# PROJECT MANUAL Volume 1 of 1

January 28, 2021 Contract Documents

Shawnee Mission District Lighting Upgrades 2021 Indian Hills MS, Northwest HS, West HS, South HS Bid Number 20-xxx



HTK Architects, PA 9300 W. 110<sup>th</sup> St., Ste. 150 Overland Park, KS 66210 913-663-5373 Shawnee Mission School District Center for Academic Achievement 8200 W. 71st Overland Park, KS 66204 913-993-6200

# **Title Page**

### PROJECT Shawnee Mission District Lighting Upgrades

January 28, 2021

## OWNER

Shawnee Mission USD #512 Center for Academic Achievement 8200 W. 71st Overland Park, KS 66204 (913) 993-6200

ARCHITECT HTK Architects, PA 9300 W. 110<sup>th</sup> St., Suite 150 Overland Park, KS 66210 (913) 663-5373 Fax: (913) 663-5270 <u>www.htkarchitects.com</u> Contact: Matt Patterson, AIA Email: <u>mrp@htkarchitects.com</u>

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#### **BID FORM**

#### BID NO. 20-xxx

#### LUMP SUM PROPOSAL

#### SHAWNEE MISSION SCHOOL DISTRICT General Construction for: Shawnee Mission District Lighting Upgrades 2021 Indian Hills MS, Northwest HS, West HS, South HS

PROPOSAL OF: (Hereinafter called "Bidder"),

A CORPORATON\* ORGANIZED AND EXISTING UNDER THE LAWS

OF THE STATE OF \_\_\_\_\_

A PARTNERSHIP\* CONSISTING OF

AN INDIVIDUAL* TR	RADING AS
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\*Complete applicable designation.

- SHAWNEE MISSION PUBLIC SCHOOLS TO: ATTN: MR. Michael Wood 8200 W. 71st Overland Park, KS 66204
- 1. The undersigned, having familiarized itself with local conditions affecting the cost of the work at the place where the work is to be done and with all Bidding Documents, including the Instructions to Bidders, Plans and Specifications, General and Supplementary Conditions, the Standard Form of Agreement and the other Contract Documents, and having examined the location of the proposed work and considered the availability of labor and materials, hereby proposes and agrees to perform everything required to be performed, and to provide and furnish any and all labor, materials, supervision, necessary tools, equipment, and all utility and transportation service necessary to perform and complete in a workmanlike and timely manner all of the work required for the project, all in strict conformance with the Instructions to Bidders and other Contract Documents (including Addenda Nos. \_\_\_\_\_, through \_\_\_\_\_, the receipt of which is hereby acknowledged), for the lump sums hereinafter specified.
- 2. FOR BASE BID Breakdown of bid per school is required however, project will be awarded based on total of all schools and will not be awarded individually.

ORM		000200 -
The Lump Sum of	Dollars (\$	).
South HS	Dollars (\$	).
West HS	Dollars (\$	).
Northwest HS	Dollars (\$	).
Indian Hills MS	Dollars (\$	).

#### 3. TAX EXEMPTION

This project shall be considered Tax Exempt. Federal, State and local taxes shall not be included with the Bid. Subsequent to the award of the construction contract, the School District will obtain from the State of Kansas a sales tax exemption certificate number. The sales tax exemption certificate will permit the Contractor to purchase materials for incorporation into this project without paying sales tax, provided that the Contractor furnishes the certificate number to the material supplier.

#### 4. CHANGES IN THE WORK

Changes in the work shall be as established in the Contract Documents. The following fees shall be used for lump sum pricing and actual cost pricing of additions and deletions to the work included in the Bid, Namely:

		Not to Exceed
Α.	To Contractor for work performed by his own forces	10%
В.	To Contractor for work performed by other than his own forces	5%
C.	To Subcontractor for work performed by his own forces	10%
D.	To Subcontractor for work performed by other than his own force	es 5%
Percer	tages for overhead and profit will not be allowed on bond premiun	ns.
Alterna NO. 1: F	ates: Replace dimmer racks at South High School with (3) ETC Sensor Dimmer Racks	\$
NO. 2: II	mprove Cable management at Northwest High School.	\$
NO. 3: A	Add LED Cyc lighting at Indian Hills Middle School.	\$
NO. 4: A	Add LED Followspots at Indian Hills Middle School.	\$

#### 6. Unit Cost Breakdowns: N/A

- 7. A. In the execution of the Agreement, no person shall on the grounds of race, color, religion, sex, disability, or national origin be excluded from full employment rights, be denied the benefits of, or otherwise subject to discrimination under any program, service or activity under the provisions of any and all applicable Federal and state laws against discrimination. Bidder shall furnish all information and reports required by the rules, regulations, and order of the Secretary of Labor for purposes of investigating to determine compliance with such laws.
  - B. Bidder shall observe the provisions of the Kansas Acts Against Discrimination and shall not discriminate against any person in the performance of work under the Agreement because or race, religion, color, sex, physical handicap unrelated to such person's ability to engage in the particular work, national origin or ancestry.
  - C. In all solicitations or advertisements for employees, Bidder shall include the phrase, "equal opportunity employer", or similar phrase approved by the Owner.

5.

- D. If bidder fails to comply with the provisions of K.S.A. 441031, bidder shall be deemed to have breached the Agreement and it may be canceled, terminated or suspended in whole or in part, by Owner.
- E. If bidder is found guilty of a violation of the Kansas Acts Against Discrimination under a decision or order of Owner that has become final, bidder shall be deemed to have breached the present Agreement and it may be canceled, terminated, or suspended in whole or in part, by Owner.
- F. Bidder shall include the provisions of paragraphs A through E above in every subcontract or purchase order so that such provisions shall be binding upon all subcontractors and vendors.
- 8. The undersigned hereby proposes and agrees to substantially and/or finally complete the work or segments of the work on or before the scheduled dates listed in Section 01010-Summary of Work, and to pay as liquidated damages the corresponding amount stipulated in Section 10101-Summary of Work for each consecutive calendar day thereafter that the work or segment of the work remains substantially and/or finally incomplete in accordance with the Contract Documents. This provision shall be applied, and the daily liquidated damages amount(s) shall be calculated separately as to each substantial and/or final complete date stated.
- 9. Accompanying the Bid is Bid Security of at least 5% of the bid in the form of a Bid Bond in the amount of \_\_\_\_\_\_ Dollars (\$\_\_\_\_\_\_), payable without condition to the Owner, which it is agreed shall be retained as liquidated damages for the delay and extra expense caused the Owner, if the undersigned fails to execute the Contract and furnish the bonds required by the Contract Documents, within the time stated in the Contract Documents.
- 10. In submitting the Bid it is understood that the right to reject any and all bids has been reserved by the Owner and that this bid may not be withdrawn for a period of sixty (60) days from the opening.

Date this	day of	, 20
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Name of Bidder

Address of Bidder

Authorized Officer

Title

**Telephone Number** 

(Seal)

ATTESTED:

BID FORM

#### SECTION 001000

#### INVITATION TO BID

PROJECT

Shawnee Mission District Lighting Upgrades 2021 Indian Hills MS, Northwest HS, West HS, South HS

OWNER Shawnee Mission School District #215 Center for Academic Achievement 8200 W. 71<sup>st</sup> Overland Park, KS 66204

ARCHITECT HTK Architects, PA 9300 W. 110<sup>th</sup> St., Ste. 150 Overland Park, KS 66210

PROJECT SCOPE Lighting upgrades at Auditoriums the high schools, middle school stage lighting, & NW HS little theater.

Estimated Construction Cost range (base bid): **\$600,000** PRE-BID CONFERENCE

Date: Wednesday, February 3, 2020
Time: 1:30 pm
Place: Shawnee Mission Northwest High School 12701 W. 67<sup>th</sup> St. Overland Park, KS 66216

**BID RECEIVING** 

Date: Thursday, February 11, 2020 Time: 9:00 am Place: SMSD Center for Academic Achievement 8200 W. 71st Overland Park, KS 66204

BIDDING DOCUMENTS

Full sets of drawings and specifications, both hard copy & digital files, will be available on or after **February 28, 2021**. Bidders who wish to receive their set(s) of bid documents as soon as they are available should contact:

Drexel Technologies 10840 W. 86th Street Lenexa, KS 66214 (P) 913.371.4430 Email Address: distribution@drexeltech.com Plans may also be viewed for free online at: http://planroom.drexeltech.com/View/Default.aspx

#### **BID SECURITY AND BONDS**

Bid Security and bonds will be required in accordance with "Instruction to Bidders". Subcontractor performance bond & payment bond in accordance with "Instruction to Bidders" will be required from the firms providing the scopes of Work listed in Section 006100. "Bonds".

#### NONDISCRIMINATION POLICY

The Shawnee Mission School District is an equal opportunity, affirmative-action employer, and shall not discriminate on the basis of sex, age, race, color, creed, religion, national or ethnic origin, or disability. Harassment on the basis of sex, age, race, color, creed, religion, national origin, ethnic origin, or disability is also prohibited. Bidders may view this policy at the office of the Owner.

End of Section 001000

INVITATION TO BID

#### SECTION 002000 INSTRUCTIONS TO BIDDERS

#### PART 1 – GENERAL

#### 1.01 APPLICABLE DOCUMENTS

- A. The American Institute of Architects Document A701-2017, "Instructions to Bidders". 2017 Edition, are part of the Bidding Requirements and are bound herein, as amended by Document 00210, "Supplementary Instructions to Bidders".
- B. Samples of Instructions to Bidders Form may be obtained from the American Institute of Architects, 104 West 9<sup>th</sup> Street, Kansas City, Missouri 64105, 816-221-3485, or AIA Kansas, 700 Jackson Street, Suite 209, Topeka, Kansas 66603, 785-357-5308.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

End of Section 002000

#### **SECTION 01631 REQUEST FOR SUBSTITUTION FORM**

The Architect reserves the right to reject this request due to any inconsistencies, errors, omissions, or unsubstantiated claims. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

Upon installation, any product or system that is found to be incompatible with Owner's existing systems or protocols shall be removed and replaced with compatible products or systems at no additional cost to the Owner.

(Submit	2	copies)
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Use separate form for each submittal. Any questions that do not apply should be filled in with "N/A".

Project Name:	SMSD Bid No.:
	Date:
To: Architect's Name Address City Phone #	From: (Name and Address of Applicant)
General Contractor Subcon	tractor 🗌 Supplier
If applicant is subcontractor or supplier,	list General Contractors you are bidding to:
1.	6.
2.	7.
3.	8.
4.	9.
5.	10.
I/We hereby request approval of the following substitution" (name and description of specif	g product or system as an "approved ïed product or system):
 SPECIFICATION SECTION NO, PAG PARAGRAPH(s)	E(s),
DRAWING Number(s), DETAII Number(s)	L OR SECTION
SPECIFIED PRODUCT	SUBSTITUTION / ALTERNATE
	04004

**REQUEST FOR SUBSTITUTION FORM** 

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Product Characteristics:         Material:         Flammability:         Smoke Density         Fuel Contributed         Flame Spread         Moisture Absorption         Elasticity         Water Resistance         SPECIFIED PRODUCT	Product Characteristics:         Material:         Flammability:         Smoke Density         Fuel Contributed         Flame Spread         Moisture Absorption         Elasticity         Water Resistance         SUBSTITUTION / ALTERNATE
Substrate Compatibility:         Installation On:         Concrete         Steel Frame         Wood Studs         Drywall         List others, as applicable	Substrate Compatibility:         Installation On:         Concrete         Steel Frame         Wood Studs         Drywall         List others, as applicable
Test Reports: Is exact condition covered? Rated Assembly?	Test Reports:         Is exact condition covered?         Rated Assembly?
Restrictions:         Substrate:         Floor         Roof         Wall (non-rated)         Wall (rated)         Structure:         Wood         Concrete         Curtain Wall         Other:	Restrictions:         Substrate:         Floor         Roof         Wall (non-rated)         Wall (rated)         Structure:         Wood         Concrete         Curtain Wall         Other:
Environmental Restrictions: Outside Air Temperature Inside Air Temperature	Environmental Restrictions: Outside Air Temperature Inside Air Temperature
Relative Humidity         Wind Load         Snow Load         Equipment Loads         Moisture Tests Req'd?	Relative Humidity         Wind Load         Snow Load         Equipment Loads         Moisture Tests Req'd?
Guarantee:	Guarantee:
Availability:	Availability:

REQUEST FOR SUBSTITUTION FORM

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Shawnee Mission District Lighting Upgrades 2021

Costs:		Costs:	
REASON FOR NOT	GIVING PRIORITY TO SPECIF	IED ITEMS:	
SUBSTITUTION AFF	ECTS OTHER MATERIALS OF ACH COMPLETE DATA)	R SYSTEMS:	
SUBSTITUTION REC WORK: □YES (IF YES, ATT	QUIRES DIMENSIONAL REVISI ACH COMPLETE DATA)	ON OR REDESIGN OF S	TRUCTURE OR MEP
SAVINGS OR CRED \$		IG SUBSTITUTE:	
THE ATTACHED DA	TA IS FURNISHED HEREWITH	TO SUPPORT EVALUAT	ION OF SUBSTITUTE:
	DWGS		
	OTHER (LIST TYPE)		
THE UNDERSIGNED AND COORDINATEI	D HEREBY CERTIFIES THAT T D WITH THE CONTRACT DOC	HE SUBSTITUTION HAS UMENTS.	BEEN FULLY CHECKED
FIRM NAME		BY	
ADDRESS			

PHONE FAX

SUBSTITUTION APPROVED:	☐YES	□NO	
APPROVED WITH RESTRICTIONS:			
1.			
2			
REMARKS:			

#### SECTION 004350 BID SECURITY FORMS

PART 1 - GENERAL

#### 1.01 APPLICABLE DOCUMENTS

- A. The American Institute of Architects Document A310 "Bid Bond" 2010 Edition, (and is bound herein.)
- B. Samples of the Bid Security Form may be obtained from the American Institute of Architects, 104 West 9<sup>th</sup> Street, Kansas City, Missouri 64105, 816-221-3485, or AIA Kansas, 700 Jackson Street, Suite 209, Topeka, Kansas 66603, 785-357-5308.
- C. A properly executed form is required to be submitted with each copy of the Bid.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

End of Section 004350

## BID SECURITY FORMS

# DRAFT AIA Document A201<sup>™</sup> - 2017

# General Conditions of the Contract for Construction

#### for the following PROJECT:

(Name and location or address)

« Shawnee Mission District Lighting Upgrades 2021 » « »

#### THE OWNER:

(Name, legal status and address)

« Shawnee Mission School District »« » « 8200 W. 71st St. Shawnee Mission, KS 66204 »

#### THE ARCHITECT:

(Name, legal status and address)

«HTK Architects »« » « 9300 W. 110th Suite 150, Overland Park, KS 66210 »

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#### 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.

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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 approved by the Owner pursuant to this Agreement, (3) a Construction Change Directive approved by the Owner pursuant to this Agreement or (4) a written order for a minor change in the Work issued by the Architect.

#### § 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 Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

#### § 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 the Owner and by Separate Contractors.

#### § 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 Architect and the Architect'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. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

#### § 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.

**§ 1.2.1.1** The invalidity of any provision of the Contract Documents shall not invalidate the <u>Contract or</u> its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and

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enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

**§ 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.

#### § 1.3 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 Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Subsubcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

**§ 1.5.2** The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

**§ 1.5.3** Number of copies furnished. The successful Contractor will be supplied with a maximum of ten (10) sets of construction documents for construction purposes, at no charge. Additional sets will be furnished at Contractor's request, for the cost of reproduction.

#### § 1.6 Notice

**§ 1.6.1** Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

**§ 1.6.2** Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

#### § 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203<sup>TM</sup>–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

#### § 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203<sup>TM</sup>–2013, Building Information Modeling and Digital Data Exhibit, and the requisite

AIA Document G202<sup>TM</sup>–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

#### 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 Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

**§ 2.1.2** The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

**§ 2.1.3** "The Owner" refers to the Shawnee Mission Unified School District No, 512, 8200 W. 71st Street, Overland Park, Kansas 66204.

#### § 2.3 Information and Services Required of the Owner

§ 2.3.1 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.

**§ 2.3.2** The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

**§ 2.3.3** If the employment of the Architect terminates, the Owner shall employ a successor **§ 2.3.4** 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 be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work. Contractor shall be required, in the event of digging or disruption of soil, to verify utility locations independently through Kansas OneCall.

**§ 2.3.5** 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.

**§ 2.3.6** 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.

#### § 2.4 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.

#### § 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or fails 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, assessment of liquidated damages, and compensation for the Owner's or Architect's 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 Architect. 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 Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's 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.

**§ 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 2.3.4, 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 Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect 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 Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

**§ 3.2.4** If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect 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 submit 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, subject to Section 15.1.7, 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 Architect 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.

**§ 3.2.5** The Contractor makes the following representations: Contractor has examined and carefully studied the Contract Documents and any other related data identified in the Contract Documents; Contractor is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, and performance of the Work; Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the agreed upon price, within the Contract Documents times, and in accordance with the other terms and conditions of the Contract Documents; Contractor is aware of the general nature of the work to be performed by Owner and others at the site that relates to the Work as indicated in the Contract Documents; Contractor has correlated the information known to Contractor, information and observations

obtained from visits to the site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents; the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work; Owner does not warrant that the Contract documents or Plans will be free from defect or error and Contractor is responsible for verifying viability of any Plans; and Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute.

#### § 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. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be 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 notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative 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 or entities 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 Work already performed to determine that such portions are in proper condition to receive subsequent Work.

#### § 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.

**§ 3.4.2** Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 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.

#### § 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect 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 be performed in a workmanlike manner and will conform to 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 Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. Contractor further warrants that the materials and workmanship for a period of one (1) year from the date of completion of the work. Any manufacturer's warranties for products which exceed this one (1) year period shall be assigned to Owner to the extent allowed by the manufacturer. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by

Owner, remove it from the project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others). When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work. Contractor shall provide duplicate, notarized copies of all warranty documentation. Contractor shall also execute Contractor's submittals and assemble warranty documents executed by subcontractors, suppliers and manufacturers, and assemble the same in a binder with a durable plastic cover and a table of contents. This binder shall be delivered by Contractor to Owner prior to Contractor submitting an invoice for final payment. For warranty documentation related to equipment put into use with Owner's permission during construction, Contractor shall submit the required warranty documentation to Owner within 10 days of the equipment first operating. For warranty documentation related to items of the Work delayed materially beyond the completion date stated in this Agreement, Contractor shall submit the required warranty documentation to Owner within ten (10) days after acceptance of the Work by Owner, and will list the date of acceptance of the Work as the start of the warranty period.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.5.3 Each Subcontractor, Sub-Subcontractor, or Supplier shall guarantee to the General Contractor all work, portions of work, and items supplied, as the case may be, against defects resulting from the use of any inferior materials, equipment or workmanship for one (1) year from the date of final completion or beneficial occupancy of the project by the Owner, whichever is earlier. It shall be the General Contractor's responsibility to ensure compliance to the warranty by each Subcontractor, Sub-Subcontractor, or Supplier.

§ 3.5.4 In any case where, in fulfilling the requirements of this Contract or Warranty, the Contractor, Subcontractor, Sub-Subcontractor, or Supplier disturbs any other work in place or under contract, he shall be responsible to perform, arrange, and pay for restoring such to original condition.

#### § 3.6 Taxes

All taxes, other than sales taxes, incurred in connection with the Work and Project or portions thereof provided by Contractors, regardless of when enacted, shall be paid by the 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 as well as 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 and bear any legal or equitable liability for said actions..

#### § 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 and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect 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 that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect 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 Architect

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shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim 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 and Architect. 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.

#### § 3.8 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 during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

**§ 3.9.2** The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

**§ 3.9.3** The Contractor shall not employ a proposed superintendent to whom the Owner or Architect 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 and Submittal Schedules

**§ 3.10.1** The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

**§ 3.10.2** The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's

construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submitt a submittal schedule, or fails to provide submittals in accordance with the approved 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 perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

#### § 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

#### § 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 how 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 Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is 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 Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect 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 requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed by the Architect. Such work shall be in accordance with submittals.

§ 3.12.8 The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's review of Shop Drawings, Products Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's review thereof.

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**§ 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 Architect on previous submittals. In the absence of such notice, the Architect'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.

**§ 3.12.10.1** 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 Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by an appropriately 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 Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and 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.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

#### § 3.13 Use of Site

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

#### § 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. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

**§ 3.14.2** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

#### § 3.15 Cleaning Up

**§ 3.15.1** The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. 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 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 and Architect with 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 and Architect harmless from loss on account thereof, but shall not be responsible for 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 or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

#### § 3.18 Indemnification

**§ 3.18.1** To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect'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 3.18.1 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 ARCHITECT

#### § 4.1 General

**§ 4.1.1** "The Architect" refers to incite HTK Architects, whose name appears on the drawings and who by Contract with the Owner, is authorized to prepare all drawings, specifications, and details of this work.

**§ 4.1.2** Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

#### § 4.2 Administration of the Contract

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

**§ 4.2.2** The Architect will, as provided in the Owner – Architect Agreement, visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the 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.

**§ 4.2.3** On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not

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have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

#### § 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

**§ 4.2.5** Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

**§ 4.2.6** The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

**§ 4.2.7** The Architect will review 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 Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals 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 Architect'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 Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's review of a specific item shall not indicate approval of an assembly of which the item is a component.

**§ 4.2.8** The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

**§ 4.2.9** The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

**§ 4.2.10** If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

**§ 4.2.11** The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

**§ 4.2.12** Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

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§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect 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 a Separate Contractor or the subcontractors of a Separate Contractor.

§ 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 Subsubcontractor.

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

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice 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 or Architect 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 or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect 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.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

#### § 5.3 Subcontractual Relations

By appropriate written agreement, 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 the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect 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

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similarly make copies of applicable portions of such documents available to their respective proposed Subsubcontractors.

#### § 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; 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.

§ 5.4.3 Upon 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 SEPARATE CONTRACTORS § 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

**§ 6.1.3** The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

**§ 6.1.4** Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has 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 shall afford the Owner and Separate 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.

**§ 6.2.2** If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work.

Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

**§ 6.2.3** The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

**§ 6.2.4** The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

**§ 6.2.5** The Owner and each Separate Contractor 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, Separate 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 Architect 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, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect 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 Architect alone so long as it does not increase the Contract Sum..

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

**§ 7.1.4** Notwithstanding anything in this Article 7 and elsewhere in the Contract Documents, for any Change Order or Construction Change Directive which changes the Contract Sum, the following conditions apply:

.1 If the change is requested by the Architect for work falling under a fixed price contract, the amount will be based on the Contactor's price quotation.

.2 For changes requested by the Contractor, the amount will be based on the Contractor's request for a Change Order or Change Directive as approved by the Architect and Owner.

.3 For pre-determined unit prices and quantities, the amount will be based on the fixed unit prices.

.4 For a change ordered by the Architect without a quotation for the Contractor, the amount will be determined by the Architect based on the Contractor's substantiation of costs as specified for Time and Material work.

.5 The allowance for any overhead and profit, combined, derived by Contractor or any subcontractors as a result of any change, including the total cost to the Owner, shall be no more than 5% total, which shall include the cost of labor and materials by both Contractor, Contractor's subcontractors and sub-subcontractors.

.6 The allowance for overhead and profit shall account for ALL time associated with the Change Order or Change Directive. Compensation for time generating documents will not be allowed.

.7 In order to facilitate checking of quotations for extras and 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. Where major cost items are subcontracts, they shall also be itemized.

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.8 The allowance for Payment and Performance Bond costs associated with any Change Order or Change Directive shall not exceed 1.5% and shall be used on both additive and deductive Change Orders or Change Directives.

#### § 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect 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; and
- .3 The extent of the adjustment, if any, in the Contract Time.

#### § 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, 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.

§ 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 7.3.4.

**§** 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine 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 Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

**§ 7.3.6** Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect 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.

§ 7.3.7 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.
**§ 7.3.8** 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 Architect. 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.

**§ 7.3.9** 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 Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's 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.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect 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 Architect will 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 Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

#### 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.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect 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.

**§ 8.1.5** The Contract Time for completion of the Contract for the Project, under the Base Bid, as listed on the Project Timeline and mutually agreed between Owner and Contractor from the written Notice to Proceed issued by the Architect to Substantial completion of the work as defined in section 9.8.1, including authorized adjustments thereto.

In the event the Contractor has not completed the work within the time allotted, the contractor agrees to pay the Owner, or deduct from its contract sum, not as a penalty but as liquidated damages, the sum of 1,000.00 for each and every calendar day that the work remains incomplete after the time stipulated for Substantial Completion.

**§ 8.1.6** The Contractor shall be responsible to reimburse the Owner for the cost of a Project Representative after the time of completion has expired and until the date of Substantial Completion as certified by the Architect.

#### § 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, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

**§ 8.2.3** The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

#### § 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 (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes not involving Subcontractors or Sub-subcontractors retained by Contractor, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine. If an extension of time is granted to the Contractor under the terms of the Contract Documents, the Contractor shall absorb all costs for General Conditions and General Requirements during the time extension.

**§ 8.3.4** The Contractor shall have no claim for damages against either the Owner or the Architect by reason of delay if the date of Substantial Completion of the work is within the Contract Time as defined in § 8.1.5.

§ 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.

### ARTICLE 9 PAYMENTS AND COMPLETION

#### § 9.1 Contract Sum

**§ 9.1.1** 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.

**§ 9.1.2** If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

#### § 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

#### § 9.3 Applications for Payment

**§ 9.3.1** The form of Application for Payment shall be notarized AIA Document G702, Application G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet.At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 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 Architect, 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 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. 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, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

#### § 9.4 Certificates for Payment

**§ 9.4.1** The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification 9.5.1.

**§ 9.4.2** The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations 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 Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and 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 Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from 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 suppliers 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

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.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

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

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier 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 Architect and the Contractor shall reflect such payment on its next Application for Payment.

#### § 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 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 Architect 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 Architect and Owner 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 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 and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to 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 A 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.

§ 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 or provided by 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, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or 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 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

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#### § 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, 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 Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, 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 shutdown, 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 that the Owner can occupy or utilize the Work for its intended use.

**§ 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 prepare and submit to the Architect 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 Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with 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 Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

**§ 9.8.4** When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and 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 the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

#### § 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 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 shall prepare and submit a list to the Architect 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 Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect 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 receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's 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 Architect's final 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 The Contractor shall satisfy immediately any lien or encumbrance which, because of any act or default of the Contractor or any person or entity for whom Contractor is responsible, including its suppliers and subcontractors, is filed against the premises, and shall indemnify and save the Owner harmless against all resulting loss and expenses, including attorney's fees. The Contractors shall provide Final Lien Waiver from all subcontractors and material suppliers before project closeout. Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (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, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no 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, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and 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, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance 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 the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

**§ 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 Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, 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 the surety to payment of the balance due for that portion 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.

§ 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;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.
- .5 related to any latent defects that are not apparent at the time of completion.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a 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.

#### § 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, a Subcontractor, or a Sub-subcontractor; and
- .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.

**§ 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.

**§ 10.2.3** The Contractor shall implement, 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 the owners and users of adjacent sites and utilities of the safeguards.

§ 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.

**§ 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 and 10.2.1.3 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 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault 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 and Architect.

§ 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 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

#### § 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. 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 notify the Owner and Architect of the condition.

**§ 10.3.2** Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the 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 and Architect the names and qualifications of

persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume 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 by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

**§ 10.3.4** The Owner shall not be responsible under this Section 10.3 for hazardous 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 hazardous 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 reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances 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.

#### § 10.4 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 Insurance and Bonds

**§ 11.1.1** The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

**§ 11.1.2** The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located. Insurance required to be furnished by the Contractor with the premium included in the Proposal Sum, shall be maintained during the life of this contract and shall be written to a minimum of the following limits:

(1) Workmen's Compensation Insurance to the Statutory limits required by State Law, and Employer's Liability Insurance covering liability under the common law for injuries or death to any such employee or employees that, for whatsoever reasons, are not less than \$500,000.00 for all damages arising out of bodily injury to or death of employees in any one accident.

(2) Comprehensive General Liability insurance providing for a limit of not less than \$2,000,000.00 for all damages arising out of bodily injury to or the death of one person (and subject to that limit for each person), not less than \$2,000,000.00 for damages arising out of bodily injury to or the death of two or more persons in any one occurrence, and not less than \$2,000,000.00 for all damages arising out of injury to or destruction of property in any one occurrence. Said insurance policy shall contain no exclusions whatsoever relative to blasting, explosion, demolition, injury to any building or structure due to excavation, pile driving, shoring or underpinning (sometimes knows as X, C, and U Exclusions).

(3) Automobile Public Liability (Bodily Injury) and Property Damage Liability Insurance, to include coverage of all vehicles hired by Contractor, owned by Contractor's employees and used in his business, and/or owned by the Contractor, providing for a limit of not less than \$1,000,000.00 for all damages arising out of bodily injury to or the

death of one person (and subject to that limit for each person), not less than \$1,000,000.00 for all damages arising out of bodily injury to or the death of two or more persons in any one occurrence and not less than \$5,000,000.00 for all damages arising out of injury to or destruction of property in any one occurrence.

(4) Umbrella / Excess Liability coverage written for the following policy limits: \$2,000,000 per occurrence and \$2,000,000 aggregate limit.

§ 11.1.3 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.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

#### § 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

#### § 11.2.2 The Contractor is hereby informed that the Owner will carry Fire and Extended Coverage Insurance which will include provisions for vandalism but not provisions for theft, mysterious disappearance, or glass breakage.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

### § 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

#### §11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.



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# 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 Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

**§ 12.1.2** If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the cost of correction, shall be at the Contractor's expense.

### § 12.2 Correction of Work

#### § 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

#### § 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 any 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 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 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 Architect, the Owner may correct it in accordance with Section 2.5.

**§ 12.2.2.** The one-year period for correction of Work 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.

**§ 12.2.3** 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 of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

**§ 12.2.4.1** Upon failure of the Contractor to make repairs within ten (10) days after notice from the Owner's Representative, the Owner shall have such work done and the cost thereof charged to the Contractor.

**§ 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.

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#### § 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 laws of the State of Kansas, and the parties agree that any dispute will be resolved in the Tenth Judicial Circuit for Johnson County, Kansas, and each consents to the exclusive *in personam* jurisdiction and exclusive venue of that Court.

