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, three days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the Owner completes the Work and if the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including the Owner's additional costs, attorney's costs and compensation for the Construction Manager's and Professional Engineer's services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor and/or their Surety shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. ~~Adjustment of the Contract Sum shall include profit.~~ No adjustment shall be made to the extent:

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of this Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner reserves the right to terminate all or any part of the Contract for its convenience and without cause upon 14 days' written notice to the Contractor. In such event, Contractor shall immediately cease all work except as may be directed by Owner to preserve work already in place. Contractor shall promptly advise Owner of the status of all subcontracts and purchase orders to allow Owner the option of terminating them under most advantageous terms. Contractor shall be paid for its work through the date of termination based on the Schedule of Values.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 promptly advise Owner of the status of all subcontracts and purchase orders to allow Owner the option of terminating them under most advantageous terms.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed through the date of termination based on the Schedule of Values.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 **Definition.** A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 **Notice of Claims.** Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Professional Engineer, if the Construction Manager and or Professional Engineer is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 **Continuing Contract Performance.** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Construction Manager will prepare Change Orders and the Professional Engineer will issue a Certificate for Payment or Project Certificate for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 **Claims for Additional Cost.** If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.3.

§ 15.1.5 Claims for Additional Time

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Professional Engineer will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement.

§ 15.2.2 The Professional Engineer will approve or reject Claims by written decision within ten (10) days of receipt of the claim, which shall state the reasons therefore and which shall notify the parties of any change in the Contract Sum

or Contract Time or both. The approval or rejection may be subject to mediation, arbitration, litigation, or any other alternative dispute resolution process mutually agreeable to the parties involved in the dispute but shall not be required and shall not preclude litigation by any of the parties involved.

§ 15.3 Mediation

§ 15.3.1 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall may be administered in accordance with Iowa Code Chapter 679C, as amended. A request for mediation shall be made in writing, and delivered to the other party to the Contract. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

§ 15.3.2 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

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DIVISION 1 - GENERAL REQUIREMENTS

01010 SUMMARY OF WORK

01010.01 SCHEDULE

1. Work shall proceed upon award of Contract. For the owner to obtain MidAmerican Rebates, the Light fixtures, and lamps need to be invoiced by December 31, 2015. The contractor shall install all fixtures and lamps within 6 months of invoice of the materials for the rebate to be valid. Entire project shall be completed by May 1, 2016. Liquidated delay damages in the amount of the dollar difference in the 2015 & the 2016 rebates that the owner would have received from MidAmerican Energy for the Supplier's delay in completion of the work.

01010.02 SCOPE OF WORK

1. Work consists of furnishing all Material (other than lighting package) required to complete all work shown or reasonably implied by the Contract Documents.
2. The Prime Contractor shall provide coordination for the work of subcontractors. Subcontractors shall cooperate with the Prime Contractor in the performance of this responsibility. This coordination shall include, but not necessarily be limited to, the following:
 - a. Notifying subcontractors when jobsite conditions or operations require their presence.
 - b. Ensuring that timely arrangements are made for any inspections required by agencies having jurisdiction over the work.
 - c. Coordinating items of Work requiring special cooperation between Contractors, such as cleanup.
 - d. Scheduling and administering Construction Progress Meetings. One (1) Preconstruction Meeting shall be held within 10 (ten) days after award of Contract. Other jobsite Construction Meetings shall be held as deemed appropriate by the Contractor, but not less than once per month during the construction time. Contractor shall:
 1. Prepare agenda for meetings.
 2. Make physical arrangements for meetings.
 3. Give written notice of the time, place, and proposed agenda of meeting four (4) days in advance of meeting. Send notice to Consulting Engineer, Owner, Subcontractors, and others as appropriate.
 4. Preside at meetings.
 5. Record minutes, including attendance roll, significant discussions, and decisions.
 6. Within three (3) days after meeting, distribute minutes to all participants and any others affected by the discussions or decisions of the meeting.
3. Contract Documents are enumerated as follows:
(All documents are West Plains Engineering Project #BS15114 dated September 25th, 2015.)
 - a. Specifications, Divisions 0 and 1, Division 26.
 - b. Drawings, Sheets E1.1, E1.2, E1.3, E1.4, E1.5, E1.6, E1.7, E1.8, E1.9, E2.1, E3.1, E3.2, E4.1, E4.2, E4.3, E4.4, E4.5, E4.6, E5.1, E5.2, E5.3, E5.4, E5.5, E5.6, E5.7, E6.1, E7.1, E7.2, E8.1, E9.1, E9.2, E9.3, E10.1, E10.2, E10.3, E10.4, E10.5, E11.1, E11.2, E11.3, E11.4, E11.5, E11.6, E11.7, E12.1, E13.1, E13.2
 - c. In addition to the documents listed herein, any addenda issued during the time of bidding shall also be considered part of the Contract Documents.
4. When the Work is completed, the Contractor is to clean the work area and adjacent premises of all rubbish and excess materials generated by work under this Contract, no matter which Contractor left it, and remove all of this from the building, the site, and the adjacent street.

DIVISION 1 - GENERAL REQUIREMENTS

- a. The Contractor shall keep the building and premises cleaned at all times and free from accumulation of waste materials and rubbish. A complete broom cleaning shall be carried out at the close of work each day in all areas where work is being conducted or where Contractor's traffic has occurred. See additional discussion of clean up requirements in Par. 1010.05 below.

1010.03 SEQUENCE AND SCHEDULING OF WORK

1. The Contractor shall cooperate with the Owner to establish and maintain a sequence and schedule for the work which minimizes operational disruption and compromise of security.
2. At the Preconstruction Meeting described in Par. 1010.02.d above, the Contractor shall present a proposed sequencing and scheduling plan for discussion, and shall cooperate in making reasonable alterations to the plan in response to the discussion.

1010.04 SECURITY BACKGROUND CHECKS

1. Each person who will be working within Woodbury County LEC, Woodbury County Courthouse, and Trospen Hoyt during the project will be required to pass a security background check.
2. Before beginning work, the Contractor shall furnish the Owner with a list of all persons who will be working on the premises, including personnel of all Subcontractors. As different workers are added to the work crews, their information shall be submitted for approval before they will be allowed into the facility.
3. Submittal data for each worker shall include Name, Date of Birth, and Social Security Number. Background checks will be conducted by the Woodbury County Sheriff's Office. Submittal data for an individual shall be provided to the Sheriff's office no later than seventy two (72) hours before that individual is scheduled for work.

1010.05 USE OF SITE FOR THE JAIL IN WOODBURY COUNTY LEC

1. Work in the facility will be conducted while jail inmates are present in the facility.
2. Any work in cell block areas shall be conducted in only one (1) cell block at a time, in a sequence as directed by the Owner. If possible, the Owner will move all inmates from a particular cell block to another during construction work hours; however, if the overcrowding is too severe (determined by the fluctuations in jail population from day to day), some inmates may need to be housed in a cell block where construction work is occurring. In such case, inmates will be kept locked down in their cells, and the Contractor will be allowed to work in the cell block day area and in one or more individual cells within the block.
3. In general, the Contractor will be allowed to access the secure area of the jail from 8:00 AM to 4:00 PM daily. (The contractor may request different times of access, subject to approval by Jail Administration.) At the close of work for each day, any areas where work is occurring shall be completely cleaned of all tools, materials, equipment, and waste materials so that all areas of the jail are completely clean and usable by the staff and inmates during the overnight hours.
4. The Contractor shall be given certain areas for the storage of his materials, tools, and equipment. The Contractor shall confine his operations to the designated areas and shall not be allowed to use any other portion of the site for the storage or dumping of materials.

DIVISION 1 - GENERAL REQUIREMENTS

- a. The Contractor will be assigned the north stall of the Vehicle Sally Port for the delivery and/ or storage of materials or equipment. The Contractor may also use the open space east of the old Eagles Club building across Seventh St. north of the LEC Building for parking or storage. Deliveries may be made through the Vehicle Sally Port off the east alley, or from the loading dock located at the north side of the building; however, vehicles may not be left unattended either at the dock or in the alley.
 - b. The Contractor will also be assigned the Multi Purpose room west of Secondary Control within the secure perimeter for storage of materials or equipment. All items necessary for conducting work in a given area shall be carried from the storage area to the work site each morning. At the close of each work day, all materials not incorporated into the construction during that day, along with all tools and equipment, shall be removed from the area where work is under way and transported to the storage area.
 - c. Workman needing to move between areas for any purpose shall be escorted by jail staff. No unescorted travel will be allowed within the secure perimeter of the jail. Workers in a given area will be furnished with a hand held radio to communicate with the Master Control desk to request a staff escort, who will escort the worker as required.
 - d. Workmen will be allowed to use the staff toilet facilities in the jail provided that satisfactory arrangements are made between the Contractor and the Owner to maintain the facilities and keep them clean. Trips to the toilet facilities will require staff escort as described above.
5. Contractor shall access the jail area by means of the east stair, entering from the east stairway door (the "Deputy Door") at the alley. Access to the stairway doors both at the lower level and at the second floor (jail) and roof levels is controlled by the Master Control desk in the jail, and personnel entering or leaving the work area will be required to communicate their movements to Master Control so that the remote locks can be operated from that location. The Owner will furnish the Contractor with hand radios for this communication. In accordance with procedures outlined in Par. 4 above, workmen will be escorted from the second floor elevator lobby to work areas by LEC staff.
- a. The Contractor may use the existing elevator, located adjacent to the east alley entrance, to transport items of limited size and weight to the second floor. Contractor shall verify the load carrying capacity of the elevator with the County's Building Maintenance Department before any use, and shall coordinate scheduling its use with the jail staff. The Contractor shall install floor and wall padding as required to protect the elevator car from any damage during transport of materials.
 - b. The Contractor may use some areas at the roof level for storing materials prior to their being transported to the second floor for incorporation into the work. Materials may be stored outside, at the outdoor recreation area, or inside, in the mechanical penthouse. No materials may be stored on roof areas where roof membrane ballast is exposed. Stored materials shall be dispersed so that no stored material imposes a load of more than 40 psf on the floor or roof surface.
 - c. Contractor may use the existing rooftop hoist crane to transport materials to the roof level. Contractor shall verify the load carrying capacity of the crane with the Owner before any use, and shall coordinate scheduling and operation of the crane with the County Building Maintenance Department.

01010.06. SHELTERS AND BARRICADES

1. The Contractor shall erect fences or barricades as necessary to properly protect the Work from damage at all times and to ensure the safety of workmen and other persons.
2. Any Contractor or his employee that removes any part or parts of a barricade to install his work shall replace the part or parts of barricade as soon as possible after each operation causing removal of the barricade. Should any damage or injury occur due to removal of parts of a barricade, the Contractor that caused the parts

DIVISION 1 - GENERAL REQUIREMENTS

to be removed will be held responsible for the accident or damage.

01010.07. SIGNS

1. No signs will be permitted on the site.

END OF SECTION

DRAFT AIA® Document A132™ - 2009

Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition

AGREEMENT made as of the ☐ day of ☐ in the year ☐
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Woodbury County Board of Supervisors
620 Douglas Street – Room 104
Sioux City, IA 51101

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

Woodbury County Lighting Retrofit

The Construction Manager:
(Name, legal status, address and other information)

Baker Group
4224 Hubbell
Des Moines IA
Contact: Riek KauShane Albrecht 515-299208-3014 Cell-4078

The Professional Engineer:
West Plains Engineering
4609 S. Techlink Circle
Sioux Falls, SD 57106
(Name, legal status, address and other information)

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

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

This document is intended to be used in conjunction with AIA Documents A232™-2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™-2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™-2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

AIA Document A232™-2009 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement. These form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

§ 3.2 The Contractor shall achieve Substantial Completion of the entire Work not later than _____ weeks before first day of school year _____, (the "Substantial Completion Date") subject to adjustments as provided in the Contract Documents.:

For Equipment Supplier: All products must be received and invoiced by December 31, 2015 to assure compliance with MidAmerican 2015 rebate criteria

For Installing Contractor: All lighting products must be installed by May 16, 2016 or six (6) months from the product delivery date, whichever is sooner, to assure compliance with MidAmerican 2015 rebate criteria

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

« »

,subject to adjustments of this Contract Time as provided in the Contract Documents. Equipment Supplier and Installing Contractor acknowledges that if the Work is not Substantially Complete in advance of the Substantial Completion Dates stated above, the Owner will suffer financial damages due to a loss of MidAmerican Rebate money. The rebates based on the 2015 criteria are estimated to be \$485,500 to Woodbury County. If the stated dates are not

achieved the project would then be moved to the new criteria to be established for the 2016 rebates and it is anticipate they could be reduce by as much as 50%. If the Equipment Supplier fails to deliver and invoice the products by December 31, 2015 their liquidated damages would be the difference between the 2015 and 2016 rebate dollars. If the Installation Contractor fails to complete the installation within six (6) months of the product delivery date and the delivery date stated for the Equipment Supplier was achieved, the Installation Contractor liquidated damages would be the difference between the 2015 and 2016 rebate dollars.

which are difficult to quantify, including but not limited to forced temporary relocation of staff and students, extra oversight and inspection costs, as well as inconvenience to the public and interference with the conduct of school functions. Contractor also acknowledges that its work must be complete by the Substantial Completion Date, in order for the staff to prepare for school opening. Therefore, the parties agree that Contractor will pay Owner, or Owner may retain from funds otherwise due to Contractor, the sum of \$250 per day [specify areas] that is not Substantially Complete by the Substantial Completion Date

The Work will be performed in an actively occupied buildings and the Contractor will be required to schedule its activities to not minimize interference with school-county activities.

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ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:
(Check the appropriate box.)

- Stipulated Sum, in accordance with Section 4.2 below
- Cost of the Work plus the Contractor's Fee without a Guaranteed Maximum Price, in accordance with Section 4.3 below
- Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

§ 4.2 Stipulated Sum

§ 4.2.1 The Stipulated Sum shall be « [redacted] Dollars » (\$ « [redacted] »), subject to additions and deletions as provided in the Contract Documents.

§ 4.2.2 The Stipulated Sum is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

« n/a »

§ 4.2.3 Unit prices, if any:

Item	Units and Limitations	Price per Unit (\$0.00)
n/a		

§ 4.2.4 Allowances included in the Stipulated Sum, if any:

Item	Allowance
n/a	

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor ~~using AIA Form G-732-2009 and G703-1992~~, and upon certification of the Project Application and Project Certificate for Payment or Application for Payment and Certificate for Payment by the Construction Manager and Professional Engineer and issuance by the Professional Engineer, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than ~~the last day of a month fourteen (14) days before the next regularly scheduled meeting of the School Board~~, the Owner shall make payment of the certified amount in the Application for Payment to the Contractor not later than ~~two weeks after approval of said application by the School Board/Board of Supervisors at its next weekly monthly meeting, select a day of the same month~~. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment shall be made by the Owner not later than ~~two weeks after the next regularly scheduled meeting of the School Board/Board of Supervisors, after the Construction Manager receives the Application for Payment~~ ~~the last day of the following month~~.

§ 5.1.4.1 Each Application for Payment shall be based on Schedule of Values submitted by the Contractor in accordance with the Contract Documents. The Schedule of Values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager and Professional Engineer may require. This schedule, unless objected to by the Construction Manager or Professional Engineer, shall be used as a basis for reviewing the Contractor's Applications for Payment. Each Application for Payment shall be accompanied by an executed Partial Waiver of Lien and Release of Claims on the form of **Exhibit "D"**.

§ 5.1.4.2 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.4.3 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent (5%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Section 7.3.9 of the General Conditions;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing, for which the Contractor has furnished a Bill of Sale and a Bailment Agreement on the forms attached as **Exhibits "E" and "F"**), less retainage of five percent (5%);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Construction Manager or Professional Engineer has withheld or nullified a Certificate for Payment as provided in Section 9.5 of the General Conditions.

§ 5.1.4.4 The progress payment amount determined in accordance with Section 5.1.4.3 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to 100 percent of the Contract Sum, less such amounts as the Construction Manager recommends for incomplete Work and unsettled claims; and
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of the General Conditions.

§ 5.2 Reduction or limitation of retainage.

Upon achieving Substantial Completion, as defined by Iowa Code Chapter 26, the Contractor may formally request the release of all or part of the retainage funds being held on the Project. The Contractors' request for Release of the Retainage Funds shall be accompanied by a sworn statement that ten (10) calendar days prior to filing the Request for Release of the Funds a notice was given to all known subcontractors, sub-subcontractors and suppliers that the contractor is requesting the early release of retainage funds. If proper documentation is received from the Contractor, the Owner will release all retainage funds at the next regularly scheduled ~~School Board~~Board of Supervisors meeting or within thirty (30) days, whichever is less, except it may retain the following:

- .1 An amount equal to 200% of the value of labor or materials yet to be provided on the Project as determined by the Owner and its authorized contract representative. For purposes of section, "authorized contract representative" means the Professional Engineer of record on the Project, and/or the Construction Manager of record on the Project unless otherwise specified.
- .2 An amount equal to 200% of the value of any Chapter 573 claims currently on file at the time the Request for Release of Retainage is approved. If the Owner withholds an amount from the retainage payment to the Contractor, the Owner will provide a reason the request is being denied to the Contractor within thirty (30) calendar days of the receipt of the request.

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§ 5.3 Final Payment

§ 5.3.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when (1) the Contract has been fully performed by the Contractor except for the Contractor's responsibility to correct nonconforming Work as provided in Section 12.2.2 of the General Conditions and to satisfy other requirements, if any, which necessarily survive final payment including but not limited to, submission of a fully executed Final Waiver of Lien and release of Claims on the form attached hereto as **Exhibit "G"**, and (2) a final Project Certificate for Payment has been issued by the Construction Manager and Professional Engineer; such final payment shall be made by the Owner not more than thirty-one (31) days after the ~~School Board's~~Board of Supervisors approval of the Professional Engineer's final Project Certificate for Payment.

ARTICLE 6 DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A232-2009, the method of binding dispute resolution shall be as follows:

Arbitration pursuant to Section 15.4 of AIA Document A232-2009.

Litigation in a court of competent jurisdiction.

Other: *(Specify)*

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 Where the Contract Sum is a Stipulated Sum

§ 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232-2009, as modified..

§ 7.1.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232-2009 as modified.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232-2009 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the rate established by Section 74A.2 of the Code of Iowa

§ 8.3 Contractor shall furnish insurance that complies with the requirements set forth on **Exhibit "H"** to this Agreement. Contractor shall be responsible for deductible of \$1,000 for Builders Risk insurance claims.

§ 8.4 The Owner's representative:
Kenny Schmitz, Facility Services Manager

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§ 8.5 The Contractor's representative:
(Name, address and other information)

§ 8.6 Contractor shall not replace its representative without ten days written notice to the Owner.