#### § 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 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 the assignment.

#### § 13.3 Rights and Remedies

§ 13.3.1 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.

§ 13.3.2 No action or failure to act by the Owner, Architect, 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 upon in writing.

#### § 13.4 Tests and Inspections

**§ 13.4.1** 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 Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

**§ 13.4.2** If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect 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 Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

**§ 13.4.3** If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 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 Architect's services and expenses, shall be at the Contractor's expense.

**§ 13.4.4** 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 Architect.

**§ 13.4.5** If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

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

#### § 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

#### 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, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, 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 Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

**§ 14.1.2** The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, 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 and Architect, terminate the Contract and recover from the Owner payment earned for Work executed, including reasonable overhead and profit.

**§ 14.1.4** If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Subcontractor, or their agents or employees or any other persons or entities performing portions of the Work 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' notice to the Owner and the Architect, 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 or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of breach of a provision of the Contract Documents.

**§ 14.2.2** When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' 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

Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written .3 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 unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, 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 Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under 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 the Contract.

#### § 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of 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 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed;, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

#### 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, a change in the Contract Time, 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. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

#### § 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

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#### § 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall 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.

**§ 15.1.3.2** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

#### § 15.1.4 Continuing Contract Performance

**§ 15.1.4.1** 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.

**§ 15.1.4.2** The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

#### § 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

#### § 15.1.6 Claims for Additional Time

**§ 15.1.6.1** If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 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.

**§ 15.1.6.2** 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.

#### § 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

#### § 15.2 Initial Decision

**§ 15.2.1** Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the

Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

**§ 15.2.2** The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

**§ 15.2.3** In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

**§ 15.2.4** If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both.

**§ 15.2.6** Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

**§ 15.2.6.1** Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

**§ 15.2.7** In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

**§ 15.2.8** If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

#### **ARTICLE 16 ADDITIONAL CONDITIONS**

**§ 16.1** Each party to this Agreement represents to the other that: it has all requisite power, authority, licenses, permits and franchises, corporate or otherwise to execute and deliver this Agreement and performs its obligations hereunder; its execution, delivery and performance of this Agreement have been duly authorized, executed and delivered for it by the signatory so authorized, and constitutes its legal, valid and binding obligation; the persons executing this Agreement are fully authorized to do so; and, it has not received any notice, nor to the best of its knowledge there is pending or threatened any notice of any violation of any applicable laws, ordinances, regulations, rules, decrees, awards, permits or orders which would materially adversely affect its ability to perform hereunder.

**§ 16.2** Nothing in this Agreement shall be construed as reserving to Owner any right to exercise any control over or to direct in any respect the conduct or management of business or operations of Contractor. The entire control or direction of such business and operation shall be in and shall remain in Contractor, subject only to Contractor's performance of its obligations under this Agreement. Neither Contractor nor any person performing any duties engaged in any Work on behalf of Contractor shall be deemed an employee or agent of Owner.

**§ 16.3** Prior to commencement of the Work, Contractor shall provide to Owner a sworn affidavit and other sufficient documentation to affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with this Agreement. Contractor shall also provide Owner a sworn affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the Work.

**§ 16.4** Contractor will be required to comply with the President's Executive Order No. 11246, Title VI and Section 3 of the 1968 HUD Act as pertaining to Equal Employment Opportunity through Affirmative Action. Contractor must comply with all applicable requirements of federal and state civil rights law and rehabilitation statutes and shall not discriminate based on race, religion, color, sex, national origin, age or disability.

**§ 16.5** Contractor shall be required to comply with all applicable Policies and Procedures of Owner's Board of Education, as well as all applicable federal and state laws and regulations, including but not limited to the following:

- .1 The Copeland Anti-Kickback Act;
- .2 The Byrd Anti-Lobbying Amendment, as applicable;
- .3 The Davis Bacon Act;
- .4 § 103 and 107 of the Contract Work Hours and Safety Standards Act;

.5 All federal requirements applicable to the Project regarding reporting, patent rights, copyrights and

rights in data, and access to Contractor's book documents, papers and records which are pertinent to the Project; .6 § 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act;

.7 All applicable standards, orders or requirements under §306 of the Clean Air Act, §508 of the Clean Water Act (EO 11738) and Environmental Protection Act Regulations; and

.8 All mandatory standards and policies relating to emergency efficiency contained in the state emergency conversation plan.

**§ 16.6** When any period of time is referred to in this Agreement or the Attachments by days, it will be comput¬ed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

**§ 16.7** The duties and obligations imposed by this Agreement and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of this Agreement. The provisions of this Paragraph will be as effective as if repeated specifically in this Agreement in connection with each particular duty, obligation, right, and remedy to which they apply.

**§ 16.8** All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with this Agreement, as well as all continuing obligations indicated in this Agreement, will survive final payment, completion, and acceptance of the Work or termination or completion of this Agreement or termination of the services of Contractor.

**§ 16.9** The Contract Documents may be executed in one or more counterparts, each of which shall constitute an original and which, when taken together, shall constitute one entire Agreement. It shall be fully executed when each party whose signature is required has signed at least one counterpart even though no one counterpart contains the signatures of all the parties to these Contract Documents.

**§16.10** These Contract Documents constitute the entire agreement between the parties hereto and there are no other understandings, written or oral, relating to the subject matter hereof, and may not be changed, modified or amended, in whole or in part, except in writing signed by Owner and Contractor.

# RAFT AIA Document A101<sup>™</sup> - 2017

## Standard Form of Agreement Between Owner and Contractor

where the basis of payment is a Stipulated Sum

AGREEMENT made as of the «February » day of « 23 » in the year «2021 » (In words, indicate day, month and year.)

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

« Shawnee Mission School District »« » « 8200 W. 71st St. » « Shawnee Mission, KS 66204 » « »

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

« »« » « » « » « »

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

« Shawnee Mission Lighting Upgrades 2021 » « » « »

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

«HTK Architects »« » « 9300 W. 110th St. » « Overland Park, KS 66210 » « »

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.

The parties should complete A101<sup>™</sup>-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201™-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.





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#### TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
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#### EXHIBIT A INSURANCE AND BONDS

#### ARTICLE 1 THE CONTRACT DOCUMENTS



2

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, Owner's Request for Proposals, Contractor's Proposal, Bid Instructions and Bid Form, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which 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 a Modification, 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: *(Check one of the following boxes.)* 

- [ **«X»**] The date of this Agreement.
- [ « »] A date set forth in a notice to proceed issued by the Owner.
- [ **« »**] Established as follows:

(Insert a date or a means to determine the date of commencement of the Work.)

« »

If a date of commencement of the Work shall be the date to be fixed in the issuance of the Purchase Order or Notice to Proceed for this Agreement unless otherwise noted. The Work shall not commence until all Bonds as required by the Contract are executed and filed with appropriate authorities and Contractor has provided the required Certificates of Insurance.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

#### § 3.3 Substantial Completion

**§ 3.3.1** Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

#### (Check one of the following boxes and complete the necessary information.)

[ « »] Not later than « » ( « » ) calendar days from the date of commencement of the Work.

[ **«X»**] By the following date: « July 30, 2021 »

**§ 3.3.2** Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion o	f Work	Substantial Completion Date	
§ 3.3.3 If the Contra if any, shall be asse	actor fails to achieve Substantial Cossed as set forth in Section 4.5.	ompletion as provided in this Se	ection 3.3, liquidated damages,
ARTICLE 4 CON § 4.1 The Owner sh Contract. The Cont Contract Document	TRACT SUM hall pay the Contractor the Contract ract Sum shall not exceed « » (\$ « is.	t Sum in current funds for the C » ), subject to additions and ded	ontractor's performance of the uctions as provided in the
§ 4.2 Alternates § 4.2.1 Alternates, i	f any, included in the Contract Sur	n:	
ltem		Price	
§ 4.2.2 Subject to the execution of this A (Insert below each	ne conditions noted below, the follo greement. Upon acceptance, the Ov alternate and the conditions that m	owing alternates may be accepte wner shall issue a Modification thust be met for the Owner to acc	ed by the Owner following to this Agreement. <i>ept the alternate.)</i>
ltem		Price	Conditions for Acceptance
§ 4.3 Allowances, i (Identify each allow Item	f any, included in the Contract Sur vance.)	n: Price	
Unforse	en Conditions	\$2,000	
In connection with incur or expend any advance by Owner. Contractor to increa allowance amount(	allowances stated in the Agreemen y monies in excess of the allowance Failure to obtain prior authorizati ase the Contract Sum or seek additions).	t or Contract Documents, the Co e amount(s), without express wr on from Owner shall be deemed ional compensation related to su	ontractor agrees that it may not itten approval issued in I a waiver of any claim by ich increase in the subject
<b>§ 4.4</b> Unit prices, if <i>(Identify the item a</i> )	`any: nd state the unit price and quantity	limitations, if any, to which the	unit price will be applicable.)
ltem		Units and Limitations	Price per Unit (\$0.00)
§ 4.5 Liquidated da (Insert terms and co	mages, if any: onditions for liquidated damages, i	f any.)	
« The parties ackne Contract Time by the	owledge that Contractor's failure to ne Contract Documents will cause	o achieve Substantial Completio Owner to incur substantial econ	n of the Work within the omic damages of types and in

amounts that are impossible to compute and ascertain with certainty as a basis for recovery by the Owner of actual damages, and that liquidated damages represent a fair, reasonable and appropriate estimate thereof. Accordingly, in lieu of actual damages for such delay, Contractor agrees that liquidated damages may be assessed and recovered by Owner as against Contractor in the event of delayed completion and without Owner being required to present any evidence of the amount or character of actual damages sustained by reason thereof. Therefore, Contractor shall be liable to Owner for payment of liquidated damages in the amount of One Thousand and 0/100 Dollars (\$1,000.00) per calendar day that Substantial Completion is delayed beyond the specified time. Such liquidated damages are intended to represent estimated actual damages and are not intended as a penalty, and Contractor shall pay them to Owner without limiting Owner's right to terminate this agreement for default as provided elsewhere herein.

#### § 4.6 Other:

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

« »

**>>** 

#### ARTICLE 5 PAYMENTS § 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, 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, or as follows:

« Contractor's Application for Payment shall be submitted to Owner and Architect in accordance with Article 9.3 of General Conditions, AIA A201 (2007 Edition), as modified.»

**§ 5.1.3** Provided that an Application for Payment is received by the Architect not later than the «last» day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the «30th» day of the «following» month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than «Sixty» ( «60» ) days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

**§ 5.1.4** Each Application for Payment shall be based on the most recent 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. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

**§ 5.1.5** 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.

§ 5.1.6 In accordance with AIA Document A201<sup>TM</sup>–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 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; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

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- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201-2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

#### § 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

« »

§ 5.1.7.1.1 The following items are not subject to retainage: (Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

« »

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:

(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

« »

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

(Insert any other conditions for release of retainage upon Substantial Completion.)

« »

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201-2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

5.1.10 Contractor acknowledges that, as a condition precedent to the Architect's Certification of Substantial Completion, among others, the Contractor shall provide Owner with:

Keys, if applicable to the Project .1

#### § 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201-2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.
- .3 furnished copies of all written warranties and O&M manuals, as applicable;

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- .4 furnished copies of all final releases executed by Contractor and its subcontractors and major suppliers;
- .5 furnished executed Final Consent to Payment by Surety;
- .6 furnished spare parts and maintenance materials to the extent required by Contract Documents;
- .7 furnished completed punch list, as approved by Architect and Owner; and
- .8 furnished complete as-built documentation, if required by the Contract Documents.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, and complete satisfaction of the conditions precedent in Section 5.2.1 above .:

« »

#### § 5.3 Interest

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 legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

« » % « »

#### ARTICLE 6 DISPUTE RESOLUTION

#### § 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201-2017, As stated in greater detail in Section 15 of the General Conditions, the Architect will approve or reject Claims by written decision and shall notify the Claimant of any change in the Contract Sum or Contract Time, or both. The Architect's approval or rejection of the Claim shall be final and binding on the Claimant, subject to litigation.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, *if other than the Architect.*)

« » « » « »

« »

### § 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201-2017, the method of binding resolution shall be as follows:: (Check the appropriate box.)

[ « »] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

- [ **«X»**] Litigation in a court of competent jurisdiction
- [« »] Other (Specify)

«





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If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

#### ARTICLE 7 TERMINATION OR SUSPENSION

**§ 7.1** The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 8.7.1 To the fullest extent permitted by law, Contractor shall indemnify and hold harmless Owner, its Board of Education, Officers, Directors, Partners, Agents, Consultants, Employees and Sub-Contractors of each and any of them from and against all claims, costs, damages, losses and expenses (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals in all courts or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, damage or expense is attributable to any act or failure to act, negligent or otherwise, of Contractor, of any subcontractor (meaning anyone, including but not limited to consultants having a contract with Contractor or a subcontractor for a part of the services), or of anyone directly or indirectly employed by Contractor or by any subcontractor, or of anyone for whose acts the Contractor or its subcontractor may be liable, in connection with the Work.

§ 8.7.2 Contractor, its employees, agents, subcontractors and representatives shall comply with all of Owner's Policies, Regulations, Rules and Procedures, including the tobacco-free campus Policy.

§ 8.7.3. Contractor and its employees shall not interact with, contact, or otherwise access students on District premises without express approval by the District. District may require Contractor and its employees undergo criminal background checks before entering areas of the District premises occupied by students or before interacting with students. District reserves the right to exclude persons from its premises.

§ 8.7.4 Owner and Contractor may withhold assessed penalties from Contractors and any of its subcontractors, respectively, and for any fines imposed to or upon Owner for non-compliance to procedures outlined in the respective laws.

§ 8.7.5 This Agreement and any Attachments may only be amended, modified or supplemented with the written agreement of Owner and Contractor.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

### ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

8.1.1 In the event that undisputed amounts are not paid by Owner to Contractor within 30 days after Owner receives a timely, properly completed undisputed request for payment, the Owner shall pay interest computed at the rate of 18% per annum on the undisputed amount, which shall begin to accrue on the eighth day after Architect receives an undisputed request for payment from Contractor. Owner agrees that al obligations regarding payment are subject to the Kansas Fairness in Public Construction Contract Act, K.S.A. § 16-1901, et seq.

**§ 8.2** The Owner's representative: (*Name, address, email address, and other information*)

« »

- « »
- « »
- « »
- « » « »

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

« »

« »

« » « »

« »

« »

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

#### § 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101<sup>TM</sup> 2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101<sup>TM</sup>-2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203<sup>TM</sup>-2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

« »

§ 8.7 Other provisions:

« »

#### **ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS**

§ 9.1 This Agreement is comprised of the following documents:

- AIA Document A101<sup>TM</sup>–2017, Standard Form of Agreement Between Owner and Contractor, as .1 amended.
- .2 AIA Document A101<sup>TM</sup>–2017, Exhibit A, Insurance and Bonds, as amended.
- .3 AIA Document A201<sup>TM</sup>–2017, General Conditions of the Contract for Construction, as amended and contained in the Project Manual.
- .4 AIA Document E203<sup>TM</sup>–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

(Insert the date of the E203-2013 incorporated into this Agreement.)

« »

Drawings As stated in the Project Manual .5

Attached Exhibit A

Number	Title	Date

.6 Specifications As stated in the Project Manual

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Attached Exhibit B	
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Section	Title	Date	Pages
Addenda, if any:			
Number	Date	Pages	
Portions of Addenda relatin Documents unless the bidd	ng to bidding or proposal requi ing or proposal requirements a	irements are not part of th are also enumerated in thi	e Contract s Article 9.
Other Exhibits: (Check all boxes that apply required.)	and include appropriate info	rmation identifying the ex	hibit where
[ « »] (Insert the date of	the E204-2017 incorporated i	into this Agreement.)	]
« All other conditions and a Invitations, Instructions, Co Project manual, and any Ad	sections of the Project Manual ontract and Bond Forms, and a ddenda, Amendments or suppl	, including, but not limite all other sample forms fou ement thereto. »	d to, Bidding and within the
[ « » ] The Sustainability	v Plan:		Λ
[ « » ] The Sustainability	<sup>7</sup> Plan: <b>Date</b>	Pages	Δ
<ul> <li>[ « » ] The Sustainability</li> <li>Title</li> <li>[ « » ] Supplementary an</li> <li>Document</li> </ul>	Date Date Id other Conditions of the Con Title	Pages tract:	Pages
<ul> <li>[ « » ] The Sustainability</li> <li>Title</li> <li>[ « » ] Supplementary an</li> <li>Document</li> </ul>	Plan: Date d other Conditions of the Con Title	Pages tract: Date	Pages
<ul> <li>[«»] The Sustainability</li> <li>Title</li> <li>[«»] Supplementary an Document</li> <li>Other documents, if any, lia.</li> <li>1 Owner's Request for Bi</li> <li>2 Contractor's Performant</li> <li>4 Contractor's Payment B</li> <li>5 Contractor's Proposal/B</li> <li>6 Instructions to Bidders</li> </ul>	Date Date d other Conditions of the Con Title sted below: ds, including all specifications ce Bond Bond Bid	tract: s and Bidding Documents	Pages
[ « » ] The Sustainability Title [ « » ] Supplementary an Document Other documents, if any, lia .1 Owner's Request for Bi .2 Contractor's Performan .4 Contractor's Performan .5 Contractor's Proposal/B .6 Instructions to Bidders .7 Any written Change Ord .8 The Contractual Provisi (List here any additional de Document A201 <sup>™</sup> _2017 p. sample forms, the Contractor requirements, and other inj	Date Date Date d other Conditions of the Con Title sted below: ds, including all specifications ce Bond Bond Bid ders issued after execution of t ons Attachment, Form DA-14 ocuments that are intended to rovides that the advertisement tor's bid or proposal, portions formation furnished by the Ow	tract: bate bate bate bate bate bate bate bate	Pages Documents. AL functions to Bidde idding or propos eiving bids or

«The Provisions found in Contractual Provisions Attachment (FormDA-146a, Rev. 1-01, which is attached to AIA Document A201-2007, General Conditions of the Contract for Construction, as amended, and contained in the Project Manual, are hereby incorporated in this contract and made a part thereof.

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

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**OWNER** (Signature)

«Brad Stratton »« School Board President »

(Printed name and title)

## **CONTRACTOR** (Signature)

« »« »

(Printed name and title)



# RAFT AIA<sup>°</sup> Document A101<sup>™</sup> - 2017 Exhibit A

## Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the « February » day of « 23 » in the year « 2021 » (In words, indicate day, month and year.)

for the following **PROJECT**: (Name and location or address)

« Shawnee Mission Lighting Upgrades 2021 » « »

#### THE OWNER:

(Name, legal status and address)

« Shawnee Mission School District »« » « 8200 W. 71st. St. Shawnee Mission, 66204 »

#### THE CONTRACTOR:

(Name, legal status and address)

« TBD »« » « »

## TABLE OF ARTICLES

- A.1 **GENERAL**
- A.2 **OWNER'S INSURANCE**
- A.3 CONTRACTOR'S INSURANCE AND BONDS
- A.4 SPECIAL TERMS AND CONDITIONS

#### ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201<sup>TM</sup>–2017. General Conditions of the Contract for Construction.

#### ARTICLE A.2 **OWNER'S INSURANCE**

#### § A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

#### § A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

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 Document A201 -2017, General Conditions of the Contract for Construction. Article 11 of A201™-2017 contains additional insurance provisions.





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## § A.2.3 Required Property Insurance

#### § A.2.3.3 Insurance for Existing Structures

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work.

#### ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

#### § A.3.1 General

§ A.3.1.1 Certificates of Insurance.. The Contractor shall provide certified certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 and requiring a thirty (30) day mandatory cancellation notice at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request and within ten (10) days of the request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or selfinsured retentions applicable to any insurance required to be provided by the Contractor.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

### § A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below: (If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

«Until such time as the Owner has determined that the Agreement is complete. Failure of Contractor to maintain any insurance required under this Agreement shall be considered a material breach of the Agreement. »

### § A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than (  $\otimes$  (  $\otimes$  ) each occurrence, <math>(  $\otimes$  ) general aggregate, and <math>(  $\otimes$  (  $\otimes$  ) aggregate forproducts-completed operations hazard, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and

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.5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- Claims for bodily injury other than to employees of the insured. .3
- Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees .4 of the insured.
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary .6 language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior .9 coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the Work involves such hazards.
- Claims related to explosion, collapse and underground hazards, where the Work involves such .11 hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than « » (\$ « ») per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than « » (\$ « ») each accident, « » (\$ « ») each employee, and  $\ll \gg$  (\$  $\ll \gg$ ) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than  $\ll \gg$  ( $\$   $\ll \gg$ ) per claim and  $\ll \gg$  ( $\$   $\ll \gg$ ) in the aggregate.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than « » (\$ « » ) per claim and « » (\$ « » ) in the aggregate.

§ A.3.2.10 Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than « » (\$ « » ) per claim and « »  $(\$ \ll )$  in the aggregate.

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§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than  $\ll \gg (\$ \ll \gg)$  per claim and  $\ll \gg (\$ \ll \gg)$  in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than  $\ll \gg (\$ \ll \gg)$  per claim and  $\ll \gg (\$ \ll \gg)$  in the aggregate.

#### § A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the *expiration of the period for correction of Work, state the duration.*)

« »

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the *appropriate fill point.*)

( « » ) § A.3.3.2.1 Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:

(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

« »

- [ « »] § A.3.3.2.2 Railroad Protective Liability Insurance, with policy limits of not less than « » (\$ « » ) per claim and « » (\$ « ») in the aggregate, for Work within fifty (50) feet of railroad property.
- [ « »] § A.3.3.2.3 Asbestos Abatement Liability Insurance, with policy limits of not less than « » (\$ « » ) per claim and  $\ll$  (\$  $\ll$  ») in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.
- ( « » ) § A.3.3.2.4 Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.
- [ « »] § A.3.3.2.5 Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

#### [«»] § A.3.3.2.6 Other Insurance

The Owner may require insurance coverage in excess of the types and amounts required in this Agreement. Contractor shall attempt in good faith to obtain quotes for such additional coverage and

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provide them to Owner for review. Con be requested by the Owner in writing. C coverage.	ntractor shall purchase any such additional insurance as may Dwner shall pay any additional premium for such additional
(List below any other insurance covera limits.)	ge to be provided by the Contractor and any applicable
Coverage	Limits
<b>§ A.3.4 Performance Bond and Payment Bond</b> The Contractor shall provide surety bonds, from a com in the jurisdiction where the Project is located, as follo ( <i>Specify type and penal sum of bonds.</i> )	npany or companies lawfully authorized to issue surety bonds ows:
Туре	Penal Sum (\$0.00)
Payment Bond	
Performance Bond	
Payment and Performance Bonds shall be AIA Docum contain provisions identical to AIA Document A312 <sup>TM</sup> <b>ARTICLE A.4 SPECIAL TERMS AND CONDITIONS</b> Special terms and conditions that modify this Insuranc	hent A312 <sup>TM</sup> , Payment Bond and Performance Bond, or <sup>M</sup> , current as of the date of this Agreement. be and Bonds Exhibit, if any, are as follows:
« »	

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SECTION 010100 - SUMMARY OF WORK

#### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Description of the Work.
- B. Work under other contracts.
- C. Products furnished by the owner.
- C. Contractor use of site (and premises).
- D. Code of Conduct.
- E. Existing conditions.
- F. Work sequence, Schedule for Completion and liquidated damages.
- G. Time extensions for adverse weather.
- H. Owner occupancy.
- I. Time extension for factors other than weather.
- H. Additional owner requested bid breakdown.

#### 1.02 DESCRIPTION OF THE WORK

- A. The Contractor shall furnish all labor, materials, facilities, insurance, management, equipment, services, employee training and testing, permits and agreements necessary to perform the work required for the for Lighting upgrades at Shawnee Mission.
- B. The General or Prime Contractor shall be represented (full time) at the site, by a competent Superintendent from beginning of the work, until final completion unless otherwise approved by the Owner. The superintendent shall oversee and direct the daily construction activities at the work site including scheduling of workers and delivery of equipment and materials to meet the project schedule. The superintendent shall also inspect work in progress to ensure that work conforms to the plans and specifications. The Superintendent shall be dedicated to these duties and shall physically perform work or "wear tools" only on a limited basis.
- C. Projects Address: 1. Indian Hills Middle School 6400 Mission Road Prairie Village, KS 66208

2. Northwest High School 12701 W. 67th St. Shawnee, KS 66216

3. West High School 8800 W. 85th St. Overland Park, KS 66212

4. South High School 5800 W. 107th St. Overland Park, KS 66207

#### 1.03 WORK UNDER OTHER CONTRACTS.

A. Owner will remove and retain possession of equipment, furniture and loose items particular to each building. Owner to identify items to contractor prior to start of building and/or demolition activities. Contractor to coordinate schedule so as not to interfere with daily operation of the facility prior to start of building and/or demolition activities.

#### 1.04 PRODUCTS FURNISHED BY THE OWNER.

A. The owner will supply a maximum of 1 set of complete bid documents to the successful bidder. They will include plans, specifications and addendums.

#### 1.05 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow owner occupancy and use of the existing building, parking lots, and hard play areas during construction.
- B. Contractor can park in any of the school parking lots after school hours or during Summer Break when no students or staff is on site.

#### 1.06 CONTRACTOR AND VENDOR EMPLOYEES CODE OF CONDUCT

Shawnee Mission School District requests that all contractor and vendor employees conduct themselves in an acceptable manner while performing work on school district property. The following items are prohibited on school district property:

- 1. No physical or verbal contact is to be made with students or non-designated staff.
- 2. No smoking or other use of tobacco products in any manner is permitted on district property.
- 3. No drugs and/or alcohol are to be consumed or present on district sites.
- 4. No firearms, or hunting items, are to be present on the site.
- 5. Foul and/or abrasive language is not to be used.
- 6. All workers are to wear clothing on all parts of their body; no shirtless workers. Apparel should be appropriate to a school campus.

Utilize designated areas for vehicle access and parking, material storage, etc.

All workers are to wear a nametag, which identifies the company name and the individual's name.

#### 1.07 EXISTING CONDITIONS

- A. The contract drawings are based on information taken from original construction drawings and from inspections of the site.
- B. Bidders are advised that "as-built" conditions may vary from those shown on the drawings. Bidders shall not later request, nor expect to receive, additional payment for work related to variations which can be determined by examination of the existing building and site, by the date set for receipt of Bids for this Contract.

#### 1.08 WORK SEQUENCE AND SCHEDULING

- A. The Contractor and all Subcontractors, sub-subcontractors and Suppliers shall furnish sufficient forces, supervision, construction plant and equipment, and shall work such hours as may be required to insure the prosecution of the work in accordance with the Progress Schedule stated herein. If in the opinion of the Owner, the Contractor falls behind the Progress Schedule, the Contractor shall take such steps as may be necessary to improve the progress and the Owner may require them to increase the number of shifts, and/or overtime operations, days of work including holidays, Saturdays and Sundays, all without additional costs to the Owner.
- B. Schedule requirements are outlined as follows.

March 25, 2019: Award of bid and approval of contract for construction by Board of Education.

Building/Area	Start Date	Substantial Completion	Final Completion *
All Schools	June 11, 2021	July 30, 2021	1 week later

\* Final completion shall be achieved as noted after the established date of substantial Completion, to include the issuance of the architect-engineer punch list to the general Contractor for the affected building area.

C. Liquidated damages for substantial completion will be assessed if the general contractor has not achieved adequate progress to permit school district personnel occupancy and use of all noted areas of the building and/or site in accordance with the dates for substantial completion noted above. Damages will accrue and will be based on the unavailability of the building space(s) and/or site for their intended purposes as determined by the school district. Liquidated damages noted are tiered and are based on the intended use of the building and/or site in accordance with the school schedules proposed or established.

Building/Area	Substantial Completion Date	Liquidated Damages Assessment
All Schools	July 30, 2021	\$500/day

Final completion of construction related activities including the satisfactory completion of all punch list corrections shall be completed in accordance with the timeframe noted

above for each building and/or area. Liquidated damages associated with final completion shall be assessed based on any actual costs incurred by the school district due to the restricted use of the facility; and for costs that may be associated with inconvenience, lack of efficiency, and/or district personnel costs associated with providing exclusive access for the general contractor to complete punch list corrections after normal school day operation and/or on weekends or holidays. Similarly, any actual costs incurred by the school district for extended or additional architect/engineer services made necessary as a result of the general contractor's inability to meet final completion will be assessed as liquidated damages to the general contractor.

#### 1.10 OWNER OCCUPANCY

- A. The existing buildings, parking lots and hard play areas will be used and occupied by the Shawnee Mission School District during portions of the Contract Time. Occupants will include, but not be limited to: students, faculty, parents, and other groups so authorized to use the building and/or site by the school district.
- B. The school is unoccupied for summer recess and will be available for contractor access.
- C. The work shall be confined to limited areas of the site. The contractor shall work with the Project Team to develop a schedule of areas to receive work. The schedule will identify specific areas of the building and site to receive work at specific times. This schedule shall be submitted by the Contractor to the Architect for approval before the work begins.
- D. Unless otherwise indicated, the owner will move loose furnishings out of the existing building with his own work forces prior to scheduled demolition. This will include furniture, equipment, wall hangings, books, maps, clocks, and loose educational materials prohibiting work.

#### 1.11 TIME EXTENSION FOR FACTORS OTHER THAN WEATHER

- A. If the contractor incurs a delay due to factors out of his control, the contractor shall submit a claim within twenty-one (21) days after the occurrence of the delay to the architect and project team. The claim shall include a description of the cause of the delay and resultant request for additional time.
- B. If a proposal request for additional work causes the contractor additional time to perform the original contract requirements the contractor may submit a claim for additional time to the Architect and Owner. The Contractor shall include in his proposal the request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.
- C. The determination that delays have occurred beyond the Contractor's control does <u>not</u> automatically mean an extension of time will be granted. The Contractor must substantiate the delay by indicating suspended work activities on the critical portion of the project schedule.

END OF SECTION

#### SECTION 010200 - CONTRACT CONSIDERATIONS

#### PART 1 GENERAL

- 1.01 SECTION INCLUDES
  - A. Cash Allowances.
  - B. Schedule of values.
  - C. Bid Cost Breakdown.
  - D. Application for Progress Payment.
  - E. Application for Final Payment
  - F. Change Orders and/or Clarifications.

#### 1.02 RELATED SECTIONS

A. N.A.

#### 1.03 CASH ALLOWANCES

Allowance in total of \$2,000 to be used for unforeseen conditions during construction.

#### 1.04 SCHEDULE OF VALUES

- A. The Contractor will submit to the Architect, a Schedule of Values that includes all major categories of work and per building if applicable. The Schedule of Values will need to be broken into four sections one for each building. The Schedule of Values will annotate a value for the construction schedules and progress meeting notes required by the contract documents. The dollar amounts are to include all labor, material, overhead and profit applicable to each item in the breakdown. As a sub-breakdown, each item is to be separated into an estimated labor and materials line item. The Contractor must submit an estimated total value for the projected cost of supplies, materials, and equipment required. Submit typed schedule on AIA Form G703 Application and Certificate for Payment Continuation Sheet. Contractor's standard from of electronic media printout will be considered as an alternate form of submission.
- B. Submit Schedule of Values in triplicate within fourteen (14) calendar days after the contract for construction is executed and prior to any submission of an Application for Payment. Schedule shall list the installed value of the component parts of the work, broken down in sufficient detail to serve as a basis for computing values for progress payments during construction.
- C. Format: At a minimum, use the Table of Contents in this Project Manual to identify each line item with number and title of the major specification section.

D. Add to the Schedule of Values approved Change Orders, with each Application for CONTRACT CONSIDERATIONS 010200 - 1
Payment. List Change Orders in numerical sequence with each Application for Payment.

- E. Correlate line items in the Schedule of Values with other required additional schedules and forms including:
  - a. Contractor's construction schedule
  - b. Contract payment request form
  - c. List of subcontractors.
  - d. List of products.
  - e. List of principle suppliers and fabrications.
  - f. Schedule of submittals.
- F. Prior to making application for the first progress payment, the Contractor must submit the Schedule of Values. No progress payments will be made until the schedule of values has been received, reviewed, and approved by the Architect and Shawnee Mission School District. The costs assigned to the breakdown are to total the contract sum. The approved Schedule of Values is to be used by the Contractor on their Application for Payment.
- 1.05 BID COST BREAKDOWN (See Bid Form for any applicable requirements)

### 1.06 APPLICATION FOR PROGRESS PAYMENTS

- A. At a time consistent with the requirements of this section, the General Conditions, and the Owner-Contractor Agreement, and for each calendar month during the progress of the work, submit three (3) copies of a properly notarized itemized Application for Payment prepared in a manner consistent with the Schedule of Values. The Application for Payment will need to be broken into four sections one for each building and totaled to represent the original bid amount.
- B. The amount shown on the Application for Payment shall be established by the value of work completed through the last day of the application period based upon the Contractor's estimate of labor and materials incorporated in the work and of materials suitably stored in accordance with the contract through the last day of the previous application, less the aggregate of previous payments, and less the retainage as specified in this section.
- C. The form of application for payment shall be the 2017 edition of AIA Document G702. "Application and Certificate for Payment", supported by AIA Document G703. "Continuation Sheet".
- D. Provide the following itemized data on Continuation Sheet:
  - a. Format, schedules, line items, and values shall be from the Schedule of Values accepted by Architect.
  - b. Include names, trades and amount for subcontractors.
  - 1. Application Form:
    - a. Fill in required information, including that for change orders executed prior to the date of submittal application.
    - b. Fill in summary of dollar values to agree with the respective totals indicated on the continuation sheet.

c. Execute certificate with the signature of a responsible officer of the CONTRACT CONSIDERATIONS 010200 - 2

contractor's firm.

- 2. Continuation sheets:
  - a. Fill in total list of all scheduled component items of work, with each number and the scheduled dollar value of each item.
  - b. Fill in the dollar value in each column for each scheduled line item when work has been performed or products stored. Round off values to nearest dollar, or as specified in the Schedule of Values.
  - c. List each change order executed prior to the date of submission, at the end of the continuation sheets. List by change order number, description, and breakdown of costs as for an original component item of work.
- E. Substantiating Data for Progress Payments:
  - 1. Substantiating data is required to verify a payment request. Contractors are to include a cover letter identifying:
    - a. Project.
    - b. Application number and date.
    - c. Detailed list of enclosures.
    - d. For stored products: Item number and identification as shown on application, and description of specific material. Include Bill of Sale, Non-Negotiable Bailment Receipt (see form at the end of this section) and applicable insurance certificate.
  - 2. Submit one copy of the data cover letter for each of the applications.
- F. Applications for Payment shall be accompanied by cost breakdowns from the contractor, subcontractors and sub-sub-contractors.
- G. The three notarized copies of the application for payment will be transferred to the architect to be certified for payment. Provide a copy (non-notarized) to the owner's representative.

### 1.07 APPLICATION FOR FINAL PAYMENT

- A. Submit final Application for Payment following the procedures specified above for progress payments.
- B. Before submitting final Application for Payment, forward concurrently to the Architect, the written warranties and guarantees, Record and Information Manuals and other documents required by the contract documents. Place properly in approved storage at the site the extra stock and spare parts specified. Contractor will obtain the signature of the Architect verifying receipt of the extra stock and spare parts.
- C. Properly executed "Final Lien Waiver and Release" and Contractor's "Affidavit" (see applicable forms at the end of this section) shall be submitted to the Architect in duplicate prior to final payment.
- D. Application for Final Payment shall be accompanied by a properly executed "Consent of Surety Company to Final Payment: AIA Document G707, 2017 edition.

- A. <u>Request for Information (RFI)</u>
  - 1. If during the construction of the project, clarification of the documents is required, it shall be brought to the attention of the Architect. The Architect will either provide clarification or the Contractor will issue a Request for Information (RFI) to the Architect. Each RFI will be dated and sequentially numbered. The Architect shall provide his written response to the RFI and return the RFI response to the Contractor for distribution to all effected contractors.
  - 2. Responses to RFI's are not authorization to proceed with work requiring additional compensation. If additional compensation is required, the Contractor shall immediately advise the Architect, and Owner.
- B. <u>Proposal Request (PR)</u>
  - 1. Should the owner contemplate making a change in the work, the architect will issue a Proposal Request (PR) to the Contractor. If the described change impacts cost and/or time, the Contractor will prepare a proposal and submit it to the Architect. The Contractor's proposed cost shall be broken down completely giving quantity and unit costs by each trade of each item, labor cost with hourly rates, allowable overhead and profit (both adds and deducts). The Owner and Architect will review the pricing to determine if a change order will be issued. Contractors are not to proceed with additional work until written authorization has been received. No additional amount will be paid for submittal in this form or for resubmittal should the breakdown be considered inadequate by the Architect and Owner.
- C. Change Orders (CO)
  - 1. If the Owner determines that a Proposal Request will be accepted, the Architect will prepare a change order (CO) which will be dated and numbered sequentially. The change order will describe the change or changes, will refer to the Proposal Request and Proposal number and becomes valid when signed by the Owner, the Architect and the Contractor.
  - 2. Where unit prices are not required by the bid documents and value of changes or extra work is determined by estimate and acceptance in a lump sum, by cost and percentages, or by cost and a fixed fee, the percentages for overhead and profit, or commission to be allowed for net increases shall in no case exceed the figures identified on the bid form.
  - 3. Estimates for material shall be based on reasonable current market value at which materials are available to the Contractor and Subcontractor. Upon request, submit satisfactory evidence of such costs. Labor unit costs shall include associated insurance.
  - 4. When authorized by the Owner, time and material accounting of a change in work may be used. The Contractor shall maintain an accurate account of labor and material involved in each change. Such time and material records are subject to verification. Notify Architect and Owner when work on each change is to start and when it has been completed. To receive full recognition, labor assigned to Contract changes must, insofar as possible, work continuously on the change, rather that interchanging between contract work and the change.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

# FINAL LIEN WAIVER AND RELEASE

Reference that certain Agreement between _	, as Contractor, and
, as Owner, dated	_, on the project known as
located at	for work to be performed by said
Contractor.	

Reference also that certain invoice of Contractor to said Owner in the Amount of \$	
for work, labor and materials installed in or furnished for said project by and through	

The receipt by Contractor of Owner's remittance for the amount said invoice, contingent upon the final clearance and payment of said remittance, shall constitute payment for the full contract amount, including change orders and all other claims or demands of any nature whatsoever which Contractor has or may have in connection with the Project or Contract referenced herein, of \$\_\_\_\_\_\_, for which Contractor (a) agrees to and does hereby waive and release said property, project and the Owner and all bond or payment sureties and guarantors from; and (b) does hereby agree to protect, indemnify, defend and hold harmless said property, project, Owner, sureties and guarantors against;

- (1) any and all liens, statutory or otherwise, and
- (2) any or all obligations under any bond or guaranty for payment furnished by or to said Owner, whether pursuant to agreement or requirement of law, and
- (3) any and all other claims whatsoever, statutory or otherwise,

for any and all work, labor and materials furnished by or through said Contractor, its subcontractors and material suppliers for the entirety of said project.

The remittance of the Owner, identified as payment of said above invoice and endorsed by Contractor and marked "paid" or otherwise canceled by the bank against which said remittance was drawn shall constitute conclusive proof that said invoice was paid and the payment thereof was received by the Contractor, and thereupon, this final lien waiver shall become effective automatically and without requirement of any further act, acknowledgment or receipt of the part of said Contractor.

Contractor does further warrant that Contractor has not and will not assign its claims for payment nor its right to perfect a lien against said property and project, and the undersigned representative of the contractor has the right to execute this waiver and release thereof.

The undersigned representative of Contractor does hereby certify under oath that he is fully authorized and empowered to execute this instrument for and in behalf of said Contractor and to bind them hereto and does in fact so execute this final lien release.

Dated this	day of	, 20
		Contractor:
		Ву:
		Title:
Subscribed and affirmed to be and the County of the City of	efore me, the undersign , this	ed Notary Public within and for the State of day of, 20, in

# Notary Public within and for said County and State

CONTRACT CONSIDERATIONS

# NON-NEGOTIABLE BAILMENT RECEIPT

	Rec	eipt Number
BAILOR:	Owner	-
BAILEE:	Contractor/Supplier	
PROJECT:		
LOCATION OF STORAGE:		
The goods and materials descr Bailee, as Contractor/Supplier, Project location. Said goods a conjunction with the performan- the Architect and no other. The claim any lien or interest in or u	ibed below are held and stored pursuant to the Contract and Bailer as Owner for Work to be performed at the a and materials are to be transferred or delivered to the per- ce of Bailee's contract referenced above or upon the di e Bailee acknowledges that it has no ownership rights upon, said goods and materials.	t by and between bove referenced roject site in rection of Bailor or or title in, nor shall
QUANTITY	DESCRIPTION OF ITEM	
	Received and Acknowledged Contractor/Supplier	ł
DATED:	BY:	
	Authorized Signature	

CONTRACT CONSIDERATIONS

Shawnee Mission District Lighting Upgrades 2021

The undersigned representative of Contractor does hereby certify under oath that he is fully authorized and empowered to execute this instrument for and in behalf of said Contractor and to bind them hereto and does in face so execute this final lien release.

Dated this _	day of	, 20	<u> </u>	
Contractor:				
By:				
Title:				
Subscribed	and affirmed to before me, the undersign		c within and for the State	of
,	_ and the County of	, this	day of	, 20
in the City of	·			

Notary Public within and for said County and State

CONTRACT CONSIDERATIONS

# SECTION 010450 – CUTTING AND PATCHING

# PART 1 GENERAL

- 1.01 SECTION INCLUDES:
  - A. Summary
  - B. Submittals
  - C. Quality Assurance
  - D. Products
  - E. Cleaning
  - F. Renovation Supplemental Project Procedures

#### 1.02 SUMMARY

- A. This section specifies administrative and procedural requirements for cutting and patching.
- B. Refer to other sections for specific requirements and limitations applicable to cutting and patching individual parts of the work.

### 1.03 SUBMITTALS

- A. Cutting and Patching Description: Where approval of procedures for cutting and patching is required before proceeding, submit a description of the procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:
  - 1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
  - 2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
  - 3. List products to be used and firms or entities that will perform work.
  - 4. Indicate dates when cutting and patching is to be performed.
  - 5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
  - 6. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations signed and sealed by a qualified professional engineer licensed in the State of Kansas to show how reinforcement is integrated with the original structure.
  - 7. Approval by the Architect to proceed with cutting and patching does not waive

### CUTTING AND PATCHING

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the Architect's right to later require complete removal and replacement of a part of the work found to be unsatisfactory.

### 1.04 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.
- 1. Obtain approval of the cutting and patching description before cutting and patching the following structural elements:
  - a. Foundation construction.
  - b. Bearing and retaining walls.
  - c. Structural concrete.
  - d. Structural steel.
  - e. Lintels.
  - f. Structural decking.
  - g. Miscellaneous structural metals.
  - h. Equipment supports.
  - i. Piping, ductwork, vessels and equipment.
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
- 1. Obtain approval of the cutting and patching description before cutting and patching the following operating elements or safety related systems:
  - a. Primary operational systems and equipment.
  - b. Air or smoke barriers.
  - c. Water, moisture, or vapor barriers.
  - d. Membranes and flashings.
  - e. Fire protection systems.
  - f. Noise and vibration control elements and systems.
  - g. Control systems.
  - h. Communication systems.
  - i. Electrical wiring systems.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace work that has been cut and patched in a visually unsatisfactory manner.

# PART 2 PRODUCTS

#### 2.01 MATERIALS

A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

# CUTTING AND PATCHING

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# PART 3 EXECUTION

### 3.01 INSPECTION

A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

### 3.02 PREPARATION

- A. Temporary Support: Provide temporary support of work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take all precautions necessary to avid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

# 3.03 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
- 1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible, review proposed procedures with the original installer; comply with the original installer's recommendations.
  - 1. In general, where cutting is required, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
  - 4. Comply with requirements of applicable sections of Division-2.
  - 5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other

CUTTING AND PATCHING

foreign matter after by-passing and cutting.

- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
  - 1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
  - 2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

#### 3.04 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.
- 3.04 RENOVATON SUPPLEMENTAL PROJECT PROCEDURES
  - A. Materials: As specified in Product Sections; match existing products and work for patching and extending work.
  - B. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
  - C. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original condition.
  - D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.
  - E. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.
  - F. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
  - G. Where a change of plane of ¼-inch or more occurs, submit recommendation for providing a smooth transition for Architect review.
  - H. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
  - I. Finish surfaces as specified in individual product sections.

# END OF SECTION

# CUTTING AND PATCHING

# SECTION 010950 – REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

- 1.01 SECTION INCLUDES:
  - A. Related documents
  - B. Definition
  - C. Specification Format and Content Explanation
  - D. Industry Standards
  - E. Governing Regulations/Authorities
  - F. Submittals

### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to this section.

#### 1.03 DEFINITIONS

- A. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the drawings, other paragraphs or schedules in the specifications, and similar requirements in the contract documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used, it is to help the reader locate the reference; no limitation on locating is intended.
- B. Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the architect/consultant", "requested by the architect/consultant", and similar phrases.
- C. Approve: The term "approved", where used in conjunction with the architect/consultant's action on the Contractor's submittals, applications, and requests, is limited to the architect/consultant's duties and responsibilities as stated in General, Supplementary, and Special Provisions.
- D. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the asbestos removal, hazardous waste, and construction industries that control performance of the work.
- E. Furnish: The term "furnish" is used to mean "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation, and similar operations".
- F. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working

**REFERENCE STANDARDS and DEFINITIONS** 

to dimension, finishing, curing, protecting, cleaning, and similar operations".

- G. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use".
- H. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, Subcontractor, or sub-subcontractor, for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
  - 1. The term "experienced" when used with the term "Installer" means having a minimum of five previous projects similar in size and scope to this project, being familiar with the precautions required, and having complied with requirements of the authority having jurisdiction.
  - 2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter". It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.
- I. Assignment of Specialists: Certain sections of the specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility offer fulfilling contract requirements remains with the Contractor.
- 1. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
- J. Project Site is the space available to the Contractor for performance of activities, either exclusively or in conjunction with others performing other work as part of the project. The extent of the Project Site is shown on the drawings and may or may not be identical with the description of the actual Project Site. All dimensions and locations should be field verified and noted by the Contractor.
- K. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

# 1.04 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Format: The specifications are organized into divisions and sections based somewhat on the Construction Inspection Institute's 16-Division format and MASTER FORMAT numbering system.
- B. Specification Content: This specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
  - 1. Abbreviated Language: Language used in specifications and other contract

**REFERENCE STANDARDS and DEFINITIONS** 

documents is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the full context of the contract documents so indicates.

- 2. Imperative and streamlined language is used generally in the specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
  - a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

# 1.05 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the contract documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the contract documents. Such standards are made a part of the contract documents by reference.
- B. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of contract documents.
- C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the architect and/or owner for a decision before proceeding.
- 1. Minimum Quantity or Quality Levels: The quantity level shown or specified shall be the minimum provided or performed. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirement. Refer uncertainties to the architect and/or owner for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in activities on the project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the contract documents.
- 1. Where copies of standards are needed for performance of a required activity, the Contractor shall obtain copies directly from the publication source.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the specifications or other contract documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations", published by Gale Research Co., available in most libraries.

# 1.06 GOVERNING REGULATIONS/AUTHORITIES

A. As applicable, the architect and/or engineer has contacted authorities having jurisdiction to obtain information necessary for preparation of contract documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on

**REFERENCE STANDARDS and DEFINITIONS** 

the work.

# 1.07 SUBMITTALS

A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the work.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

# SECTION 012000 - PROJECT MEETINGS

PART 1 - GENERAL

- 1.01 SECTION INCLUDES:
  - A. Related Documents
  - B. Summary
  - C. Pre-Construction Conference
  - D. Pre-Installation Conference
  - E. Progress Meetings

# 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division-1 specification sections, apply to this section.

# 1.03 SUMMARY

- A. This section specifies administrative and procedural requirements for project meetings including, but not limited to:
  - 1. Preconstruction conference.
  - 2. Pre-installation conferences.
  - 3. Coordination meetings.
  - 4. Progress meetings.
- B. Construction schedules are specified in another Division-1 section.

# 1.04 PRECONSTRUCTION CONFERENCE

- A. The Contractor shall schedule a preconstruction conference and organizational meeting at the project site or other convenient location within fourteen (14) days of contract execution, and at least seven (7) days prior to commencement of any construction activities. The Contractor shall conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: Shawnee Mission School District, the Architects/Consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the work.
- C. Agenda: Discuss items of significance that could affect progress, including such topics as:
  - 1. Tentative construction schedule.

# PROJECT MEETINGS

- 2. Critical work sequencing.
- 3. Designation of responsible personnel.
- 4. Procedures for processing field decisions and change orders.
- 5. Procedures for processing applications for payment.
- 6. Distribution of contract documents.
- 7. Submittal of Shop Drawings, Product Data and Samples.
- 8. Preparation of record documents.
- 9. Use of the premises.
- 10. Office, work and storage areas.
- 11. Equipment deliveries and priorities.
- 12. Safety procedures and compliance with Lock Out/Tag Out procedures.
- 13. Lead safe work practices and lead hazard prevention procedures.
- 14. First aid.
- 15. Security.
- 16. Housekeeping.
- 17. Working hours.
- 18. Testing agencies and procedures.
- 19. Temporary utilities; water, electric, phone.
- 20. Temporary lavatory facilities.
- 21. Quality control.
- D. The Contractor shall record meeting minutes and distribute copies to everyone in attendance and to others affected by decisions of actions resulting from the meeting.

# 1.05 PREINSTALLATION CONFERENCES

- A. The General Contractor shall convene a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the architect and owner of scheduled meeting dates.
- B. Review the progress of the construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
  - 1. Contract documents.
  - 2. Options.
  - 3. Related Change Orders.
  - 4. Purchases.
  - 5. Deliveries.
  - 6. Shop drawings, product data and quality control samples.
  - 7. Possible conflicts.
  - 8. Compatibility problems.
  - 9. Time schedules.
  - 10. Weather limitations.
  - 11. Manufacturer's recommendations.
  - 12. Compatibility of materials.
  - 13. Acceptability of subtrates.
  - 14. Temporary facilities.
  - 15. Space and access limitations.

PROJECT MEETINGS

- 16. Governing regulations.
- 17. Safety and application of associated Lock Out/Tag Out procedures.
- 18. Inspection and testing requirements.
- 19. Required performance results.
- 20. Recording requirements.
- 21. Protection.
- 22. Punchlist procedures and Architect/Engineer responsibilities limitations.
- C. Notify architect and owner four days in advance of meeting date when their attendance is required by individual section.
- D. The Contractor shall prepare agenda, preside at the conference and record significant discussions and agreements and disagreements of each conference, along with the approved schedule. The Contractor shall distribute the record of the meeting to everyone concerned, promptly, including the owner and architect.
- E. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.

### 1.06 PROGRESS MEETINGS

- A. Conduct progress meetings at the Project Site at a minimum of bi-monthly intervals or as directed by the Architect. Notify the Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner and Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meeting by persons familiar with the Project and authorized to conclude matters relating to progress..
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the project.
  - 1. Contractor's Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's schedule, whether on time or ahead or behind schedule. Determine how operations behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed with the contract time.
  - 2. Produce and review a two-week "look ahead" schedule outlining planned construction activities for the next two weeks (or the period of time until the next progress meeting).
  - 3. Review the present and future needs of each entity present, including such items as:
    - a. Interface requirements.
    - b. Time.
    - c. Sequences.
    - d. Deliveries.

PROJECT MEETINGS

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- e. Off site fabrication status.
- f. Access.
- g. Site utilization.
- h. Temporary facilities and services.
- i. Hours of work.
- j. Hazards and risks.
- k. Housekeeping.
- I. Quality and work standards.
- m. Change orders.
- n. Documentation of information for payment requests.
- o. Outstanding items; submittals, proposal requests, RFIs.
- p. Quality assurance.
- q. Safety and application of necessary Lock Out/Tag Out procedures.
- r. Performance of lead safe work practices.
- D. Reporting: No later than three days after each progress meeting date, the Contractor is to distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and reports.

PART 2 - PRODUCTS

Not used

# PART 3 - EXECUTION

Not used.

END OF SECTION

# PROJECT MEETINGS

### SECTION 01210A – CASH ALLOWANCES

### PART 1 GENERAL

### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section includes administrative and procedural requirements governing the use of cash allowances.
  - 1. A cash amount is specified in the Contract Document as a cash allowance. This allowance has been established to address additive cost changes in the Work to address unforeseen conditions associated with construction. The use of the cash allowance is solely at the discretion of the Owner, and cannot be authorized by the Architect, Engineer, or other consultant.
- B. Related Sections include the following:
  - 1. Division 1 Section 010200 "Contract Considerations" for procedures for submitting and handling Change Orders.
  - 2. Division 1 Section "Unit Prices" for procedures for using unit prices.

### 1.03 USE OF ALLOWANCES

- A. At the earliest practical date during construction, advise Architect and Owner of unforeseen conditions that affect the Work.
- B. At Architect's request, obtain cost proposals for the corrections of the noted unforeseen conditions.
- C. Based on cost proposals received, the Owner will make a decision to utilize available allowance amounts to correct the applicable unforeseen condition. The correction of individual unforeseen conditions may be funded utilizing cash allowances or a formal change order at the Owner's discretion.

#### 1.04 SUBMITTALS

A. Submit proposals for additive costs for unforeseen conditions in the same form specified for proposal requests.

#### 1.05 RESPONSIBILITIES

#### CASH ALLOWANCES

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- A. Architect Responsibilities:
  - 1. Consult with Owner in consideration and selection of additive cost items for consideration for application using cash allowances.
  - 2. Prepare Proposal Requests and assess proposals for application of cash allowances for Owner approval.
- B. Contractor Responsibilities:
  - 1. Identify unforeseen conditions as they may occur and advise the Architect and Owner.
  - 2. Obtain proposals and offer recommendations.
  - 3. On notification of approval of cash allowance, execute agreement with designated supplier and/or sub-contractor as applicable.
  - 4. Arrange for and process applicable shop drawings, product data, and samples. Arrange for delivery.
  - 5. Coordinate and install Work of approved Cash Allowances.
  - 6. The Contractor shall include in his Bid all fees for all Cash Allowances.
- C. Funds will be drawn from Cash Allowances only by written authorization of the Owner.
- E. Cash Allowances:
  - 1. Unforeseen Conditions

### 1.06 SCHEDULE OF VALUES

A. The Contractor will submit to the Architect a Schedule of Values that includes all major categories of work, including applicable Cash Allowances.

#### 1.07 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

#### 1.08 ALLOWNACE COSTS

- A. Allowance shall include cost to Contractor of products and materials, freight and delivery to Project Site, labor, and installation.
- B. Contractor's costs for overhead and profit, and similar costs of Bonds and Insurance shall be included as part of the Contract Sum and not part of the allowance.
- C. Any unused portion of the Allowance shall be credited to the Owner at the completion of the Work via a Deductive Change Order, along with the associated overhead and profit. Refer to Contract Documents for procedures and mark-ups for Deductive Change Orders.

PART 2 – PRODUCTS (Not Used)

# CASH ALLOWANCES

# PART 3 -- EXECUTION

### 3.01 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

# 3.02 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

# 3.03 SCHEDULE OF ALLOWANCES

- A. Unforeseen Conditions
  - 1. For use at any school associated with this project: \$2,000

END OF SECTION 012100

# CASH ALLOWANCES

SECTION 013000 – SUBMITTALS

### PART 1 - GENERAL

### 1.01 SECTION INCLUDES:

- A. Related Documents.
- B. Summary.
- C. Submittal Procedures.
- D. Contractor's Construction Schedules.
- E. Submittal Schedule.
- F. Daily Construction Reports.
- G. Preexisting Conditions Video Survey.
- H. Shop Drawings.
- I. Product Data.
- J. Samples.
- K. Communications Facilitating Contract Administration.
- L. Architect's Action.
- M. Contractor's Action on Returned Submittals.

#### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this section.

### 1.03 SUMMARY

- A. This section specifies administrative and procedural requirements for submittals required for performance of the work, including:
  - 1. Submittal procedures.
  - 2. Contractor's construction schedule.
  - 3. Submittal schedule.
  - 4. Daily construction reports.
  - 5. Construction photographs.
  - 6. Shop drawings.

- 7. Product data.
- 8. Samples.
- 9. Informational submittals.
- 10. Communications.
- B. Administrative Submittals: Refer to other Division-1 sections and other contract documents for requirements for administrative submittals. Such submittals include, but are not limited to:
  - 1. Permits.
  - 2. Applications for payment.
  - 3. Performance, payment bonds, and statutory bond.
  - 4. Insurance certificates.
  - 5. List of subcontractors.
- C. The "Schedule of Values" submittal is included in Division-1 Section "Applications for Payment."
- D. Inspection and test reports are included in Division-1 Section "Quality Control Services."
- E. The "Product List" submittal is included in Division-1 Section "Materials and Equipment."

# 1.04 SUBMITTAL PROCEDURES

- A. General: All documents transmitted for purposes of administration of the contract are to be in electronic (PDF) format and transmitted via an Internet-based submittal service that receives, logs and stores documents, and notifies addressees via email.
  - 1. Beyond submittals for review, information, and closeout, this procedure applies to requests for in- formation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, and any other document any participant wishes to make part of the project record. The in- tent shall be that construction phase documentation be paperless to the greatest extent possible.
  - 2. Developer/Contractor and Architect are required to use this service.
  - 3. It is Developer/Contractor's responsibility to submit documents in PDF format.
  - 4. Subcontractors, suppliers, and Architect's consultants will be permitted to use the service at no extra charge.
  - 5. Users of the service need an email address, Internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com), unless such software capability is provided by the service provider.
  - 6. Paper document transmittals will not be reviewed; emailed PDF documents will not be reviewed.
  - 7. All other specified submittal and document transmission procedures apply, except that electronic document requirements to not apply to actual physical samples or color selection charts. Transmittals for these items must still be posted to the service so that team members may take action on them, however, and to act as a record of the submittal made, selections determined and action taken.

- B. Cost: The cost of the service will be the responsibility of the awarded contractor (please contact service provider for cost information).
- C. Submittal Service: The selected service is:
  - 1. eCommunication by Drexel Technologies, Damien Illum, (913) 371-4430, www.drexeltech.com.
- D. Training: One, one-hour, web-based training session will be arranged for all participants, with representa- tives of Architect and Developer/Contractor participating; further training is the responsibility of the user of the service.
- E. Project Closeout: Contractor will determine when to terminate the service for the project and is responsi- ble for obtaining archive copies of files for Owner.
- F. Electronic copies of CAD Drawings of the Contract Drawings will be provided as determined appropriate by Architect for Contractor's use in preparing submittals. The Architect may be contacted for providing electronic copies to the successful bidder. Release of liability form will be required prior to release of any files.
- G. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related activities to avoid delay and to allow sufficient review time.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related elements of the work so processing will not be delayed by the need to review submittals concurrently for coordination.

a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received. Such action shall not be grounds for an extension of time or delay by the Contractor.

- 3. The Architect may request submittals in addition to those indicated in the technical sections when deemed necessary to adequately describe the work covered in the respective section.
- 4. Units of weights and measurements used on all submittals shall be the same as used in the contract documents.
- 5. Processing: Allow sufficient review time so that the work will not be delayed as a result of the time required to process submittals, including time for resubmittals.

The Architect shall be responsible for reviewing and certifying that submittals are in compliance with the contract requirements. The approving authority on submittals is the Architect unless otherwise specified for the specific submittal.

a. Allow at least seven (7) working days in Architect's office for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the

Contractor when a submittal being processed must be delayed for coordination with work by others.

- b. If an intermediate submittal is necessary, process in the same manner as the initial submittal.
- c. Allow at least four (4) working days for reprocessing each submittal.
- d. No extension of contract time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the work to permit processing.
- H. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
  - 1. Provide a space approximately 4" x 5" on the label or beside the title block on shop drawings, product data and samples to record the Contractor's review and approval markings and the action taken.
  - 2. Include the following information on the label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address of supplier.
    - g. Name of manufacturer.
    - h. Number and title of appropriate specification section.
    - i. Drawing number and detail references, as appropriate.
- I. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect including the information below. Submittals received by Architect from sources other than the Contractor will be returned without action.
  - 1. Record relevant information and requests for data on the transmittal. On the form, or separate sheet, record deviations from contract document requirements, including minor variations and limitations. Include Contractor's signed certification that information complies with contract document requirements.
  - 2. Submit to Architect at business address.