§ 8.7 Methods used in determining the maximum allowance for the combined overhead and profit on items within a Change Order shall be determined based on the following schedule except that the percentages may be adjusted to reflect differences for different trade practices if satisfactorily substantiated to Architect/Engineer.

- .1 For the Contractor, for Work performed by the Contractor's own forces, 10 percent of the cost.
- .2 For the Contractor, for Work performed by the Contractor's Subcontractor, 5 percent of the amount due the Subcontractor.
- .3 For each Subcontractor or Sub-subcontractor involved, for Work performed by that Subcontractor's or Sub-subcontractor's own forces, 10 percent of the cost.
- .4 For each Subcontractor, for Work performed by the Subcontractor's Sub-subcontractors, 5 percent of the amount due the Sub-subcontractor.
- .5 Cost to which overhead and profit is to be applied shall be determined in accordance with Subparagraph 7.3.6 of the General Conditions.
- .6 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also. In no case will a change involving over \$1,000 be approved without such itemization.

§ 8.8 Contractor shall furnish Performance and Payment Bonds in the full amount of the Contract on the forms attached hereto as **Exhibit I** and **J**.

§ 8.9 This project is tax exempt. The Owner will provide a certificate of tax exemption.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A132-2009, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition as modified.

§ 9.1.2 The General Conditions are, AIA Document A232-2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition as modified, which are attached hereto as **Exhibit "A"**.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

§ 9.1.4 The Specifications set forth in the Project Manual dated ~~November-October 8-19, 2013~~ 2015, attached hereto as **Exhibit "B"**
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

« »

Section	Title	Date	Pages

§ 9.1.5 The Drawings as enumerated on **Exhibit "C"** hereto.
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

« »

Number	Title	Date

§ 9.1.6 The Addenda, if any: (To be determined)

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents are:

- Exhibit D, form of partial waiver of lien and release of claims
- Exhibit E, form of Bailment Agreement
- Exhibit F, form of Bill of Sale
- Exhibit G, form of final waiver of lien and release of claims
- Exhibit H, Insurance Requirements
- Exhibit I, form of Performance bond
- Exhibit J, form of Payment bond »

This Agreement is entered into as of the day and year first written above.

OWNER (Signature)

CONTRACTOR (Signature)

« »

(Printed name and title)

« »

(Printed name and title)

Exhibit "D"

CONDITIONAL PARTIAL RELEASE OF LIEN AND WAIVER OF CLAIMS

To: _____, the Owner of the real estate (the "Property") identified below, any Lender(s) having any loans secured by the Property, the Applicant's Contractor (if not the General Contractor) and other parties, if any, having any interest in (hereinafter collectively the "Beneficiaries").

The "Property": _____

Description of the "Project": _____

The undersigned hereby applies for payment, certifies and waives lien rights, bond rights and all other claims.

Payment Request Amount: \$ _____

Date of last work covered by payment request: _____

Certificate

The undersigned, contingent upon the issuance, final clearance and payment of a valuable consideration of the sum stated above, and being familiar with the penalties for false certification, does hereby certify to the Beneficiaries that:

1. The amount requested for labor performed and equipment and material supplied on this Project or in connection with the Property reference above, represent the actual value of work accomplished under the terms of the undersigned's agreement and all authorized changes thereto concerning work to be performed on the Property (hereinafter the "Contract").

2. No labor, equipment or materials have been supplied by the undersigned to the Project which have not been included in the applications for payment submitted to date, under any agreement, verbal or written, or any arrangements of any type whatsoever, except as specifically noted here:

3. Payment in full, less retainage and other claims documented as required by the Contract (if any), has been made by the undersigned through the period covered by all prior payments (a) to all of the undersigned's subcontractors, equipment providers, materialmen and laborers, and (b) for all materials and labor used or furnished by the undersigned in connection with the performance of the Contract. The undersigned represents and warrants that it owes no monies or other things of value to any subcontractor, materialman, person or entity for work performed or material supplied through the date of the most recent payment by Owner, except as identified below:

4. The undersigned has complied with Federal, State and Local tax laws, including, without limitation, Income Tax Withholding, Sales Tax, Fringe Benefits owed pursuant to collective bargaining agreements, Social Security, Unemployment Compensation and Worker's Compensation laws, insofar as applicable to the performance of the contract. Specifically, the undersigned has paid, or out of the proceeds of this payment will promptly pay, all sales or use tax due and owing.

5. The undersigned acknowledges and agrees that it is receiving the funds paid in consideration of this Application as a trustee, and said funds will be held in trust for the benefit of all subcontractors, materialmen, suppliers and laborers who supplied work for which the Beneficiaries or their property might be liable, and that the undersigned shall have no interest in such funds until all these obligations have been satisfied in full.

Partial Waiver and Release of Claims

NOW, THEREFORE, contingent upon the issuance, final clearance and payment of \$ _____, the undersigned irrevocably and unconditionally releases and waives any and all mechanic's liens or other liens or right to claim any and all mechanic's liens or other liens against the Property, except as pertains to unpaid retainage and claims identified above, and documented as required by the Contract, through the date of last work covered by the payment application stated above. The undersigned waives and releases any other claims against the Owner or its sureties on any bonds, or any other claims of any kind whatsoever in connection with the Contract and with the Property. The undersigned shall indemnify and hold the Beneficiaries and their respective successors and assigns harmless against any lien, bond, claims or suits in connection with the materials, labor, and everything else in connection with the Contract for which payment has been made.

Dated _____, 20__.

CONTRACTOR: _____

By: _____

Name: _____

Title: _____

State of _____)

County of _____)

On this _____ day of _____, 20____, before me, the undersigned, personally appeared _____, _____ of _____, known to me to be the person who executed this document and acknowledged to me that he/she executed the same for the purposes therein stated.

Notary Public in and for said County and State

Commission Expires

EXHIBIT E

BILL OF SALE

SELLER: _____

In consideration of payments made by _____ (“Buyer”) referenced in the agreement dated _____, 20____, receipt of which is hereby acknowledged, Seller declares and certifies that it now possesses, and does hereby grant, sell, transfer and deliver to Buyer all right, title and interest in the following goods:

Buyer to have all right and title to the goods in himself and his executors, administrators and assigns forever and Seller, on behalf of itself, its successors and assigns, will warrant and defend the title to said goods and chattels hereby sold unto Buyer, its successors and assigns, forever, against the lawful claims and demands of all persons. It is expressly understood and agreed that the acceptance of the goods described herein is not a waiver of any right of action that the Buyer may have for breach of warranty or any other cause under the agreement referenced above or at law.

IN WITNESS WHEREOF, Seller has executed this Agreement the ____ day of _____, 20____.

Seller: _____

By: _____

Title: _____

Subscribed and sworn to before me this ____ day of _____, 20____.

Notary Public in and for said County and State

My commission expires:

EXHIBIT F

BAILMENT AGREEMENT

BAILOR:

BAILEE: Contractor/Subcontractor/
Supplier

LOCATION OF STORAGE:

The goods and materials described below are held and stored at the above referenced location pursuant to the Contract by and between Bailee, as Contractor/Subcontractor/Supplier, and Owner, for Work to be performed at _____.

In consideration of payment made to the undersigned Bailee, the receipt and sufficiency of which are admitted, the Bailee agrees:

1. To keep said goods and materials at the above mentioned address, separate and apart from all other goods and identified as subject to this bailment,
2. To keep said goods and materials fully insured against all risk of physical loss or damage,
3. To keep said goods protected from the weather, commingling, vandalism and/or diversion from said Project, and
4. To deliver said goods and materials to the Project site in conjunction with the performance of Bailee's Contract referenced above or upon the direction of Bailor and no other. The Bailee acknowledges that it has no ownership rights or title in, nor shall claim any lien upon, said goods and materials.

QUANTITY _____ DESCRIPTION OF ITEM _____

Received and Acknowledged:

Contractor/Supplier (Bailee)

Dated: _____

By: _____
Authorized Signature

Exhibit "G"

CONDITIONAL FINAL WAIVER OF LIEN AND RELEASE OF CLAIMS

To: _____, the Owner of the real estate (the "Property") identified below, any Lender(s) having any loans secured by the Property, the Applicant's Contractor (if not the General Contractor) and other parties, if any, having any interest in (hereinafter collectively the "Beneficiaries").

The "Property": _____

Description of the "Project": _____

The undersigned hereby applies for payment, certifies and waives lien rights, bond rights and all other claims.

Payment Request Amount: \$ _____

Certificate

The undersigned, contingent upon the issuance, final clearance and payment of a valuable consideration of the amount stated above, and being familiar with the penalties for false certification, does hereby certify to the Beneficiaries that:

1. The amount requested for labor performed and equipment and material supplied on this Project or in connection with the Property reference above, represent the actual value of work accomplished under the terms of the undersigned's agreement and all authorized changes thereto concerning work to be performed on the Property (hereinafter the "Contract").

2. No labor, equipment or materials have been supplied by the undersigned to the Project which have not been included in the applications for payment submitted to date, under any agreement, verbal or written, or any arrangements of any type whatsoever, except as specifically noted here:

3. Payment in full has been made, or with the funds requested hereby will be made, by the undersigned (a) to all of the undersigned's subcontractors, equipment providers, materialmen and laborers, and (b) for all materials and labor used or furnished by the undersigned in connection with the performance of the Contract. The undersigned represents and warrants that it owes no monies or other things of value to any subcontractor, materialman, person or entity for work performed or material supplied through the date of the most recent payment by Owner, and that the payments that have been or will be made out of this final payment to such persons or firms will fully and completely compensate them for all work in connection with the Project.

4. The undersigned has complied with Federal, State and Local tax laws, including, without limitation, Income Tax Withholding, Sales Tax, Fringe Benefits owed pursuant to collective bargaining agreements, Social Security, Unemployment Compensation and Worker's Compensation laws, insofar as applicable to the performance of the contract.

5. The undersigned acknowledges and agrees that it is receiving the funds paid in consideration of this Application as a trustee, and said funds will be held in trust for the benefit of all subcontractors, materialmen, suppliers and laborers who supplied work for which the Beneficiaries or their property might be liable, and that the undersigned shall have no interest in such funds until all these obligations have been satisfied in full.

Final Waiver and Release of Claims

NOW, THEREFORE, the undersigned , contingent upon the issuance, final clearance and payment of \$_____, which the undersigned irrevocably and unconditionally releases and waives any and all mechanic's liens or other liens or right to claim any and all mechanic's liens or other liens against the Property. Additionally, the undersigned waives and releases any other claims against the Owner, its sureties or on any bonds, or any other claims of any kind whatsoever in connection with the Contract and with the Property. The undersigned shall indemnify and hold the Beneficiaries and their respective successors and assigns harmless against any lien, bond, claims or suits in connection with the materials, labor, and everything else in connection with the Contract.

Dated _____, 20__.

CONTRACTOR: _____

By: _____
Name: _____
Title: _____

State of _____)
County of _____)

On this _____ day of _____, 20____, before me, the undersigned, personally appeared _____, _____ of _____, known to me to be the person who executed this document and acknowledged to me that he/she executed the same for the purposes therein stated.

Notary Public in and for said County and State

Commission Expires

Exhibit H

INSURANCE REQUIREMENTS

1. The Contractor shall secure and maintain through the duration of this Contract insurance (on an occurrence basis unless stated below) of such types and in such amounts stated below, but in no case less than as may be necessary to protect the Contractor and the Owner and agents of the Owner against all hazards or risks of loss as hereinafter specified. All such insurance shall be at no cost to the Owner. The Owner will only accept coverage from an insurance carrier who offers proof that it:
 - 1) Is licensed to do business in the State of Iowa;
 - 2) Carries a Best's policy holder rating of A or better and at least a Class X financial rating;
 - 3) Is a company mutually agreed upon by the Owner and the Contractor.
2. The form of such insurance, together with the underwriter thereof in each case, shall be approved by the Owner, but it shall nevertheless remain the responsibility of Contractor to maintain adequate insurance coverage at all times. Owner reserves the right to review certified copies of any and all insurance policies to which the Contract is applicable. Failure of the Contractor to maintain adequate coverage shall not relieve it of any contractual responsibility or obligation, including but not limited to, the indemnification obligation.
3. The cost of defense of claims shall not erode the limits of coverage furnished.
4. If Contractor should retain subcontractors or consultants to perform any of its services, Contractor shall see to it that such third party maintains such insurance and shall furnish evidence thereof to Owner.
5. The insurance policies shall require that Owner shall be given at least thirty (30) days written notice from the insurer(s) before cancellation, non-renewal or material modification of coverage of such insurance and shall contain an endorsement stating the insurers agreement to provide such notice, using CNA form G-140327-B (Ed. 07/11), Travelers Form IL T8 03 (3/11) or equivalent. A copy of the Notice of Cancellation Endorsement must be furnished to the Owner prior to commencement of Work. The Contractor shall notify the Owner of any reduction in limits of protection under any policy listed in the Certificate in excess of \$10,000.00 at least thirty (30) days prior to such change, whether or not such impairment came about as a result of the Contract. If the Owner determines the Contractor's aggregate limits of protection has been impaired or reduced to such an extent that the Owner shall determine such limits inadequate for the balance of the project, the Contractor shall, upon notice from the Owner, promptly reinstate the original limits of liability required hereunder and shall furnish evidence thereof to the Owner. Cancellation, non-renewal or material modification of coverage of any such insurance shall be the basis for the Owner's exercising its right to terminate the Contract.
6. Satisfactory certificates of insurance, written on a standard AIA Document G705 or ACORD form 25-S, Accord Form 27, as applicable, shall be filed with the Owner prior to Contractor 's entry on to the Project site. The Certificate shall specify the date when such insurance expires. A renewal certificate shall be furnished to Owner prior to the expiration date of any coverage.
7. Severability of Interest. All insurance carried shall be endorsed to provide that, inasmuch as this policy is written to cover more than one insured, all terms, conditions, insuring agreements and endorsements, with the exception of limits of liability, shall operate in the same manner as if there were a separate policy covering each insured.
8. Contractor shall insure specifically the indemnification by it contained in the Contract, and shall include the persons and entities identified in Section 3.18.1 of the General Conditions (the "Indemnitees") Indemnitees additional insureds on the Commercial General Liability Insurance policy described above. Indemnitees shall be included as additional insureds under Contractor's furnished insurance (except Workers' Compensation Insurance and Professional Liability Insurance), for ongoing and completed operations, using ISO Additional Insured Endorsement (CG 20 10), edition date 11/85, or an equivalent (e.g., CG 20 10, edition date 10/93, plus CG 20 37, edition date 10/01); and for Comprehensive Automobile

Liability Insurance policy, except that coverage for completed operations shall not be required. Said insurance shall be written on an OCCURRENCE basis, and shall be PRIMARY and NON-CONTRIBUTING and shall not be deemed to limit Contractor's liability under the Contract. All liability policies which include the Owner as an additional insured shall include a Governmental Immunities Endorsement pursuant to Chapter 670.4 of the Iowa Code, which endorsement shall include the following provisions:

- a. Non-waiver of Governmental immunity. The insurance carrier expressly agrees and states that the purchase of this policy and including the Owner as an Additional Insured does not waive any of the defenses of governmental immunity available to the Owner under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.
9. Contractor agrees to procure and carry, at its sole cost, until completion of the Contract all insurance, with identical limits of liability and scope of coverages, as set forth below:
- 10.1 Comprehensive Automobile Liability Insurance. Contractor shall maintain comprehensive automobile insurance, including contractual liabilities insuring the Indemnities set forth in the Contract covering all owned, non-owned and hired automobiles used in connection with the services or other work hereunder and shall have minimum bodily injury and property damage limits of \$1,000,000.00 combined single limit per occurrence. An MCS-90 endorsement shall be procured when applicable.
 - 10.2 Workers' Compensation and Employer's Liability Insurance. Contractor shall maintain Worker's Compensation Insurance to cover the statutory limits of the Workers' Compensation laws of the state in which any work is to be performed and when applicable to Federal Laws, Voluntary Compensation and Employer's Liability (including occupational disease) coverage with limits not less than \$1,000,000 per occurrence. The Contractor shall also purchase insurance against claims for injury, disease or death of employees which, for any reason, may not fall within the provisions of a worker's compensation law. This policy shall include an "all states" endorsement.
 - 10.3 Commercial General Liability Insurance. Contractor shall obtain and maintain Commercial General Liability Insurance, on an occurrence form for the hazards of (i) construction operation, (ii) subcontractors (iii) independent contractors, (iv) products and completed operations (with completed operations to remain in force for as long as Contractor or those included as Additional Insureds bear exposure under all applicable statutes of limitation following project completion), (v) explosion, collapse and underground, and (vi) contractual liability insuring the indemnities set forth in the Agreement. Each Project shall have minimum limits of \$1,000,000.00 per occurrence and \$2,000,000.00 products/completed operations aggregate coverage.
 - 10.4 Excess Liability. Contractor shall maintain Excess Liability coverage on an umbrella form with minimum limits of \$2,000,000.00 per occurrence and \$5,000,000.00 aggregate.
11. Waiver of Subrogation. All insurance policies supplied shall include a waiver of any right of subrogation of the insurers against Owner and all its assigns, affiliates, employees, insurers and underwriters.
12. No Limitation of Liability. The required coverages referred to and set forth herein shall in no way affect, nor are they intended as a limitation on, Contractor's liability with respect to its performance of this Agreement.
13. Certificates of insurance for such coverage will be provided to Owner within ten (10) days of the execution of this Agreement. **Contractor shall not be permitted to commence any Work on site until satisfactory copies of the Certificates evidencing insurance; Notice of Cancellation Endorsement; and Additional Insured Endorsement, have all been received and approved by Owner. Delay in commencement due to failure to provide such documentation shall constitute an unexcused delay.**

Exhibit "I"

CONTRACT PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that _____
(herein called the "Principal"), as Principal, and
_____, a _____ organized and
existing under the laws of the State of _____ (hereinafter called the "Surety"), as
Surety, are held and firmly bound unto _____ (hereinafter called
"Obligee"), as Obligee, in the sum of _____ Dollars
(\$ _____) for the payment of which sum well and truly to be made, the said Principal and Surety
bind themselves, and their respective heirs, administrators, executors, successors and assigns, jointly and severally,
firmly by these presents.

WHEREAS, the Principal has entered into a written Contract with the Obligee, dated _____ to
perform the work described in said Contract, which Contract is hereby referred to and made a part hereof.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH that if the said Principal
shall well and truly perform and keep all the undertakings, covenants, terms, conditions and agreements of said
Contract within the time period provided therein and any extensions thereof that may be granted by the Obligee and
during the life of any guaranty required under said Contract, and shall also well and truly perform the undertakings,
covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may
hereafter be made, and shall defend, indemnify and save harmless Obligee of and from any and all claims, losses,
damages, penalties, and expenses, including interest, costs and attorney's fees, which Obligee may sustain by reason
of said Principal's failure so to do, then this obligation shall be null and void; otherwise it shall remain in full force
and effect. Surety shall assume and commence performance of its obligations within 30 days' written notice of
Contractor's default.

Surety agrees that no change, extension of time, alteration, addition, omission, or other modification of the
terms of said Contract, or in the scope of the work to be performed or in the method of performance, or in the
manner, time or amount of payments as provided therein, assented to by Obligee, whether made under expressed
agreement or not, shall in anywise affect the said Surety's obligation on this Bond, and it does hereby waive notice
and consents to any such change, alteration, modification or amendment.

IN WITNESS WHEREOF, the said Principal and Surety have hereunder set their hands and seals, this
_____ day of _____, _____.

(Principal)

(Surety)

(Business Address)

(Business Address)

By: _____
(Signature and Title)

By: _____
(Signature and Title)

Witness: _____

Witness: _____

Exhibit "J"

CONTRACT PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that _____ (hereinafter called the "Principal"), as Principal, and _____, a corporation organized and existing under the laws of the State of _____ (hereinafter called the "Surety"), as Surety, are held and firmly bound unto _____ (hereinafter called the "Obligee"), as Obligee, in the sum of _____ Dollars (\$ _____) for the payment of which sum well and truly to be made, the said Principal and Surety bind themselves, and their respective heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a written Contract with the Obligee, dated _____ to perform the work described in said Contract, dated _____, which Contract is hereby referred to and made a part hereof.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH that if the said Principal shall pay promptly and in full the claims of all persons performing labor or furnishing materials, supplies and equipment in the prosecution of the work provided for in said Contract and any and all modifications of said Contract that may hereafter be made, and shall defend, indemnify and save harmless the Obligee from any and all claims, costs, damages, penalties, including attorney's fees and expenses, for all taxes, insurance premiums, any and all contributions, allowances, deductions or other payments, however termed, required by statute or union labor agreements, including voluntary payments made thereof by the Obligee to insure the orderly prosecution of work, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The said Surety agrees that no change, extension of time, alteration, addition, omission, or other modification of the terms of said Contract, or in the scope of the work to be performed or in the method of performance, or in the manner, time or amount of payments as provided therein, assented to by Obligee, whether made under expressed agreement or not, shall in anywise affect the said Surety's obligation on this Bond, and it does hereby waive notice and consents to any such change, alteration, modification or amendment.

Subject to the benefit of the Obligee, the Principal and Surety agree that this Bond shall insure to the benefit of all persons performing labor or furnishing materials, supplies and equipment in the prosecution of the work provided for in said Contract, as well as to the Obligee, and that such persons may maintain independent actions upon this Bond in their own names.

IN WITNESS WHEREOF, the said Principal and Surety have hereunder set their hands and seals, this _____ day of _____, _____.

(Principal)

(Surety)

(Business Address)

(Business Address)

By: _____
(Signature and Title)

By: _____
(Signature and Title)

Witness: _____

Witness: _____

Application and Certificate for Payment, Construction Manager as Adviser Edition

TO OWNER:	East Marshall Community School District	PROJECT:	East Marshall Facility Improvement Project	APPLICATION NO: 001	DISTRIBUTION TO:
					OWNER
FROM CONTRACTOR:		VIA CONSTRUCTION MANAGER:		PERIOD TO:	CONSTRUCTION MANAGER
CONTRACT FOR: General Construction		VIA ARCHITECT:		CONTRACT DATE:	ARCHITECT
				PROJECT NOS: / /	CONTRACTOR
					FIELD
					OTHER

CONTRACTOR'S APPLICATION FOR PAYMENT

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

1. ORIGINAL CONTRACT SUM	\$	0.00
2. NET CHANGES IN THE WORK	\$	0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2)	\$	0.00
4. TOTAL COMPLETED AND STORED TO DATE (Column G on G703)	\$	0.00
5. RETAINAGE:		
a. 0 % of Completed Work (Column D + E on G703)	\$	0.00
b. 0 % of Stored Material (Column F on G703)	\$	0.00
Total Retainage (Lines 5a + 5b, or Total in Column I on G703).....	\$	0.00
6. TOTAL EARNED LESS RETAINAGE	\$	0.00
(Line 4 minus Line 5 Total)		
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT	\$	0.00
(Line 6 from prior Certificate)		
8. CURRENT PAYMENT DUE	\$	0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 minus Line 6)	\$	0.00

SUMMARY OF CHANGES IN THE WORK	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$ 0.00	\$ 0.00
Total approved this month including Construction Change Directives	\$ 0.00	\$ 0.00
TOTALS	\$ 0.00	\$ 0.00
NET CHANGES IN THE WORK	\$	0.00

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

CONTRACTOR:

By: _____ Date: _____

State of: _____

County of: _____

Subscribed and sworn to before
me this _____ day of _____

Notary Public: _____

My Commission expires: _____

CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on evaluations of the Work and the data comprising this application, the Construction Manager and Architect certify to the Owner that to the best of their knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ 0.00

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

CONSTRUCTION MANAGER:

By: _____ Date: _____

ARCHITECT: *(NOTE: If Multiple Prime Contractors are responsible for performing portions of the Project, the Architect's Certification is not required.)*

By: _____ Date: _____

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

GENERAL PROVISIONS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. The attached General Conditions, Supplementary General Conditions and Special Conditions or General Requirements are hereby incorporated into and shall become a part of all sections under ELECTRICAL. In certain instances where the terms of this Division of the Specifications conflict with the terms of the General Conditions, or Special Conditions, this Division of the Specifications shall govern (or the more stringent requirement shall apply).
- B. Where “Contractor” is referred to in this Specification it shall mean “Contractor, Sub-Contractor and/or Sub-Contractors under the Prime Contractor.”

1.02 DESCRIPTION OF WORK

- A. The work shall include everything in this Division of the Specifications and everything indicated on the Drawings that is complementary to this Division of the Specifications. Refer to the Index of Drawings to determine what Drawings apply directly to this work.

1.03 QUALITY ASSURANCE

- A. Codes and Standards:
 - 1. Work, materials and manner of placing material shall conform in every respect with the latest provisions of Local, State and National Codes.
 - 2. Materials and equipment shall be new and of best quality, of the type best suited for the purpose intended, and be made by nationally recognized and substantially established manufacturers. The type and weight of material used for each purpose shall be as herein specified, and material shall conform with the requirements of the latest standard specifications of the “ASTM” for that particular material.
 - 3. Electrical materials used in this work shall be listed by the Underwriters Laboratories, Inc. where testing is provided and shall bear their label.
 - 4. Where the notation of NEMA is indicated the equipment shall conform to National Electrical Manufacturers Association Standard.
 - 5. The following list of codes, technical societies, trade organizations and governing agencies shall set the standards by which all work shall be executed:
 - a. City Electrical Ordinances
 - b. State Electrical Laws and Statutes
 - c. National Electrical Code (NEC) Current Edition
 - d. National Board of Fire Underwriters (NBFU)
 - e. National Electrical Manufacturers Association (NEMA)
 - f. Underwriters Laboratories (UL)
 - g. Electrical Testing Laboratory (ETL)
 - h. International Building Code (IBC)
 - i. International Fire Code (IFC)
- B. Fees
 - 1. All fees, permits, licenses, etc., necessary in order to complete the work of this section shall be obtained and paid by this Contractor.

1.04 SUBMITTALS

- A. Schedule of Materials:
 - 1. This Contractor shall receive shop drawings from the equipment supplier as part of an Addendum prior to the bid.
- B. Guarantee: workmanship only. County will install or replace all warrantee issued items post substantial completion.
 - 1. The Contractor shall assume responsibility for any defects which may develop in any part of his work caused by faulty workmanship, and agrees to replace, repair or alter, at his

expense, any such faulty workmanship that has been brought to his attention during a period of one year from the date of the final certificate for payment. Acceptance of the work shall not waive this guarantee.

D. As-Built: Provide As-Built documents to Engineer at the end of the project.

1.05 JOB CONDITIONS:

A. Fees and Service Charges:

1. Permits, licenses, fees and service charges required in connection with the work shall be secured and paid for by this Contractor, and upon completion of the work he shall furnish proof of acceptance from the proper Local and State Department having jurisdiction.

B. Electrical Symbols and Abbreviations:

1. Symbols and abbreviations are as indicated in legends on the Drawings.

C. Correlation of Work:

1. This Contractor shall be responsible for close correlation of his work with that of other Contractors and shall organize his work so that it will not interfere with or delay the work of other Contractors.
2. Field verification of scale dimensions on Plans is directed since actual locations, distances and levels will be governed by actual field conditions.
3. The Electrical Contractor shall check existing conditions to avert possible installation conflicts. Should drastic changes from original Plans be necessary to resolve such conflicts, the Contractor shall notify the Engineer and secure written approval and agreement on necessary adjustments before the installation is started.
4. Discrepancies shown on different Plans, or between Plans and actual field conditions, or between Plans and Specifications, shall promptly be brought to the attention of the Engineer for a decision.
5. Where a discrepancy exists between drawing and specifications or other disciplines the worst cost case shall be provided.

D. Final Inspection:

1. Upon completion of work, the Contractor shall notify the Engineer in writing and make arrangements for a final observation. The Contractor shall also submit the operating and maintenance manuals at this time. The Engineer will not schedule nor perform a final inspection without successful submittal of operating and maintenance manuals by the Contractor.
2. During the final observation, pre-final or follow-up final, the Contractor and all his Prime Sub-Contractors shall have the foreman of the project present.
3. After the final observation is made, the Contractor will receive a list of items requiring adjustment, correction, replacement, or completion.
4. The Contractor shall comply completely with all the listed requirements within a negotiated number of days of receipt of list. Should the Contractor fail to complete items on the list within this time limit, the Owner reserves the right to have the work completed by others and the cost deducted from the contract price, including change orders.
5. The Contractor shall notify in writing to the Engineer once all punch list items are corrected, that he is ready for a follow-up final. The written notice shall contain explanations for those known items not completed and a schedule for completing them.
6. The Engineer shall schedule a follow-up final to confirm completion. Repeated observation trips required of the Engineer by the Contractor's inability to complete the project satisfactorily will require the Contractor to reimburse the Engineer for all incurred costs after the follow-up final observation.

1.06 DEFINITIONS

A. Contractor

1. The term "Contractor" refers to the installation Contractor responsible for the furnishing and installation of all work indicated within this Specification.

B. Furnish

1. The term “furnish” is used to mean “purchase, supply, provide and deliver to the Project site, protect and provide interim storage and be ready for unloading, unpacking, assembly, installation, and similar operations in accordance with Manufacturer’s specifications.”
- C. Provide
 1. The terms “provide” means to “furnish and install, complete and ready for the intended use.”
- D. Install
 1. The term “install” is used to describe operations at project site including the actual “unloading, unpacking, rigging in place, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations”.
- E. Installer
 1. The “Installer” is the Contractor, Subcontractor and/or supplier who uses their own employees for performance of all construction
- F. If Applicable:
 1. The term “if applicable” will be that work which may be required for completed construction at applicable locations, but is not necessarily shown or described in the Contract Documents.
- G. As Necessary
 1. The term “as necessary” will be that work which is required for completed construction, but is not necessarily show or described in the Contract Documents.
- H. As Required
 1. The term “as required” will be that work which is required for completed construction and is shown on the drawings or described in the project Specification.
- I. Concealed
 1. The term “concealed” means hidden from sight, buried as in chases, furred spaces, shafts, fixed ceiling or embedded in construction.
- J. Exposed
 1. The term “exposed” means bare, open to the elements, out in the open, uncovered.
- K. Product
 1. The term “product” will mean any item of equipment, material, fixture, apparatus, appliance or accessory installed under this Division.
- L. Substantial Completion
 1. “Substantial Completion” is deemed that the project is sufficiently complete to be utilized for its intended use as stated in the body of this written Specification.
- M. Supplier
 1. The term “Supplier” refers to the Vendor responsible for furnishing the light fixture package within this Specification.
- N. Words in the singular will also mean and include the plural, wherever the context so indicates, and words in the plural will mean the singular, wherever the context so indicates.

1.07 DRAWINGS AND MEASUREMENTS

- A. The extent of the system of equipment, materials, panels, conduits, wire, fixtures and connections as shown are in general diagrammatic and not for exact locations, except in certain cases, the drawings may include details giving exact location and arrangements.
- B. The drawings are not intended to be scaled for roughing in measurements nor to serve as shop drawings.
- C. The Contractor shall consult the schedules. Any discrepancies between the schedules and the electrical work shown on these drawings shall be reported to the Engineers for adjustment.
- D. The installation details, instructions, and recommendations of the manufacturer of the product used, or modified to obtain the best end result, shall be the basis of attaining installation of the

products for usage on this project except where definite and specific instructions are set forth herein or details are shown on the plans.

1.08 WORKMANSHIP

- A. The installation work included in this specification shall be performed in a neat workmanlike manner by people experienced and skilled in the Electrical trade. Only the best quality workmanship will be accepted. All exposed parts of the electrical wiring systems such as exposed conduits, flush plates, cabinet trim, fixtures, etc., shall be square and true with the building construction.

1.9 EQUIPMENT CLEAN-UP: DO NOT CLEAN THE HISTORIC FIXTURES. COUNTY STAFF WILL TAKE CARE OF THOSE.

- A. Special care must be taken for protection of panels, switches, etc. All must be kept completely protected from weather elements, painting, etc. until the building is substantially completed. Damage from rust, paint, scratches, etc. shall be corrected as directed by the Engineer.
- B. Clean all light fixtures and lamps thoroughly, just prior to final inspection. Fixture globes, enclosures, shielding, etc. shall be cleaned by an approved method. DO NOT CLEAN THE HISTORIC FIXTURES.

1.10 CUTTING AND PATCHING

- A. In existing construction this Contractor shall perform all cutting required and all necessary patching after completion to restore the surface to its original condition, unless otherwise indicated.
- B. Should be cutting of walls, floors, ceiling, partitions, etc., be required for proper installation of the work or apparatus of this Contractor, or be made necessary on account of his failure to give General Contractor proper information at the time required, such cutting shall be done at his own expense, restoring the work to its original condition.
- C. All cutting and patching done by this Contractor shall be subject to the direction and approval of the A/E. This Contractor shall not endanger the stability of the structure by cutting, digging, or otherwise, and shall not at any time cut or alter work of any other contractor without A/E's consent.

1.11 SEALING OF PENETRATIONS

- A. All penetrations for raceway, wire, etc. furnished under Division 26 of these specifications which penetrate fire and/or smoke walls and full height partitions (including chase walls), shall be sealed with a UL System specifically approved for the application.

END OF SECTION

SPECIAL CONDITIONS - INSTALLERS

TO AGREEMENT FOR CONSTRUCTION FOR

PROJECT: LED LIGHTING RETROFIT
WOODBURY COUNTY BUILDINGS
SIOUX CITY, IOWA

PROJECT NO: BS15114

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Article 1 CONTRACTOR REQUIREMENTS

1.1 Clearance Request, Release & Waiver, and Contractor Information form Instructions

1.1.1 Clearance Request Form Instructions. It is mandatory for all persons entering the Law Enforcement Center (LEC), and/or Trosper Hoyt Complexes, and the Woodbury County Courthouse, as a contractor, employee of a contractor, subcontractor, employee of a subcontractor, materials supplier or individual working as a contractor, subcontractor or materials supplier to be pre-approved for entrance to the grounds or buildings of Woodbury County.

1.1.1.1 Please fill out and sign the attached Clearance Request Form.

1.1.1.2 Woodbury County requires a minimum of three (3) working days notice to process information, unless otherwise specified. If you have any questions, please contact Kenny Schmitz, Building Maintenance Supervisor at 712.279.6539.

1.1.1.3 Fax completed Clearance Request and Release and Waiver forms to xxx at 712.xxx.xxxx or Email scanned documents to: xxx@state.ia.us Voice: 712.xxx.xxxx.

1.1.2 Release and Waiver Form. Each individual must also read and sign a Release and Waiver form. See item 1.1.1.3 for routing information.

1.1.3 Woodbury County Contractor Information Form. Each contractor/subcontractor must read and sign Woodbury County Contractor Information Form. Form to be submitted to Woodbury County Building Maintenance Supervisor prior to pre-construction conference.

1.2 System Shutdowns. Any and all system shutdowns must be preplanned, pre-approved, and scheduled 48 hours prior to actual shutdown. Shutdowns may be required to commence outside normal hours of operation to cause minimal impact on occupants as determined by Woodbury County staff.

1.3 Working Area. All Buildings will be fully occupied during construction. Working area must be preplanned, pre-approved, and scheduled one week prior to commencing work in an area.

1.4 Protection of Owner equipment. The contractor shall protect from damage owner equipment, electronics, casework and furnishings in areas of construction that cannot be relocated.

1.5 Contractor Staging Area. An area outside of the secure area will be set aside for contractors use for staging and/or storing of equipment. Contractor shall accept delivery of product on site. No more than 2 days of planned work material shall be on site at one time.

1.6 Parking. Contractor to include cost of parking downtown for those buildings in that area. Contractors will be responsible to rent a space (buy a meter bag) from the city. Limit meter bags to 2 per building.

1.7 Tobacco Policy. No tobacco shall be used on, or in Woodbury County premises.

1.8 Toilet Facilities. Toilet rooms will be available for contractor's use at each building.

1.9 Liquidated Damages. . For the owner to obtain MidAmerican Rebates, the Light fixtures, and lamps shall be invoiced by the Supplier by December 31, 2015. The contractor shall install all fixtures and lamps within 6 months of invoice of the materials for the rebate to be valid. Entire project shall be completed by May 1, 2016. Liquidated delay damages in the amount of the dollar difference in the 2015 & the 2016 rebates that the owner would have received from MidAmerican Energy for the Contractor's delay in completion of the work.

Article 2 CLEARANCE REQUEST FORM AUTHORIZATION FOR RELEASE OF INFORMATION

TO WHOM IT MAY CONCERN:

I hereby authorize release of information regarding my Social Security Number and Date of Birth to the Woodbury County Sherriff's Office for the purpose of security clearance.