### 1.06 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's schedule, prepare a complete schedule of submittals. Submit the schedule within ten (10) days of the date required for establishment of the Contractor's construction schedule.
  - 1. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as wells as the Contractor's Construction Schedule.
  - 2. Prepare the schedule in chronological order; include submittals required during the construction. Provide the following information.
    - a. Scheduled date for the first submittal.

- b. Related section number.
- c. Submittal category.
- d. Name of subcontractor.
- e. Description of the part of the work covered.
- f. Scheduled date for resubmittal.
- B. Distribution: Following response to initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the project meeting room and field office.
  - 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the work and are no longer involved in project activities.
- C. Schedule Updating: Revise the submittal schedule after each meeting or activity, where revisions have been recognized or made relating to submittals. Issue the updated schedule concurrently with report of each such meeting.

#### 1.09 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the contract documents. Do not reproduce contract documents or copy standard information as the basis of shop drawings. Standard information prepared without specific reference to the project is not considered shop drawings. Shop drawings' quality is subject to approval.
- B. Shop drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
  - 1. Dimensions.
  - 2. Relationship to building grids or coordinates.
  - 3. Interface with adjacent construction.
  - 4. Identification of products and materials included.
  - 5. Compliance with specified standards.
  - 6. Notation of dimensions established by field measurement.
- C. Sheet Size: Except for templates, patterns and similar full-size drawings, submit shop drawings on sheets 8½" x 11", 11" x 17", or 30" x 42". No other sizes will be accepted.
- D. Submittal: Submit at least two blue-line prints. One of the blue-line prints will be retained by the Architect. The Contractor shall be responsible for making appropriate number of copies for distribution to other affected parties.
- E. Do not use shop drawings without an appropriate final stamp indicating action taken in connection with construction.

### 1.10 PRODUCT DATA

A. Collect product data into a single submittal for each specified product. Product data includes printed information such as catalog cuts, Material Safety Data Sheets (MSDS), and other

performance information.

- 1. Mark each copy to show applicable choices and options. Where printed product data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
  - a. Manufacturer's printed recommendation.
  - b. Compliance with recognized trade association standards.
  - c. Compliance with recognized testing agency standards.
  - d. Application of testing agency labels and seals.
  - e. Notation of dimensions verified by field measurement.
  - f. Notation of coordination requirements.
  - g. Any limitations on warranty or guarantee of manufacturer.
- 2. Do not submit product data until compliance with requirements of the contract documents has been confirmed.
- B. Submittals: Submit three (3) copies. Submit two (2) additional copies where required for maintenance manuals. The Architect will return one copy marked with action taken and corrections or modifications required.
  - 1. Unless noncompliance with contract documents provisions is observed, the submittal may serve as the final submittal.
- C. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal form.
  - 1. Do not proceed with installation until a copy of the applicable product data is in the Installer's possession.
  - 2. Provide copies for record documents described in Section 01700 Project Closeout.
- D. Do not permit use of unmarked copies of product data in connection with construction.

#### 1.11 SAMPLES

- A. Submit full-size, full fabricated samples cured and finished as specified (where applicable) and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or container of materials, color range sets, and swatches showing color, texture and pattern.
  - 1. Mount, display, or package samples in the manner specified to facilitate review of qualities indicated.

Prepare samples to match the Architect's sample. Include the following:

- a. General description of the sample.
- b. Sample sources
- c. Product name or name of manufacturer.
- d. Compliance with recognized standards.

- e. Availability and delivery time.
- 2. Submit samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
  - a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than three), that show approximate limits of the variations.
  - b. Refer to other specification sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
  - c. Refer to other sections for sample to be returned to the Contractor for incorporation in the work. Such samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of sample submittals.
- B. Submittals: Except for samples illustrating details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit three sets: One set will be returned with comments.
- C. Maintain sets of samples, as returned, at the project site, for quality comparisons throughout the course of construction.
  - 1. Unless non-compliance with contract documents provisions is observed, the submittal may serve as the final submittal.
  - 2. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- D. Distribution of Samples: prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the work. Show distribution on transmittal forms.
- E. Field Samples: Field samples specified in individual sections are special types of samples. Field samples are full-size samples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the work will be judges.
  - 1. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.
  - 2. Allow at least seven (7) days after completion and curing (where applicable) of field sample for Architect's review. Notify Architect in writing upon completion of field sample.
  - 3. Where required, give Architect notice and an opportunity to observe field erection or application of field sample.

# 1.12 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

A. Except as otherwise provided in the contract documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate through the Architect. Communications by and with subcontractors and material suppliers shall be through

the Contractor.

B. All requests for information regarding or clarification of the plans and specifications shall be made in writing referencing the specification section and statement requiring clarification. Deliver to Architect's business address.

### 1.13 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.
  - 1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Submittal Stamp: The Architect will stamp each submittal with a uniform, self-explanatory submittal stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
  - 1. Action A Reviewed: Where submittals are marked "Reviewed", that part of the work covered by the submittal may proceed provided it complies with requirements of the contract documents.
  - 2. Action B Reviewed Additional Information Required: Where submittals are marked "Reviewed – Additional Information Required", the information submitted has been reviewed. However, additional information as noted and/or required by contract documents need to be submitted.
  - 3. Action C Furnish as Corrected: When submittal is marked "Furnish as Corrected", that part of the work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the contract documents.
  - 4. Action D Revise and Resubmit: When submittal is marked "Revise and Resubmit", do not proceed with that part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
    - a. Do not permit submittals marked "Revise and Resubmit" to be used at the project site, or elsewhere where work is in progress.
  - 5. Action E Rejected: When submittal is marked "Rejected", information submitted is not in compliance with contract documents. Resubmit submittal as required by contract documents.
- D. Meaning of Architect's Approval: Review is only for conformance with the design concept and for compliance with the information given in the contract documents. Approval does not authorize changes involving additional cost unless stated in separate change order or letter. Contractor is not relieved of responsibility for any deviations in submittals from requirements of the contract documents. Contractor is responsible for dimensions to be confirmed and correlated at the site; for information that pertains solely to the fabrication processes or to means, methods, techniques, sequences and procedures of construction; and for coordination of the work of all trades. Approval of a specific item does not indicate approval of an assembly of which the item is a component.

# 1.14 CONTRACTOR'S ACTION ON RETURNED SUBMITTALS

- A. The Contractor shall coordinate distribution of all product data and samples for the project.
- B. The Contractor is responsible to reproduce and distribute copies of stamped returned submittals as required for this use in abatement, or in corrections for resubmittal.
- C. The Contractor is responsible to reproduce and distribute copies of stamped returned submittals as required for his use and subcontractor's use in preparing and submitting other submittals such as, close-out, maintenance manuals, etc., Refer to other sections of the specifications for requirements.

# PART 2 -- PRODUCTS

Not applicable.

PART 3 -- EXCECUTION

Not applicable.

END OF SECTION

# SECTION 014000 – QUALITY CONTROL

# PART 1 - GENERAL

- 1.01 SECTION INCLUDES
  - A. Contractor's Quality Control
  - B. Contractor's Quality Control Program
  - C. Pre-Installation Conferences
  - D. Initial and Follow-up Inspections
  - E. Mock Up
  - F. Field Samples
  - G. Manufacturer's Field Services and Reports
  - H. References
  - I. Inspection and Testing Laboratory Services
  - J. Quality Assurance and Control of Installation
  - K. Safety

### 1.02 RELATED SECTIONS

- A. Section 01040 Coordination
- B. Section 01300 Submittals
- C. Section 01700 Project Closeout

# 1.03 CONTRACTOR'S QUALITY CONTROL

A. The quality of all work shall be the responsibility of the Contractor. Sufficient inspections and tests of all items of work, including that of subcontractors, to ensure conformance to applicable specifications and drawings with respect to the quality of materials, workmanship, construction finish, functional performance, and identification shall be performed on a continuing basis. The Contractor shall furnish qualified personnel, appropriate facilities, instruments and testing devices necessary for the performance of the quality control function. The controls shall be adequate to cover all construction operations both on and off site, shall be keyed to the proposed construction sequence and shall be correlated by the Contractor's quality control personnel.

QUALITY CONTROL

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### 1.04 CONTRACTOR'S QUALITY CONTROL PROGRAM

- A. The Contractor shall submit to the Architect a copy of the proposed written quality control program prior to submission of the Contractor's first application and certificate for payment. The Contractor's written quality control plan shall include as a minimum:
  - 1. Identification of the project team for this project. Team members include, but are not necessarily limited to, the Owner's Project Manager, Architect, Mechanical Consultant, Electrical Consultant, Site Engineer, Structural Consultant, General Contractor and major subcontractors. List company name, address, contact and telephone number.
  - 2. Name and identification of the Contractor's Quality Control representative (may be the superintendent or other key contract representative). Provide a brief description of proposed duties and qualifications. The quality control representative must have the authority to make all decisions relating to quality control issues.
  - 3. General summary and mission statement outlining general procedures for implementation of the program.
  - 4. List by specification section the method of performing, documenting and enforcing quality control operations of both prime and subcontract work including proposed and required inspection and testing. Include pre-installation conferences, follow-up inspections, mockups, field samples and manufacturer's inspection, and lead safe work practices and cleaning verifications.
  - 5. The Contractor's quality control program shall be submitted and accepted prior to consideration of the Contractor's first certificate and application for payment.

### 1.05 PREINSTALLATION CONFERENCES

- A. Pre-installation conferences shall be performed prior to beginning each feature of work for any on-site construction work. Preparatory inspections for the applicable feature of work shall include: review of submittal requirements and all other contract requirements with the foreman or supervisors directly responsible for the performance of the work; check to assure that provisions have been made to provide required field control testing; examine the work area to ascertain that all preliminary work has been completed; verify all field dimensions and advise the project Architect of any discrepancies; and perform a physical examination of materials and equipment to assure that they conform to approved shop drawings or submittal data and that all materials and/or equipment are on hand; review special requirements, review shop drawings and sample construction mockups as appropriate.
- B. The Contractor shall prepare agenda, preside at conference, record minutes, and distribute copies within five (5) days after conference to participants, with copies to the Architect and Owner.

### 1.06 INITIAL AND FOLLOW UP INSPECTIONS

A. An initial inspection shall be performed as soon as a representative portion of the particular feature of the work is complete and shall include examination of the quality of workmanship as well as a review of the work for compliance with contract requirements. The initial inspection shall be performed by the Contractor's Quality Control

# QUALITY CONTROL

representative and results noted in the Contractor's daily reports. Any deviations from the contract requirements shall be brought to the immediate attention of the Architect.

### 1.07 MOCK UP

- A. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals and finishes.
- B. Where mock up is specified in individual sections to be removed, clear area after mock up has been accepted by the Architect.

### 1.08 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications sections for review.
- B. Acceptable samples represent a quality level for the work.
- C. Where field sample is specified in individual sections to be removed, clear area after field sample has been accepted by the Architect.

### 1.09 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. Submit qualifications of observer to Architect thirty (30) days in advance of required observations. Observer subject to approval of Architect and Owner.
- B. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start up of equipment, and test, adjust, and balance of equipment as applicable, and to initiate instructions when necessary.
- C. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- D. Submit report within thirty (30) days of observation to the Architect for review.

#### 1.10 REFERENCES

- A. Conform to reference standard by date of issue or current date of contract documents.
- B. Obtain copies of standards when required by contract documents.
- C. Should specified reference standards conflict with contract documents, request clarification from Architect before proceeding.
- D. The contractual relationship of the parties to the contract shall not be altered from the contract documents by mention or inference otherwise in any reference document.

# QUALITY CONTROL

### 1.11 INSPECTION AND TESTING LABORATORY SERVICES

- A. Architect will appoint, employ, and pay for services of an independent firm to perform inspection and testing, except when a specification section specifically states that testing of that work be provided for by the Contractor.
- B. The independent firm will perform inspections, tests, and other services specified in individual specification sections and as required by the Architect.
- C. Reports will be submitted by the independent firm to the Architect, in duplicate, indicating observations and results of tests and indicating compliance or noncompliance with contract documents.
- D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
  - 1. Notify Architect and independent firm forty-eight hours prior to expected time for operations requiring services.
  - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- E. Retesting required because of nonconformance to specified requirements shall be performed by the same independent firm on instructions by the Architect. Payment for retesting will be charged to the Contractor by deducting inspection or testing charges from the contract sum.

### 1.12 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply fully with manufacturer's instructions, including each step in sequence.
- C. Should manufacturer's instructions conflict with contract documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality. Work that properly should be done by skilled labor shall not be attempted with common laborers. The Contractor shall have on the job, at all times, ample equipment to carry on the work properly, including such tools as may be necessary to meet emergency requirements.

# 1.13 SAFETY

A. Contractors who perform any work under this contract will fully comply with the provisions of the Federal Occupational Safety and Health Act of 1970 and to the rules and

# QUALITY CONTROL

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regulations promulgated pursuant to this Act.

- 1. Contractor must submit a safety program to the Architect prior to starting work on the site. This program should indicate the Contractor's plan to comply with OSHA requirements for the various conditions of the project. The Contractor shall appoint a safety representative on site. The safety program and Contractor's representative names must both be posed.
- 2. The Architect will take no action on the Contractor's safety program, but will forward it to the Owner for information only. The Contractor is responsible for safety on the project site per the contract documents.
- B. Hazardous Material: In the event the Contractor encounters material on the site, reasonably believe to be asbestos or polychlorinated biphenyl (PCB) that has not been rendered harmless, the Contractor shall immediately stop work and notify the Architect and Owner. Such notification shall be documented in writing.
- C. Provide any and all measures of protection required by the applicable local municipality for the protection of the public and employees during excavation operations and at completion of work. Measures taken shall include, but not be limited to, sidewalks, barricades, warning lights and signs/ and shall comply with American Standard Safety Code and all local laws and ordinances. Maintain in good condition during operations.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION

QUALITY CONTROL
## SECTION 016000 – MATERIALS AND EQUIPMENT

#### PART 1 GENERAL

#### 1.01 SECTION INCLUDES:

- A. Related Documents
- B. Summary
- C. Definitions
- D. Submittals
- E. Quality Assurance
- F. Product Requirements and Selection Procedures

#### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to this section.

#### 1.03 SUMMARY

- A. This section specifies administrative and procedural requirements governing the Contractor's selection of products for use on the project.
- B. The Contractor's construction schedule and the schedule of submittals are included under Division 1 Section "Submittals."
- C. Standards: Refer to Division 1 Section "Reference Standards and Definitions" for applicability of industry standards to products specified.
- D. Administrative procedures for handling requests for substitutions made after award of the contract are included under Division 1 Section "Product Substitutions."

#### 1.04 DEFINITIONS

A. Definitions used in this article are not intended to change the meaning of other terms used in the contract documents, such as "specialties," "systems," "structure," "accessories," and similar terms. Such terms such are self-explanatory and have well recognized meanings in the construction industry.

### MATERIALS AND EQUIPMENT

1. "Products" are items purchased of incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.

- 2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or utilized to form a part of the Work.
- 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

## 1.05 SUBMITTALS

- A. Product List Schedule: Prepare a schedule showing products specified in a tabular form acceptable to the Architect. Include generic names of products required. Include the manufacturer's name and proprietary product names of each item listed.
  - 1. Coordinate the product list schedule with the Contractor's Construction Schedule and the Schedule of Submittals.
  - 2. Form: Prepare the product listing schedule with information of each item tabulated under the following column headings:
    - a. Related Specification Section Number.
    - b. Generic Name Used in Contract Documents.
    - c. Proprietary Name, Model Number and Similar Designations.
    - d. Manufacturer's Name and Address.
    - e. Supplier's Name and Address.
    - f. Installer's Name and Address.
    - g. Projected Delivery Date, or Time Span of Delivery Period.
  - 3. Initial Submittal: Within twenty (20) days after date of commencement of the work, submit three (3) copies of an initial product list schedule. Provide a written explanation for omissions of data, and for known variations from contract requirements.
  - 4. Architect's Action: The Architect will respond in writing to the Contractor within two weeks of receipt of the completed product list schedule. No response within this time period constitutes no objection to listed manufacturers or product, but does not constitute a waiver of the requirement that products comply with contract documents. The Architect's response will include the following:
    - a. A list of unacceptable product selections, containing a brief explanation of reasons for this action.

### 1.06 QUALITY ASSURANCE

A. Source Limitations: To the fullest extent possible, provide products of the same kind,

### MATERIALS AND EQUIPMENT

from a single source.

- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the project, the product selected shall be compatible with products previously selected products that were also options.
- C. Nameplates: Except for required labels and operating data, do not attached or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces or products which will be exposed to view in occupied spaces or on the exterior.
  - 1. Labels: Locate required product labels and stamps on a concealed surface or, where required of observation after installation, on an accessible surface that is not conspicuous.
  - 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
  - a. Name of product and manufacturer.
    - b. Model and serial number.
    - c. Capacity.
    - d. Speed.
    - e. Ratings.

# 1.07 PRODUCT REQUIREMENTS AND SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
  - 1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
  - 2. Standard products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and government regulations, not be previous project experience. Procedures governing product selection include the following:
  - 1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.
  - 2. Semi-Proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
  - 3. Non-Proprietary Specifications: When the specifications list products or manufacturers that are available and may be incorporated in the work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with contract requirements. Comply with contract document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
  - 4. Descriptive Specification Requirements: Where specifications describe a product

### MATERIALS AND EQUIPMENT

or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with contract requirements.

- 5. Performance Specification Requirements: Where specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
  - a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

### END OF SECTION

## SECTION 016310 – POST-BID PRODUCT SUBSTITUTIONS

#### PART 1 - GENERAL

#### 1.01 SECTION INCLUDES:

- A. Related Documents
- B. Summary
- C. Definition
- D. Submittals
- E. Substitution

#### 1.02 RELATED DOCUMENTS

a. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to this section.

#### 1.03 SUMMARY

- A. This section specifies administrative and procedural requirements for handling requests for substitutions made after award for the contract.
- 1. Certain materials, products or systems are specified for which no substitutions are allowed. Refer to individual specification sections for specific items.
- B. Refer to AIA Document A701 "Instructions to Bidders" for substitution requirements made prior to bid opening.
- C. The Contractor's construction schedule and the schedule of submittals are included under Division-1 Section "Submittals".
- D. Standards: Refer to Division-1 Section "Reference Standards and Definitions" for applicability of industry standards to products specified.
- E. Procedural requirements governing the Contractor's selection of products and product options are included under Division-1 Section "Materials and Equipment:

#### 1.04 DEFINITIONS

### POST-BID PRODUCT SUBSTITUTIONS

- A. Definitions used in the article are not intended to change or modify the meaning of other terms used in the contract documents.
- B. Substitutions: Requests for changes in product, materials, equipment, and methods of constructing required by Contract Documents proposed by the Contractor after award of the contract are considered requests for post-bid product substitutions. The following are NOT considered substitutions:
  - 1. Substitutions requested by Bidders during the bidding period, and accepted prior to award of contract, are considered as included in the contract documents and are not subject to requirements specified in this section for post-bid substitutions.
  - 2. Revisions to contract documents requested by the Owner or Architect.
  - 3. Specified options of products and construction methods included in Contract Documents.
  - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

## 1.05 SUBMITTALS

- A. Post Bid Substitution Request Submittal: Only one request for post bid substitution will be considered for each product.
  - 1. Submit three (3) copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures stated herein. Use form depicted at end of this section. Contractor is responsible for reproduction of forms.
  - Identify the product, or the fabrication or installation method to be replaced in each request. Include related specification section and drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
    - a. Product data, including drawings and descriptions of products, fabrication and installation procedures.
    - b. Samples, where applicable or requested.
    - c. A detailed comparison of significant qualities of the proposed substitution with those of the work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect. Units of weights and measure shall be the same as used in the contract documents.
    - d. Coordination information, including a list of changes or modifications needed to other parts of the work and to construction performed by the Owner and separate Contractors that will become necessary to accommodate the proposed substitution.
    - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall contract time.
    - f. Cost information, including a proposal of the net change, if any, in the Contract Sum.

POST-BID PRODUCT SUBSTITUTIONS

- g. Certification by the Contractor that the substitution proposed is equal to or better in every significant respect to that required by the contract documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
- 3. Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within two weeks of the receipt of the request, or one week of the receipt of the additional information or documentation, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name.

## PART 2 -- PRODUCTS

# 2.01 SUBSTITUTIONS

- A. Conditions: The Contractor's post bid substitution request will be received and considered by the Architect when all of the following conditions 1, 2 and 3 and one or more of the following conditions 4, 5, 6, 7, 8 and 9 are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.
  - 1. Extensive revisions to contract documents are not required.
  - 2. Proposed changes are in keeping with the general intent of contract documents.
  - 3. The request is timely, fully documented and properly submitted.
  - 4. The specified product or method of construction cannot be provided within the contract time.
  - 5. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  - 6. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
  - 7. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
  - 8. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
  - 9. The specified product or method of construction cannot provide a warrant required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warrant.

POST-BID PRODUCT SUBSTITUTIONS

Shawnee Mission District Lighting Upgrades 2021

B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or sample that related to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION

POST-BID PRODUCT SUBSTITUTIONS

# POST-BID SUBSTITUTION REQUEST FORM

ONE ITEM PER FORM FILL IN ALL BLANKS

Project:\_\_\_\_\_

Date:\_\_\_\_\_

We hereby submit for your review the following post-bid substitution for the following specified material for the above project.

Section Page Paragraph

Specified Material

PROPOSED POST-BID SUBSTITUTION:

Attach complete technical data, including laboratory tests, if applicable. Include complete information on changes to drawings and/or specifications which proposed substitution will require for its proper installation.

A. Does the substitution effect dimensions shown on drawings in any way?

- B. Will the undersigned pay for any changes to the building design, including engineering and detailing costs caused by the requested substitution?
- C. What effect does substitution have on schedule or other trades?
- D. What effect does substitution have on cost?

E. Differences between proposed substitution and specified items are: Same \_\_\_\_\_ Different (Explain)

F. Contractor represents that he has investigated the proposed product and determined that it meets or exceeds the quality of the specified product.

POST-BID PRODUCT SUBSTITUTIONS

Shawnee Mission District Lighting Upgrades 2021

SUBMITTED BY:	Accepted Not Accepted	Accepted as Noted Received Too Late
(Firm)		
(Address)	(Ву)	(Date)
(Telephone)	(Remarks)	
(Signature)		

POST-BID PRODUCT SUBSTITUTIONS

# SECTION 017000 - PROJECT CLOSEOUT

### PART 1 GENERAL

- 1.01 SECTION INCLUDES:
  - A. Related documents.
  - B. Summary.
  - C. Completion of a building and/or phase.
  - D. Final completion and final payment.
  - E. Record document submittals.
  - F. Starting systems.
  - G. Operating and maintenance instructions.
  - H. Final cleaning.

## 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to this section.
- B. Refer to Section 01020 for Final Lien Waiver.

#### 1.03 SUMMARY

- A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:
  - 1. Inspection procedures.
  - 2. Project record document submittal.
  - 3. Operating and maintenance manual submittal.
  - 4. Submittal of warranties.
  - 5. Final cleaning.
- B. Closeout requirements for specific construction activities are included in the appropriate Divisions.

#### PROJECT CLOSEOUT

C. Refer to Division-1 Section "Warranties and Bonds" for specific requirements.

### 1.04 SUBSTANTIAL COMPLETION

- A. Substantial Completion:
  - 1. The Contractor and each Subcontractor shall carefully and regularly check their work for conformance with the contract documents as the Work is being done. Unsatisfactory work shall be corrected as the Work progresses and not be permitted to remain and become a part of the punch list.
  - 2. The Contractor shall conduct a pre-punch list inspection. The written pre-punch list shall be distributed to affected subcontractors, for correction of noted items. The Contractor shall provide a copy of the pre-punchlist inspection and advise the Architect of the correction of the pre-punch list. This notification shall so serve to notify the Architect that the work is ready for the Architect's punch list inspection.
  - 3. The Architect shall make arrangements for his punch list inspection at the earliest possible date following Contractor notification of correction of the pre-punch list. Transmittal of the Punch List to the Contractor shall set the date for a reinspection prior to issuance of a Certificate of Substantial Completion. Upon receipt of the Punch List, the Contractor shall, within seven (7) days, bring to the attention of the Architect, in writing, any questions that he or any of his subcontractors may have concerning the requirements of the Punch List.
  - 4. When advised by the Contractor that the Punch List items have been completed, the Architect shall conduct a reinspection with the Contractor and any needed subcontractors (and the Owner's representative where applicable) to determine whether the Certificate of Substantial Completion can be issued. A Certificate of Substantial Completion will only be issued after codes administration authorities document approval and permit occupancy of the building or phase. Also note Paragraph 12 of this section.
  - 5. When issued, the Certificate of Substantial Completion shall name the date, triggering the beginning of the warranty period (with any items to have a later starting date specifically noted). The certificate shall also have attached to it any uncompleted Punch List items, and shall name the date for their final completion. The Certificate of Substantial Completion shall also state the responsibilities of the Owner and the Contractor for maintenance, heat, air conditioning, utilities, insurance and building security.
  - 6. Acknowledgement of the date of substantial completion by the signature of all parties on the certificate implies possession of the premises by the Owner. The subsequent completion of incomplete punch list items by the Contractor and the subcontractors shall occur at the Owner's convenience. The Owner shall cooperate in permitting the Contractor reasonable access to the work for the completion of punch list items.
  - 7. A Certificate of Substantial Completion for the work, or portion of work as applicable, will only be issued after the requirements for the demonstration and instruction of operation and maintenance procedures as defined elsewhere by the Contract Documents, to the Owner's personnel have been satisfied by the Contractor.
  - 8. A list of items required for submission at Substantial Completion is listed at the end of this section. This list may include specific maintenance agreements,

PROJECT CLOSEOUT

maintenance manuals, tools, keys, spare parts, extra stock materials, operational instruction to Owner's operating personnel, etc. Any items not here-in specifically listed as required at Substantial Completion shall be submitted at Final Completion.

- 9. Substantial Completion Cleaning: At Substantial Completion for each project or portion of the project, clean the entire work area to a level acceptable to the Owner, for finish cleaning by the Owner's custodial personnel. Remove non-permanent protection and labels, polish glass, clean exposed finishes, touch-up minor finish damage, clean or replace filters of mechanical systems. remove debris and broom clean non-occupied spaces, sanitize plumbing/food service facilities, clean light fixtures and replace burned out/dimmed lamps, sweep and wash paved areas, police yards and grounds. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces. Mop VCT or seamless floor surfaces clean. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
- The Contractor shall furnish a single report 10. Lead Safe Project Report: documenting compliance with recordkeeping and reporting of requirements of 40 CFR Part 745.85 including documentation that a certified renovator was assigned to the project, that the certified renovator provided on-the-job training for workers used on the project, that the certified renovator performed or directed workers who performed all of the tasks described in Part 745.85, and that the certified renovator performed the post-renovation cleaning verification described in Part 745.85. If the renovation firm was unable to comply with all of the requirements of this rule due to an emergency as defined in Part 745.82, the Contractor shall document the nature of the emergency and the provisions of the rule that were This documentation must include a copy of the certified not followed. renovator's training certificate, and a certification by the certified renovator assigned to that project that:
  - a. Training was provided to workers (topics must be identified for each worker).
  - b. Pre-renovation education and hazard communication was performed before and updated during the project.
  - c. Warning signs were posted at the entrances to the work area.

PROJECT CLOSEOUT

(6) Covering the floor surface, including installed carpet, with taped-down plastic sheeting or other impermeable material in the work area 6 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to contain the dust, whichever is greater (interiors) or covering the ground with plastic sheeting or other disposable impermeable material anchored to the building extending 10 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents 10 feet of such ground covering, weighted down by heavy objects (exteriors).

(7) Installing (if necessary) vertical containment to prevent migration of dust and debris to adjacent property (exteriors).

- e. Waste was contained on-site and while being transported off-site.
- f. The work area was properly cleaned after the renovation by:
  - (1) Picking up all chips and debris, misting protective sheeting, folding in dirty side inward, and taping it for removal.
  - (2) Cleaning the work area surfaces and objects using a HEPA vacuum and/or wet clothes or mops (interiors).

g. The certified renovator performed the post-renovation cleaning verification (the results of which must be briefly described, including the number of wet and dry cloths used).

- 12. The Owner has contracted with the Architect/Engineer to perform a limited number of punchlist inspections and reinspections. Typically, the Architect/Engineer is responsible for the initial punchlist inspection and one reinspection. If the Owner incurs additional cost from the Architect/Engineer for the performance of more than one initial punchlist inspection and one reinspection, costs for any necessary additional reinspection will be assessed to the Contractor in the way of a deductive cost change order.
- B. Final Completion:
  - 1. Submit executed warranties, workmanship bonds, remaining maintenance agreements, inspection certificates and similar required documentation for specific units of work, enabling Owner's unrestricted occupancy and use.
  - 2. Submit maintenance manuals, tools, keys, spare parts, extra stock materials not required at substantial completion.
  - 3. Complete instruction of Owner's operating personnel with start up of all systems, not previously required at substantial completion.
  - 4. Complete final cleaning and remove temporary facilities.

a. Final Cleaning: At closeout time of each building, or applicable portion, reclean the work affected by punch list corrections. Remove non-permanent protection, polish glass, clean exposed finishes, touch-up minor finish damage, remove debris and broom clean non-occupied spaces, sanitize plumbing/food service facilities, clean light fixtures, sweep and wash paved areas, police yards and grounds, and perform similar clean up operations needed to produce a "clean" condition as judged by Architect and Owner.

5. All punch list work must be completed, reviewed and accepted by the Architect.

# PROJECT CLOSEOUT

#### 1.05 FINAL COMPLETION AND FINAL PAYMENT

- A. Provide submittals to Architect that are required by governing or other authorities. Confirm that all submittals required by the construction documents have been transmitted.
- B. Final Completion: For the purpose of determining a date at which the project is finished, final completion may be defined to include, but is not limited to:
  - 1. Substantial completion.
  - 2. Submission and acceptance by the Architect of project record drawings.
  - 3. Operation and maintenance data (including all air and water balance reports).
  - 4. All applicable Owner training sessions with meeting notes distributed (video tapes, if applicable).
  - 5. Final cleaning.
  - 6. Adjusting (hardware, HVAC, etc.)
  - 7. Warranties submitted by General Contractor and accepted by Architect.
  - 8. Spare parts and maintenance materials turned over to proper District personnel.
  - 9. All Punch List work completed, reviewed and accepted by the Architect.

a. All of the above items are as required by individual specification requirements as found in the contract documents. These individual requirements shall take precedence over this definition if any conflict should arise.

C. Upon written notice by the Contractor that the reinspection punch list items are completed, the Architect shall verify this by inspection and shall issue to the Owner a final certificate of payment stating that, to the best of their knowledge, information and belief, the work has been completed in accordance with the terms and conditions of the contract documents, and that the entire balance found to be due the Contractor, and noted in said final certificate of payment, is due and payable. The Owner shall endeavor to make final payment within thirty (30) days.

#### 1.06 RECORD DOCUMENT SUBMITTAL

- A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.
  - 2. For work concealed in the building, sufficient information shall be given so it can be located with reasonable accuracy and ease. In some cases this may be by dimension; in others, it may be sufficient to illustrate the work on the drawings in relation to the spaces in the building near which it was actually installed. Architect's decision in this matter shall be final.
  - 3. Blue- or black-line record drawings shall be kept up to date during the entire course of the work and shall be available upon request for examination by the Architect.

PROJECT CLOSEOUT

- 4. The following requirements apply to all record document drawings:
  - a. They shall be maintained at the Contractor's expense.
  - b. All such drawings shall be done carefully and neatly by a competent draftsperson and in an approved form.
  - c. Additional drawings shall be provided as necessary for clarification.
  - d. Delete Architect title block and seal from record document drawings.
- C. Record Manual: Reference lighting specification for specific requirements.

### PART 2 – PRODUCTS (NOT APPLICABLE)

#### PART 3 -- EXECUTION

#### 3.01 STARTING SYSTEMS

- A. Coordinate schedule of start up of various equipment and systems.
- B. Notify Architect and Owner seven (7) days prior to start up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions that may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start up under supervision of responsible manufacturer's representative (Contractor's personnel) in accordance with manufacturer's instructions.
- G. When specified in individual specification sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start up, and to supervise placing equipment or system in operation.
- H. Submit a written report in accordance with Section 01400 that equipment or system has been properly installed and is functioning correctly.

#### 3.02 OPERATING AND MAINTENANCE INSTRUCTIONS

A. General: Arrange for each Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance, if applicable. If Installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

#### PROJECT CLOSEOUT

- 1. Maintenance manuals.
- 2. Record documents.
- 3. Spare parts and materials.
- 7. Identification systems.
- 8. Control sequences.
- 10. Cleaning.
- 11. Warranties and bonds.
- 12. Maintenance agreements and similar continuing commitments.
- B. As part of instruction for operating equipment, demonstrate the following procedures:
  - 1. Start up.
  - 2. Shutdown.
  - 6. Economy and efficiency adjustments.
  - 7. Effective energy utilization.

# END OF SECTION

SECTION 017110 - CLEANING

#### PART 1 - GENERAL

- 1.01 SECTION INCLUDES
  - A. Description
  - B. Disposal Requirements
  - C. Materials
  - D. During Construction
  - E. Dust Control
  - F. Final Cleaning

#### 1.02 DESCRIPTION

A. Contractor will be responsible to execute daily cleaning, during progress of the Work and at completion of the Work, as required by General Conditions. The Contractor is to daily, broom clean debris and remove all refuse, rubbish, scrap material caused by his operation. The Contractor shall remove all excess spoils.

#### 1.03 CLEANING AND DISPOSAL REQUIREMENTS

A. Conduct cleaning and disposal operations to comply with Scope of Work Section 01710 Construction Housekeeping, codes, ordinances, regulations, and anti-pollution laws.

#### 1.04 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by the manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

#### 1.05 DURING CONSTRUCTION

A. Contractor at all times shall keep the premises free from accumulation of waste materials

### CLEANING

or rubbish caused by his operations or his subcontractor's operations and ensure that building and grounds are maintained free from accumulations of waste materials and rubbish. Do not allow waste materials, rubbish and debris to accumulate and become an unsightly or hazardous condition.

- B. Transport waste materials in a controlled manner with as few handling as possible; do not drop or throw materials from heights. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces. Sprinkle dusty debris with water.
- C. Burning or burying of rubbish and waste materials on the project site is not permitted. Disposal of volatile fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer systems is not permitted. Remove waste materials, rubbish and debris from the site and legally dispose of at public or private dumping areas off the Owner's property.

#### 1.06 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and/or other applicable work, and continue cleaning on as as-needed basis until such work is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.
- C. Broom clean interior building areas when ready to receive finish painting and/or other applicable work, and continue cleaning on as-need basis until building is ready for acceptance or occupancy.

## 1.07 FINAL CLEANING

- A. At completion of construction and just prior to acceptance or occupancy, the Contractor will conduct a final inspection of exposed interior and exterior surfaces. Perform final cleaning and maintain cleaning until building or portion thereof, is accepted by Owner.
- B. Remove paint spots and smears from all surfaces, clean all fixtures and wash or vacuum all floors; leaving work in a clean and spotless condition.
- C. Remove all waste materials and rubbish from and about the Project as well as all tools, construction equipment, machinery and surplus materials.
- D. Use experienced workmen or professional cleaners for final cleaning.
- E. Comply with cleaning instructions contained in the Specifications. In absence of specific cleaning instructions, follow accepted cleaning practices or the recommendations of the manufacturer of the material to be cleaned.

### END OF SECTION

CLEANING

## SECTION 017320 – SELECTIVE DEMOLITION

### PART 1 - GENERAL

## 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Related Sections include the following:
  - 1. Division 1 Section "Summary of Work" for use of the premises and phasing requirement.
  - 2. Division 1 Section "Construction Facilities and Temporary Controls" for temporary construction and environmental-protection measures for selective demolition operations.
  - 3. Division 1 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations.

#### 1.03 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### 1.04 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

B. Specific items may be identified for salvage and turn-over to the Owner at the completion of the project. Any items so identified, are the property of the Owner but shall be protected and maintained by the Contractor for the duration of the construction project. Carefully remove and salvage each item or object in a manner to prevent damage, and protect such items in a secure location for prompt delivery to the Owner at the conclusion of the project.

### 1.05 SUBMITTALS

- A. Qualification Data: For firms and person specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Proposed Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
- C. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services.
  - 3. Coordination for shutoff, capping and continuation of utility services.
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- E. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

#### 1.06 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI A10.6 and NFPA 241.
- C. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Review methods and procedures related to selective demolition including, but not limited to, the following:
  - 1. Inspect and discuss condition of construction to be selectively demolished.

- 2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
- 3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

## 1.07 PROJECT CONDITIONS

- A. Owner will occupy portions of the site/building in and around the demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Maintain access to existing access ways other occupied or used facilities.
  - 1. Do not close or obstruct access way, or other occupied or used facilities without written permission from authorities having jurisdiction.
- C. Owner assumes no responsibility for condition of areas to be selectively demolished.
  - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- D. Hazardous Materials: It is not expected that hazardous materials, other than lead bearing materials, will be encountered during the work.
  - 1. Hazardous materials will be removed by Owner before start of the Work, except lead based paints and coatings.
  - 2. If other non-lead containing materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Not-lead bearing hazardous materials will be removed by Owner under a separate contract.
  - 3. The Contractor shall be fully and solely responsible for work involving lead bearing materials.
- E. Storage or sale of removed items or materials on-site will not be permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire protection facilities in service during selective demolition operations.

#### PART 2 – PRODUCTS

A. Use repair materials identical to existing materials.

- 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
- 2. Use materials whose installed performance equals or surpasses that of existing materials.
- B. Comply with material and installed requirements specified

### PART 3 -- EXECUTION

#### 3.01 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

#### 3.02 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
  - 1. Provide at least 72 hours (3 working days) notice to Owner if shutdown of service is required during changeover.
- C. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
  - 1. Owner will arrange to shut off indicated utilities when requested by Contractor.
  - 2. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of the building.

3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

#### 3.03 PREPARATION

A. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.

#### 3.04 POLLUTION CONTROLS

- A. Dust Control: Use suitable methods to limit spread of dust and dirt. Comply with governing environmental protection regulations.
  - 1. Do not use water when it may create hazardous or objectionable conditions, such as ice, flooding, and pollution.
- B. Disposal: Remove and transport debris in a manner that will prevent damage to adjacent surfaces and areas.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

#### 3.05 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically.
  - 2. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces.
  - 3. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire suppression devices during flame-cutting operations.
  - 4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off site.
  - 5. Dispose of demolished items and materials promptly.
  - 6. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Comply with Owner's requirements for using and protecting walkways, driveways, entries, and other facilities during selective demolition operations.
- C. Removed and Salvaged Items: Comply with the following:
  - 1. Clean salvaged items.

- 2. Pack or crate items after cleaning. Identify contents of containers.
- 3. Store items in a secure area until delivery to Owner.
- 4. Transport items to Owner's storage area designated by Owner.
- 5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items: Comply with the following:
  - 1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
  - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  - 3. Protect items from damage during transport and storage.
  - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.
- F. Existing Items to be Abandoned in Place: Fill underground piping systems to be abandoned with sand as required to prevent future collapse.

#### 3.06 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Division 1 Section "Cutting and Patching".

#### 3.07 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

#### END OF SECTION

### SECTION 017400 – WARRANTIES AND BONDS

#### PART 1 - GENERAL

- 1.01 SECTION INCLUDES:
  - A. Related Documents
  - B. Summary
  - C. Definitions
  - D. Warranty Requirements
  - E. Submittals

#### 1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to this section.

#### 1.03 SUMMARY

- A. This section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.
  - 1. Refer to the general conditions of the contract for construction of terms of Contractor's warranty of workmanship and materials.
  - 2. General closeout requirements are included in Division-1, Section "Project Closeout".
  - 3. Specific requirements for warranties for the work and products and installations that are specified to be warranted, are included in the individual sections of Divisions-2 through 32.
  - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporated the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.
- 1.04 DEFINITIONS

### WARRANTIES AND BONDS

- A. Standard product warranties are reprinted written warranties published by individual manufacturers for particular product and are specifically endorsed by the manufacturer to the Owner.
- B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

#### 1.05 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and has been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

#### 1.06 SUBMITTAL

- A. Submit written warranties to the Architect prior to the date certified for Substantial Completion If the Architect's certificate of substantial completion designates a commencement date for warranties other than the date of Substantial Completion of the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
  - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen (15) days of completion of that designated portion of the Work.

WARRANTIES AND BONDS

- 2. In all other instances, warranty periods will not begin prior to Substantial Completion, regardless of equipment use prior to dates of Substantial Completion.
- B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.
  - 1. Refer to individual sections of Divisions-2 through 16 for specific content requirements, and particular requirements of submittal of special warranties.
- C. Form of Submittal: At final completion, compile two copies of each required warranty and bond properly executed by the Contractor, or the Contractor, subcontractor, supplier or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the project manual.
- D. Bind warranties and bonds in heavy-duty, commercial quality, durable three-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 81/2" x 11" paper.
  - 1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
  - 2. Identify each binder on the front and the spine with the typed or printed title WARRANTIES AND BONDS", the project title or name, and the name of the Contractor.
  - 3. When operating and maintenance manuals are required for warranted constitution, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION

WARRANTIES AND BONDS

## SECTION 116100 - THEATRICAL LIGHTING EQUIPMENT

PART 1 GENERAL

#### 1.01 REQUIREMENTS

A. As set forth in the headings of Division 0 and Division 1, General Conditions and General Requirements shall apply to this branch of the Work.

#### 1.02 SUMMARY

- A. This section includes the fabrication, furnishing, delivery and installation of the following stage equipment:
  - 1. Stage Lighting System and Instrument Product Information.
  - 2. Dimming and Switching.
  - 3. Lighting Control Console Upgrades and Accessories.
  - 4. Architectural Control.
  - 5. Theatrical Control Network.
  - 6. Lighting Instruments.
  - 7. Distribution Equipment.
  - 8. Demolition.

## 1.03 SUBMITTALS

- A. Comply with the requirements of Shawnee Mission School District and Section 013000.
- B. Product Data: Submit manufacturer's material specifications with quantities on bill of materials and installation instructions. Include instruction for handling, storage, protection, and maintenance.
- C. Shop Drawings: Show system layouts, construction methods, equipment and types, locations and materials.
- D. Submittals: Show system layouts, equipment, and complete bill of materials. Cut sheets will not be considered submittals and will be returned unread.
- E. Samples: If requested, submit samples of any equipment, hardware, light fixtures or controls.

## 1.04 QUALITY ASSURANCE

- A. Theatrical Contractor: All items of work included in this specification shall be furnished and installed by experienced stage technicians in the employ of a single contractor so that there will be no division of responsibility for the proper operation of the equipment after installation.
  - 1. Each Theatrical Contractor must furnish a written listing of at least five installations that are equal to or surpass the scope of this project and that have been installed within the last five years.
- B. If products are known to be discontinued within a year of system turn on, or are introduced with technology advances, new software, product upgrades, or replaced with newer models, it is the responsibility of the manufacture to make these conditions know to the owner and consultant.

Any equipment substitutions will be at the discretion of the owner and consultant and must be approved in writing by the owner and consultant before the substitution will be allowed.

#### 1.05 DELIVERY, STORAGE AND HANDLING

- A. Coordinate storage of all equipment, hardware, and accessories with the owner and other contractors to assure that storage does not inhibit work by other trades or disrupt school activity.
- B. The theatrical contractor shall be responsible for the handling of all equipment, hardware and accessories, including unloading and transport to the designated storage area.
- C. Deliver all lighting components, electrical equipment and their accessories to the job site no sooner than two weeks prior to their installation in order to limit possible damage to the equipment while being stored.
  - 1. Deliver materials in manufacturer's original undamaged containers with identification labels intact.
  - 2. Remove packaging materials from site and dispose of at appropriate recycling facilities.
- D. Electrical distribution boxes and hardware shall be laid flat and blocked clear of the floor, in a manner to prevent damage while being stored.

#### 1.06 SCOPE

A. The theatre lighting contractor will be responsible for all demo and equipment removal required in this project, and for all of the new equipment outlined in this specification and accompanying drawings. The intention of the specification and drawings is to furnish and install complete and safely operating theatrical and architectural lighting systems with all components, both existing and new, that conform to building conditions in the Shawnee Mission School District. The theatrical contractor is required to provide a licensed electrical contractor and shall include their bid with the theatrical bid.

#### PART 2 PRODUCTS

#### 2.01 STAGE LIGHTING SYSTEM AND INSTRUMENT PRODUCT INFORMATION

- A. Furnish and install all dimming and controls, distribution, and lighting equipment as indicated in the bill of materials. The installation will conform to the National Electric Code.
- B. The Theatrical Contractor shall have the manufacturer of the stage light control and dimmer system arrange to have an engineering representative on the job site after the installation has been complete and prior to energizing of the system to test and adjust the system and further to instruct persons designated by the Owner in the operation and maintenance of the system. The manufacturer shall furnish such engineering service within 14 days of the request.
- C. Acceptable manufactures of Auditorium Dimming equipment
  - 1. Electronic Theatre Controls, Sensor 3 Control Modules (as noted)
  - 2. Strand Lighting, C21 Control Modules (as noted)
  - 2. No substitutions will be accepted.
- D. Acceptable manufacturers of Architectural Control Equipment

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- 1. Electronic Theatre Controls, Unison Paradigm.
- 2. Electronic Theatre Controls, Echo.
- 3. No substitutions will be accepted.
- E. Acceptable manufactures of Auditorium Control equipment:
  - 1. Electronic Theatre Controls, Element 2.
  - 2. No substitutions will be accepted.
- F. Acceptable manufactures of Theatrical Lighting Fixtures:
  - 1. LED Ellipsoidal Spotlights.
    - a. Electronic Theatre Controls, Source 4 LED, Series 2, Luster.
  - 2. LED wash luminaires.
    - a. Electronic Theatre Controls, ColorSource PAR, Deep Blue Array.
  - 3. LED Flood Lights (works).
    - a. Altman LED Worklight.
  - 4. LED Cyclorama Lighting.
    - a. Electronic Theatre Controls, ColorSource Cyc
- G. Requests for substitution of other components shall include pertinent performance data; charts and drawings showing in what respect the system will function in accordance with the specifications. This information shall be mandatory as a basis for determining the intent in meeting the full requirements of the specification including time schedule.
  - 1. No substitutions will be accepted for dimming, switching, fixtures, or control.
- H. If required by the Owner, provide working samples of substitute equipment, including lamps for any lighting fixtures, to be delivered as requested for the examination by the Consultant.
  Handling, shipping, delivery or removal of the samples shall be at the cost of the manufacturer.
  Substitutions will be accepted only by written addendum prior to the bid date.
- I. It shall be understood that the cost of any additions or revisions of wiring required by the use of substitute equipment shall be the responsibility of the bidder making the substitution.

#### 2.02 DIMMING AND SWITCHING

- A. ETC Dimming Systems
  - 1. Power Control Electronics.
    - a. General.
      - The dimmer rack electronics shall be contained in one plug-in CEM3 Power Controller. Each power controller shall plug into a dimming cabinet with no need for tools or discrete wire connections. A simple user interface shall be provided for group configuration, testing and diagnostics. Power control shall be UL/cUL Listed and CE Marked. Power and dimming control that require tools for removal of control electronics shall not be acceptable.
    - b. Physical.
      - 1) The control electronics shall be contained in one plug-in module, housed in a formed steel body with cast-aluminum face panel, and self-retaining ejection handles to ease removal from the rack.
      - 2) The power control shall automatically compensate for frequency variations during operation.
    - c. Power control Interface.

- 1) A backlit eight-line by 20-character graphical LCD shall be provided for system configuration, live control, and status display.
- 2) The following functional features shall be available in power control to reduce setup and tech times:
  - Full number pad shall be provided for quick access to dimmers. Power Control that does not provide 0-9 number pad and logic keys for AND, THRU, and AT for fast access, selection, and control of circuit/dimmer numbers shall not be acceptable.
  - b) Power control shall provide NEXT and LAST buttons to progress through circuits/dimmers during dimmer check operations such that only a single circuit is brought on to a level at a time during pre-show lighting checks for lamp burnouts.
  - c) Shortcut buttons for Setup, About, and live control shall be provided separation of functionality such that a user intending to check status or settings does not accidentally render their system unusable. These buttons shall also serve to reduce maximum time to access any feature or setting on a single dimmer, range of dimmers, or entire rack.
- 3) The front panel shall have five status LED indicators: power, network activity, DMX A, DMX B, and panic state.
- 4) Power control that does not include the above buttons and features shall not be acceptable.
- d. Control Signal and Communications.
  - 1) The power control shall be provided with an Ethernet control signal input. This input shall be fully configurable with a range of patching and priority programming capabilities. The Ethernet signal shall supply seamless integration between the dimmer racks and both the entertainment and architectural lighting control systems. The Ethernet signal shall also enable remote configuration, playback, file storage and monitoring features on a personal computer on the network. Dimming systems that require Ethernet to DMX translation devices for control of critical show lighting introduce a potential failure point and shall not be acceptable.
  - 2) All data and power input for CEM3 control electronics shall be located on a separately removable/pluggable termination connector on the backplane such that backplane can be replaced without removal and discrete secondary conductor terminations. Systems that do not support tool-less or that require removal of wires connected directly to the control electronics shall not be acceptable.
  - 3) DMX connections shall be available with option for pluggable screw or punch-down type terminal. Systems that do not allow this option do not support both DMX over CAT5 and multi-strand conductors shall not be acceptable.
  - 4) Ethernet connection shall be available via standard Cat5 RJ45 connection. System requiring punch down direct to rack or controller cannot be Cat5 system certified and shall not be acceptable.
  - 5) Dimming systems that require discrete termination of DMX, Ethernet, power input, and dimmer control output directly on terminals on the power control or pluggable backplane shall not be acceptable.
  - 6) The following options shall be available to backup all controller setup UL924 Panic configuration, and recorded presets:
    - a) Automatic backup in non-volatile backplane memory.
    - b) Automatic backup in non-volatile Controller memory.
    - c) 3<sup>rd</sup> party FTP server.
    - d) USB storage device pluggable on the controller face panel.
    - e) Data shall also be transferable to and from library storage on a personal computer on a per-rack basis.

- 7) The power controller shall directly support the following network protocols:a) Net3 protocol suite including ANSI E1.31 Streaming ACN (sACN).
  - b) ANSI E1.17 Architecture for Control Networks (ACN).
- 8) The power control shall directly support 2 optically isolated ports of ANSI E1.11 USITT DMX512-A for control input. Minimum 2,500V of optical isolation shall be provided between the DMX512 inputs and the electronics. Systems that do not have optical isolation on a prewired factory plug-in device shall not be acceptable.
- Systems that do not support the above listed industry standard ACN protocols for Ethernet setup, control, and feedback integrated directly between the power system and control system shall not be deemed acceptable.
- e. Power Control Features.
  - Power Control shall have a dimmer update rate better than 16ms (60HZ) or 20 ms (50 Hz) average. Dimmer outputs shall exhibit no oscillating or hunting for levels. Dimmers with the same choke type set to the same level shall output within ±1V of each other, regardless of phase or input voltage.
  - 2) Power control shall maintain proper dimming performance for all line feed frequencies from 47-53Hz and 57-63Hz without flicker or misfire. Shifts in frequencies up to 3 Hz shall not result in flicker or loss of dimming timing. Systems that cannot perform to these frequency tolerances and shifts shall not be acceptable.
  - 3) Dimmer output levels shall be regulated for incoming line voltages. The regulation shall adjust for both RMS voltage changes and deformations in the incoming AC waveform. The power control shall monitor and adjust each dimmer's output to maintain a constant power to the load. Regulation shall maintain the desired output voltage ±1V for the entire operating range (91-139V and 181-259 VACS) with the exception that the maximum output will be no greater than the line voltage minus dimmer insulation loss. The regulation shall compensate for dips and anomalies in the AC waveform on a dimmer-by-dimmer basis. There shall be no interaction between dimmers in the system or any other equipment. The output shall be nominally regulated to 115V/230V appropriate for the market, but shall be field adjustable on a dimmer-by-dimmer basis to allow for varying cable length. Systems that cannot maintain perform to the above stated voltage regulation shall not be acceptable.
  - 4) Power control shall support a rack filled with different types and sizes of dimmer modules. The properties of each dimmer shall be configurable, including dimmer name, output curve, dimmer firing mode, and scale voltage values.
    - a) The output curve selections shall include IES Modified Square, Square, Linear, Modified Linear and a Sensor v2.0 output curve. The power control shall also have the capability of storing up to three custom curves as well as an adjustable preheat level, assignable on a per-dimmer basis.
    - b) The dimmer firing modes shall include: Normal (Dimmed), Dimmer Doubled, Switched (unregulated on/off with adjustable on-at level), Fluorescent with adjustable threshold, and Off.
    - c) Dimmers set as Dimmer Doubled shall allow a single dimmer to set two different levels on one dimmer circuit by splitting the AC power into positive and negative half cycles with no resultant DC line current.
    - d) Power Control that does not support all above listed adjustments to dimmers on a per circuit basis shall not be deemed acceptable.
  - 5) Controller shall support 2 methods of automatic configuration during controller replacement in a rack.

- a) Use backplane configuration- The backplane shall retain full setup and preset data in. In this recovery mode, when a new power control is inserted, the controller shall automatically come on-line fully functional without any manual intervention.
- b) Use controller configuration- override backplane configuration such that replacement modules automatically use the configuration resident in nonvolatile memory of the power control.
- 6) Controller shall be capable of changing rack setup for multiple shows for an entire system with a single update command from a remote PC. Show setup shall be saved in XML format and capable of being saved/uploaded from both USB and remote PC.
- 7) In the event of data loss each rack shall maintain the last level for a user programmable time of zero to five minutes or indefinitely, or may be programmed to fade out or to play a specific preset. Systems that do not offer this feature shall not be acceptable.
- 8) The power control shall contain diagnostic routines to allow the user to test and troubleshoot the system. The power control shall also contain a Test/Bypass switch to turn all dimmers on to full for testing. This switch shall bypass all electronics and shall force the fan on. Systems that do not include local control, "all on" control bypass, and diagnostic routines shall not be deemed acceptable.
- 9) The power control shall be able to record up to 64 presets in a rack. Presets shall be user programmable by recording a snapshot of current dimmer levels (as set by the all control sources), by entering dimmer levels on the power control directly, or a combination of both methods. The system shall have the ability to program and activate group-wide presets from the power control, remote station, console, networked computer, or handheld device. Presets shall be activated in the default fade time of 2 seconds, but shall be have a user-programmable fade time between 0 and 60 minutes.
- 10) A system-wide panic (emergency UL924) activation circuit shall be provided. Any dimmer in any rack may be assigned to the panic circuit. The panic shall be set a maintained closure. Upon activation the system shall
  - a) Force all circuits selected to be included in panic to a master level between 80 100%.
  - b) Optionally force all non-panic dimmers to zero.
  - c) Provide configurable fade time to and from "emergency" state.
  - d) Provide configurable delay to and from "emergency" state.
- 11) DMX A and B as well as the Ethernet DMX (EDMX) data may be patched using a rack start address - assigned sequentially from a starting control channel or patched individually on a per-dimmer basis. Priority may be set per universe for the DMX inputs, and set per universe by the control source for Ethernet input. Each dimmer may have up to six network control inputs with either a highest takes precedence or priority patch. Each dimmer may also then be assigned to one of 16 spaces for additional specific preset control. Each preset shall have a separate priority for maximum flexibility of prioritization. Systems that do not support prioritization of multiple Ethernet sources beyond HTP shall not be deemed acceptable. Systems that do not support the above listed flexibility in control source prioritization shall not be deemed acceptable.
- 12) Power control shall provide the ability to set a single circuit, all circuits or a range of circuits to a level at the control interface in the rack. Systems that cannot locally control dimmers through local control override shall not be acceptable.
- 13) The power control shall be capable of monitoring and displaying incoming line voltage for all three phases on the LCD. With installed current sensors, the same display shall show amperage on each phase.

- 14) The power control shall support security protected access. The user shall to able to program passwords that restrict access, preventing unauthorized use of higher-level functions by unauthorized personnel. Systems that do not provide security protected access to features that can render the system unusable shall not be acceptable.
- f. Standard Feedback.
  - 1) System and Rack messages shall include, but not be limited to, the following:
    - a) DMX port A or B has an error or has failed.
    - b) Network has an error or has failed.
    - c) Phase A, B or C is below 90 volts.
    - d) Phase A, B or C is above 140 volts.
    - e) Phase A, B or C did not start because it was below 90V or above 140V at power up.
    - f) Phase A, B or C voltage headroom warning.
    - g) Frequency is not 50 or 60 Hz.
    - h) Rack shutting down due to air flow loss.
    - i) Ambient temperature is below 0°C/32°F.
    - j) Ambient temperature is above 40°C/104°F.
    - k) Rack shutting down ambient temperature exceeds 46°C/115°F.
    - I) Configuration memory error.
  - 2) About display shall allow monitoring of system, rack or dimmer status.
    - a) About System shall provide information about Panic circuits, Preset looks, and System name.
    - b) About Network shall provide IP address, gateway and net mask.
    - c) About Rack shall provide information about rack name, ambient temperature, air filters and rack type.
    - About Rack Power shall provide information about power type, rack voltages, current per phase (only with current transformers), under voltage warnings.
    - e) About Rack Data shall provide status for DMXA, DMXB, EDMX and Network activity.
    - f) About Dimmer shall provide information about dimmer type, location, output level, control source, scale voltage, mode and curve.
- g. Advanced Feedback. (Not supplied as part of the base bid)
  - Sensor's Advanced Features (AF) option shall add an additional sensor in the individual dimmer modules. This option shall allow monitoring of current and output voltage on a dimmer-by-dimmer basis and provide information on lamp burnouts, dimmer status, and input voltages.
  - 2) Power control shall allow the user to record the loads of all AF dimmers in the system. The power control shall, during operation, test each AF dimmer, determine its load, and compare it to the recorded load. Any change from recorded loads of configured tolerance shall display an error on the power control and any monitoring device on the network. If a dimmer is driven on with no load, an optional message shall be available to notify the console operator and electrician that there is no load.
  - 3) Dimmer Specific messages shall include, but not be limited to, the following:
    - a) Load has dropped below recorded value.
    - b) Load has raised above recorded value.
    - c) DC detected on dimmer output.
    - d) One SCR has failed on/off.
    - e) Dimmer has failed off or circuit breaker has tripped.
    - f) Dimmer has been removed.
    - g) Dimmer load has failed.
    - h) Dimmer has shut down due to over temperature.