Name _____

Print Name

Signature _____ Date _____

SSN# _____

Date of Birth _____

Driver's License and State _____

Date of Visit _____

Purpose of Visit _____

Company _____

Article 3 RELEASE AND WAIVER OF LIABILITY, ASSUMPTION OF THE RISK AND INDEMNITY AGREEMENT AND CONSENT TO MEDICAL TREATMENT

By my signature below, I acknowledge that I am aware of, appreciate the character of and voluntarily assume the risks involved in participating in work, a religious activity, a cultural activity, a tour or some other activity that requires admission inside the security perimeter of each or all the following:

the Woodbury County Law Enforcement Center (LEC), and/or Trosper Hoyt Complexes, and the Woodbury County Courthouse.

By my signature below, on behalf of myself, my heirs, next of kin, successors in interest, assigns, personal representatives, and agents, I hereby:

1. Waive any claim or cause of action against and release from liability Woodbury County, its officers, employees, and agents for any liability for injuries to my person or property resulting from my participation in the activity listed above;
2. Agree to indemnity and hold harmless Woodbury County, its officers, employees, and agents for any claims, causes of action, or liability to any other person arising from my participation in the activity listed above; and
3. Consent to receive any medical treatment deemed advisable during my participation in the activity listed above.

I HAVE READ THIS RELEASE AND WAIVER OF LIABILITY, ASSUMPTION OF THE RISK AND INDEMNITY AGREEMENT AND CONSENT TO MEDICAL TREATMENT, FULLY UNDERSTAND ITS TERMS, UNDERSTAND THAT I HAVE GIVEN UP SUBSTANTIAL RIGHTS BY SIGNING IT, AND HAVE SIGNED IT FREELY AND VOLUNTARILY WITHOUT ANY INDUCEMENT, ASSURANCE, OR GUARANTEE BEING MADE TO ME AND INTEND MY SIGNATURE TO A COMPLETE AND UNCONDITIONAL RELEASE OF ALL LIABILITY TO THE GREATEST EXTENT ALLOWED BY LAW.

Name: _____ Date of Birth: _____

Signature: _____

Address: _____

Date: _____

Article 4 WOODBURY COUNTY CONTRACTOR INFORMATION

4.1 Utility Shutdown – Any and all utility shutdowns must be preplanned, pre-approved, and scheduled as early as possible prior to actual shutdown.

4.2 Tool Inventories / Security – Contractors must provide 2 copies of a current and complete inventory list of all tools prior to entering the facility. Lists must be checked at the end of each workday to ensure all tools have been returned. One list will be kept with the tools, and one will be given to the escort. Physical security of tools must be kept in an approved job/gang box or other approved means.

4.3 Restricted Tools – Any tool that will cut or penetrate metal, cables, concrete, or security glass is considered a restricted tool must be monitored with special attention and removed from site when not in use.

4.4 Normal Hours of Operation – 7:30 am until 4:00 p.m. Before and after normal hours of operation must be scheduled; this includes holidays and weekends.

4.5 Loud Work Hours – Only by approval of Deputy Warden or designee when it is before 7:30 am or after 9:00 p.m.

4.6 Contraband Information – No exchange of any items between contractors or their employees and inmates is allowed.

4.7 Tobacco --No tobacco products are allowed inside the Penitentiary; this includes but is not limited to cigarettes and chewing tobacco.

4.8 Picture ID – Must provide a current valid picture ID in order to receive work badge. i.e.: driver's license, identification card, student ID card.

4.9 Authorized Areas / Escorts – Contractors and their employees must have escorts at all times unless prior approval from Deputy Warden or designee.

4.10 Escort Scheduling – Request for escorts should be done a minimum of 2 days in advance due to scheduling and hiring issues.

4.11 Background Checks – Everyone must sign an Authorization for Release of Information (Background Check) and meet Woodbury County Jail requirements.

4.12 Cameras – If it is necessary to take pictures, approval must first be granted by Deputy Warden or designee; pictures of work related material only and no inmates in picture.

4.13 Cell Phone – Must be left in vehicles unless prior approval by Deputy Warden or designee; cell phone numbers and provider must be maintained at each control room in case of compromised phone for the cell phones that are allowed in.

4.14 Key Control – Outside contractors and their employees will not be issued keys; however, it is imperative that all personal keys are monitored at all times.

4.15 Accident Notifications – All accidents that require being reported to the contracting company must

be reported to the Woodbury County Building Maintenance Supervisor, or designee in a timely matter as well.

I have read and discussed items above with Woodbury County Building Maintenance Staff. I understand and agree to abide by above information.

Signature _____ Date _____

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SECTION 26 0519
CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Single conductor building wire.
- B. Service entrance cable.
- C. VFD Cable
- D. Wiring connectors.
- E. Electrical tape.
- F. Heat shrink tubing.
- G. Oxide inhibiting compound.
- H. Wire pulling lubricant.

1.02 RELATED REQUIREMENTS

- A. Section 26 0501 - Minor Electrical Demolition: Disconnection, removal, and/or extension of existing electrical conductors and cables.
- B. Section 26 0526 - GROUNDING AND BONDING: Additional requirements for grounding conductors and grounding connectors.
- C. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- D. Section 26 2100 - Electrical Service Entrance: Additional requirements for electrical service conductors.
- E. Section 28 3100 - Fire Detection and Alarm: Fire alarm system conductors and cables.

1.03 REFERENCE STANDARDS

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013.
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011.
- C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes; 2010 (Reapproved 2014).
- D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2014).
- E. ASTM B800 - Standard Specification for 8000 Series Aluminum Alloy Wire for Electrical Purposes - Annealed and Intermediate Tempers; 2005 (Reapproved 2011).
- F. ASTM B801 - Standard Specification for Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy Wire for Subsequent Covering of Insulation; 2007 (Reapproved 2012).
- G. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2010.
- H. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- I. NECA 104 - Recommended Practice for Installing Aluminum Building Wire and Cable; National Electrical Contractors Association; 2012 (NECA/AA 104).
- J. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy; National Electrical Manufacturers Association; 2009 (ANSI/NEMA WC 70/ICEA S-95-658).
- K. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- L. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.

- M. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.
- N. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.
- O. UL 486D - Sealed Wire Connector Systems; Current Edition, Including All Revisions.
- P. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.
- Q. UL 854 - Service-Entrance Cables; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
 3. Notify Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

1.06 FIELD CONDITIONS

- A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F, unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Engineer and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
- C. Nonmetallic-sheathed cable is not permitted.
- D. Underground feeder and branch-circuit cable is not permitted.
- E. Service entrance cable is permitted only as follows:
 1. Where not otherwise restricted, may be used:
 - a. For overhead service drop, installed in raceway to service head.
 - b. For underground service entrance, installed in raceway.
 - c. For panelboard feeders in residential applications (apartments and townhouses)..
- F. Armored cable is not permitted.
- G. Metal-clad cable is not permitted.
- H. VFD cable - provide for all motors with VFDs.

2.02 CONDUCTOR AND CABLE MANUFACTURERS

- A. Cerro Wire, Encore Wire, Futronix Systems, Southwire, AFC, or equal.

2.03 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70.

- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Conductors for Grounding and Bonding: Also comply with Section 26 0526.
- G. Conductor Material:
 - 1. Provide copper conductors except where aluminum conductors are specifically indicated or permitted for substitution. Conductor sizes indicated are based on copper unless specifically indicated as aluminum. Conductors designated with the abbreviation "AL" indicate aluminum.
 - a. Substitution of aluminum conductors for copper is permitted, when approved by Owner and authority having jurisdiction, only for the following:
 - 1) Services: Copper conductors size 1/0 AWG and larger.
 - 2) Feeders: Copper conductors size 1/0 AWG and larger.
 - 3) For residential applications (apartments and townhouses)..
 - b. Where aluminum conductors are substituted for copper, comply with the following:
 - 1) Size aluminum conductors to provide, when compared to copper sizes indicated, equivalent or greater ampacity and equivalent or less voltage drop.
 - 2) Increase size of raceways, boxes, wiring gutters, enclosures, etc. as required to accommodate aluminum conductors.
 - 3) Provide aluminum equipment grounding conductor sized according to NFPA 70.
 - 4) Equip electrical distribution equipment with compression lugs for terminating aluminum conductors.
 - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B 787M unless otherwise indicated.
 - 3. Aluminum Conductors (only where specifically indicated or permitted for substitution): AA-8000 series aluminum alloy conductors recognized by ASTM B800 and compact stranded in accordance with ASTM B801 unless otherwise indicated.
- H. Minimum Conductor Size:
 - 1. Branch Circuits: 12 AWG.
 - a. Exceptions:
 - 1) 20 A, 120 V circuits longer than 75 Ft.: 10 AWG, for voltage drop.
 - 2) 20 A, 120 V circuits longer than 115 Ft.: 8 AWG, for voltage drop.
 - 3) 20 A, 277 V circuits longer than 170 Ft.: 10 AWG, for voltage drop.
 - 4) For residential (apartments and townhouses) applications use 14 AWG.
 - 5) Feeders conductors shall be sized for a maximum voltage drop of 3% at design load.
 - 6) Branch circuit conductors shall be sized for a maximum voltage drop of 5% at design load.
 - 7) This contractor shall derate conductor ampacity in areas of high ambient temperature per the NEC.
 - 8) Provide a separate neutral for each phase wire - NO SHARED NEUTRALS. This applies to single phase circuits only.
 - 9) Provide additional derating per NEC tables 310-16 through 310-31 note 8 for all home runs with more than 3 current-carrying conductors in a raceway.
 - 2. Control Circuits: 14 AWG.
- I. Conductor Color Coding:
 - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 - 2. Color Coding Method: Integrally colored insulation.
 - a. Conductors size 4 AWG and larger may have black insulation color coded using vinyl color coding electrical tape.
 - 3. Color Code:
 - a. 480Y/277 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Brown.

- 2) Phase B: Orange.
- 3) Phase C: Yellow.
- 4) Neutral/Grounded: Gray.
- b. 208Y/120 V, 3 Phase, 4 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - 4) Neutral/Grounded: White.
- c. 240/120 V, 1 Phase, 3 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Neutral/Grounded: White.
- d. Equipment Ground, All Systems: Green.
- e. Travelers for 3-Way and 4-Way Switching: Purple.
- f. For modifications or additions to existing wiring systems, comply with existing color code when existing code complies with NFPA 70 and is approved by the authority having jurisdiction.
- g. For control circuits, comply with manufacturer's recommended color code.

2.04 SINGLE CONDUCTOR BUILDING WIRE

- A. Description: Single conductor insulated wire.
- B. Conductor Stranding:
 - 1. Feeders and Branch Circuits:
 - a. Size 10 AWG and Smaller: Solid.
 - b. Size 8 AWG and Larger: Stranded.
 - 2. Control Circuits: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation:
 - 1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.
 - a. Installed Underground: Type XHHW-2.

2.05 SERVICE ENTRANCE CABLE

- A. For residential applications (apartments and townhouses).
- B. Service Entrance Cable for Above-Ground Use: NFPA 70, Type SE multiple-conductor cable listed and labeled as complying with UL 854, Style R.
- C. Service Entrance Cable for Underground Use: NFPA 70, Type USE single-conductor cable listed and labeled as complying with UL 854, Type USE-2, and with UL 44, Type RHH/RHW-2.
- D. Conductor Stranding: Stranded.
- E. Insulation Voltage Rating: 600 V.

2.06 VFD CABLE

- A. Manufacturers:
 - 1. Lutze, Beldon, General, Southwire.
- B. Description: NFPA 70, Type TC cable listed and labeled as complying with UL 1277.
- C. Conductor Stranding: Stranded.
- D. Insulation Voltage Rating: 600 V.
- E. Insulation: Type XLPE, RHW-2 Wet/Dry.
- F. Grounding: Full-size integral equipment grounding conductor.
- G. Shielded with foil tape, tinned copper braid with \geq 80% optical coverage, and drain wire.

2.07 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Wiring Connectors for Splices and Taps:
 - 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
 - 2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
- C. Wiring Connectors for Terminations:
 - 1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
 - 2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
 - 3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
 - 4. Provide motor pigtail connectors for connecting motor leads in order to facilitate disconnection.
 - 5. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
 - 6. Stranded Conductors Size 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.
 - 7. Conductors for Control Circuits: Use crimped terminals for all connections.
- D. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- E. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.
- F. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F for standard applications and 302 degrees F for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- G. Mechanical Connectors: Provide bolted type or set-screw type.
- H. Compression Connectors: Provide circumferential type or hex type crimp configuration.
 - 1. For the connection to any of the following: utility transformer, exterior transformer, transition cabinet, or padmount transformer, provide long barrel, 2 hole NEMA spaced, tin plated copper compression connectors with hot dipped galvanized or stainless steel hardware consisting of 1/2 inch bolts, washers, lock washers, and nuts.
 - 2. Engineer to witness installation - schedule accordingly. With engineer approval photographs may be provided in lieu of engineer oversight. Coordinate required photos with engineer.
- I. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.

2.08 WIRING ACCESSORIES

- A. Electrical Tape:
 - 1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F.
 - 2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.
 - 3. Moisture Sealing Electrical Tape: Insulating mastic compound laminated to flexible, all-weather vinyl backing; minimum thickness of 90 mil.

- B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.
- C. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.
 - 1. Provide for ALL aluminum conductor terminations, splices, etc.
- D. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.
- E. All permanent splices shall be made with compression type connectors. Split bolts shall not be permitted except for temporary wiring.
- F. Solderless Pressure Connectors:
 - 1. Scotch lok brand not acceptable.
- G. Splices and taps shall be approved by owner & engineer prior to installation. When allowed for conductor sizes No. 6 and larger splicing shall be compression with heat shrink insulation.
- H. Compression Connectors:
 - 1. For #8 AWG or larger, compression type connectors.
- I. Wire nuts shall be used. Push-in connectors are not allowed.
- J. Where a circuit passes through an outlet box and is tapped, all leads should be pigtailed out to the wiring device, including the equipment ground wire. This prevents loss of neutral or ground during maintenance work.
- K. All underground splices shall be waterproof/watertight.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that interior of building has been protected from weather.
- B. Verify that work likely to damage wire and cable has been completed.
- C. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.
- D. Verify that raceway installation is complete and supported.
- E. Protect conductors from paint.
- F. Verify that field measurements are as shown on the drawings.
- G. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

- A. Circuiting Requirements:
 - 1. Unless dimensioned, circuit routing indicated is diagrammatic.
 - 2. When circuit destination is indicated and routing is not shown, determine exact routing required.
 - 3. Arrange circuiting to minimize splices.
 - 4. Include circuit lengths required to install connected devices within 10 ft of location shown.
 - 5. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
 - 6. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
 - 7. Circuiting Adjustments: Unless otherwise indicated, when branch circuits are shown as separate, combining them together in a single raceway is permitted, under the following conditions:
 - a. Provide no more than six current-carrying conductors in a single raceway. Dedicated neutral conductors are considered current-carrying conductors.
 - b. Increase size of conductors as required to account for ampacity derating.

- c. Size raceways, boxes, etc. to accommodate conductors.
- 8. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.
- B. Install products in accordance with manufacturer's instructions.
- C. Install conductors and cable in a neat and workmanlike manner in accordance with NECA 1.
- D. Install aluminum conductors in accordance with NECA 104.
- E. Installation in Raceway:
 - 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
 - 2. Pull all conductors and cables together into raceway at same time.
 - 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
 - 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
 - a. Pulling compound shall be water based, no oils waxes, etc. allowed.
- F. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.
- G. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
 - 1. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles.
 - 2. Installation in Vertical Raceways: Provide supports where vertical rise exceeds permissible limits.
- H. Install conductors with a minimum of 12 inches of slack at each outlet.
- I. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- J. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- K. Make wiring connections using specified wiring connectors.
 - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
 - 2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
 - 3. Do not remove conductor strands to facilitate insertion into connector.
 - 4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.
 - 5. Connections for Aluminum Conductors: Fill connectors with oxide inhibiting compound where not pre-filled by manufacturer.
 - 6. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 7. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- L. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
- M. Insulate ends of spare conductors using vinyl insulating electrical tape.

- N. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.
- O. Identify conductors and cables in accordance with Section 26 0553.
- P. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
- Q. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.
- R. Route wire and cable as required to meet project conditions.
 - 1. Wire and cable routing indicated is approximate unless dimensioned.
 - 2. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.
 - 3. Include wire and cable of lengths required to install connected devices within 10 ft of location shown.
- S. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for additional requirements.
- B. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 26 0526
GROUNDING AND BONDING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Grounding and bonding requirements.
- B. Conductors for grounding and bonding.
- C. Connectors for grounding and bonding.
- D. Ground bars.
- E. Ground rod electrodes.
- F. Motor shaft grounding.

1.02 RELATED REQUIREMENTS

- A. Section 26 0519 - Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.
- B. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- C. Section 26 5600 - Exterior Lighting: Additional grounding and bonding requirements for pole-mounted luminaires.

1.03 REFERENCE STANDARDS

- A. IEEE 81 - Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System; Institute of Electrical and Electronic Engineers; 2012.
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- C. NEMA GR 1 - Grounding Rod Electrodes and Grounding Rod Electrode Couplings; National Electrical Manufacturers Association; 2007.
- D. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- E. UL 467 - Grounding and Bonding Equipment; Current Edition, Including All Revisions.

1.04 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

- A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- D. Grounding System Resistance:
 - 1. Achieve specified grounding system resistance under normally dry conditions unless otherwise approved by Engineer. Precipitation within the previous 48 hours does not constitute normally dry conditions.
 - 2. Grounding Electrode System: Not greater than 5 ohms to ground, when tested according to IEEE 81 using "fall-of-potential" method.
- E. Grounding Electrode System:

1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
 - a. Provide continuous grounding electrode conductors without splice or joint.
 - b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.
2. Metal Underground Water Pipe(s):
 - a. Provide connection to underground metal domestic and fire protection (where present) water service pipe(s) that are in direct contact with earth for at least 10 feet at an accessible location not more than 5 feet from the point of entrance to the building.
 - b. Provide bonding jumper(s) around insulating joints/pipes as required to make pipe electrically continuous.
 - c. Provide bonding jumper around water meter of sufficient length to permit removal of meter without disconnecting jumper.
3. Metal Building or Structure Frame:
 - a. Provide connection to metal building or structure frame effectively grounded in accordance with NFPA 70 at nearest accessible location.
4. Concrete-Encased Electrode:
 - a. Provide connection to concrete-encased electrode consisting of not less than 20 feet of either steel reinforcing bars or bare copper conductor not smaller than 4 AWG embedded within concrete foundation or footing that is in direct contact with earth in accordance with NFPA 70.
5. Ground Ring:
 - a. Provide a ground ring encircling the building or structure consisting of bare copper conductor not less than 2 AWG in direct contact with earth, installed at a depth of not less than 30 inches.
 - b. Where location is not indicated, locate ground ring conductor at least 24 inches outside building perimeter foundation.
 - c. Where a pad mounted transformer is installed, the ground network shall consist of a loop ground rods, as indicated on the drawings around the transformer pad, and interconnect with #3/0 bare copper conductor. Extend separate ground conductors to the primary and secondary side of the transformer. All ground connections below grade shall be of the exothermic weld type. Ground all conduits in the transformer enclosure using grounding bushings. Ground stress cones, lightning arrestors, transformer housings, and all non current carrying metal parts to the ground network. Provide a grounding jumper, provided by the manufacturer, between the grounding network and the transformer neutral.
6. Ground Rod Electrode(s):
 - a. Provide three electrodes in an equilateral triangle configuration unless otherwise indicated or required.
 - b. Space electrodes not less than 10 feet from each other and any other ground electrode.
 - c. Where location is not indicated, locate electrode(s) at least 5 feet outside building perimeter foundation as near as possible to electrical service entrance; where possible, locate in softscape (uncovered) area.
7. Provide additional ground electrode(s) as required to achieve specified grounding electrode system resistance.
8. Ground Bar: Provide ground bar, separate from service equipment enclosure, for common connection point of grounding electrode system bonding jumpers as permitted in NFPA 70. Connect grounding electrode conductor provided for service-supplied system grounding to this ground bar.
 - a. Ground Bar Size: 1/4 by 2 by 12 inches unless otherwise indicated or required.
 - b. Where ground bar location is not indicated, locate in accessible location as near as possible to service disconnect enclosure.

- c. Ground Bar Mounting Height: 18 inches above finished floor unless otherwise indicated.
- 9. Ground Riser: Provide common grounding electrode conductor not less than 3/0 AWG for tap connections to multiple separately derived systems as permitted in NFPA 70.
- F. Service-Supplied System Grounding:
 - 1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.
 - 2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.
- G. Separately Derived System Grounding:
 - 1. Separately derived systems include, but are not limited to:
 - a. Transformers (except autotransformers such as buck-boost transformers).
 - b. Uninterruptible power supplies (UPS), when configured as separately derived systems.
 - c. Generators, when neutral is switched in the transfer switch.
 - 2. Provide grounding electrode conductor to connect derived system grounded conductor to nearest effectively grounded metal building frame. Unless otherwise indicated, make connection at neutral (grounded) bus in source enclosure.
 - 3. Provide bonding jumper to connect derived system grounded conductor to nearest metal building frame and nearest metal water piping in the area served by the derived system, where not already used as a grounding electrode for the derived system. Make connection at same location as grounding electrode conductor connection.
 - 4. Provide system bonding jumper to connect system grounded conductor to equipment ground bus. Make connection at same location as grounding electrode conductor connection. Do not make any other connections between neutral (grounded) conductors and ground on load side of separately derived system disconnect.
 - 5. Where the source and first disconnecting means are in separate enclosures, provide supply-side bonding jumper between source and first disconnecting means.
- H. Bonding and Equipment Grounding:
 - 1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
 - 2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
 - 3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
 - 4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
 - 5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
 - 6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.
 - 7. Provide bonding for interior metal piping systems in accordance with NFPA 70. This includes, but is not limited to:
 - a. Metal water piping where not already effectively bonded to metal underground water pipe used as grounding electrode.
 - b. Metal gas piping.
 - c. Metal process piping.
 - 8. Provide bonding for metal building frame where not used as a grounding electrode.

- I. Communications Systems Grounding and Bonding:
 - 1. Provide intersystem bonding termination at service equipment or metering equipment enclosure and at disconnecting means for any additional buildings or structures in accordance with NFPA 70.
 - 2. Provide bonding jumper in raceway from intersystem bonding termination to each communications room or backboard and provide ground bar for termination.
 - a. Bonding Jumper Size: 6 AWG, unless otherwise indicated or required.
 - b. Raceway Size: 3/4 inch unless otherwise indicated or required.
 - c. Ground Bar Size: 1/4 by 2 by 12 inches unless otherwise indicated or required.
 - d. Ground Bar Mounting Height: 18 inches above finished floor unless otherwise indicated.
- J. Pole-Mounted Luminaires: Also comply with Section 26 5600.

2.02 GROUNDING AND BONDING COMPONENTS

- A. General Requirements:
 - 1. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - 2. Provide products listed and labeled as complying with UL 467 where applicable.
- B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 0526:
 - 1. Use insulated copper conductors unless otherwise indicated.
 - a. Exceptions:
 - 1) Use bare copper conductors where installed underground in direct contact with earth.
 - 2) Use bare copper conductors where directly encased in concrete (not in raceway).
- C. Connectors for Grounding and Bonding:
 - 1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
 - 2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
 - 3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.
 - a. Exceptions:
 - 1) Use exothermic welded connections for connections to metal building frame.
- D. Ground Bars:
 - 1. Description: Copper rectangular ground bars with mounting brackets and insulators.
 - 2. Holes for Connections: As indicated or as required for connections to be made.
- E. Ground Rod Electrodes:
 - 1. Comply with NEMA GR 1.
 - 2. Material: Copper-bonded (copper-clad) steel.
 - 3. Size: 3/4 inch diameter by 10 feet length, unless otherwise indicated.
- F. Motor grounding
 - 1. Provide field installed shaft grounding for all motors served by VFD's.
 - 2. Provide Aegis SGR or approved equal.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that work likely to damage grounding and bonding system components has been completed.
- B. Verify that field measurements are as shown on the drawings.
- C. Verify that conditions are satisfactory for installation prior to starting work.
- D. Verify existing conditions prior to beginning work.
- E. Verify that final backfill and compaction has been completed before driving rod electrodes.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install grounding and bonding system components in a neat and workmanlike manner in accordance with NECA 1.
- C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70 or provide ground plates.
 - 1. Engineer must be able to inspect installation prior to grounding being covered up or digital pictures must be provided of each component of the installation prior to covering up.
- D. Make grounding and bonding connections using specified connectors.
 - 1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.
 - 2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.
 - 3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.
 - 4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.
 - 5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.
- E. Identify grounding and bonding system components in accordance with Section 26 0553.
- F. Bond together each metallic raceway (2" and larger) , pipe, duct and other metal object entering equipment enclosures. Use 2 AWG bare copper conductor per NEC.
- G. General: Install electrical grounding systems where shown, in accordance with applicable portions of NEC, with NECA's "Standard of Installation", and in accordance with recognized industry practices to ensure that products comply with requirements and serve intended functions.
 - 1. Neutral conductors, cable shields, metallic conduits, cable terminations, junction boxes, and other non-current-carrying metallic parts of equipment shall be grounded.
 - 2. Equipment frames of metal-enclosed equipment, medium-voltage cable shields at cable joints and terminations, metal splice boxes, and other non-current-carrying metal items, shall be grounded unless otherwise indicated. Connections to earth shall be made in the same manner as required for neutral grounding. Equipment operating at more than 750 volts to ground shall be provided with grounds separate from secondary neutral grounds.
 - 3. Coordinate with other electrical work as necessary to interface installation of electrical grounding system with other work.
 - 4. Install clamp-on connectors only on thoroughly cleaned metal contact surfaces, to ensure electrical conductivity and circuit integrity.

END OF SECTION

SECTION 26 0529
HANGERS AND SUPPORTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Support and attachment components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

- A. Section 26 0534 - Conduit: Additional support and attachment requirements for conduits.
- B. Section 26 0537 - Boxes: Additional support and attachment requirements for boxes.
- C. Section 26 5100 - Interior Lighting: Additional support and attachment requirements for interior luminaires.
- D. Conduit and equipment supports.
- E. Anchors and fasteners.

1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2013.
- B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- C. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2013.
- D. MFMA-4 - Metal Framing Standards Publication; Metal Framing Manufacturers Association; 2004.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- F. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 5B - Strut-Type Channel Raceways and Fittings; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
 - 2. Coordinate the work with other trades to provide additional framing and materials required for installation.
 - 3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
 - 4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
 - 5. Notify Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

- A. Comply with NFPA 70.
- B. Comply with applicable building code.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:

1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of _____. Include consideration for vibration, equipment operation, and shock loads where applicable.
 4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
 5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
 - a. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - b. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
1. Conduit Straps: Two-hole type; steel or malleable iron.
 2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.
- D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
1. Comply with MFMA-4.
 2. Channel (Strut) Used as Raceway (only where specifically indicated): Listed and labeled as complying with UL 5B.
 3. Channel Material:
 - a. Indoor Dry Locations: Use painted steel, zinc-plated steel, or galvanized steel.
 - b. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel.
 4. Minimum Channel Thickness: Steel sheet, 12 gage, 0.1046 inch.
 5. Minimum Channel Dimensions: 1-5/8 inch width by 13/16 inch height.
 6. Manufacturers:
 - a. Cooper B-Line, a division of Eaton Corporation: www.cooperindustries.com.
 - b. Thomas & Betts Corporation: www.tnb.com.
 - c. Unistrut, a brand of Atkore International Inc: www.unistrut.com.
- E. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
1. Minimum Size, Unless Otherwise Indicated or Required:
 - a. Equipment Supports: 1/2 inch diameter.
 - b. Busway Supports: 1/2 inch diameter.
 - c. Single Conduit up to 1 inch (27mm) trade size: 1/4 inch diameter.
 - d. Single Conduit larger than 1 inch (27mm) trade size: 3/8 inch diameter.
 - e. Trapeze Support for Multiple Conduits: 3/8 inch diameter.
 - f. Outlet Boxes: 1/4 inch diameter.
 - g. Luminaires: 1/4 inch diameter.
- F. Anchors and Fasteners:
1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
 2. Concrete: Use preset concrete inserts, expansion anchors, or screw anchors.
 3. Solid or Grout-Filled Masonry: Use expansion anchors or screw anchors.
 4. Hollow Masonry: Use toggle bolts.
 5. Hollow Stud Walls: Use toggle bolts.
 6. Steel: Use beam clamps, machine bolts, or welded threaded studs.
 7. Sheet Metal: Use sheet metal screws.

8. Wood: Use wood screws.
9. Plastic and lead anchors are not permitted.
10. Preset Concrete Inserts: Continuous metal channel (strut) and spot inserts specifically designed to be cast in concrete ceilings, walls, and floors.
 - a. Comply with MFMA-4.
 - b. Channel Material: Use galvanized steel.
 - c. Manufacturer: Same as manufacturer of metal channel (strut) framing system.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install support and attachment components in a neat and workmanlike manner in accordance with NECA 1.
- C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- D. Unless specifically indicated or approved by Engineer, do not provide support from suspended ceiling support system or ceiling grid.
- E. Unless specifically indicated or approved by Engineer, do not provide support from roof deck.
- F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- G. Equipment Support and Attachment:
 1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
 2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
 3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
 4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
- H. Conduit Support and Attachment: Also comply with Section 26 0534.
- I. Box Support and Attachment: Also comply with Section 26 0537.
- J. Interior Luminaire Support and Attachment: Also comply with Section 26 5100.
- K. Preset Concrete Inserts: Use manufacturer provided closure strips to inhibit concrete seepage during concrete pour.
- L. Secure fasteners according to manufacturer's recommended torque settings.
- M. Remove temporary supports.

3.02 FIELD QUALITY CONTROL

- A. Inspect support and attachment components for damage and defects.
- B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- C. Correct deficiencies and replace damaged or defective support and attachment components.
- D. Rigidly weld support members or use hexagon-head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.
- E. Install surface-mounted cabinets and panelboards with minimum of four anchors.
- F. Provide 3/4" plywood backing with gray fire retardant paint for all wall mount equipment.
- G. In wet and damp locations use steel channel supports to stand cabinets and panelboards 1 inch off wall.

- H. All supports shall be securely positioned to the structure, not equipment or ceiling tile supports. Coordinate structure load capabilities with General Contractor.
- I. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

END OF SECTION

SECTION 26 0534

CONDUIT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Galvanized steel rigid metal conduit (RMC).
- B. Flexible metal conduit (FMC).
- C. Liquidtight flexible metal conduit (LFMC).
- D. Electrical metallic tubing (EMT).
- E. Rigid polyvinyl chloride (PVC) conduit.
- F. Conduit fittings.
- G. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 8400 - Firestopping.
- B. Section 26 0519 - Conductors and Cables: Metal clad cable (Type MC), armored cable (Type AC), and manufactured wiring systems, including uses permitted.
- C. Section 26 0526 - GROUNDING AND BONDING.
- D. Section 26 0529 - HANGERS AND SUPPORTS.
- E. Section 26 0537 - Boxes.
- F. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- G. Section 26 2100 - Electrical Service Entrance: Additional requirements for electrical service conduits.
- H. Section 27 1005 - Cabling for Voice and Data: Additional requirements for communications systems conduits.

1.03 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2005.
- B. ANSI C80.3 - American National Standard for Steel Electrical Metallic Tubing (EMT); 2005.
- C. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit (EIMC); 2005.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- E. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); National Electrical Contractors Association; 2013.
- F. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); National Electrical Contractors Association; 2003.
- G. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; National Electrical Manufacturers Association; 2012 (ANSI/NEMA FB 1).
- H. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; National Electrical Manufacturers Association; 2015.
- I. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- J. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.
- K. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.

- L. UL 6A - Electrical Rigid Metal Conduit-Aluminum, Red Brass, and Stainless Steel; Current Edition, Including All Revisions.
- M. UL 360 - Liquid-Tight Flexible Steel Conduit; Current Edition, Including All Revisions.
- N. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
- O. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.
- P. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.
- Q. UL 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 1. Coordinate minimum sizes of conduits with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
 2. Coordinate the arrangement of conduits with structural members, ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
 3. Verify exact conduit termination locations required for boxes, enclosures, and equipment installed under other sections or by others.
 4. Coordinate the work with other trades to provide roof penetrations that preserve the integrity of the roofing system and do not void the roof warranty.
 5. Notify Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.
- B. Sequencing:
 1. Do not begin installation of conductors and cables until installation of conduit is complete between outlet, junction and splicing points.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.
- B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- C. Protect PVC conduit from sunlight.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
- C. Underground:
 1. Under Slab on Grade: Use thinwall non-metallic conduit.
 2. Exterior, Direct-Buried: Use PVC-coated galvanized steel rigid metal conduit or rigid PVC conduit.
 3. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit where emerging from underground.
 4. Where steel conduit is installed in direct contact with earth where soil has a resistivity of less than 2000 ohm-centimeters or is characterized as severely corrosive based on soils report or local experience, use corrosion protection tape to provide supplementary corrosion protection or use PVC-coated galvanized steel rigid metal conduit.

5. Where steel conduit emerges from concrete into soil, use corrosion protection tape to provide supplementary corrosion protection for a minimum of 4 inches on either side of where conduit emerges or use PVC-coated galvanized steel rigid metal conduit.
 6. Through floor risers shall be rigid metal conduit.
 7. Ductbanks (electrical or telecom): schedule 40 PVC. Electric shall be concrete encased.
 8. Lightning protection down leads & individual ground conductors: schedule 40 PVC.
 9. Minimum Size: 3/4 inch.
- D. Embedded Within Concrete:
1. Within Slab on Grade: Not permitted.
- E. Concealed Within Masonry Walls: Use electrical metallic tubing (EMT).
- F. Concealed Within Hollow Stud Walls: Use electrical metallic tubing (EMT).
- G. Concealed Above Accessible Ceilings: Use electrical metallic tubing (EMT).
- H. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit.
1. Liquid tight conduit with liquid tight fittings shall be used in pump rooms, kitchens, wells, sump pits, transformer connections, and other areas of moisture content
- I. Exposed, Interior, Not Subject to Physical Damage: Use electrical metallic tubing (EMT).
- J. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit.
1. Locations subject to physical damage include, but are not limited to:
 - a. Where exposed below 8 feet, except within electrical and communication rooms or closets.
 - b. Where exposed below 20 feet in warehouse areas.
- K. Exposed, Exterior: Use galvanized steel rigid metal conduit or PVC-coated galvanized steel rigid metal conduit.
- L. Concealed, Exterior, Not Embedded in Concrete or in Contact With Earth: Use galvanized steel rigid metal conduit.
- M. Connections to Luminaires Above Accessible Ceilings: Use flexible metal conduit.
1. Maximum Length: 6 feet.
- N. Connections to Vibrating Equipment:
1. Dry Locations: Use flexible metal conduit.
 2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit.
 3. Maximum Length: 6 feet unless otherwise indicated.
 4. Vibrating equipment includes, but is not limited to:
 - a. Transformers.
 - b. Motors.
- O. Fished in Existing Walls, Where Necessary: Use flexible metal conduit.

2.02 CONDUIT REQUIREMENTS

- A. Existing Work: Where existing conduits are indicated to be reused, they may be reused only where they comply with specified requirements, are free from corrosion, and integrity is verified by pulling a mandrel through them.
- B. Electrical Service Conduits: Also comply with Section 26 2100.
- C. Communications Systems Conduits: Also comply with Section 27 1005.
- D. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
- E. Provide products listed, classified, and labeled as suitable for the purpose intended.
- F. Minimum Conduit Size, Unless Otherwise Indicated:
 1. Branch Circuits: 1/2 inch (16 mm) trade size.
 2. Branch Circuit Homeruns: 3/4 inch (21 mm) trade size.
 3. Minimum Size: data/voice conduits - see voice & data system specification.

- G. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
 - 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.
 - 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

2.04 FLEXIBLE METAL CONDUIT (FMC)

- A. Manufacturers:
 - 1. AFC, Electri-flex, International Metal Hose.
- B. Description: NFPA 70, Type FMC standard wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems to be used.
- C. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.

2.05 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

- A. Manufacturers:
 - 1. AFC, Electri-flex, International Metal Hose.
- B. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- C. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.

2.06 ELECTRICAL METALLIC TUBING (EMT)

- A. Manufacturers:
 - 1. AFC, Electri-flex, International Metal Hose.
- B. Description: NFPA 70, Type EMT steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- C. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 2. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.
 - 3. Connectors and Couplings: Use compression (gland) or set-screw type.
 - a. Do not use indenter type connectors and couplings.

2.07 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

- A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.

- B. Fittings:
 1. Manufacturer: Same as manufacturer of conduit to be connected.
 2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.
- C. Provide equipment grounding conductor. Adjust conduit size accordingly.