- 4) About Dimmer display shall provide additional information regarding the dimmer's recorded load and current or actual load.
- h. Network Interface.
  - 1) The Ethernet network shall provide an integral link to connect all racks in the system for rack-to-console and rack-to-network device communication.
  - 2) The network interface to the power controller shall provide a number of user-programmable control schemes between control sources, including architectural control.
  - 3) Hardware settings for rack type, available module types, availability of AF features, and operating voltage shall be configurable at the factory or in the field, and shall not require secondary setup after system commissioning even in the event to power controller replacement.
  - 4) User programmable parameters shall support onsite setup, via the local interface in the rack. These parameters shall include, but not be limited to, defining module type, scale voltage for each dimmer, firing mode, curve, dimmer numbering and DMX512 or network port assignments. Systems requiring factory programming shall not be acceptable.
- 2. Sensor Relay Modules.
  - a. General.
    - The Relay modules shall be the ETC Relay modules as manufactured by Electronic Theatre Controls, Inc., or equal. The relay modules shall be designed for dependable, economical service in theatrical, architectural, and video applications for use with theatrical and architectural lighting and motorized equipment.
      - 1) Relay modules shall be compatible with both Sensor Dimming Systems and Unison Dimming Systems.
    - 2) Relay module configuration shall be dual channel, 100/140V, 15A or 20A, as noted on the Electrical Drawings.
    - 3) Relay modules shall be fully plug-in and factory wired. The modules shall consist of a heavy duty, die-cast aluminum chassis with integral face panel. No tools shall be required for module removal and insertion. All parts shall be properly treated, primed and finished in fine-texture, scratch resistant, gray epoxy powder coat. With the exception of the circuit breaker, the module shall contain no moving parts. Each module shall be labeled with the manufacturer's name, catalog number and rating. Modules constructed of molded plastic for structural support are not equivalent and are not acceptable. Relay modules shall be UL and cUL listed power control devices with a minimum AIC rating of 10,000A.
    - 4) Modules shall have a fully magnetic circuit breaker for each channel. Relay modules shall be rated for a minimum of 100,000 full load activations.
    - 5) Modules shall have Signal and Load LED indicators for each channel.
      - 6) Relay modules shall be available with ETC Advanced Features providing load and status information.
- 3. Portable Relay
  - a. General
    - 1) The portable relay shall be ColorSource Relay as designed by Electronic Theatre Controls, Inc., or equal.
    - The relay shall either be a wired DMX controlled relay or a wireless DMX pair consisting of ColorSource Wireless DMX transmitter and ColorSource Wireless Relay.
    - 3) The relay shall be CE Compliant and FCC approved.
    - 4) The relay shall be RoHS compliant.
    - 5) DMX512A compatible
    - 6) Wireless DMX broadcasts shall be transmitted on the 2.4GHz range using Spread Spectrum Frequency Hopping (SSFH)
- b. Mechanical
  - The relay shall be no more than 2" (51 mm) high by 5" (127 mm) wide and 3.31" (84mm) deep and weighing no more than .7 pounds (.31kg). The transmitter shall be no more than 1.67" (42 mm) high by 5" (127 mm) wide and 3.31" (84mm) deep and weighing no more than .7 pounds (.31kg). The antennae shall not protrude from the depth of the relay more than 1.17" (30mm) when bent at a right angle and no more than 4.40" (112mm) in any direction at any time.
  - 2) The relay case shall be manufactured of molded black textured plastic.
  - 3) The case shall include integral yoke-fixing hole combinations for flexible mounting of ColorSource, Desire, and ETC Source Four LED fixtures directly. Wireless DMX and relay products that do not support direct mounting to these fixture yokes shall not be suitable.
  - 4) The relay and wireless DMX transmitter shall be convection-cooled and operate without cooling fans
  - 5) The relay and transmitter cases shall include an integral molded safety connection point
  - 6) Power-input and -output connectors shall be arranged at 45-degree angle to the pipe for ease of tie-off.
  - 7) Wireless model includes thumbwheel for selection of six wireless IDs or custom.
  - 8) Wireless model includes 2dBA gain omnidirectional antennae
  - 9) Specialized directional and high-gain antennas are available upon special request and will be sold separately
- c. Electrical
  - 1) Max breaker sizing shall be 20A
  - 2) The relays and transmitter shall be capable of supporting voltage input and performing switching at 85-250V.
  - 3) Frequency range of the relays and transmitters shall include 47-63Hz.
  - 4) Relays shall enter sleep mode within 15 minutes when data is no longer being received. Upon entering sleep mode, wired DMX relays shall consume no more than ¼ Watt during and wireless relays shall not consume more than .6 Watts.
  - 5) Power Input and output connectors shall be PowerCon compatible.
  - 6) Relay shall cut both poles for support of two pole 208V and delta power applications
  - 7) Minimum 2500V isolation shall be provided between control and power components
  - 8) Wired DMX In and Thru connections shall be made using five-pin XLR connectors
  - 9) DMX thru shall require external termination.
- d. Functional
  - 1) Relay shall support DMX512A In and Thru via five-pin XLR connectors
  - 2) DMX input/output connections shall support up to 31 additional DMX unit loads on one DMX daisy chain.
  - 3) Choices of relay mode shall include: Automatic; Assignable DMX address level; or System Power Command
- e. Relay specifications
  - 1) Switching current shall not exceed 16A connected load at 40°C ambient
  - 2) Switching shall occur at zero cross to reduce the arcing effects of capacitive and inductive loads. Relays that do not switch at zero cross shall be deemed unacceptable.
  - 3) Relay shall be capable of switching 120V, 208V 2 pole, or 230V products such that separate versions are not needed. Relay products that require separate variants across the voltage range and those that cannot be moved between single pole and 2 pole circuits shall be deemed unacceptable.

- 4) Mechanical Endurance shall be no less than 1,000,000 cycles.
- 5) Electrical endurance of the relay shall be as follows:
- a) Resistive 100,000 cycles @16A; 250V
- b) Inductive 100,000 cycles @6A; 277V
- c) Motor 40,000 cycles @1.5HP; 250VAC
- d) Ballast 20,000 cycles @1500W; 347V
- e) Electronic 20,000 cycles @3300W @277V (12A)
- f. Wireless DMX Specification
  - 1) Range of wireless transmission shall be no less than 100 meters line of site free air.
  - 2) Maximum numbers of receivers per transmitter shall be 32 for DMX transmission.
  - 3) Wireless signals shall operate in the 2.4GHz frequency band operating with Frequency Hopping Spread Spectrum for interference avoidance.
  - 4) Latency between transmitter and receiver shall be no more than 7mS
  - 5) Power of wireless transition shall be up to 72mW ETSI broadcast
  - 6) Wireless Transmitter and receiver shall be fully compatible with City Theatrical Show DMX
  - 7) Wireless ID #6 shall operate outside of the Wifi bands for interference avoidance in areas of strong Wi-Fi usage
- g. Accessories
  - Wall mount kit shall include a bracket and 4 bolts to affix the bracket to ColorSource Relays or transmitters. The mounting bracket shall have 4 keyholes that allow appropriate fasteners (supplied by others) to be attached to the mounting surface prior to placement of the bracket and relay on the surface.
  - 2) Pipe Mount kit shall consist of a bracket and 2 bolts for mounting the bracket to ColorSource Relays or Transmitters. C clamps or pipe clamps are not included in the kit and shall be purchased separately from the kit.
  - 3) Yoke Mount Kit shall consist of a pressure plate with four holes designed to be secured to the side of 3rd party fixture yokes utilizing the four bolts provided with the kit. The Yoke mount kit shall support connection to fixture yokes up to 2" in width ¼" think.
  - 4) Mounting feet kit shall provide Transmitters and relays with four rubberized non-skid pads for use sitting on tabletops and desks.
- h. Thermal
  - 1) The relay shall be convection cooled and rated at 16A 250V up to 40C
  - The panel shall operate safely in an environment having an ambient temperature between 32°F (0°C) and 104°F (40°C), and humidity between 5-95% (non-condensing).
- B. Strand Lighting System components
  - 1. Rack Electronics, Physical.
    - a) The main dimmer control electronics shall be housed in a Rack Processor Module (RPM). The dimmer control electronics shall be completely digital without employing any digital to analog demultiplexing schemes or analog ramping circuits.
    - All rack setup and preset data shall be stored in a non-volatile manner and may be transferred to a replacement Rack Processor Module without losing data.
    - c) Each Rack Processor Module shall have a back-lit LCD display with a six key (minimum) keypad for rack setup, preset control, testing, rack status, error and diagnostics. Bi-Color LED's shall indicate "Network Connection", "DMX512 Port A", "DMX512 Port B", "Processor OK", "Module Event", "Panic", "Over temperature" "Phase A", "Phase B", "Phase C", "Active Processor".
    - e) An optional backup Rack Processor Module shall provide full redundant tracking processor functions. The Backup RPM shall track all setup, preset and other

commands at all times without any operator action. The Backup RPM shall take over all communications and dimming control upon automatic activation.

- f) All rack setup and preset data shall be electronically transferable between the main Rack Processor Module and the backup RPM in case of the replacement of either of the modules. Rack set up data shall be stored in non-volatile memory.
- g) The Rack Processor Module shall provide signal connections in conjunction with optional power supply units. The RPM shall provide the only point for contractor connection of signal cables and PANIC activation. The contractor connections shall be made with two-part plug in screw terminals (dedicated connector per input) or crimped RJ45 connectors for ease of installation. The RPM shall feature an integrated Ethernet switch to permit the cross connection of up to 4 dimmer racks in a single dimmer room. RPM to RPM Ethernet connections shall be made with pre-made RJ45 patch cables.
- All DMX512 & RS485 communication ports and remote contact input connections shall be optically isolated from all processor electronics by a minimum of 2,500V RMS isolation.
- i) The Rack Processor Module shall have the provision to select any of a maximum of 96 dimmer outputs to be activated by the PANIC function. The PANIC function shall be activated or de-activated by one or more local or remote contact closures.
- 2. Rack Electronics, Control and Communications.
  - a) The control electronics shall provide the following control and communication inputs as standard:
    - An Ethernet control input. This input can support a connection to a Strand ShowNet system. Each Ethernet control input can generate Reporting messages for the dimmer rack. This input shall also allow for local connection to a personal computer, providing setup, playback, dimming reporting features, and the ability to load rack-operating software.
    - Two optically isolated DMX512 control inputs. The first input shall accept DMX512 only. The second DMX512 input may be configured to accept DMX512, or Strand Lighting's Vision.net architectural protocol.
    - 3) Optically isolated contact inputs, for external switching interfaces (24V 100ma). These closures are dedicated for:
      - a] PANIC ON Momentary Turns Panic On.
      - b] PANIC OFF Momentary Turns Panic Off.
      - c] FIRE ALARM Maintained Turns Panic On, no Override.
- 3. Rack Electronics, Features.
  - a) The rack electronics shall provide two levels of operator interface:
    - 1) A local standard interface that includes 6 menu keys and a bitmapped backlit LCD display (minimum 16 character x 2 line) to access standard system menus.
    - 2) A networked customizable Web based interface that includes status displays, configuration and maintenance utilities, integrated on-line help system, and alert emails. Support for wireless PDA's shall allow query and control functions.
  - b) The dimmer control electronics shall have 16 bit (minimum) fade processing and a dimmer update rate better than 16 ms (60 Hz) or 20 ms (50 Hz). Dimmers set to the same level shall output within +/-.5V of each other, regardless of phase or input voltage, providing the desired level is less than the phase input voltage less the dimmer insertion voltage.
  - c) The dimmer output levels shall be regulated for incoming line voltage variations. The regulation shall adjust for both RMS voltage and frequency changes of the incoming AC wave form. Regulation shall maintain the desired output voltage +/-.5V volt for the entire operation range (90 - 264 VAC). The regulation shall compensate for variations of the AC waveform on a dimmer-by-dimmer basis. There shall be no interaction between dimmers in the system or any other equipment. The output shall be regulated to the user programmable maximum

voltage level on a dimmer-by dimmer basis. The processor response time to incoming line changes shall take no more than 16 ms (60 Hz) or 20 ms (50 Hz). Dimming systems that do not respond to line voltage and frequency variations shall not be acceptable.

- d) The control electronics shall allow the maximum output levels of individual dimmers to be adjusted, e.g. to compensate for load circuit voltage loss. The selected dimmer curve shall regulate so that the curve is proportional to the programmed maximum voltage.
- e) The RPM shall also have the capability to support dimmers of different types and sizes that may be mixed throughout the rack. Individual dimmers may be dimmed or switched (non-dim). The individual phase control or switching of positive and negative line voltage half cycles shall not be acceptable, as the net resultant DC line current may damage or degrade line supply transformers.
- f) As a standard, dimmer rack status reporting shall report the following conditions/data:
  - 1) Rack input line voltage per phase.
  - 2) DMX512 Port A input fail.
  - 3) DMX512 Port B input fail.
  - 4) Phase failure (A, B and C).
  - 5) Rack temperature.
  - 6) Rack overtemp warning (100 degrees Fahrenheit.) (37 degrees Celsius).
  - 7) Rack overtemp shutdown (105 degrees Fahrenheit.) (40 degrees Celsius).
  - 8) Rack under temp shutdown (32 degrees Fahrenheit) (0 degrees Celsius).
- g) IGBT dimmer modules shall be fully status reporting as a standard. Optional Dimmer Reporting Cards (DRC) can be factory installed into a standard SCR dimmer modules. All status reporting dimmers and shall report the following conditions/data:
  - 1) Dimmer type in slot. (Dimmer dipswitch set at factory).
  - 2) Load (Wattage) per dimmer.
  - 3) Deviation from recorded dimmer load.
  - 4) No dimmer load.
  - 5) Excess DC on dimmer.
  - 6) Overload on dimmer.
  - 7) Power device failure (short circuit or open circuit).
  - 8) Circuit breaker open.
  - 9) Dimmer fault.
  - 10) Change in dimmer type fitted.
  - 11) RMS Phase current per rack phase.
  - 12) Dimmer module temperature (w/module shutdown on and over temperature condition.
  - 13) Forced on at dimmer module.
  - 14) Dimmer panic.
- h) The control electronics shall provide the following setup functions that shall be user programmable on a per rack or system wide basis:
  - 1) DMX512 Port A patch.
  - 2) DMX512 Port B patch.
  - 3) Architectural controls for Vision.net control systems.
  - 4) Set rack and circuit ID's (CID).
  - 5) Dimmer reporting enable/disable. (By dimmer module).
  - 6) Set dimmer level (%).
  - 7) Set dimmer maximum voltage (12V 260V in 1V steps).
  - 8) Set SCR dimmer maximum voltage (24V 260V in 1V steps).
  - 9) Set dimmer minimum level (0 to 99%).
  - 10) Set dimmer curve.
  - 11) Set dimmer response time.
  - 12) Set control input priority logic.

- 13) Set status reporting parameters.
- 14) Program user curves.
- i) The DMX512 Port A and B patching shall support a rack start address and individual dimmer patch. The architectural patch shall define the rack circuit/room/room channel relationship for Vision.net control systems.
- j) The control electronics shall provide a facility to disable the output of any individual dimmer by setting the level to 0. It shall also be possible to enable and disable dimmer status reporting on a per dimmer basis.
- k) The control electronics shall contain Vision.net user programmable presets, a permanent blackout preset (preset 0) and a user-definable power up preset. It shall be possible to record individual preset crossfade times, including preset 0. The presets shall be user programmable as a snapshot of the current dimmer outputs resulting from all dimmer control sources according to selected control logic, on a per rack or system wide basis. Each preset may have an individual crossfade time between 0 seconds and 60 minutes.
- I) The control electronics shall support a user assignable "control lost" Vision.net preset. Each rack shall, in the event of loss of control signal according to the selected port logic, maintain the last levels for a user programmable period ranging from 0 seconds to 60 minutes. After this time period it shall automatically fade to the "control lost" preset. Alternatively it shall be possible to program the rack to indefinitely hold the last dimmer levels. It shall be possible to continue control without an active control signal using any of the architectural presets. Time resolution to be a minimum of one second.
- m) The processor shall provide an architectural Vision.net control system preset capability of 125 channels for each of 255 separate rooms with programmable fade times. Time resolution to be a minimum of one second.
- n) The system shall provide the ability to set one or a group of dimmers to any level.
- The control electronics shall provide the ability to set a library or user programmable 100-point curve (processor to apply a linear interpolation between the user points) to any individual dimmer. Library curves shall be:
  - 1) Square curve.
  - 2) S-curve.
  - 3) Linear power output curve.
- p) User selectable curves shall be:
  - 1) Non-dim (switched) with a programmable trigger level 0 99%.
  - 2) Electronic ballast fluorescent curve with a kick-start voltage and user programmable top set and bottom cut-off point.
  - 3) Magnetic ballast fluorescent curve with user programmable top set and bottom cut-off point.
  - 4) Five user defined programmable curves, programmed with up to 100 steps. The processor is to apply a linear interpolation between the user points.
- q) Each dimmer shall have one of three user programmable response (rack will fade to the new target level in the defined response time) in order to optimize lamp filament life and speed of operation:
  - 1) Fast (30 ms).
  - 2) Normal (100 ms).
  - 3) Slow (300 ms).
- r) The system processor shall provide a number of user programmable control logic schemes, regulating the logical relationship between dimmer control sources It shall be possible to set the way in which various control inputs interact with each other to create priorities between all control inputs.
- s) It shall be possible to load new rack operating software via the Ethernet connection to the dimmer rack. There shall be no requirement to turn power to the rack off during the loading of rack software, and in addition the Panic facility and Redundant Tracking Backup (RTB) processors shall be fully operational during software loading to the active processor. It shall be possible to load new rack

operating software into the processor, regardless of the state of the program storage.

- 4. Relay Modules.
  - a) Non-Dim modules shall be available to provide dedicated non-dim circuits not employing SSR devices. Dual modules shall be available providing non-dim/nondim configurations. Each non-dim shall be provided with a primary circuit breaker of the appropriate rating. Non-dims shall be designed so they can be used for inductive loads.
- I. The system shall consist of the following:
  - 1. Northwest Auditorium:
    - a. Provide Three (3) CEM3 upgrade kits. Install in the existing Sensor+ Dimmer Racks.
    - b. Provide Thirty-seven (37) R20 Dual Relay Modules. Install in module slots indicated on the plans. Existing CC20 and D20 modules shall remain the property of SMSD.
    - c. Provide Three lamicoid Signs affixed to the front of DR1, DR2 and DR3. The font on the sign shall be 1/4" tall and shall be Arial or similar: The sign shall contain the following information:

Shawnee Mission Northwest High School Auditorium

The Shawnee Mission Northwest Logo

DR1 Circuits 1-96 - 400 amps maximum Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Electronic Theatre Controls, Inc For service call: 1-800-688-4116 Job Reference #

Shawnee Mission Northwest High School Auditorium

The Shawnee Mission Northwest Logo

DR2

Circuits 97-192 - 400 amps maximum Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Electronic Theatre Controls, Inc For service call: 1-800-688-4116 Job Reference #

Shawnee Mission Northwest High School Auditorium
The Shawnee Mission Northwest Logo
DR3 Circuits 193-288 - 400 amps maximum Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Electronic Theatre Controls, Inc For service call: 1-800-688-4116 Job Reference #

- 2. Northwest Little Theatre:
  - a. Provide Seven (7) ColorSource Relays. Provide each with a c-clamp, safety cable. Install one at each lighting position, two one the first FOH and one on the stage floor.
  - b. Provide Five (5) 5' 5-pin DMX cables.
  - c. Provide One (1) 15' 5-pin DMX cable.
  - d. Provide One (1) 25' 5-pin DMX cable.
  - e. Each cable shall be provided with an 8" hook-and-loop one wrap strap.
- 3. South Auditorium:
  - a. Provide Three (3) Strand C21 Control Modules. Install in the existing CD80 dimmer racks.
  - b. Provide Thirty-one (31) Dual Non-Dim Modules. Install in module slots as indicated on the plans. Existing modules shall remain the property of SMSD.
  - c. Provide Three lamicoid Signs affixed to the front of DR1, DR2 and DR3. The font on the sign shall be 1/4" tall and shall be Arial or similar: The sign shall contain the following information:

Shawnee Mission South High School Auditorium

The Shawnee Mission South Logo

DR1

Circuits 1-96 - 400 amps maximum Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Strand Lighting For service call: (toll free service number) Job Reference #

Shawnee Mission South High School Auditorium

The Shawnee Mission South Logo

DR2

Circuits 97-192 - 400 amps maximum Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Strand Lighting For service call: (toll free service number) Job Reference #

# Shawnee Mission South High School Auditorium The Shawnee Mission South Logo DR3 Circuits 193-256 - 400 amps maximum Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Strand Lighting For service call: (toll free service number) Job Reference #

## 4. West Auditorium:

- a. Provide Three (3) CEM3 upgrade kits. Install in the existing Sensor+ Dimmer Racks.
- b. Provide Fifty (50) R20 Dual Relay Modules. Install in module slots indicated on the plans. Existing CC20 and D20 modules shall remain the property of SMSD.
- c. Provide Three lamicoid Signs affixed to the front of DR1, DR2 and DR3. The font on the sign shall be 1/4" tall and shall be Arial or similar: The sign shall contain the following information:

Shawnee Mission West High School Auditorium

The Shawnee Mission West Logo

DR1 Circuits 1-96 - 400 amps maximum Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Electronic Theatre Controls, Inc For service call: 1-800-688-4116 Job Reference #

> Shawnee Mission West High School Auditorium

The Shawnee Mission Northwest Logo

DR2 Circuits 97-192 - 400 amps maximum Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Electronic Theatre Controls, Inc For service call: 1-800-688-4116 Job Reference #

### Shawnee Mission West High School Auditorium

The Shawnee Mission Northwest Logo

DR3 Circuits 193-288 - 400 amps maximum Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Electronic Theatre Controls, Inc For service call: 1-800-688-4116 Job Reference #

- 5. As part of Alternate TH1, provide the following for Shawnee Mission South High School
- a. Provide Three (3) Sensor 3 dimmer racks.
  - b. Provide Three (3) CEM3 Control Modules, 120V.
  - c. Provide Ninety-seven (97) D20 2.4KW Dual Dimmer Modules.
  - d. Provide Thirty-one (31) R20 Dual Relay Modules
  - e. Provide Sixteen (16) AFM Air Flow Modules.
  - f. Remove the existing dimmer racks, install the new dimmer racks in their locations, and land all existing circuits in the new dimmer racks in the new Configuration as shown on "TH" drawings.
    - 1) The removed dimmer racks and components shall remain the property of the Shawnee Mission School District.
  - g. Provide Three (3) Lamicoid signs, as above.

# 2.03 LIGHTING CONSOLE AND ACCESSORIES

- A. General.
  - 1. The lighting control console shall be a microprocessor-based system specifically designed to provide complete control of stage, studio, and entertainment lighting systems. The console shall be the Element 2 as manufactured by Electronic Theatre Controls, Inc., or equal.
  - 2. The system shall provide control of either 1,024 or 6,144 outputs on a maximum of 32,768 control channels, which may be any number from 1 to 99,999. Output shall be distributed over a 10/100 MB Ethernet network using Net3/ACN, ETCNet2, Avab and/or Artnet (multi-cast) protocols. The user shall be able to control the application of protocols at an individual address level.
  - The system shall support full bi-directional RDM communication with compatible devices via Net3 DMX/RDM Gateways. RDM communication shall adhere to ANSII standard E1.20-2006 Entertainment Technology – RDM – Remote Device Management Over DMX512 Networks. Supported RDM features shall include:
    - a. Discovery and Identification of RDM capable devices
    - b. Setting of start addresses, operating modes and additional settings as exposed by connected devices and controllable via RDM
    - c. Viewing of Sensor data as provided by connected devices
    - d. Error reporting as provided by connected device
  - 1. A maximum of 10,000 cues, 1000 groups, 1000 presets, 4 x 1000 palettes (Intensity, Focus, Color and Beam), 99,999 macros, 1000 effects, 1000 curves, 1000 Color Paths and 1000 snapshots may be contained in non-volatile electronic memory and stored to an onboard solid-state hard drive or to any USB storage device.

- 2. Channels shall respond to cue information by last instruction with discrete rate control provided for all cues. The console may be placed in Tracking or Cue Only mode by the user as a system default and overridden on individual record actions as required. HTP/LTP intensity flags, block, proportional, intensity master or manual master fade control. Priority and Background Priority may be placed on the cue list. It shall also be possible for a cue list to contribute to playback background states or to withhold such contributions.
- 3. A Master Playback fader pair shall be provided. The fader pair may execute crossfades or all-fades, with IFCB cue level timing,
- 4. The console shall provide 40 pageable faders that may be operate in either LTP channel or fader mode. Virtual fader control for playbacks is also provided.
- 5. A high-resolution level wheel shall be provided to control intensity for selected channels and scrolling within selected displays. A high-resolution rate wheel, which may also be used for fader paging shall be provided.
- 6. Virtual moving light controls shall provide mouse/touch-based tools for all parameters. The tools shall display the current value for each parameter and provide controls for adjusting each parameter.
- 7. Control and programming features for automated fixtures shall also include: a standard library of fixture profiles, the ability to copy and edit existing profiles and create new profiles, patch displays including channel and output addressing, 16-bit fade resolution, color characterization allowing color in up to six different color spaces.
- 8. System information, including playback status, live output and blind values for all record targets shall be displayed on a maximum of two external high resolution monitors, which may also be multi-touch touch-screens. Every display shall support three user-definable workspaces. Each of these workspaces shall provide individually configured frames, with size/scaling controls. Any Windows 7 compatible display may be used.
- 9. A context sensitive on-line Help feature shall explain and provide an example of the operation of each feature of the system. This help system shall be integrated into the onboard user manual via hyperlinks. Optional dynamic prompts are also provided.
- 10. A fully integrated Virtual Media Server feature shall allow user to map images and animations to a rig array. 40 such maps may be created, each with 12 layers. System that rely on external hardware or software for this functionality shall not be acceptable.
- 11. User-definable, interactive displays may be created. These displays, which can be used in live and blind operating modes, allow graphical layout of channels, desk buttons and programming tools. Standard symbols are provided, and the user may import their own symbols or graphics. Each symbol may be individually defined with data feedback characteristics. Non-interactive status information, such as a mirror of other user's command lines, may also be included in the display. A graphical browser is provided for fast selection of these views. Multiple zoom factors and placements may be stored and recalled for each display.
- 12. A detachable alphanumeric keyboard shall be optional. The keyboard shall allow labeling of all show content. An integrated virtual alphanumeric keyboard shall be provided.
- 13. Console software upgrades shall be made by the user via flash drive. It shall be possible to install software updates in all consoles, processor units and remotes from one device over the network.
- 14. The console operating software shall be loaded into program execution memory from the internal hard drive when the console is powered. In the event of an uncontrolled shutdown, the console shall return to its last output state when power is restored. Devices requiring a UPS to provide such protections shall not be acceptable.
- 15. Integrated dimmer monitoring features shall be provided to allow indication of dimming system status, error states and dimmer load monitoring. Adjustment of dimmer configuration from the console shall also be supported. Communications with the

dimming system shall utilize ANSI E1.17 2006 - Entertainment Technology - Architecture for Control Networks.

- 16. Integrated RDM device features shall be provided. The console shall discover and patch RDM devices. The console shall monitor RDM devices to allow indication of RDM device online/offline status error states. The console shall be capable of changing settings of RDM devices such as the DMX start address. Communications with the RDM devices shall utilize ANSI E1.20 2006 Remote Device Management.
- 17. Network configuration tools shall be provided from within the desk.
- 18. Show data may be created and modified on a personal computer, using either Windows 7 or higher or a Macintosh platform running OS 10.11 or later via a free offline editing application. The program shall run natively on Apple operating systems. Applications requiring PC emulation programs shall not be acceptable.
- 19. A PC, using either Windows 7 (or higher), or a Macintosh running OS 10.11 (or later) using the offline software application shall be able to connect to a control system via the network and view or modify current show data in an independent display environment, using an ETCnomad key. When connected without the key, the computer shall operate in Mirror Mode, with the device to be mirrored selectable by the user.
- 20. Synchronized backup shall be provided via another full console on the network, an ETCnomad/Puck, or by use of a remote processor unit. The backup device shall maintain synchronized playback with the master and shall take over control of the lighting system upon loss of communication with the master.
- 21. A maximum of 99 users may access and interact with show data simultaneously. Each user shall have an individual workspace. User identification may be assigned to more than one control device, allowing users to work in tandem, or allowing a designer/ALD to mirror the current display format, mode and command line of the associated programmer. Partitioned control allows discrete control of channel/parameter groupings by user. Partitioned control may be easily enabled and disabled with no need to merge show data from multiple users.
- 22. The system shall support up to 32 individual simultaneous Time Code inputs or Event lists using Show Control Gateways.
- 23. Systems that do not provide the above capabilities shall not be acceptable.
- B. Controls and Playback
  - 1. Manual Control and Programming Section
    - a. The console keyboard shall be grouped by function. Major groupings shall be record target functions, numeric keys, level assignment functions, display navigation functions and controls, as well as non-intensity parameter controls.
    - b. The command keypad shall be fully interactive with direct selects and other virtual controls, which provide "one touch" selection of channels, groups, palettes, presets, effects, snapshots and macros.
    - c. Non-intensity parameters may be set numerically via an extensible keypad. This control shall be fully interactive with the moving light controls. The controls shall also access available modes for each parameter type, min and max values for each parameter as applicable, as well as home position on a parameter basis.
    - d. Only those parameters available for control in the active lighting system shall be displayed for control. Displays shall condense or lowlight parameters not available to selected channels.
    - e. Lamp controls provide direct access to luminaire functions such as striking and dousing arc lamps and calibrating entire fixtures or individual mechanisms of fixtures, as provided by the luminaire manufacturer. User access to these features is normalized across all manufacturers for ease of use. Use of a "control channel"

for accessing these functions shall not be required and systems requiring use of control channels for these functions shall not be acceptable.

- f. Fan functions shall be provided both via command line operation and through encoder controls.
- g. Highlight shall be supported, with user definable highlight values. Lowlight conditions may be defined for selected, but not specified channels. Rem Dim commands, at specific levels by channel, may be optionally and automatically called with the highlight command.
- h. Advanced color control functions provide color mixing in any of six different color spaces. Gel matches are provided via gel picker or by command line control. Tinting tools allow adjusting the color mix irrespective of the native mixing system. Spectrum tools support adjusting the output of additive color systems with more than three emitter types, allowing the X/Y coordinate to be held while adjusting the recipe that achieves that mix. Color Path tools allow the user to control the live fade of fixtures through the color space.
- i. The Virtual Media Server function shall allow the user to create layouts of devices, identified as pixel maps. Media content (images, movies, text and procedurally generated effects) may then be applied, manipulated and stored. Stock content is provided and the user may import his own imagery and animations.
- j. Macros may be set to run as default. Default macros called manually hall post to the command line, but executed via cue lists shall run in the background. The user may override this behavior by defining the macro to always execute in the foreground or background, regardless of the recall method. Startup, Shutdown and Disconnect macros may also be defined.
- 1. Playback Section
  - a. The playback faders shall consist of a 100mm Master Fader pair with associated control buttons as well as 40 45mm faders which may be placed in channel or playback mode.
  - b. Virtual fader controls are also available for playbacks.
  - c. It shall be possible to instantaneously halt an active cue, back to the previous cue, manually override the intensity fade or manually override the entire fade.
  - d. It shall be possible for a cue list to contribute to the background state or for the contents to be withheld from such. Priority and background priority states may be established.
- 2. Channel/Playback Faders
  - a. Up to 999 proportional, fully overlapping additive or inhibitive submasters may be defined. Submasters shall have colored LEDs to indicate submaster status. Each submaster may have fade up, dwell and down fade times. Submasters may be set to priority and background priority status.
  - b. Submasters may be set to HTP or LTP intensity. Non-intensity parameters on submasters shall be LTP only.
  - c. Exclusive mode for a submaster shall prohibit the live contribution of that submaster from storing to cues or other submasters. Shield mode prohibits access of associated channels from any other playback or manual control operations.
  - d. A submaster potentiometer may be defined as proportional, master only or intensity master. When set as an intensity master, a mark and unmark feature is supplied.
  - e. The submaster blind buffer shall be linked directly to live playback.
  - f. It shall be possible to set submaster values directly from the command line.
  - g. Submasters may be set to fade to background or to minimum value when the fader is returned toward zero.
  - h. Submaster values may contribute to the background state or withheld from such.
  - i. Presets and IFCB palettes may be mapped to playbacks, either individually or in user defined groupings.