2.08 ACCESSORIES

- A. Corrosion Protection Tape: PVC-based, minimum thickness of 20 mil.
- B. Conduit Joint Compound: Corrosion-resistant, electrically conductive; suitable for use with the conduit to be installed.
- C. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.
- D. Pull Strings: Use nylon cord with average breaking strength of not less than 200 pound-force.
- E. Sealing Compound for Sealing Fittings: Listed for use with the particular fittings to be installed.
- F. Modular Seals for Conduit Penetrations: Rated for minimum of 40 psig; Suitable for the conduits to be installed.
 1. Provide sealed fittings in conduits transitioning from conditioned areas to non-conditioned areas.
 2. Seal conduits that route from inside to outside building.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on drawings.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.
- D. Verify routing and termination locations of conduit prior to rough-in.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in a neat and workmanlike manner in accordance with NECA 1.
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Install aluminum rigid metal conduit (RMC) in accordance with NECA 102.
- E. Install PVC-coated galvanized steel rigid metal conduit (RMC) using only tools approved by the manufacturer.
- F. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
- G. Conduit Routing:
 1. Unless dimensioned, conduit routing indicated is diagrammatic.
 2. When conduit destination is indicated and routing is not shown, determine exact routing required.
 3. Conceal all conduits unless specifically indicated to be exposed.
 4. Unless otherwise approved, do not route conduits exposed:
 - a. Across floors.
 - b. Across roofs.
 - c. Across top of parapet walls.
 - d. Across building exterior surfaces.
 5. Conduits installed underground or embedded in concrete may be routed in the shortest possible manner unless otherwise indicated. Route all other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.

- a. Provide accurate as-builts for all underground conduit systems - including photo documentary in a room by room manner with owner approved labeling and organization.
 6. Arrange conduit to maintain adequate headroom, clearances, and access.
 7. Arrange conduit to provide no more than the equivalent of four 90 degree bends between pull points.
 8. Arrange conduit to provide no more than distance allowed per NEC between pull points.
 9. Route conduits above water and drain piping where possible.
 10. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
 11. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
 12. Maintain minimum clearance of 12 inches between conduits and hot surfaces. This includes, but is not limited to:
 - a. Heaters.
 - b. Hot water piping.
 - c. Flues.
 13. Group parallel conduits in the same area together on a common rack.
 14. Service conduits for basement gear (below grade) shall enter the building outside the footprint of the gear, shall be routed with conduits sloping up from the transformer, and shall have a pull box with weep holes located outside gear footprint. Bottom entry is not acceptable.
 15. Provide 1/2" (minimum) conduits at each door frame opening that is to receive electrified hardware extending from each component in the frame and its' associated power supply (Refer to Section 08710) to a junction box located approximately 18" above the ceiling line at the affected door openings.
 16. Conduit shall be installed as high as possible & up in joist space as tight to structure or deck as NEC allows. Verify with architect, engineer, & other trades for mounting height and routing of conduits prior to installation.
- H. Conduit Support:
1. Secure and support conduits in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
 4. Use conduit strap to support single surface-mounted conduit.
 - a. Use clamp back spacer with conduit strap for damp and wet locations to provide space between conduit and mounting surface.
 5. Use metal channel (strut) with accessory conduit clamps to support multiple parallel surface-mounted conduits.
 6. Use trapeze hangers assembled from threaded rods and metal channel (strut) with accessory conduit clamps to support multiple parallel suspended conduits.
 7. Use of spring steel conduit clips for support of conduits is not permitted.
 8. Use of wire for support of conduits is not permitted.
 9. Where conduit support intervals specified in NFPA 70 and NECA standards differ, comply with the most stringent requirements.
 10. Group related conduits; support using conduit rack. Construct rack using steel channel ; provide space on each for 25 percent additional conduits.
- I. Connections and Terminations:
1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
 2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
 3. Use suitable adapters where required to transition from one type of conduit to another.

4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
 5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
 6. Where spare conduits stub up through concrete floors and are not terminated in a box or enclosure, provide threaded couplings equipped with threaded plugs set flush with finished floor.
 7. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
 8. Secure joints and connections to provide maximum mechanical strength and electrical continuity.
- J. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
 2. Make penetrations perpendicular to surfaces unless otherwise indicated.
 3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
 4. Conceal bends for conduit risers emerging above ground.
 5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
 6. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
 7. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty. Include proposed locations of penetrations and methods for sealing with submittals.
 - a. Sealing shall be rubber boot system. Caulking around opening only is not acceptable.
 8. Provide metal escutcheon plates for conduit penetrations exposed to public view.
 9. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
- K. Underground Installation:
1. Provide trenching and backfilling in accordance with Sections 31 2316 and 31 2323.
 2. Minimum Cover, Unless Otherwise Indicated or Required:
 - a. Underground, Exterior: 24 inches.
 - b. Under Slab on Grade: 12 inches to bottom of slab.
 3. Provide underground warning tape in accordance with Section 26 0553 along entire conduit length for service entrance where not concrete-encased.
- L. Embedment Within Structural Concrete Slabs (only where approved by Structural Engineer):
1. Secure conduits to prevent floating or movement during pouring of concrete.
- M. Concrete Encasement: Where conduits not otherwise embedded within concrete are indicated to be concrete-encased, provide concrete in accordance with Section 03 3000 with minimum concrete cover of 3 inches on all sides unless otherwise indicated.
- N. Hazardous (Classified) Locations: Where conduits cross boundaries of hazardous (classified) locations, provide sealing fittings located as indicated or in accordance with NFPA 70.
- O. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
 2. Where conduits are subject to earth movement by settlement or frost.
- P. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:

1. Where conduits pass from outdoors into conditioned interior spaces.
 2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
 3. Where conduits penetrate coolers or freezers.
- Q. Provide pull string in all empty conduits and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches at each end.
- R. Provide grounding and bonding in accordance with Section 26 0526.
- S. Identify conduits in accordance with Section 26 0553.
- T. Provide suitable fittings to accommodate expansion and deflection where conduit crosses expansion joints.
- U. Provide grounding bushings on all conduits 2" and larger.
- V. Flexible metal conduit shall not be used in lengths longer than six feet.
- W. Telecommunications conduit & cable tray shall not be over 300' in total distance from jack to rack. Provide report listing outlets over the 300' distance prior to pulling cable & ceiling installation.

3.03 FIELD QUALITY CONTROL

- A. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- B. Where coating of PVC-coated galvanized steel rigid metal conduit (RMC) contains cuts or abrasions, repair in accordance with manufacturer's instructions.
- C. Correct deficiencies and replace damaged or defective conduits.

3.04 CLEANING

- A. Clean interior of conduits to remove moisture and foreign matter.

3.05 PROTECTION

- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION

SECTION 26 0537

BOXES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.
- B. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches.
- C. Floor boxes.
- D. Wall and ceiling outlet boxes.
- E. Floor boxes.
- F. Pull and junction boxes.

1.02 RELATED REQUIREMENTS

- A. Section 26 0526 - GROUNDING AND BONDING.
- B. Section 26 0529 - HANGERS AND SUPPORTS.
- C. Section 26 0534 - Conduit:
 - 1. Conduit bodies and other fittings.
 - 2. Additional requirements for locating boxes to limit conduit length and/or number of bends between pulling points.
- D. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- E. Section 26 2726 - Wiring Devices:
 - 1. Wall plates.
 - 2. Floor box service fittings.
 - 3. Additional requirements for locating boxes for wiring devices.
- F. Section 27 1005 - Cabling for Voice and Data: Additional requirements for communications systems outlet boxes.

1.03 REFERENCE STANDARDS

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; National Electrical Contractors Association; 2010.
- C. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; National Electrical Manufacturers Association; 2012 (ANSI/NEMA FB 1).
- D. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; National Electrical Manufacturers Association; 2013 (ANSI/NEMA OS 1).
- E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); National Electrical Manufacturers Association; 2014.
- F. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. SCTE 77 - Specification for Underground Enclosure Integrity; Society of Cable Telecommunications Engineers; 2013 (ANSI/SCTE 77).
- H. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.
- I. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.

- J. UL 508A - Industrial Control Panels; Current Edition, Including All Revisions.
- K. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.
- L. UL 514C - Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.
 - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
 - 3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.
 - 4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.
 - 5. Coordinate the placement of boxes with millwork, furniture, devices, equipment, etc. installed under other sections or by others.
 - 6. Coordinate the work with other trades to preserve insulation integrity.
 - 7. Coordinate the work with other trades to provide walls suitable for installation of flush-mounted boxes where indicated.
 - 8. Notify Engineer of any conflicts with or deviations from the contract documents. Obtain direction before proceeding with work.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

PART 2 PRODUCTS

2.01 BOXES

- A. General Requirements:
 - 1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
 - 2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
 - 3. Provide products listed, classified, and labeled as suitable for the purpose intended.
 - 4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
 - 5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
 - 1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
 - 2. For residential (apartments and townhouses) applications use nonmetallic boxes.
 - 3. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
 - 4. Use suitable concrete type boxes where flush-mounted in concrete.
 - 5. Use suitable masonry type boxes where flush-mounted in masonry walls.
 - 6. Use raised covers suitable for the type of wall construction and device configuration where required.
 - 7. Use shallow boxes where required by the type of wall construction.
 - 8. Do not use "through-wall" boxes designed for access from both sides of wall.
 - 9. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.

10. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
 11. Nonmetallic Boxes: Comply with NEMA OS 2, and list and label as complying with UL 514C.
 12. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
 13. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes.
 - a. Provide multi-gang boxes for switches shown grouped on the drawings.
 14. Wall Plates: Comply with Section 26 2726.
- C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches:
1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
 2. NEMA 250 Environment Type, Unless Otherwise Indicated:
 3. Junction and Pull Boxes Larger Than 100 cubic inches:
 - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
- D. Floor Boxes:
1. Description: Floor boxes compatible with floor box service fittings provided in accordance with Section 26 2726; with partitions to separate multiple services; furnished with all components, adapters, and trims required for complete installation.
 2. Manufacturer: Same as manufacturer of floor box service fittings.

2.02 FLOOR BOXES

- A. See specification "Floor Box Schedule" for additional information.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on drawings.
- B. Verify that mounting surfaces are ready to receive boxes.
- C. Verify that conditions are satisfactory for installation prior to starting work.
- D. Verify locations of floor boxes and outlets in offices and work areas prior to rough-in.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in a neat and workmanlike manner in accordance with NECA 1 and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Provide separate boxes for emergency power and normal power systems.
- E. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.
- F. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.
- G. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.
- H. Box Locations:
 1. Locate boxes to be accessible. Provide access panels in accordance with Section 08 3100 as required where approved by the Architect.
 2. Unless dimensioned, box locations indicated are approximate.
 - a. Adjust box locations up to 10 feet if required to accommodate intended purpose.
 3. Locate boxes as required for devices installed under other sections or by others.
 - a. Switches, Receptacles, and Other Wiring Devices: Comply with Section 26 2726.

- b. Communications Systems Outlets: Comply with Section 27 1005.
- 4. Locate boxes so that wall plates do not span different building finishes.
- 5. Locate boxes so that wall plates do not cross masonry joints.
- 6. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
- 7. Do not install flush-mounted boxes on opposite sides of walls back-to-back. Provide minimum 6 inches horizontal separation unless otherwise indicated.
- 8. Acoustic-Rated Walls: Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches horizontal separation.
- 9. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
 - a. Do not install flush-mounted boxes on opposite sides of walls back-to-back; provide minimum 24 inches separation where wall is constructed with individual noncommunicating stud cavities or protect both boxes with listed putty pads.
 - b. Do not install flush-mounted boxes with area larger than 16 square inches or such that the total aggregate area of openings exceeds 100 square inches for any 100 square feet of wall area.
- 10. Locate junction and pull boxes as indicated, as required to facilitate installation of conductors, and to limit conduit length and/or number of bends between pulling points in accordance with Section 26 0534.
- 11. Locate junction and pull boxes in the following areas, unless otherwise indicated or approved by the Architect:
 - a. Concealed above accessible suspended ceilings.
 - b. Within joists in areas with no ceiling.
 - c. Electrical rooms.
 - d. Mechanical equipment rooms.
- I. Box Supports:
 - 1. Secure and support boxes in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
 - 2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.
 - 3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
 - 4. Use far-side support to secure flush-mounted boxes supported from single stud in hollow stud walls. Repair or replace supports for boxes that permit excessive movement.
- J. Install boxes plumb and level.
- K. Flush-Mounted Boxes:
 - 1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
 - 2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
 - 3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.
 - 4. Use stamped steel bridges to fasten flush mounting outlet box between studs
- L. Install boxes as required to preserve insulation integrity.
- M. Underground Boxes/Enclosures:
 - 1. Install enclosure on gravel base, minimum 6 inches deep.
 - 2. Install additional bracing inside enclosures in accordance with manufacturer's instructions to minimize box sidewall deflections during backfilling. Backfill with cover bolted in place.

- N. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- O. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
- P. Close unused box openings.
- Q. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.
- R. Provide grounding and bonding in accordance with Section 26 0526.
- S. Maintain headroom and present neat mechanical appearance.
- T. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.
- U. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.
- V. Locate outlet boxes to allow luminaires positioned as shown on reflected ceiling plan.
- W. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.
- X. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.
- Y. Support all boxes. Back boxes in ceilings shall be properly supported -i.e. recessed lights, speakers, dome lights, fire alarm devices, etc.
- Z. Use adjustable steel channel fasteners for hung ceiling outlet box.

3.03 CLEANING

- A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

3.04 PROTECTION

- A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.
- B. Clean exposed surfaces and restore finish.

END OF SECTION

SECTION 26 0553
IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electrical identification requirements.
- B. Identification nameplates and labels.
- C. Wire and cable markers.
- D. Voltage markers.
- E. Warning signs and labels.

1.02 RELATED REQUIREMENTS

- A. Section 26 0519 - Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.
- B. Section 26 0536 - Cable Trays for Electrical Systems: Additional identification requirements for cable tray systems.
- C. Section 26 2300 - Low-Voltage Switchgear: Factory-installed mimic bus.
- D. Section 26 2726 - Wiring Devices - Lutron: Device and wallplate finishes; factory pre-marked wallplates.
- E. Section 27 1005 - Cabling for Voice and Data: Identification for communications cabling and devices.

1.03 REFERENCE STANDARDS

- A. ANSI Z535.2 - American National Standard for Environmental and Facility Safety Signs; 2011.
- B. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels; 2011.
- C. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- D. UL 969 - Marking and Labeling Systems; Current Edition, Including All Revisions.

1.04 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

PART 2 PRODUCTS

2.01 IDENTIFICATION REQUIREMENTS

- A. Identification for Equipment:
 - 1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
 - a. Switchgear:
 - 1) Identify ampere rating.
 - 2) Identify voltage and phase.
 - 3) Identify power source and circuit number. Include location when not within sight of equipment.
 - 4) Use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
 - b. Switchboards:
 - 1) Identify voltage and phase.
 - 2) Identify power source and circuit number. Include location when not within sight of equipment.
 - 3) Use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
 - c. Panelboards:

- 1) Identify voltage and phase.
 - 2) Identify power source and circuit number. Include location when not within sight of equipment.
 - 3) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces using pencil.
 - 4) For power panelboards without a door, use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
- d. Transformers:
- 1) Identify kVA rating.
 - 2) Identify voltage and phase for primary and secondary.
 - 3) Identify power source and circuit number. Include location when not within sight of equipment.
 - 4) Identify load(s) served. Include location when not within sight of equipment.
- e. Enclosed switches, circuit breakers, and motor controllers:
- 1) Identify voltage and phase.
 - 2) Identify power source and circuit number. Include location when not within sight of equipment.
- f. Enclosed Contactors:
- 1) Identify ampere rating.
 - 2) Identify voltage and phase.
 - 3) Identify configuration, e.g., E.O.E.H. (electrically operated, electrically held) or E.O.M.H. (electrically operated, mechanically held).
 - 4) Identify load(s) and associated circuits controlled. Include location.
2. Service Equipment:
- a. Use identification nameplate to identify each service disconnecting means.
 - b. For buildings or structures supplied by more than one service, or any combination of branch circuits, feeders, and services, use identification nameplate or means of identification acceptable to authority having jurisdiction at each service disconnecting means to identify all other services, feeders, and branch circuits supplying that building or structure. Verify format and descriptions with authority having jurisdiction.
 - c. Use identification nameplate at each piece of service equipment to identify the available fault current and the date calculations were performed.
3. Use voltage marker to identify highest voltage present for each piece of electrical equipment.
 4. Use identification nameplate to identify disconnect location for equipment with remote disconnecting means.
 5. Use identification label to identify overcurrent protective devices for branch circuits serving fire alarm circuits. Identify with text "FIRE ALARM CIRCUIT".
 6. Arc Flash Hazard Warning Labels: Use warning labels to identify arc flash hazards for electrical equipment, such as switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are likely to require examination, adjustment, servicing, or maintenance while energized.
 - a. Legend: Include orange header that reads "WARNING", followed by the word message "Arc Flash and Shock Hazard; Appropriate PPE Required; Do not operate controls or open covers without appropriate personal protection equipment; Failure to comply may result in injury or death; Refer to NFPA 70E for minimum PPE requirements" or approved equivalent.
 7. Use warning signs to identify electrical hazards for entrances to all buildings, vaults, rooms, or enclosures containing exposed live parts or exposed conductors operating at over 600 V nominal with the word message "DANGER; HIGH VOLTAGE; KEEP OUT".
 8. Use warning labels, identification nameplates, or identification labels to identify electrical hazards for equipment where multiple power sources are present with the word message "DANGER; Hazardous voltage; Multiple power sources may be present; Disconnect all electric power including remote disconnects before servicing" or approved equivalent.

B. Identification for Conductors and Cables:

1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 0519.
 2. Identification for Communications Conductors and Cables: Comply with Section 27 1005.
 3. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.
 4. Use wire and cable markers to identify connected grounding electrode system components for grounding electrode conductors.
 5. Use underground warning tape to identify direct buried cables.
- C. Identification for Boxes:
1. Use color coded boxes to identify systems other than normal power system.
 - a. Color-Coded Boxes: Field-painted in accordance with Section 26 0010 per the following color code:.
 - 1) Emergency Power System: Yellow
 - (a) Life Safety Branch: LS hand written along with circuit and panel numbers.
 - (b) Critical Branch: C hand written along with circuit and panel numbers.
 - (c) Equipment Branch: E hand written along with circuit and panel numbers.
 - 2) Fire Alarm System: Red.
 - 3) Telecommunications = Brown
 - 4) Building Automation System = Blue
 - 5) Sound Systems = Gold
 - 6) Primary Distribution System = Gray
 - 7) 480/277 Volt = Orange
 - 8) 208/120 Volt System = White
 - b. For exposed boxes in public areas, do not color code.
 2. Use handwritten text using indelible marker to identify circuits enclosed.
 3. All j-boxes shall be legibly and permanently marked to indicate the circuit numbers associated with the conductors in the j-box. J-boxes containing sound, fire alarm, voice, intercom, clock system, data, etc. shall be labeled as such. Permanent black marker shall be acceptable.
- D. Identification for Devices:
1. Identification for Communications Devices: Comply with Section 27 1005.
 2. Wiring Device and Wallplate Finishes: Comply with Section 26 2726.
 3. Use permanent marker to identify serving branch circuit for all receptacles.
 - a. For receptacles in public areas or in areas as directed by Architect, provide identification on inside surface of wallplate.

2.02 IDENTIFICATION NAMEPLATES AND LABELS

- A. Identification Nameplates:
1. Materials:
 - a. Indoor Clean, Dry Locations: Use plastic nameplates.
 - b. Outdoor Locations: Use plastic, stainless steel, or aluminum nameplates suitable for exterior use.
 2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch; engraved text.
 3. Stainless Steel Nameplates: Minimum thickness of 1/32 inch; engraved or laser-etched text.
 4. Aluminum Nameplates: Anodized; minimum thickness of 1/32 inch; engraved or laser-etched text.
 5. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch high; Four, located at corners for larger sizes.
- B. Identification Labels:

1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
 2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.
- C. Format for Equipment Identification:
1. Minimum Size: 1 inch by 2.5 inches.
 2. Legend:
 - a. System designation where applicable:
 - 1) Fire Alarm System: Identify with text "FIRE ALARM".
 - b. Equipment designation or other approved description.
 3. Text: All capitalized unless otherwise indicated.
 4. Minimum Text Height:
 - a. System Designation: 1 inch.
 - b. Equipment Designation: 1/2 inch.
 5. Color:
 - a. Normal Power System: White text on black background.

2.03 WIRE AND CABLE MARKERS

- A. Markers for Conductors and Cables: Use wrap-around self-adhesive vinyl cloth, wrap-around self-adhesive vinyl self-laminating, heat-shrink sleeve, plastic sleeve, plastic clip-on, or vinyl split sleeve type markers suitable for the conductor or cable to be identified.
- B. Markers for Conductor and Cable Bundles: Use plastic marker tags secured by nylon cable ties.
- C. Legend: Power source and circuit number or other designation indicated.
- D. Text: Use factory pre-printed or machine-printed text, all capitalized unless otherwise indicated.
- E. Minimum Text Height: 1/8 inch.
- F. Color: Black text on white background unless otherwise indicated.
- G. Description: tape type wire markers on feeder cables #4 and larger. Branch circuit wire and cable #6 and smaller shall be factory color coded by integral pigmentation.
- H. Locations: Each conductor at panelboard gutters each load connection.

2.04 VOLTAGE MARKERS

- A. Markers for Boxes and Equipment Enclosures: Use factory pre-printed self-adhesive vinyl or self-adhesive vinyl cloth type markers.
- B. Minimum Size:
 1. Markers for Equipment: 1 1/8 by 4 1/2 inches.
- C. Legend:
 1. Markers for Voltage Identification: Highest voltage present.
- D. Color: Black text on orange background unless otherwise indicated.

2.05 WARNING SIGNS AND LABELS

- A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.
- B. Warning Signs:
 1. Materials:
 - a. Indoor Dry, Clean Locations: Use factory pre-printed rigid plastic or self-adhesive vinyl signs.
 2. Rigid Signs: Provide four mounting holes at corners for mechanical fasteners.
 3. Minimum Size: 7 by 10 inches unless otherwise indicated.
- C. Warning Labels:
 1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.

2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
3. Minimum Size: 2 by 4 inches unless otherwise indicated.

PART 3 EXECUTION

3.01 PREPARATION

- A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:
 1. Surface-Mounted Equipment: Enclosure front.
 2. Flush-Mounted Equipment: Inside of equipment door.
 3. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
 4. Elevated Equipment: Legible from the floor or working platform.
 5. Branch Devices: Adjacent to device.
 6. Interior Components: Legible from the point of access.
 7. Boxes: Outside face of cover.
 8. Conductors and Cables: Legible from the point of access.
 9. Devices: Outside face of cover.
- C. Install identification products centered, level, and parallel with lines of item being identified.
- D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.
- E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.
- F. Secure rigid signs using stainless steel screws.
- G. Mark all handwritten text, where permitted, to be neat and legible.

3.03 FIELD QUALITY CONTROL

- A. Replace self-adhesive labels and markers that exhibit bubbles, wrinkles, curling or other signs of improper adhesion.

END OF SECTION

**SECTION 26 2717
EQUIPMENT WIRING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electrical connections to equipment.

1.02 RELATED REQUIREMENTS

- A. Section 26 0519 - Conductors and Cables.
- B. Section 26 0534 - Conduit.
- C. Section 26 0519 - Conductors and Cables.
- D. Section 26 0537 - Boxes.
- E. Section 26 2726 - Wiring Devices.
- F. Section 26 2818 - Enclosed Switches.
- G. Section 26 2913 - Enclosed Controllers.
- H. All related sections including, but not limited to: Overhead door, fire shutters, coiling doors, elevators, escalators, traffic control gates, etc..

1.03 REFERENCE STANDARDS

- A. NEMA WD 1 - General Color Requirements for Wiring Devices; National Electrical Manufacturers Association; 1999 (R 2010).
- B. NEMA WD 6 - Wiring Devices - Dimensional Requirements; National Electrical Manufacturers Association; 2012.
- C. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Products: Listed, classified, and labeled as suitable for the purpose intended.

1.05 COORDINATION

- A. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
- B. Coordinate breaker, wire, and conduit sizes for equipment furnished by other sections prior to ordering and prior to shop drawing release.
- C. Determine connection locations and requirements.
- D. Sequence rough-in of electrical connections to coordinate with installation of equipment.
- E. Sequence electrical connections to coordinate with start-up of equipment.
- F. Contractor is responsible for reviewing all related sections to provide all required connections (power & low voltage). Not all requirements may be shown on electrical drawings, but the contractor is still responsible for all electrical related items for the equipment. This includes neutral conductor if required per equipment manufacturer.
- G. Before any electrical components, supplied under Section 08710 Door Hardware and/or by security vendor, are installed or roughed in, review the wiring diagrams and piping elevations provided by the hardware supplier to ensure that all aspects of the installation and operation are understood and determine if there are any questions or problems. All wire specified or required for low voltage connections shall be provided by Division 26 unless specifically listed in Section 08710. All terminations of the low voltage components are to be accomplished by Division 26.
 - 1. Hardware items requiring both low voltage connections as well as high voltage ones are to have all wires connected by the Division 26 Contractor. The conduit, wire, and installation

of such is to be provided by the Division 26 Contractor. Installation of hardware items requiring wire termination by the Division 26 Contractor is to be accomplished by the Contractor.

2. Install wiring in conduit per the manufacturers recommendations. Coordinate with door hardware to ensure system operates as specified and per owner requirements.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Cords and Caps: NEMA WD 6; match receptacle configuration at outlet provided for equipment.
 1. Colors: Conform to NEMA WD 1.
 2. Cord Construction: NFPA 70, Type SO, multiconductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.
 3. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.
- B. Enclosed Switches: As specified in Section 26 2818.
- C. Wiring Devices: As specified in Section 26 2726.
- D. Flexible Conduit: As specified in Section 26 0534.
- E. Wire and Cable: As specified in Section 26 0519.
- F. Boxes: As specified in Section 26 0537.

2.02 SYMBOLS & ABBREVIATION CONNECTIONS

- A. The following items are additional information, requirements, or description to the symbols and abbreviations indicated on the drawings.
 1. PS (Projection Screen - Electric): Electric projection screen and control switches, equipment provided and installed by GC, connected/powered by EC, EC to wire control stations and screen power, install per manufacturers recommendations and coordinate exact requirements with architectural specifications/shop drawings. Typical.
 2. OD (Overhead Door Operator): Automatic overhead door pushbutton stations and operators, equipment provided and installed by GC, connected/powered by EC, install per manufacturers recommendations and coordinate exact requirements with architectural specifications/shop drawings. Provide necessary control wiring for safety features. Coordinate exact locations with owner and other trades to make all services fit in this area. Typical.
 3. SG (Sliding Gate Operator): Operators, equipment provided and installed by GC, connected/powered by EC, install per manufacturers recommendations and coordinate exact requirements with architectural specifications/shop drawings. Provide necessary control wiring for safety features. EC to provide ground loops and all associated wiring. Coordinate exact locations with owner and other trades. Typical.
 4. CD (Coiling Door Operator): Automatic overhead door pushbutton stations and operators, equipment provided and installed by GC, connected/powered by EC, install per manufacturers recommendations and coordinate exact requirements with architectural specifications/shop drawings. Provide necessary control wiring for safety features. Coordinate exact locations with owner and other trades to make all services fit in this area. Provide connection to fire alarm system. Typical.
 5. FD (Fire Door Operator): Automatic door operators, equipment provided and installed by GC, connected/powered by EC, install per manufacturers recommendations and coordinate exact requirements with architectural specifications/shop drawings. Provide necessary control wiring for safety features. Coordinate exact locations with owner and other trades to make all services fit in this area. Connect to fire alarm system for operation upon fire alarm. Typical.
 6. CP (Ceiling Projector): Provide 2" Conduit from ceiling space to lectern location for serial connection. Mount receptacle in ceiling & control switch by lectern location.

7. CA (Card Access Power supply): junction box for power to door controller, connected/powered by EC, install per manufacturers recommendations and coordinate exact requirements with specifications/shop drawings. Typical.
8. CAM (Camera power): junction box or receptacle for power to camera, connected/powered by EC, install per manufacturers recommendations and coordinate exact requirements with specifications/shop drawings. Typical.
9. DL (Dock Leveler): Leveler and pushbutton stations, equipment provided and installed by GC, connected/powered by EC, install per manufacturers recommendations and coordinate exact requirements with architectural specifications/shop drawings. Provide necessary control wiring for safety features. Typical.
10. HA (Handicap Access Door): ADA door pushbutton stations, equipment provided and installed by GC, connected/powered by EC, install per manufacturers recommendations and coordinate exact requirements with architectural specifications/shop drawings. Provide necessary control wiring for safety features. Typical.
11. GD (Garbage Disposer): Mount switch above sink on opposite side of lighting control, and control switched receptacle below sink for garbage disposer by others. Coordinate requirements with other trades. Provide garbage disposal cord sets. Provide cord sets per disposal manufacturer's recommendations.
12. DW (Dish Washer): Unit & cord furnished by others unless otherwise indicated, EC to install unit and wire complete.
13. RH (Range Hood): Hood furnished by Mechanical Contractor, installed and wired by Electrical Contractor. Coordinate with Mechanical Contractor
14. CU (Condensing Unit): Provide control wiring as required to operate unit. Coordinate with Mechanical Contractor.
15. Motorized damper: Interlock motorized damper to associated equipment. Damper shall open when equipment is on and close when equipment is off. Power roof ventilators (PRV- exhaust fans) that come with internal motorized dampers shall be wired by the electrical contractor.
16. EWC (Electric Water Cooler): Mount receptacle in water cooler housing/wash fountain. Coordinate with Mechanical Contractor.
17. WS (Window Shade - motorized): Equipment provided and installed by GC, connected/powered by EC, install per manufacturers recommendations and coordinate exact requirements with architectural specifications/shop drawings. Provide necessary connection & control wiring for zones as indicated in specifications. Coordinate exact locations with owner and other trades to make all services fit in this area. Typical.

2.03 EQUIPMENT CONNECTIONS

- A. Motor connections:
 1. Electrical Connection: Flexible conduit.
 2. Contractor shall wire to motor controller or disconnect AND to motor unless otherwise indicated, for example, single point connection.
 3. Verify all connection parameters: ampacity, horsepower, voltage, phase, etc. prior to ordering equipment. Coordinate with all trades providing equipment.
 4. Verify elevator connection parameters: ampacity, horsepower, voltage, phase, 3-Wire VS. 4-Wire, etc.. prior to ordering equipment (enclosed circuit breakers, circuit breakers, disconnects, etc.). Coordinate with supplier providing equipment. Provide shut trip breaker connected to fire alarm system. Provide an auxiliary contact for emergency return unit for elevator. Provide wiring to the elevator controller such that the contact is positively open when the main disconnecting means is open. Provide conduit and wiring as required by Elevator manufacturer. Coordinate exact requirements and location with Elevator manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.02 ELECTRICAL CONNECTIONS

- A. Make electrical connections in accordance with equipment manufacturer's instructions.
- B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.
- C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.
- D. Provide receptacle outlet to accommodate connection with attachment plug.
- E. Install cord & plug to equipment furnished by others, i.e. dishwashers, dryers, etc.
- F. For exterior locations all cables, SOW, cords, etc shall be in conduit. This includes, but not limited to heat trace, pump cables, etc.
- G. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.
- H. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.
- I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.
 - 1. For instance: pneumatic control wiring for overhead door control may not be shown, but will be required to be installed.
- J. Electrical contractor will be responsible for installing new conduit and the necessary wire for the instruments (any instrument that needs new wire and/or conduit).
- K. On existing equipment: the disconnect and reconnect of the instrumentation wire shall be by the responsibility of the Electrical contractor.

END OF SECTION

SECTION 26 5100
INTERIOR LIGHTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Interior luminaires.
- B. Exit signs.
- C. Ballasts and drivers.
- D. Lamps.
- E. Luminaire accessories.

1.02 RELATED REQUIREMENTS

- A. Section 26 0537 - Boxes.
- B. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.
- C. Section 26 5600 - Exterior Lighting.

1.03 REFERENCE STANDARDS

- A. ANSI C82.11 - American National Standard for Lamp Ballasts - High Frequency Fluorescent Lamp Ballasts - Supplements; 2011.
- B. IEEE C62.41.2 - Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits; Institute of Electrical and Electronic Engineers; 2002 (Cor 1, 2012).
- C. IESNA LM-63 - ANSI Approved Standard File Format for Electronic Transfer of Photometric Data and Related Information; Illuminating Engineering Society; 2002 (Reaffirmed 2008).
- D. IES LM-79 - Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products; Illuminating Engineering Society; 2008.
- E. IES LM-80 - Approved Method: Measuring Lumen Maintenance of LED Light Sources; Illuminating Engineering Society; 2008.
- F. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- G. NECA/IESNA 500 - Standard for Installing Indoor Commercial Lighting Systems; National Electrical Contractors Association; 2006.
- H. NECA/IESNA 502 - Standard for Installing Industrial Lighting Systems; National Electrical Contractors Association; 2006.
- I. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; National Electrical Manufacturers Association; 2012.
- J. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. NFPA 101 - Life Safety Code; National Fire Protection Association; 2015.
- L. UL 924 - Emergency Lighting and Power Equipment; Current Edition, Including All Revisions.
- M. UL 1598 - Luminaires; Current Edition, Including All Revisions.
- N. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate the installation of luminaires with mounting surfaces installed under other sections or by others. Coordinate the work with placement of supports, anchors, etc.

- required for mounting. Coordinate compatibility of luminaires and associated trims with mounting surfaces at installed locations.
2. Coordinate the placement of luminaires with structural members, ductwork, piping, equipment, diffusers, fire suppression system components, and other potential conflicts installed under other sections or by others.
 3. Coordinate the placement of exit signs with furniture, equipment, signage or other potential obstructions to visibility installed under other sections or by others.
 4. Notify Engineer of any conflicts or deviations from the contract documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

- A. Sample fixtures and lamps for prior approval shall be provided to the owner prior to Wednesday, Oct 14th for consideration.
- B. Shop Drawings:
 1. Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
 2. Provide photometric calculations where luminaires are proposed for substitution upon request.
 3. Include all information listed in product data below.
- C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
 1. LED Luminaires:
 - a. Include estimated useful life, calculated based on IES LM-80 test data.
 - b. Include IES LM-79 test report upon request.
 2. Provide electronic files of photometric data certified by a National Voluntary Laboratory Accreditation Program (NVLAP) lab or independent testing agency in IESNA LM-63 standard format upon request.
 3. Ballasts: Include wiring diagrams and list of compatible lamp configurations.
 4. Lamps: Include rated life, color temperature, color rendering index (CRI), and initial and mean lumen output.
 - a. Provide NAED# for all lamps.
- D. Certificates for Dimming Ballasts: Manufacturer's documentation of compatibility with dimming controls to be installed.
- E. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
- F. Operation and Maintenance Data: Instructions for each product including information on replacement parts.
- G. Project Record Documents: Record actual connections and locations of luminaires and any associated remote components.

1.06 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.

1.07 DELIVERY, STORAGE, AND PROTECTION

- A. Receive, handle, and store products according to NECA/IESNA 500 (commercial lighting), NECA/IESNA 502 (industrial lighting), and manufacturer's written instructions.
- B. Keep products in original manufacturer's packaging and protect from damage until ready for installation.

1.08 WARRANTY

- A. Provide five year full warranty for batteries for self-powered exit signs.

PART 2 PRODUCTS

2.01 MANUFACTURERS - LUMINAIRES

- A. See lighting fixture schedule.

2.02 LUMINAIRE TYPES

- A. Furnish products as indicated in luminaire schedule included on the drawings.

2.03 LUMINAIRES

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.
- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.
- G. Recessed Luminaires:
 - 1. Ceiling Compatibility: Comply with NEMA LE 4.
 - 2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.
 - 3. Luminaires Recessed in Sloped Ceilings: Provide suitable sloped ceiling adapters.
- H. Hazardous (Classified) Location Luminaires: Listed and labeled as complying with UL 844 for the classification of the installed location.
- I. LED Luminaires:
 - 1. Components: UL 8750 recognized or listed as applicable.
 - 2. Tested in accordance with IES LM-79 and IES LM-80.
 - 3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.
 - 4. General:
 - a. LED light fixtures shall be in accordance with IES, NFPA, UL, as shown on the drawings, and as specified.
 - b. LED light fixtures shall be Reduction of Hazardous Substances (RoHS)-compliant.
 - c. LED drivers shall include the following features unless otherwise indicated:
 - 1) Minimum efficiency: 85% at full load.
 - 2) Minimum Operating Ambient Temperature: -20 deg C. (-4 deg F.)
 - 3) Input Voltage: 120 - 277V ($\pm 10\%$) at 60 Hz.
 - 4) Integral short circuit, open circuit, and overload protection.
 - 5) Power Factor: ≥ 0.95 .
 - 6) Total Harmonic Distortion: $\leq 20\%$.
 - 7) Comply with FCC 47 CFR Part 15.
 - d. LED modules shall include the following features unless otherwise indicated:
 - 1) Comply with IES LM-79 and LM-80 requirements.
 - 2) Minimum CRI 80 and color temperature 3000 deg K unless otherwise specified in LIGHTING FIXTURE SCHEDULE.
 - 3) Minimum Rated Life: 50,000 hours per IES L70.
 - 4) Light output lumens as indicated in the LIGHTING FIXTURE SCHEDULE.