- j. Channel mode shall allow the user access to the first 120 channels, operating in LTP logic. Faders that are not currently set to the same level as the corresponding channel must be matched to that level before gaining control. Physical channels may be cleared without impacting output using Sneak.
- 2. Grand Master Faders
  - a. The location of the Grand Master shall be user definable. The grand master shall have associated blackout and blackout enable buttons.
  - b. Blackout shall send all associated intensity outputs to zero. Non-intensity outputs shall not be affected. It shall be possible to exclude channels from Blackout and Grand Master control.
- C. Display Controls
  - 1. Format shall change the view of selected displays.
  - 2. It shall be possible for the user to choose which parameter categories or parameters (s)he wishes to display.
  - 3. Flexichannel modes shall change which channels are viewed in selected displays, as follows:
    - a. No modes
    - b. Masters only/cells only
    - c. Use Partitions
  - 4. Flexichannel states shall change which channels are viewed in selected displays, modified by the modes, as follows:
    - a. All channels
    - b. Patched channels
    - c. Show channels
    - d. Active/Moved channels
    - e. Selected channels
    - f. Manual Channels
    - g. View channels (user identified list)
    - h. Channels with discrete timing
  - 5. Expand shall extend the selected view sequentially across connected displays, vertically or horizontally.
  - 6. [Time] depressed shall display discrete timing data. [Data] suppressed shall display absolute values of referenced data. These functions may be latched.
  - 7. Displays may also be toggled to show stored data currently manually overridden, the source of the current parameter data, output level, patch assignment, part structure and referenced marking data.
  - 8. Playback status displays are provided with a variety of different formats. Indications are provided per cue for live moves (lights fading from zero and also moving non-intensity parameters) and dark moves (inactive lights which have stored non-intensity parameter moves).
  - 9. Display content including which of the workspaces is in focus on any of the external monitors and what views are docked in those workspaces may be instantly recalled using snapshots.
- D. Operating Modes
  - 1. Live Mode
    - a. Channel lists may be constructed using the +, -, and Thru keys as well as the direct selects. Channel selection and deselection is fully interactive, regardless of the method used.

- Levels may also be set with the keypad, level wheel and non-intensity encoders.
  "Selected" channels shall be those last addressed and under keypad control. Controls are provided for single button access to the last selected channel list, all channels with manual levels and all active channels.
- c. Channels may be set at a user defined default level using the Level key. +% and % keys adjust channels quickly by user definable values.
- d. Channels and/or channel parameters may be captured. Capture mode shall allow the user to selectively capture channel data at specific levels. Captured data shall be indicated on the Live display.
- e. Sneak shall be used to restore specified channels to background states, default values, or to send them to specified values, in user specified times.
- f. Selected channels may be set at a level or held to current values while all other channels are set to zero using Rem Dim. Toggling Rem Dim shall restore all unselected channels to original levels. The Rem Dim level shall be user definable via the command line or with a default setup value.
- g. Channels may be recorded into groups for fast recall of commonly used channels. 1000 groups shall be available. Groups shall store selection order. The Offset function supports rapid creation of ordered groups, including reverse and random order.
- h. Parameter settings may be stored to Intensity, Focus, Color and Beam Palettes and to Presets. All referenced data may be stored to whole numbers or to up to 99 decimal places between each whole number.
- i. The following conditions may be placed on a channel or channel parameter to be included with a cue record action.
  - 1) Discrete fade time and/or delay
  - 2) Block flag
  - 3) IFCB Filters, which may be set at a parameter level.
  - 4) Release and Restore
- j. Cues may be recorded in any order. Up to 99 decimal cues may be inserted between any two whole number cues. Each cue may contain a maximum of twenty parts.
- k. It shall be possible to record cues and cue parts with the following information:
  - Any collection of channel data, as determined by the use of "Record", "Record Only" or selective store commands, combined with parameter filters.
  - 2) Cue Level timing and delays for Intensity Up, Intensity Down, Focus, Color and Beam.
  - 3) Follow or hang time
  - 4) Link instruction
  - 5) Loop value
  - 6) Block, Preheat, and/or Mark Flag
  - 7) Curve
  - 8) Label and note
  - 9) Execute list to trigger other activity
- I. Non-intensity channel parameters may be preset to an upcoming position using Automark. Automark shall set any stored parameter transitions in the cue just prior to intensity becoming active. Automark may be disabled on a cue or cue part basis, enabling a "live" move.
- m. Any channel parameter may be stored with an effect instruction. These effects may contain relative offsets from current value, or absolute instructions. Effects may be progressive action or on/off states. Entry and exit behaviors shall modify the channel parameters activity when beginning and ending the effect.
- n. Update may be used to selectively add modified parameter data quickly to that parameter's current source. Update may be specified to modify referenced data content or break the link to that content. A dialogue informs the user of the content

that will be updated. A trace command may be used to modify the data to the original source of its move instruction. It shall be possible to update inactive record targets.

- o. Recall From quickly pulls specified data from record targets or other channels into the current view.
- p. Copy To quickly copies selected data to specified channels or other record targets.
- q. Address and channel check functions shall be provided.
- r. Channel parameters may be "parked" at levels. Those levels are not added to any live record operations, nor may they be changed until the parked element is "unparked". Scaled park provides real time proportional adjustment of stored intensity values. Address Park shall also be provided.
- s. About shall provide detailed status of selected channels or specified record targets. This shall include current source, current value, discrete timing, parked value, marked to and for indications. Background levels and current DMX output are also displayed. Channel usage indicates submaster and cue information and also provide a "dark moves" report on a per channel basis.
- t. 1000 snapshots may be stored which instantly recall specified front panel and display configurations.
- u. Live data may be displayed in a summary view or detailed table orientation.
- v. Query shall allow selection of channels by their current or possible state. Keywords and fixture types shall allow quick access to fixtures.
- w. User definable home positions, on a per channel basis, may be defined.
- x. Channel level offset commands provide channel ordering and sub-grouping functions.
- y. Undo shall be used to sequentially step back through manual operations or to undo record and delete actions. It shall be possible to undo multiple commands in one action.
- 2. Blind
  - a. The Blind display allows viewing and modification of all record targets without affecting stage levels.
  - b. Record target data may be displayed in a summary view, a detailed table orientation or a spreadsheet view, which allows quick data comparisons, move and replace functions.
  - c. Changes to blind data shall be automatically stored. Range selection of both record targets and channels shall be supported.
- 3. Patch Display
  - a. Patch shall be used to display and modify the system control channels with their associated library data.
  - b. Each channel may be provided with a proportional patch level, curve, label, swap and invert functions, as well as keywords to service Query.
  - c. Offset functions in patch shall allow selection of channel ranges and shall allow the user to establish a "custom" footprint for any device output.
  - d. Custom color wheels, color scrolls and gobo wheels shall be defined in patch. These devices shall be created with a simple table and graphical user interface supported by images of major manufacturers.
  - e. RDM discovery and device monitoring shall be supported.
  - f. Copy to and Move functions shall be supported in patch.
- 4. Setup/Browser
  - a. Setup shall access system, user and device configurations.
  - b. It shall be possible to partially import Eos show files. Users shall be able to select as much or as little of the show file as required, with renumber tools.
  - c. It shall be possible to import ASCII and Lightwright data files. It shall be possible to export as ASCII or .csv.

- d. Setup shall also access show data storage, import, export, print to .pdf and clear functions, as well as show data utilities.
- e. The system shall support programming and playback of real time clock events, including cue, submaster and macro execution at specific times of specified days or at a time based on astronomical events.
- f. A control screen shall be provided for network configuration, selecting date/time, software update controls, selecting functional language and/or keyboard for labeling option, as well as other system level tools.
- g. Available languages for prompts, advisories and help messages shall include English, Bulgarian, German, Spanish, French, Italian, Japanese, Korean, Russian, Chinese, simplified and Chinese, traditional.
- h. Supported keyboards shall include American, United Kingdom, French, German, Italian, Korean, Norwegian, Russian, Slovakian, Turkish, Swiss, Swedish, Finnish and Bulgarian.
- E. Dimmer Monitoring and Configuration
  - 1. The lighting control system shall provide communication with an ETC Sensor+, Sensor3 or FDX dimming system for remote monitoring and configuration of show specific functions from within the software application.
  - 2. Circuit level configuration and monitoring functions shall include but not be limited to:
    - a. Control mode (dimmable, switched, latch-lock, always on, off or fluorescent).
    - b. Curves
    - c. Control threshold
    - d. Min and Max Scale Voltage
    - e. Preheat
    - f. Scale load
  - 3. Rack status messages shall include but not be limited to:
    - a. State of UL924 panic closure
    - b. DMX port error/failure
    - c. Network error/failure
    - d. A, B, C Phase below 90 or above 139 volts and headroom warning
    - e. Ambient temperatures out of range
    - Circuit status shall include but not be limited to:
      - a. Module type and location
      - b. Output level
      - c. Control Source
      - d. Overtemp
  - 5. Advanced circuit feedback shall include but not be limited to:
    - a. Load higher or lower than recorded value
    - b. DC detected on output
    - c. SCR failed on/off
    - d. Breaker tripe.
    - e. Module has been removed
    - f. Load failure
    - g. Shutdown due to Overtemp
- F. Interface Options

4.

- 1. The console shall support a variety of local interfaces.
  - a. AC input
  - b. USB (five ports for items such as alpha-numeric keyboard, mouse, touch screens, USB Flash drive)

- c. Ethernet (two ports)
- d. Two Display Port output connectors, supporting Windows 7 compliant monitors as 1280x1024 resolution minimum. Touchscreen/multi-touch support of any/all of these monitors is provided.
- e. Contact Closure trigger via D-Sub connector
- f. 4 DMX/RDM ports
- g. Alternative Contact Closure trigger through Gateway
- h. OSC Transmit/Receive
- i. MIDI In/Out, MSC and MIDI Notes through Gateway
- j. SMPTE Timecode through Gateway
- G. Accessories
  - 1. ETCPad (ETC Portable Access Device)
  - 2. iRFR and iRFR Preview (applications for iPhone, iPod Touch and iPad units)
  - 3. aRFR (application for Android devices)
  - 4. Net3 Remote Video Interface
  - 5. Gateways
    - a. Net3/ETCNet 2 to DMX/RDM Gateways (one to four ports)
    - b. MIDI/SMPTE Gateway
    - c. I/O Gateway with 12 analog inputs, 12 SPDT contact outputs, RS-232 interface
- H. Synchronized Backup
  - 1. An optional Backup system shall consist of one of the following combinations of devices:
    - a. Two networked Consoles.
    - b. One Console with one Remote Processor Unit (RPU)
    - c. One (or more) Consoles with two Remote Processor Units (RPUs)
    - d. ETCnomad/Puck
- I. Physical
  - All operator controls and console electronics for a standard system shall be housed in a single desktop console, not to exceed 35" wide, 15" deep, 4.5" high, weighing 16 pounds. Console power shall be 90 – 240V AC at 50 or 60Hz, supplied via a detachable locking power cord.
- B. Manufacture service and upgrade existing Electronic Theatre Controls Ion Console to latest software and operating system.
- C. Provide the following:
  - 1. Northwest Auditorium:
    - a. Provide One (1) ETCPad wireless remote, complete with dock, shoulder strap and Stylus.
    - b. Provide all necessary network, DMX, power cables, connectors and any other required items for a working ETCPad.
    - c. Return the Existing ION Console to ETC for Upgrade and update.
  - 2. Northwest Little Theatre:
    - a. Provide One (1) Element 2 lighting control console with 1024 outputs.
    - b. Provide One (1) Keyboard and Mouse.
    - c. Provide One (1) Dust cover for the console.
    - d. Provide One (1) Littlite (or equal) XR Series 18" Gooseneck Work lights.

- e. Provide Two (2) 19" Touchscreen Display Port Flat Panel Monitors with appropriate cables.
- f. Provide One (1) ETCPad wireless remote, complete with dock, shoulder strap and Stylus.
- g. Provide an Uninterruptible power supply capable of powering console and monitors for 30 minutes.
- h. Provide all necessary network, DMX, power cables, connectors and any other required items for a working system. Network and DMX cables shall be 25' in length.
- 3. South Auditorium:
  - a. Provide One (1) Element 2 lighting control console with 1024 outputs.
  - b. Provide One (1) Keyboard and Mouse.
  - c. Provide One (1) Dust cover for the console.
  - d. Provide One (1) Littlite (or equal) XR Series 18" Gooseneck Work lights.
  - e. Provide Two (2) 19" Touchscreen Display Port Flat Panel Monitors with appropriate cables.
  - f. Provide One (1) ETCPad wireless remote, complete with dock, shoulder strap and Stylus.
  - g. Provide an Uninterruptible power supply capable of powering console and monitors for 30 minutes.
  - h. Provide all necessary network, DMX, power cables, connectors and any other required items for a working system. Network and DMX cables shall be 25' in length.
- 4. West Auditorium:
  - a. Provide One (1) ETCPad wireless remote, complete with dock, shoulder strap and Stylus.
  - b. Provide all necessary network, DMX, power cables, connectors and any other required items for a working ETCPad.
  - c. Return the Existing ION Console to ETC for Upgrade and update.

### 2.04 ARCHITECTURAL CONTROL

- A. The Architectural Control Processor shall be the Unison Paradigm P-ACP Series Control Processor as manufactured by Electronic Theatre Controls, Inc.
- B. Mechanical.
  - 1. The Architectural Control Processor (ACP) assembly shall be designed for use in DRd Series Dimming Enclosures and ERn Series Control Enclosures.
  - 2. The processor shall utilize microprocessor based, solid state technology to provide multiscene lighting and building control.
  - 3. ACP module electronics shall be contained in a plug-in assembly. The module shall be housed in a formed steel body and contain no discrete wire connections. No tools shall be required for module removal or insertion.
  - 4. The ACP shall be convection cooled.
  - 5. The ACP User Interface shall utilize a backlit liquid crystal display capable of graphics and eight lines of text. It shall also provide:
    - a. The ACP shall provide an alpha-numeric keypad for data entry and navigation.
    - b. The ACP shall provide a touch-sensitive control wheel for navigation.
    - c. The ACP shall provide shortcut buttons to assist in navigation, selection, and data entry.
    - d. The ACP keypad, buttons, and wheel shall be backlit for use in low-light conditions. The backlight shall have a user selectable time out, including no time out.

- 6. The ACP shall provide a front-panel RJ45 jack for Ethernet connection to the processor for configuration, live control, and web-browser-based system access. The Ethernet port shall be secured behind the locking door.
- 7. The ACP shall provide a Secure Digital (SD) Removable Media slot on the front panel for transfer of configuration data. The SD slot shall be secured behind the locking door.
- 8. The ACP shall provide a Universal Serial Bus (USB) port on the front panel for transfer of configuration data. The USB port shall be secured behind the locking door.
- 9. Architectural Lighting System configuration and program information shall be stored in flash memory, which does not require battery backup.
  - a. The ACP shall provide a Compact Flash (CF) Card as backup flash memory and storage.
  - b. The CF Card is stored in the back of the ACP, and can be accessed only by removing the ACP.
  - c. The ACP data can be exchanged by inserting the CF card into another ACP.
- C. Electrical.
  - 1. The ACP shall require no discrete wiring connections; all wiring shall be terminated into Dimming or Control Enclosure.
  - 2. The ACP shall require low-voltage power supplied by the Dimming or Control enclosure and shall be hot-swap capable.
  - 3. The ACP shall support Echelon LinkPower communications with remote devices, including button stations, button/fader stations, Touchscreen stations, sensors, and third party LonMARK compliant products.
    - a. The LinkPower network shall utilize polarity-independent, low-voltage Class II twisted pair wiring, type Belden 8471 (unshielded) or Belden 8719 (shielded) or equivalent. One # 14 AWG drain wire will be required for system not using grounded metal conduit. Touchscreen stations, interface stations and portable stations connectors will also require (2) #16 AWG wires.
    - b. The LinkPower network shall be topology free. Network wiring may be bus, loop, home run, star or any combination of these.
    - c. Link power wiring shall permit a total wire run of 1640 ft. (500m) without a repeater. Repeater option modules shall be available to increase wiring maximums in increments of 1640 ft. (500m).
    - d. Link power wiring between stations shall not exceed 1313 ft. (400m).
  - 4. The ACP shall support 10/100BaseTX, auto MDI/MDIX, 802.3af compliant Ethernet networking using TCP/IP, ESTA BSR E1.17 Advanced Control Networks (ACN) and ESTA BSR E1.31 (sACN) Protocols for internal communication and integration with third-party equipment.
  - 5. The ACP shall support EIA-RS232 serial protocol for bi-directional command and communication with third-party equipment.
  - 6. The ACP shall support two discrete ESTA DMX512A ports, configurable as input or output ports. When used in a Dimming Enclosure, the second port is always an output port.
  - 7. The ACP shall provide four onboard dry contact closure inputs for integration with thirdparty products.
  - 8. The ACP shall provide four onboard contact closure outputs, rated at 1A@30VDC, for integration with third-party equipment.
- D. Functional Capacity.
  - 1. Shall support 1024 channels of control.
  - 2. Shall support 2 physical DMX ports, each of which may be configured as an input or output.
- E. Functional System.

- 1. Runtime application shall utilize support Net3 system interoperability.
- 2. System shall support the use of Network Time Protocol for real time clock synchronization.
- 3. System shall support remote firmware upload an over Ethernet connection from a connected PC running the Light Designer software or another connected processor.
- 4. System shall support local firmware upload from removable media (SD Card, USB Flash Drive).
- F. Functional Diagnostics.
  - 1. Shall output an Event log.
  - 2. Standard log shall store a fixed-length history of recent activity.
  - 3. Separate critical log shall only store important messages (such as boot-up settings).
- G. Functional Configuration Data.
  - 1. Configuration Data can be uploaded over an Ethernet connection from a PC running Light Designer application.
  - 2. Configuration Data can be retrieved from another Paradigm Processor.
  - 3. A Paradigm Processor shall make its configuration data available for retrieval by another Processor as a backup/recovery mechanism.
  - 4. Configuration Data shall be stored on solid-state media that can be removed to facilitate transfer between Processor units.
  - 5. Configuration Data may be loaded to and from removable media access provided on front panel.
  - 6. Configuration Data for the entire System shall be available for download from any single Processor.
  - 7. Shall store configuration data for Dimming enclosure processors and shall make available for download.
- H. Functional Scalability.
  - 1. Adding additional Processors to a System shall proportionately increase its overall capabilities up to a maximum System size.
  - 2. The maximum number of Processors configured as a System shall be at least 12.
  - 3. Multiple Processors shall utilize the Ethernet network to remain time synchronized and share control information.
  - 4. Multiple Processors shall utilize the Ethernet network to maintain configuration data synchronization as modifications are made.
  - 5. Failure of a single Processor shall not prohibit continuing operation of the remaining processors.
  - 6. It shall be possible for multiple Systems to coexist on the same physical network with logical isolation between Systems.
- I. Functional Local User Interface.
  - 1. Shall provide access to Processor setup (IP address).
  - 2. Shall provide access to Processor status and diagnostics.
  - 3. Where the Processor is installed within a Dimming enclosure, shall provide access to dimming enclosure setup, status and diagnostics.
  - 4. Shall provide control functionality for Control Channels, Zones, Fixtures, Groups, Presets, Macros, Walls and Sequences within the current configuration.
  - 5. Shall provide functionality to schedule astronomical and real time events (add/edit/delete).
  - 6. Shall allow for display of local DMX information.

- 7. Shall allow for transfer of log files to local removable media.
- 8. Shall allow to perform firmware upgrades for connected Dimming enclosures.
- 9. Shall allow for transfer of configuration to and from Dimming enclosures using removable media.
- 10. Shall allow for transfer of configuration to and from LCD Stations using removable media.
- 11. Shall allow for binding of Stations.
- J. Functional Access Controls.
  - 1. There shall be 2 user accounts Administrator and User with separate password protection.
  - 2. Account and password settings shall be local to each Processor.
  - 3. Access Controls shall be applied to certain areas of the Paradigm Local Interface and Web Interface User.
- K. Functional Web User Interface.
  - 1. Shall be an internal web server accessible via Ethernet port.
  - 2. Shall support common web browsers on Windows and Mac platforms.
  - 3. Shall provide functionality to Activate and Deactivate Presets.
  - 4. Shall provide functionality to schedule timed events (add/delete).
  - 5. Shall display status information.
  - 6. Shall display log files.
  - 7. Shall allow for configuration of Processor settings (date, time).
  - 8. Shall allow for upload and download of configuration data.
  - 9. There shall be links to other web-enabled devices in the System, including other Paradigm Processors.
- L. Functional Stations.
  - 1. Stations shall be connected to a Paradigm Processor via a LinkPower network or Ethernet.
  - 2. Station discovery and binding shall be accomplished from the Local User Interface or Light Designer.
- M. Functional Net3 and ACN Devices.
  - 1. Net3 Devices shall be connected to and controlled from Paradigm Processors via Ethernet.
  - 2. Paradigm Processors shall provide DMX-Net3 gateway functionality.
  - 3. It shall be possible to send and receive Macro triggers defined within the System configuration via Net3.
  - 4. There shall be support for Streaming ACN on up to 24 universes per Processor.
- N. Functional Operation.
  - 1. When contained in a dimming enclosure, a snapshot of the dimming enclosure output data shall be stored in persistent memory so that hardware can access it for immediate output on boot.
  - 2. DMX output refresh rate shall be configurable.
  - 3. There shall be support for 16-bit DMX Attributes.
  - 4. DMX inputs may be patched to DMX and Streaming ACN outputs as external sources.
  - 5. Streaming ACN inputs shall be patched to DMX outputs (gateway) as external sources.
  - 6. Where there are multiple external sources then priority and HTP shall be used to perform arbitration.

- 7. External and internal sources shall be arbitrated based on user-selection of standard or custom rules.
- 8. On Preset Record, the values of Attributes within the Preset shall be updated to reflect the current output.
- 9. The total output may be the combination of many different Presets running concurrently.
- 10. There shall be no hard limit on number of concurrent cross fades.
- 11. Multiple Presets controlling the same Attribute shall first interact based on priority and second based on Latest Takes Precedence (LTP) or Highest Takes Precedence (HTP).
- 12. LTP and HTP operation shall be supported simultaneously and interact (at the same priority) using HTP.
- 13. Settings due to LTP Presets may be automatically discarded from operation when overridden.
- 14. It shall be possible to specify that a Preset or Attribute Control will persist when overridden.
- 15. A Preset may be designated as an HTP Override and shall cause HTP values to be discarded.
- 16. It shall be possible to modify the rate of a Preset (Cross fades, Effects) from a Control within the System.
- 17. Each Preset shall have a status that can be Activated, Deactivated or Altered.
- 18. Preset status may be set based on matching levels in the current output as an option.
- 19. On startup the System shall be capable of automatically executing timed events within the previous 24 hours to synchronize its initial output state with the current time of day.
- O. Serial Input/Output.
  - 1. RS232 shall support 8-bit word length, parity selection and 1 or 2 stop bits.
  - 2. RS232 shall support baud rates from 4800 to 115,200 bps.
  - 3. Serial input and output messages are fully customizable.
  - 4. Serial output messages can be generated by any Control or Event.
- P. The Touchscreen Control Stations shall be the Unison Paradigm Touchscreen P-LCD Series Control Stations as manufactured by Electronic Theatre Controls, Inc.
  - 1. All touchscreen stations shall support default and fully graphical control pages.
  - 2. The Touchscreen station shall operate using graphic buttons, faders and other images on at least 30 separate programmable control pages.
  - 3. Touchscreen stations shall also allow programming of page pass-code, lock out and visibility levels.
- Q. Mechanical.
  - 1. Touchscreen stations shall consist of a seven inch, backlit liquid crystal display (LCD) with a minimum resolution of 800 by 400 pixels and 12-bit color depth with a touch interface.
  - 2. Touchscreen bezels shall be constructed of aluminum and shall have no visible means of attachment.
    - a. The bezel shall install and remove without the use of tools.
    - b. The bezel shall provide two working positions for the Touchscreen: service and operating.
  - 3. The Touchscreen shall have a protective overlay over the display.
    - a. The overlay shall reduce wear.
    - b. The overlay shall reduce glare.
  - 4. The manufacturer shall provide back boxes for all LCD stations.
    - a. Flush back box dimensions shall be 7.94" wide x 5.33" high x 3.25" deep.
    - b. Surface back box dimensions shall be 8.3" wide x 5.6" high x 2.55" deep.

- R. Electrical.
  - 1. Touchscreens shall be powered entirely by the System network.
  - 2. Touchscreens shall connect to the System using an Ethernet network with Power over Ethernet (POE) or the Unison control station Echelon® Link power network. Ethernet network shall be 10/100BaseTX, auto MDI/MDIX, 802.3af compliant and shall utilize Unshielded Twisted Pair (UTP) Category 5 wiring.
  - 3. Echelon® Link power network.
    - a. Link power shall utilize low-voltage Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
    - b. Touchscreen stations shall also require (2) #16 AWG stranded wires for 24Vdc operating power. 24Vdc wiring shall be topology free.
    - c. Network wiring may be bus, loop, home run, star or any combination of these.
    - d. Network insulation displacement connectors shall be provided with all stations.
- S. Functional System.
  - 1. The Touchscreen shall support configuration firmware upload from a Paradigm Processor as proxy.
  - 2. The Touchscreen shall support configuration or firmware upload from local removable media.
- T. Functional Setup Mode.
  - 1. There shall be a setup display that is separate from any user-defined configuration.
    - a. It shall be possible to view and modify connectivity settings.
    - b. It shall be possible to view status information.
    - c. It shall be possible to view and modify LCD screen settings.
    - d. It shall be possible to perform Touchscreen calibration.
    - e. It shall be possible to view and modify audio settings.
    - f. The appearance of the setup display shall be standard and not editable.
    - g The setup display may be invoked from within the user-defined configuration and/or physical button on the Touchscreen.
    - h. There shall be a default protected method to invoke the setup display.
- U. Functional Configurations.
  - 1. It shall be possible to have multiple configurations stored within an LCD Station.
  - 2. Only one configuration may be active on the LCD Station.
  - 3. It shall be possible for Touchscreen Stations connected via the Echelon® Link power network to select a configuration automatically based on the configuration of the physical connection.
  - 4. Where multiple configurations are stored there shall be a boot menu to allow selection of a configuration.
  - 5. Each configuration shall be identified as a different Station within the System.
- V. Functional Operation.
  - 1. The Unison Paradigm Control System shall be designed to allow control of lighting and associated systems via Touchscreen controls. System shall allow the control of presets, sequences, macros and time clock events.
  - 2. System presets shall be programmable via Button, Button/Fader, Touchscreen, or LightDesigner software.
    - a. Presets shall have a discrete fade time, programmable from zero to 84,600 seconds with a resolution of one hundred milliseconds.