- 5. LED Downlights:
 - a. Housing, LED driver, and LED module shall be products of the same manufacturer.
- 6. LED Troffers:
 - a. LED drivers, modules, and reflector shall be accessible, serviceable, and replaceable from below the ceiling.
 - b. Housing, LED driver, and LED module shall be products of the same manufacturer.
- J. LED Luminaire Components: UL 8750 recognized or listed as applicable.
- K. Track Lighting Systems: Provide track compatible with specified track heads, with all connectors, power feed fittings, dead ends, hangers and canopies as necessary to complete installation.
- L. Luminaires Mounted in Continuous Rows: Provide quantity of units required for length indicated, with all accessories required for joining and aligning.

2.04 EXIT SIGNS

- A. Description: Exit signs and similar signs for special purpose applications such as area of refuge/rescue assistance.
- B. Description: Internally illuminated exit signs with LEDs unless otherwise indicated; complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
 - 1. Number of Faces: Single or double as indicated or as required for the installed location.
 - 2. Directional Arrows: As indicated or as required for the installed location.
- C. Self-Powered Exit Signs:
 - 1. Operation: Upon interruption of normal power source or brownout condition exceeding 20 percent voltage drop from nominal, solid-state control automatically switches connected lamps to integral battery power for minimum of 90 minutes of rated emergency illumination, and automatically recharges battery upon restoration of normal power source.
 - 2. Battery: Sealed maintenance-free nickel cadmium unless otherwise indicated.
 - 3. Diagnostics: Provide power status indicator light and accessible integral test switch to manually activate emergency operation.
 - 4. Provide low-voltage disconnect to prevent battery damage from deep discharge.
 - 5. Self-Diagnostics: Provide units that self-monitor functionality and automatically perform testing required by NFPA 101 where indicated; provide indicator light(s) to report test and diagnostic status.
- D. Accessories:
 - 1. Provide compatible accessory wire guards where indicated.
 - a. For all gymnasium type areas.

2.05 BALLASTS AND DRIVERS

- A. Manufacturers:
 - 1. Substitutions: See Section 01 6000 - Product Requirements.
 - 2. Manufacturer Limitations: Where possible, for each type of luminaire provide ballasts produced by a single manufacturer.
 - 3. Where a specific manufacturer or model is indicated elsewhere in the luminaire schedule or on the drawings, substitutions are not permitted unless explicitly indicated.
- B. Ballasts - General Requirements:
 - 1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
 - 2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.
- C. Dimmable LED Drivers:
 - 1. Dimming Range: Continuous dimming from 100 percent to five percent relative light output unless dimming capability to lower level is indicated, without flicker.
 - 2. Control Compatibility: Fully compatible with the dimming controls to be installed.

2.06 LAMPS

- A. Manufacturers:
 - 1. Manufacturer Limitations: Where possible, provide lamps produced by a single manufacturer.
- B. Lamps - General Requirements:
 - 1. Unless explicitly excluded, provide new, compatible, operable lamps in each luminaire.
 - 2. Verify compatibility of specified lamps with luminaires to be installed. Where lamps are not specified, provide lamps per luminaire manufacturer's recommendations.
 - 3. Minimum Efficiency: Provide lamps complying with all current applicable federal and state lamp efficiency standards.
 - 4. Color Temperature Consistency: Unless otherwise indicated, for each type of lamp furnish products which are consistent in perceived color temperature. Replace lamps that are determined by the Engineer to be inconsistent in perceived color temperature.

2.07 MISCELLANEOUS

- A. Locations shown for light fixtures and switches are approximate. Coordinate exact location with furniture layout, structural members, and other trades to avoid conflicts in space requirements.
- B. Existing circuiting will be allowed to be reused as shown. If existing circuiting is not available in the area of the electrical load, provide a new circuit from the panelboard serving the area.
- C. Where existing light fixtures are to be reused, electrical contractor shall clean fixture lens and replace existing lamps with new lamps of the same type.
- D. Connect all exit signs and Night Light "NL" fixtures to unswitched leg of circuit shown. Light fixtures with the letters "NL" are to be used as night lights. For 4-lamp fixtures, the two outboard lamps shall remain unswitched. Typical.
- E. Owner has first right of refusal of any materials to be demolished. Salvage all T8 ballasts to owner. Recycle as much product as possible, and dispose of fluorescent lamps appropriately.
- F. Mount all exit lighting with a threaded rod to structure above.

2.08 ACCESSORIES

- A. Stems for Suspended Luminaires: Steel tubing, minimum 1/2" size, factory finished to match luminaire or field-painted as directed.
- B. Threaded Rods for Suspended Luminaires: Zinc-plated steel, minimum 1/4" size, field-painted as directed.
- C. Provide accessory plaster frames for luminaires recessed in plaster ceilings.
- D. Tube Guards for Linear LED Lamps: Provide clear virgin polycarbonate sleeves with endcaps food service areas, elevator equipment rooms.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on the drawings.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.
- C. Verify that suitable support frames are installed where required.
- D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

- A. Coordinate locations of outlet boxes provided under Section 26 0537 as required for installation of luminaires provided under this section.
- B. Install products according to manufacturer's instructions.
- C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 1 (general workmanship), NECA 500 (commercial lighting), and NECA 502 (industrial lighting).
- D. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- E. Suspended Ceiling Mounted Luminaires:
 - 1. Do not use ceiling tiles to bear weight of luminaires.
 - 2. Do not use ceiling support system to bear weight of luminaires unless ceiling support system is certified as suitable to do so.
 - 3. Secure surface-mounted and recessed luminaires to ceiling support channels or framing members or to building structure.
 - 4. Secure pendant-mounted luminaires to building structure.
 - 5. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.
 - 6. In addition to ceiling support wires, provide two galvanized steel safety wire(s), minimum 12 gage, connected from opposing corners of each recessed luminaire to building structure.
 - 7. See appropriate Division 9 section where suspended grid ceiling is specified for additional requirements.
- F. Recessed Luminaires:
 - 1. Install trims tight to mounting surface with no visible light leakage.
 - 2. Non-IC Rated Luminaires: Maintain required separation from insulation and combustible materials according to listing.
 - 3. Luminaires Recessed in Fire-Rated Ceilings: Install using accessories and firestopping materials to meet regulatory requirements for fire rating.
 - 4. Install recessed luminaires to permit removal from below.
- G. Suspended Luminaires:
 - 1. Install using the suspension method indicated, with support lengths and accessories as required for specified mounting height.
 - 2. Provide minimum of two supports for each luminaire equal to or exceeding 4 feet in length, with no more than 4 feet between supports.
 - a. Provide at opposite corners.
 - 3. Install canopies tight to mounting surface.
- H. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.
 - 1. Mount wall mounted lights above mirrors at 4" above top of mirror.
- I. Locate luminaires as indicated on reflected ceiling plan.
- J. Install wall mounted luminaires and exit signs at height as indicated on Drawings and as coordinated with Architect and owner.
- K. Install accessories furnished with each luminaire.
- L. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within fixture; use flexible conduit.
- M. Connect luminaires and exit signs to branch circuit outlets provided under Section 26 0537 using flexible conduit.
- N. Make wiring connections to branch circuit using building wire with insulation suitable for temperature conditions within luminaire.
- O. Bond products and metal accessories to branch circuit equipment grounding conductor.
- P. Install specified lamps in each emergency lighting unit, exit sign, and luminaire.

- Q. Exit Signs:
 - 1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
 - 2. Mount exit sign at 6" above the top of the door jam or 96" AFF (whichever is less).
 - 3. Mount wall mounted emergency lights at 6" below ceiling line or 80" AFF (whichever is less).
- R. Identify luminaires connected to emergency power system in accordance with Section 26 0553.
- S. Install lamps in each luminaire.
- T. Lamp Burn-In: Operate lamps at full output for prescribed period per manufacturer's recommendations prior to use with any dimming controls. Replace lamps that fail prematurely due to improper lamp burn-in.
- U. Where existing recessed light fixtures are removed or where new fixtures do not cover up the existing "hole", patch existing plaster ceiling as follows: Sand any paint ridges around the opening that may exist. Secure diamond mesh lath up in the hole to form a backing for the plaster patch. Apply USG's Sheetrock Brand Patching Plaster in 1/4" thick increments, allow to set 30 minutes between coats until flush with surface. Texture to match surrounding area. Finish painting by Owner.

3.04 FIELD QUALITY CONTROL

- A. Inspect each product for damage and defects.
- B. Operate each luminaire after installation and connection to verify proper operation.
- C. Test self-powered exit signs to verify proper operation upon loss of normal power supply.
- D. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Engineer.

3.05 ADJUSTING

- A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Engineer. Secure locking fittings in place.
- B. Aim and position adjustable emergency lighting unit lamps to achieve optimum illumination of egress path as required or as directed by Engineer or authority having jurisdiction.
- C. Exit Signs with Field-Selectable Directional Arrows: Set as indicated or as required to properly designate egress path as directed by Engineer or authority having jurisdiction.

3.06 CLEANING

- A. Clean surfaces according to NECA 500 (commercial lighting), NECA 502 (industrial lighting), and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.

3.07 CLOSEOUT ACTIVITIES

- A. Demonstration: Demonstrate proper operation of luminaires to Engineer, and correct deficiencies or make adjustments as directed.
- B. Just prior to Substantial Completion, replace all lamps that have failed .

3.08 PROTECTION

- A. Protect installed luminaires from subsequent construction operations.

END OF SECTION

**SECTION 26 5600
EXTERIOR LIGHTING**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Exterior luminaires.
- B. Ballasts.
- C. Lamps.

1.02 RELATED REQUIREMENTS

- A. Section 26 0526 - GROUNDING AND BONDING.
- B. Section 26 0537 - Boxes.

1.03 REFERENCE STANDARDS

- A. ANSI C82.11 - American National Standard for Lamp Ballasts - High Frequency Fluorescent Lamp Ballasts - Supplements; 2011.
- B. IEEE C62.41.2 - Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits; Institute of Electrical and Electronic Engineers; 2002 (Cor 1, 2012).
- C. IES LM-79 - Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products; Illuminating Engineering Society; 2008.
- D. IES LM-80 - Approved Method: Measuring Lumen Maintenance of LED Light Sources; Illuminating Engineering Society; 2008.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction; National Electrical Contractors Association; 2010.
- F. NECA/IESNA 501 - Recommended Practice for Installing Exterior Lighting Systems; National Electrical Contractors Association; 2006.
- G. NEMA LE 4 - Recessed Luminaires, Ceiling Compatibility; National Electrical Manufacturers Association; 2012.
- H. NFPA 70 - National Electrical Code; National Fire Protection Association; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- I. UL 1598 - Luminaires; Current Edition, Including All Revisions.
- J. UL 8750 - Light Emitting Diode (LED) Equipment for Use in Lighting Products; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Notify Engineer of any conflicts or deviations from the contract documents to obtain direction prior to proceeding with work.

1.05 SUBMITTALS

- A. Sample fixtures and lamps for prior approval shall be provided to the owner prior to Wednesday, Oct 14th for consideration.
- B. Shop Drawings:
 - 1. Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.
 - 2. Provide photometric calculations where luminaires are proposed for substitution upon request.
- C. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, weight, effective projected

area (EPA), and installed accessories; include model number nomenclature clearly marked with all proposed features.

1. LED Luminaires:
 - a. Include estimated useful life, calculated based on IES LM-80 test data.
 2. Lamps: Include rated life and initial and mean lumen output.
 - a. Provide NAED# for all lamps.
 3. Ballasts: Include wiring diagrams and list of compatible lamp configurations.
- D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of product.
- E. Operation and Maintenance Data: Instructions for each product including information on replacement parts.
- F. Project Record Documents: Record actual connections and locations of pole foundations, luminaires, and any pull or junction boxes.

1.06 QUALITY ASSURANCE

- A. Conform to requirements of NFPA 70.
- B. Electrical Components: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer Limitations: Where possible, provide lamps produced by a single manufacturer.
- B. For substitutions it is assumed that fixtures submitted for substitution meet or exceed the performance and quality level of the specified fixtures. Photometric review will be done during the shop drawing review period. If it is determined at that time that the substituted fixture does not meet the same photometric performance of the specified fixture, the vendor shall bear the full cost of remedy, including additional time of the design engineer to make changes in the design to accommodate the substituted fixture. Photometrics (electronic, IES format) for the submitted fixture with specified lamp(s) in the fixture shall be provided during the shop drawing review period, for insertion in lighting models to ascertain performance as compared to specified fixtures.

2.02 LUMINAIRE TYPES

- A. Furnish products as indicated in luminaire schedule included on the drawings.

2.03 LUMINAIRES

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, poles, foundations, supports, trims, accessories, etc. as necessary for a complete operating system.
- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.
- G. Provide luminaires listed and labeled as suitable for wet locations unless otherwise indicated.
- H. Recessed Luminaires:
 1. Ceiling Compatibility: Comply with NEMA LE 4.

2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.
3. Luminaires Recessed in Sloped Ceilings: Provide suitable sloped ceiling adapters.
- I. Luminaires Mounted in Continuous Rows: Provide quantity of units required for length indicated, with all accessories required for joining and aligning.
- J. LED Luminaires:
 1. Components: UL 8750 recognized or listed as applicable.
 2. Tested in accordance with IES LM-79 and IES LM-80.
 3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.
 4. General:
 - a. LED light fixtures shall be in accordance with IES, NFPA, UL, as shown on the drawings, and as specified.
 - b. LED light fixtures shall be Reduction of Hazardous Substances (RoHS)-compliant.
 - c. LED drivers shall include the following features unless otherwise indicated:
 - 1) Minimum efficiency: 85% at full load.
 - 2) Minimum Operating Ambient Temperature: -20 deg C. (-4 deg F.)
 - 3) Input Voltage: 120 - 277V ($\pm 10\%$) at 60 Hz.
 - 4) Integral short circuit, open circuit, and overload protection.
 - 5) Power Factor: ≥ 0.95 .
 - 6) Total Harmonic Distortion: $\leq 20\%$.
 - 7) Comply with FCC 47 CFR Part 15.
 - d. LED modules shall include the following features unless otherwise indicated:
 - 1) Comply with IES LM-79 and LM-80 requirements.
 - 2) Minimum CRI 80 and color temperature 3000 deg K unless otherwise specified in LIGHTING FIXTURE SCHEDULE.
 - 3) Minimum Rated Life: 50,000 hours per IES L70.
 - 4) Light output lumens as indicated in the LIGHTING FIXTURE SCHEDULE.
- K. Exposed Hardware: Stainless steel.

2.04 BALLASTS

- A. Manufacturers:
 1. Advance, Lutron, Philips, GE, Osram Sylvania.
 2. Substitutions: See Section 01 6000 - Product Requirements.
 3. Manufacturer Limitations: Where possible, for each type of luminaire provide ballasts produced by a single manufacturer.
 4. Where a specific manufacturer or model is indicated elsewhere in the luminaire schedule or on the drawings, substitutions are not permitted unless explicitly indicated.
- B. All Ballasts:
 1. Provide ballasts containing no polychlorinated biphenyls (PCBs).
 2. Minimum Efficiency/Efficacy: Provide ballasts complying with all current applicable federal and state ballast efficiency/efficacy standards.

2.05 LAMPS

- A. Manufacturers:
 1. GE, Osram Sylvania, Philips.
- B. Lamps - General Requirements:
 1. Unless explicitly excluded, provide new, compatible, operable lamps in each luminaire.
 2. Verify compatibility of specified lamps with luminaires to be installed. Where lamps are not specified, provide lamps per luminaire manufacturer's recommendations.
 3. Minimum Efficiency: Provide lamps complying with all current applicable federal and state lamp efficiency standards.

4. Color Temperature Consistency: Unless otherwise indicated, for each type of lamp furnish products which are consistent in perceived color temperature. Replace lamps that are determined by the Engineer to be inconsistent in perceived color temperature.

2.06 ACCESSORIES

- A. Stems for Suspended Luminaires: Steel tubing, minimum 1/2" size, factory finished to match luminaire or field-painted as directed.
- B. Threaded Rods for Suspended Luminaires: Zinc-plated steel, minimum 1/4" size, field-painted as directed.
- C. Provide accessory plaster frames for luminaires recessed in plaster ceilings.
- D. Fuse and fuse holders: Provide in base of every pole. Provide Buss BBS fuses and Buss "Tron" HEB waterproof fuse holders. Fuse sized per lamp manufacturer recommendations.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field measurements are as shown on the drawings.
- B. Verify that outlet boxes are installed in proper locations and at proper mounting heights and are properly sized to accommodate conductors in accordance with NFPA 70.
- C. Verify that suitable support frames are installed where required.
- D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to luminaires.
- E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

- A. Provide extension rings to bring outlet boxes flush with finished surface.
- B. Clean dirt, debris, plaster, and other foreign materials from outlet boxes.

3.03 INSTALLATION

- A. Coordinate locations of outlet boxes provided under Section 26 0537 as required for installation of luminaires provided under this section.
- B. Install products according to manufacturer's instructions.
- C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 1 (general workmanship) and NECA/IESNA 501 (exterior lighting).
- D. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- E. Recessed Luminaires:
 1. Install trims tight to mounting surface with no visible light leakage.
 2. Non-IC Rated Luminaires: Maintain required separation from insulation and combustible materials according to listing.
 3. Luminaires Recessed in Fire-Rated Ceilings: Install using accessories and firestopping materials to meet regulatory requirements for fire rating.
- F. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.
 1. Caulk around all light fixtures to prevent water intrusion into facility.
- G. Install accessories furnished with each luminaire.
- H. Bond products and metal accessories to branch circuit equipment grounding conductor.
- I. Install lamps in each luminaire.

3.04 FIELD QUALITY CONTROL

- A. Inspect each product for damage and defects.
- B. Operate each luminaire after installation and connection to verify proper operation.

- C. Correct wiring deficiencies and repair or replace damaged or defective products. Repair or replace excessively noisy ballasts as determined by Engineer.

3.05 ADJUSTING

- A. Aim and position adjustable luminaires to achieve desired illumination as indicated or as directed by Engineer. Secure locking fittings in place.

3.06 CLEANING

- A. Clean surfaces according to NECA/IESNA 501 and manufacturer's instructions to remove dirt, fingerprints, paint, or other foreign material and restore finishes to match original factory finish.
- B. Remove dirt and debris from enclosure.

3.07 CLOSEOUT ACTIVITIES

- A. Just prior to Substantial Completion, replace all lamps that have failed.

3.08 PROTECTION

- A. Protect installed luminaires from subsequent construction operations.

END OF SECTION

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