- b. Presets shall be selectable via Touchscreen stations.
- 3. System macros and sequences shall be programmable via LightDesigner system software.
  - a. Macro and sequence steps shall provide user selectable steps, and allow the application of conditional logic.
  - b. Macro and sequences shall be activated by button, time clock event or LightDesigner software.
- 4. System time clock events shall be programmable via the Touchscreen, LightDesigner system software, the processor user interface, or the internal web server.
  - a. Time clock events shall be assigned to system day types. Standard day types include: anyway, weekday, weekend, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday. System shall support programming of additional custom or special day types.
  - b. Time clock events shall be activated based on sunrise, sunset, time of day or periodic event. System shall automatically compensate for regions using a fully configurable daylight saving time.
- 5. Touchscreen stations shall be designed to operate standard default or custom system functions. Components shall operate default functions unless re-assigned via LightDesigner, the Windows-based configuration program.
  - a. Optional button functions include: preset selection, manual mode activation, record mode activation, station lockout, raise, lower, macro activation, and cue light, or room join/separate.
  - b. Optional fader functions include master control, individual channel control, fade rate control or preset master control.
- 6. Touchscreen stations shall allow programming of station and component electronic lockout levels via Light Designer.
- 7. It shall be possible to adjust LCD contrast and brightness.
- 8. It shall be possible to program the station to dim during periods of inactivity.
- W. Echo Touchscreen Control Stations
  - 1. The Touchscreen Control Stations shall be the Unison Echo EchoTouch Controller Mk2 as manufactured by ETC, Inc., or equal.
  - 2. General
    - a. The Touchscreen protocols station shall provide control of up to 512 networked addresses or up to 512 local DMX addresses on a maximum of eighty (80) control zones. Addresses may be distributed using DMX512-A or via sACN or Art-Net Ethernet-based lighting
    - b. The Touchscreen station shall operate using graphic buttons, faders and other images on at least 7 user programmable control pages
    - c. Touchscreen stations shall support default and fully graphical control pages
    - d. The Touchscreen shall integrate with ETC Unison Echo Controls
  - 3. Mechanical
    - Touchscreen stations shall consist of a seven-inch, backlit liquid crystal display (LCD) with a minimum resolution of 800 by 400 pixels with a capacitive multi-touch interface
    - b. Touchscreen bezels shall be constructed of cast aluminum finished in a fine texture powder coat.
      - 1) Touchscreen shall be available in four standard colors
        - a) Cream (RAL 9001)
        - b) Gray (RAL 7001)
        - c) Black (RAL 9004)
        - d) Signal White (RAL 9003)
      - 2) The bezel shall have no visible means of attachment
    - c. Touchscreen stations shall support surface, flush and rack mounting options
      - 1) Flush-mount to industry standard 3-gang back box

- 2) Surface back box dimensions shall be 7.35 in/187 mm wide x 4.88 in/124 mm high x 3.5 in/89 mm deep and available from the manufacturer
- 3) Rack mounting options shall fit in standard 19" racks an shall be no taller than 3 EIA rack units
- 4. Electrical
  - a. The Touchscreen shall have an RJ45 Ethernet port for connection to a lighting system and for Power over Ethernet (PoE)
  - b. The Touchscreen shall have an EchoConnect connection terminals
    - 1) Control wiring utilizing low-voltage, Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit)
    - 2) Control wiring shall be topology free. It may be point-to-point, bus, loop, home run or any combination of these. Control products that require daisy-chain wiring shall not be acceptable
  - c. The Touchscreen shall use (2) #16 AWG stranded wires for 24 VDC operating power when not utilizing Power over Ethernet (PoE)
  - d. The Touchscreen shall have typical power draw of 400mA
  - e. The Touchscreen shall have a USB type A connector for firmware maintenance
  - f. The Touchscreen shall be cULus Listed and CE Compliant
  - g. The Touchscreen shall be FCC Compliant
- 5. Network
  - a. Communications physical layer shall comply with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet specifications
  - b. All network cabling shall be Category 5 (or better), conforming to TIA-568A/B, and shall be installed by a qualified network installer
  - c. Switches shall comply with power-over-Ethernet IEEE802.3af, unless a separate in-line power supply is provided
- 6. Functional
  - a. System
    - 1) A maximum of 64 presets shall be contained in non-volatile electronic memory
    - 2) A maximum of 4 internal sequences. Sequences shall record user-selected zone levels
    - 3) The Touchscreen shall be equipped with an on-board help system
    - 4) The Touchscreen software upgrades shall be made by the user via USB drive. Changing internal components shall not be required
    - 5) The Touchscreen shall provide a USB port allowing show data to be saved for archival or transfer to other consoles or a personal computer
    - 6) Systems that do not provide the above capabilities shall not be acceptable
  - b. Patching
    - 1) The Touchscreen shall provide patching facilities for dimmers and multiparameter devices via a built in library of fixture definitions. The fixture library shall be updated via software based updates. It shall be possible to create custom fixture definitions using an offline application
    - The Touchscreen shall support patching, address setting, and mode changes using Remote Device Management (RDM) on the local DMX/RDM port
  - c. Playback control
    - Customizable zone display using Zone Map. It shall be possible to rearrange the graphical representations for control channels to closely mimic the positions of fixtures in the installation
    - 2) Seven users customizable interactive pages
    - 3) Color and white pickers
    - 4) Touch-based parameter controls with reference based palettes
    - 5) Virtual level wheel
  - d. Layout and configuration

- 1) It shall be possible to view and modify the layout of the users pages
- 2) It shall be possible to add, remove or edit the following items:
  - a) Preset Buttons
  - b) Off Buttons
  - c) Sequence Buttons
  - d) Zone and space modifier buttons
  - e) Space combine buttons
  - f) Zone Fader
- 3) There shall be three options for inactivity
  - a) Dim screen to level
  - b) Turn screen off
  - c) Display user chosen inactivity image
- 4) It shall be possible to have multiple configurations stored within an LCD Station
- e. TimeClock
  - 1) The Touchscreen shall have a built-in astronomical and real time event engine allowing the activation of presets and sequences
    - a) The system shall support 80 events.
    - b) The system shall support astronomical, real-time and manual control events in up to 16 control spaces.
  - 2) Timed events shall be programmable via the Touchscreen.
    - a) TimeClock events shall be assigned to system day types. Standard day types include: everyday, weekday, weekend and day of the week.
    - b) TimeClock events shall be activated based on sunrise, sunset, time of day, open and closed events and a configurable state based engine.
    - c) The TimeClock shall automatically compensate for regions using configurable daylight saving time.
    - d) Presets shall support assignment to events via the TimeClock user interface.
  - 3) Timed events shall resume automatically after power loss
  - 4) The Touchscreen shall support timed event hold
    - a) Timed event hold shall meet California Title 24 requirements
- X. Echo Digital Button And Fader Stations
  - 1. Button and Fader Stations
    - a. General
      - The control station shall be the Echo Inspire Station Series as manufactured by ETC, Inc., or equal. It shall be a remote station on an EchoConnect network that can recall presets, provide direct zone control, recall presets and provide room combine actions for a control system.
      - 2) The station shall consist of a dual function (control/ record) push-button with an integral bi-color backlight for each corresponding button and fader.
      - 3) The system shall support up to sixteen independent stations
    - b. Mechanical
      - 1) Control stations shall operate using one, two, four, six or eight buttons. A four button with fader station shall also be available.
      - 2) All button stations shall be available with cream, black or white decorator style faceplates.
        - a) Manufacturer's standard colors shall conform to the RAL CLASSIC Standard.
      - 3) Stations shall have bi-color backlights for each button and fader
        - a) Indicators shall utilize a blue backlight for active status

- b) Indicators shall utilize amber for inactive to assist in locating stations in dark environments. Stations that do not provide a lit inactive or deactivated state shall not be allowed
- c) Stations shall support an off backlight state of inactive status when required.
- 4) All faceplates shall be designed for flush or surface mounting and have no visible means of attachment
- 5) Station faceplates shall be constructed of ABS plastic and designed based on a standard decorator style faceplate. Station faceplates shall be indelibly marked for each button or fader function.
- 6) Control station electronics shall mount directly behind the faceplate. The entire assembly shall mount into a single gang back box. Back boxes for flush mounted stations shall be industry standard back boxes. The manufacturer shall supply back boxes for surface mounted stations.
- c. Electrical
  - Control station wiring shall be EchoConnect control wiring utilizing low-voltage, Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
  - 2) The station shall operate on class 2 voltage provided by the control system via the EchoConnect network.
  - 3) Station wiring must be topology free. It may be point-to-point, bus, loop, home run or any combination of these.
  - 4) Wiring termination connectors shall be provided with all stations.
  - 5) Control stations shall be UL/ cUL listed and CE marked and meet WEE Compliance
- d. Station Addressing
  - 1) Station addressing shall be via two 16 position rotary dials and will be set by installers or factory personnel. Station addressing shall require only a space assignment and a device ID assignment.
  - 2) Multiple stations may have overlapping control of presets and zones
- Y. Echo Keyswitch Station
  - 1. General
    - a. The keyswitch station shall be the Echo Keyswitch Station as manufactured by Electronic Theatre Controls, Inc., or equal. It shall be a remote station on an EchoConnect network that uses a key switch to lock out button and fader control of presets and zones stored in a power control product.
    - b. The station shall consist of a rotary key switch for activation of a predetermined function.
    - c. Each keyswitch station shall be able to perform various functions including Preset control, Zone control, Space control, Sequence control, Space Lockout, and Space Combine.
    - d. Panel based systems shall support up to six total stations without an additional power supply. With the addition of a power supply, the system shall support up to 16 stations plus up to 16 power controllers and panels connected to the Echo Connect network.
  - 2. Electrical
    - a. Keyswitch station wiring shall be EchoConnect control wiring that shall utilize lowvoltage Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
    - b. The station shall operate on class 2 voltage provided by the control system via the EchoConnect network.
    - c. Station wiring must be topology free. It may be point-to-point, bus, loop, home run or any combination of these.
    - d. Wiring termination connectors shall be provided with all stations.
  - 3. Station Addressing

- a. Preset addressing for stations shall be via two 16 position rotary dials and will be set by installers or factory personnel. Multiple stations with different button guantities may have "overlapping" preset addresses.
- 4. Physical
  - a. Control station electronics shall mount directly behind the faceplate. The entire assembly shall mount into a single gang back box. Back boxes for the flush mounted stations shall be industry standard back boxes. The manufacturer shall supply back boxes for surface mounted stations.
  - b. Station faceplates shall be constructed of ABS plastic and shall use no visible means of attachment. All stations shall be available with white, signal white, ivory, gray or black faceplates and buttons.
- Z. Echo Control and Configuration Interface Stations
  - 1. General
    - a. The control and configuration interface station shall be the Echo EchoAccess Series as manufactured by ETC, Inc., or equal. It shall be a remote station on an EchoConnect network that can connect to a companion mobile app
      - The companion mobile app shall be available on the following mobile platforms and be made available through their respective application stores
         Apple iOS
        - b) Google Android OS
    - b. The station shall allow for remote recall of presets, provide direct zone control, and provide room combine actions for a control system.
    - c. The station shall allow for remote configuration of stations, sensors, power controllers and interfaces connected to the system
    - d. The system shall support up to sixteen independent stations
  - 2. Mechanical
    - a. The control interface stations shall be available with cream, black or white decorator style faceplates.
      - 1) Manufacturer's standard colors shall conform to the RAL CLASSIC Standard.
        - a) Cream RAL 9001
        - b) Black RAL 9004
        - c) Signal White RAL 9003
    - b. Stations shall have indicator LEDs to display status
      - 1) A blue LED for power status
      - 2) A amber LED for Bluetooth connection status
      - 3) Indicators shall not be visible while faceplate is in place
    - c. All faceplates shall be designed for flush or surface mounting and have no visible means of attachment
    - d. Station faceplates shall be constructed of ABS plastic and designed based on a standard decorator style faceplate.
    - e. Control station electronics shall mount directly behind the faceplate. The entire assembly shall mount into a single gang back box. Back boxes for flush mounted stations shall be industry standard back boxes. The manufacturer shall supply back boxes for surface mounted stations.
  - 3. Electrical
    - Control station wiring shall be EchoConnect control wiring utilizing low-voltage, Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
    - b. The station shall use (2) #16 AWG stranded wires for 24vDC operating power.
    - c. Station wiring shall be topology free. It may be point-to-point, bus, loop, home run or any combination of these. Stations that require daisy-chain wiring shall not be acceptable.
    - d. Connectors for wire termination shall be provided with all stations.

- e. Connection to the companion mobile app shall be made using Bluetooth Smart
- f. Stations shall support a MicroSD card slot for firmware maintenance
- g. Stations shall be UL/ cUL LISTED and CE marked
- 4. Functional
  - a. The stations shall support the following control options via a companion mobile app
    - 1) Preset activate and deactivate
    - 2) Direct zone intensity control
    - 3) Color zone color control
    - 4) Activation of space based station lockout
    - 5) Activation of spaced based sequences
    - 6) Room combine
  - b. The stations shall support the configuration options via a companion mobile app
    - 1) Preset timing and names
    - 2) Space names and contents
    - 3) Button and fader functionality of connected control stations
    - 4) Sensor configuration and remote walk test activation
    - 5) DMX patching of connected DMX interface devices
- 5. Station Security

1)

- a. The station shall offer two levels of security set independently
  - Connection level security
    - a) No access shall be allowed to any function without the correct connection password
  - 2) Configuration level security
    - a) No access shall be allowed to any configuration function without the correct configuration password.
- AA. DMX Playback Controllers
  - 1. General
    - a. The DMX playback controller be the Echo DMX Scene Controller by ETC, Inc., or equal.
    - b. The scene controller shall allow for control of DMX lighting through:
      - 1) DMX input for snapshot capture of lighting presets
      - 2) Live control of intensity, hue and saturation of patch DMX Zones from connected stations and mobile apps
      - The scene controller shall support 32 Presets of 512 DMX Addresses
    - d. The scene controller supports control of 16 patched DMX zones
  - 2. Mechanical

c.

- a. The DMX scene controllers shall be DIN-Rail Mounted on DIN 43880 (35/7.5) rail
- b. The DMX scene controllers shall be constructed of injection-molded black ABS plastic that fully encloses all electrical components
- c. The DMX scene controllers shall support onboard mode and termination configuration using toggle switches
- d. The DMX scene controllers shall have LED indicators for status of
  - 1) Blue colored indicator for power
  - 2) Bi-color DMX activity indicator
- 3. Electrical
  - Control station wiring shall be EchoConnect control wiring utilizing low-voltage, Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
  - b. The station shall use (2) #16 AWG stranded wires for 24vDC operating power.
  - c. Station wiring shall be topology free. It may be point-to-point, bus, loop, home run or any combination of these. Stations that require daisy-chain wiring shall not be acceptable.

- 10
  - d. DMX Port shall comply with the requirements of ANSI E1.11 USITT DMX512-A standards.
  - e. DMX input shall be optically-isolated from the gateway electronics.
  - f. DMX output shall be earth-ground referenced.
  - g. DMX Port shall be capable of withstanding fault voltages of up to 250vAC without damage.
  - h. DMX Ports shall be eight-position removable connectors supporting Belden 9729 (or equivalent) or Category 5 Ethernet wiring
  - i. Stations shall support a MicroSD card slot for firmware maintenance
  - j. Stations shall be UL/ cUL LISTED and CE marked
- 4. Functional
  - a. The scene controller shall support recall of prerecorded scenes for playback using DMX
  - b. There shall be support for 32 presets
  - c. The scene controller shall support preset playback as activated by any connected control station
  - d. The scene controller shall support DMX pass-through for real-time output of incoming DMX levels.
  - e. The scene controller shall support live control and recording for multiple DMX fixture profiles.
- BB. Echo System Expansion Module
  - 1. General
    - a. The system expansion modules shall be the Echo Expansion Bridge (EEB) by ETC, Inc., or equal
    - b. The Expansion Bridge shall allow for the following features:
      - 1) Connection of a third party wireless access point to allow for wireless (Wi-Fi) connection of the EchoAccess Mobile App to the Echo Control System
      - 2) Combination of up to four Echo segments to create a larger integrated Echo system
      - Communication with a Unison Paradigm Architectural Control Processor to allow for control interaction and indication of the comprehensive control system
  - 2. Mechanical
    - a. The Echo Expansion Bridge shall be DIN-rail mounted on DIN43880 and EN60715 (35/7.5) compatible rail
    - b. The Bridge shall be constructed of injection-molded, black ABS plastic that fully encloses all electrical components
    - c. The Bridge shall have a backlit display for identification, status reporting and configuration
    - d. The Bridge shall have buttons for up, down, back and enter for use with the backlit display
    - e. The Bridge shall have a hard reset button accessible on the front panel
    - f. The Bridge shall have LED indicators:
      - 1) Power Status Blue
      - 2) Network Status Green
  - 3. Electrical
    - a. The Expansion Bridge shall have an RJ45 Ethernet port for connection to a network that supports additional lighting control products
    - b. The Bridge shall have four EchoConnect connection terminals
      - 1) Control wiring utilizing low-voltage, Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).

- 2) Control wiring shall be topology free. It may be point-to-point, bus, loop, home run or any combination of these. Control products that require daisy-chain wiring shall not be acceptable.
- c. The station shall use (2) #16 AWG stranded wires for 24vDC operating power when not utilizing Power over Ethernet (PoE).
- d. The Bridge shall support a MicroSD card for firmware maintenance
- e. The Bridge shall be UL/ cUL LISTED and CE marked
- f. The Bridge shall be FCC Compliant
- 4. Network
  - a. Communications physical layer shall comply with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet specifications
  - b. All network cabling shall be Category 5 (or better), conforming to TIA-568A/B, and shall be installed by a qualified network installer
  - c. Switches shall comply with power-over-Ethernet IEEE802.3af, unless a separate in-line power supply is provided
- 5. Environmental
  - a. The ambient operating temperature shall be 0° to 50°C (32° to 122°F)
  - b. The operating humidity shall be 5% to 95% non-condensing
- 6. Functional
  - a. Connection to EchoAccess Mobile Application
    - 1) The Expansion Bridge shall facilitate communication from an Echo control system to a wireless access point
    - 2) The EchoAccess Mobile Application shall connect to the wireless access point and send control and configuration commands to the Expansion Bridge for communication to all connected Echo Products
  - b. Creation of larger Echo control systems
    - 1) The Expansion Bridge shall allow up to four Echo control segments to be merged together
    - 2) Each Echo segment must contain an EchoConnect Station Power Supply
    - 3) The following system maximums shall be supported per bridge:
      - a) Sixty four (64) Stations, Sensors and Control Interfaces
      - b) Sixty four (64) Power Control and Output Products
      - c) Sixteen (16) Control Spaces
      - d) Sixteen (16) Control Zones per Space
  - c. Connection to a Unison Paradigm Architectural Control Processor (P-ACP)
    - 1) The Expansion Bridge shall communicate to a Paradigm Architectural Control Processor using an Ethernet Network
    - 2) Up to sixteen (16) Bridges shall be able to connect to a single (P-ACP)
    - 3) Up to 128 Bridges shall be able to connect to a single Paradigm Projects
    - Paradigm systems shall be able to control and indicate status of the following Echo control properties
      - a) Echo Zones
      - b) Echo Presets
      - c) Echo Space Combine
      - d) Echo Space Lockout
- CC. Echo Station Power Modules
  - 1. The Station Power Supply shall be the Unison Echo E-SPS or E-SPM as manufactured by Electronic Theatre Controls, Inc., or equal.
  - 2. Mechanical
    - a. The Station Power Supply (SPS) assembly shall be designed for use in the following form factors:
      - 1) DRd Series Enclosure Module
      - 2) DIN rail mount Module

- b. The SPS shall convert input power into low-voltage (Class II) power with data line to energize control stations, zone controllers, time clock, and other devices for multi-scene lighting control.
- c. SPS module shall be housed in a powder-coated formed steel body
- d. DRd SPS module shall be contained in a plug-in assembly and contain no discrete wire connections.
- e. The SPS shall be convection cooled.
- f. User Interface
  - 1) The SPS shall utilize light emitting diodes (LED's) to indication function, status and fault.
- g. The DRd SPS Module shall be secured behind the locking door.
- 3. Electrical
  - a. The SPS shall require no discrete wiring connections when used in a power control enclosure; all wiring shall be terminated into the dimming enclosure.
  - b. The SPS shall utilize line-voltage power supplied by the contractor, terminated inside the dimming enclosure, or power supply.
  - c. The SPS shall support EchoConnect communications with remote devices, including control stations, zone controllers, time clock stations and other devices.
  - d. The EchoConnect network shall utilize low-voltage Class II twisted pair wiring, type Belden 8471 (unshielded) or Belden 8719 (shielded) or equivalent. One # 14 AWG drain wire will be required for system not using grounded metal conduit.
    - 1) The network shall be topology free. Network wiring may be bus, loop, home run, star or any combination of these.
    - 2) The control bus wiring shall permit a total wire run of 1640 ft. (500m)
    - 3) Wiring between stations shall not exceed 1313 ft. (400m).
    - 4) CAT5 wiring shall be supported for systems not requiring topology free infrastructure or EchoConnect bus lengths not in excess of 1000ft
- 4. Functional
  - a. Capacity
    - 1) Each SPS shall supply power for up to 16 control station, zone controllers, time clock stations and other devices.
  - b. Operation
    - 1) The SPS shall not require configuration or programming.
    - 2) The SPS shall automatically detect faults in the wiring, indicate the fault, including the fault polarity, and shut down the output power.
      - a) The SPM shall automatically reset when the fault is cleared and can be manually reset by removing and re-inserting the module.

DD. The system shall consist of the following:

- 1. Northwest Auditorium:
  - a. Provide One (1) ERn2 Rack Mount Paradigm Control Enclosure with P-ACP processor, P-SPM Station Power Module, ERn-RPS Redundant Power Supply, and UBPO Battery Pack. Enclosure to be mounted in existing network rack.
  - Provide One (1) MB8 Rack Mounted LCD panel with Toggle Switch. Toggle Switch shall be labeled Index Rail Lights. Reuse exiting switch if possible. Wire switch to control existing index rail lights. Replace existing Belden 8471 with new Belden 1583a.
  - c. Provide One (1) Wireless LCD Control Station with dock and 25'0" minimum control cable.
  - d. Provide Three (3) Four-preset and Off Pushbutton Stations. Install in locations of existing 4 Preset and Off Stations.
  - e. Provide Three (3) Single-button Pushbutton Entry. Install in locations of existing single buttons stations.
  - f. All devices are to mount in the location of existing stations. Existing conduit wire, and back boxes shall be reused wherever possible.

- g. Provide all custom back boxes required for the Architectural Control System unless previously noted. Boxes to be installed by Electrical Contractor.
- h. Provide programming for the controls based on notes to be provided by the consultant.
- i. Certify all cable before reuse.
- 2. Northwest Little Theatre:
  - a. Provide One (1) Echo 6-Button Inspire Station. Install Rear of House right in the Little Theatre.
  - b. Provide One (1) Echo Keyswitch Station. Install backstage in location indicated on the plans.
  - c. Provide One (1) Echo Touch Station. Install stage right.
  - d. Provide One Echo Access Station. Install stage right.
  - e. Provide Echo Power Supply, Echo Expansion Bridge, and Echo DMX Scene Controller. Install these items in the DIN Rail box listed in the Networking Section below.
  - f. Provide all back boxes, conduit and wiring as required for a properly operating system.
  - g. Provide programming for the controls based on notes to be provided by the consultant.
- 3. South Auditorium:
  - a. Provide One (1) ERn2 Rack Mount Paradigm Control Enclosure with P-ACP processor, P-SPM Station Power Module, ERn-RPS Redundant Power Supply, and UBPO Battery Pack. Enclosure to be mounted in the existing equipment rack.
  - b. Provide One (1) Wall Mounted LCD Station. Install in existing location of Premiere Display Station.
  - c. Provide One (1) Wireless LCD Control Station with Dock and 25'0" minimum control cable.
  - d. Provide Three (3) Four-preset and Off Pushbutton Stations. Install in locations of existing 5 button stations.
  - e. Provide Four (4) Single-button Pushbutton Entry. Install in locations of existing stations.
  - f. All devices are to mount in the location of existing stations. Existing conduit and back boxes shall be reused wherever possible.
  - g. Provide all custom back boxes required for the Architectural Control System unless previously noted. Boxes to be installed by Electrical Contractor.
  - h. Provide programming for the controls based on notes to be provided by the consultant.
  - i. Provide all cable required for the proper operation of the Architectural lighting control system. Remove all control cabling and pull new cable.
- 4. West Auditorium:
  - a. Provide One (1) ERn2 Rack Mount Paradigm Control Enclosure with P-ACP processor, P-SPM Station Power Module, ERn-RPS Redundant Power Supply, and UBPO Battery Pack. Enclosure to be mounted in the existing equipment rack.
  - b. Provide One (1) Wall Mounted LCD Station. Install in location of existing LCD Station. Remove existing Belden 8471 and replace with new Belden 1583a.
  - c. Provide One (1) Wireless LCD Control Station with dock and 25'0" minimum control cable.
  - d. Provide Four (4) Four-preset and Off Pushbutton Stations. Install in locations of existing 4 Preset and Off Stations.
  - e. Provide Two (2) Single-button Pushbutton Entry. In location of existing Entry Stations.
  - f. All devices are to mount in the location of existing stations. Existing conduit and back boxes shall be reused wherever possible.
  - g. Provide all custom back boxes required for the Architectural Control System unless previously noted. Boxes to be installed by Electrical Contractor.

- h. Provide programming for the controls based on notes to be provided by the consultant.
- i. Reuse existing cable. Certify cable before reuse.

## 2.05 THEATRICAL CONTROL NETWORK

- A. The Electronic Theatre Controls Net3 network shall provide data distribution over a TCP/IP network. Data shall be layer 3 routable over the Ethernet network. Systems using proprietary formats or formats other than TCP/IP or non-layer 3 routable networks shall not be accepted.
- B. Connections shall be made between consoles, face panels, architectural processors, computers, ETCNet2 nodes, Net3 gateways and devices over standard Ethernet distribution systems using 10/100BaseT wiring and/or 10/100BaseFL. All installations shall conform to established Ethernet wiring practice and installation shall be performed by contractors qualified to do this type of work. All wiring shall be tested at Category 5e for full bandwidth operation to the appropriate IEEE standard.
- C. The network shall provide DMX routing and patching and prioritization for up to 32,767 DMX addresses and DMX data may be input or output from any port on any DMX node in the system. DMX input, routing and output shall be specifically supported on the system from multiple sources and locations up to the maximum number of nodes supported by the Ethernet topology.
- D. The network shall support multiple consoles, computers, file servers, printers, and architectural processors with discrete command lines and control. The ETCNet3 network shall support multiple venues/systems on the same network.
- E. Network configuration shall be via ETC Network Configuration Editor (NCE) software. The software shall permit complete user flexibility allowing the system operator to patch DMX data over Ethernet DMX (EDMX), assign node labels for easy identification, assign RFUs to specific systems in multi-system networks, assign DMX offsets and provide DMX port prioritization. Each node shall have a specific IP address provided automatically by the software. The user may edit this IP address. Systems that do not support simple Windows configuration or systems that do not allow complete reconfiguration of the above mentioned features over Ethernet shall not be acceptable.
- F. All configuration data for each network device shall be held at the device and system operation shall not require continuous on line operation of the network configuration software.
- G. Architectural and Entertainment systems connected to the same ETCNet3 network shall be capable of arbitrating control over EDMX data. The system shall be capable of alternating control of individual dimmer data between architectural and entertainment systems without intervention by the user. The user shall dictate the conditions under which system shall automatically take control and the network shall allow user override of the user selected defaults. Systems which require direct user intervention to allocate control of dimmers between architectural and entertainment lighting systems shall not be allowed.
- H. The ETCNet3 network shall allow multiple DMX inputs assigned to the same EDMX range to be set at different priorities. This shall allow the user to assign high or low priority to each DMX input port in the network on a port by port basis. The network shall require a valid DMX signal present at the input to initiate prioritization. Systems that do not allow for prioritization shall not be allowed.
- I. Operational Features.

- 1. The video monitor outputs at any remote video interface shall be able to monitor the video output of any ETCNet3 console connected to the network.
- Each Gateway shall control up to 2048 DMX addresses, within the confines of up to 64 DMX (32,767 EDMX address) "universes". The specific DMX data input or output by the Node shall be freely configurable by the user. Duplicate outputs of DMX lines (DMX splitter) and discrete outputs shall be fully supported.
- 3. Any number of DMX universes may be configured with any length up to 512 addresses as long as the total does not exceed 32,767. Any range of DMX addresses may be selected for each. Multiple sources may be combined and a priority may be assigned to each source. Each DMX line may have its own start address and offset for ease of use.
- 4. DMX ports shall be configurable for either input or output. Multiple DMX signal routing patches and multiple facilities shall be specifically supported and limited only by the file storage capacity of the computer with ETC Network Configuration Editor software installed.
- 5. File transmission, synchronization and access to File Servers using Microsoft NT server software shall be supported.
- 6. All Network configuration information shall be available as a system printout.
- J. DMX Gateway Two-Port.
  - 1. General.
    - a. The ETC Two Port DMX Gateway shall distribute DMX over Ethernet to any input/output device.
    - b. Compliant with IEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet.
    - c. The unit shall be CE compliant and ETL Listed.
    - d. The unit shall be RoHS Compliant (lead-free).
    - e. The unit shall support ETCNet2 and Net3/ACN protocols.
    - f. The unit meets RDM BSR E1.20 Standard.
    - g. The unit is USITT DMX512 and ANSI E1.11 DMX512-A compliant.
  - 2. Mechanical.
    - a. The housing shall be fabricated of 16-gauge steel.
    - b. It shall be finished in fine-texture, scratch-resistant, black powder coat.
    - c. There shall be an integral backlit LCD display for identification (soft-labeling) and status reporting. Reporting to list the following:
      - 1) Gateway identification Name, IP address, software version.
      - 2) Network configuration.
      - 3) DMX port configuration.
      - 4) DMX port status.
    - d. There shall be a menu button for backlight/paging control.
    - e. Power (blue) and Network present/activity (green) LED indicators shall be on the front of the unit.
    - f. Reset button for hard reset/forced reboot shall be integrated into the housing of the unit.
    - g. The unit will utilize an industry standard two-gang back box (Raco 691 with min. 1/2" mud ring extender or Raco 696 deep box) when used in a recessed mount application.
    - h. When surface mounted, the unit shall utilize an ETC standard two-gang back box (4105A2002).
    - i. A hanging bracket and connectorized backbox shall be included with touring version (C-clamp and U-bolt hardware available).
  - 3. Processor.
    - a. The maximum delay time from input to output not greater than one packet time (minimum 22 mSec.).
    - b. There shall be four selectable DMX output update rates with maximum setting not less than 40Hz.

- 4. Environmental.
  - a. The ambient operating temperature shall be from 0° to 40°C (32° to 104°F).
  - b. The safe storage temperature range shall be from -40° to 70°C (-40° to 158°F).
  - c. The Operating humidity of the unit shall be from 5% 95% non-condensing.
- 5. Power.
  - a. Power Supply options shall include:
    - 1) 8 to 28Vdc external power supply.
    - 2) 48V IEE 802.3af Power over Ethernet.
    - Maximum power consumption shall be 5 watts.
- 6. DMX Ports.

b.

- a. 5-pin XLR connectors shall be female for output port, male for input port.
- b. The ports shall be software-configurable for input or output.
- c. The DMX ports shall be fully opto-isolated input from the gateway electronics.
- d. The ports shall be capable of withstanding fault voltages of up to 250VAC.
- e. A switch for DMX/RDM termination shall be incorporated for each port.
- 7. Configuration.
  - a. ETCNet2 Mode configuration shall be accomplished using Network Configuration Editor (NCE) v4.1 or later.
  - b. Net3 Mode configuration shall be provided by Gateway Configuration Editor (GCE).
  - c. Each DMX Two-Port Gateway shall support up to 1024 DMX In or DMX Out channels.
  - d. There shall be control of up to 512 DMX addresses per port, within the confines of up to 64 DMX "universes" (32,767 EDMX addresses) when using EDMX and up to 64,279 "universes" (32, 910,848 DMX addresses) when using Streaming ACN.
  - e. There shall be user configurable labeling.
  - f. Specific DMX data input or output shall be configurable by user.
  - g. Duplicate outputs of DMX lines (DMX splitter) and discrete outputs shall be fully supported.
  - h. Any number of DMX universes may be configured with any length up to 512 addresses as long as the total does not exceed 32,767.
  - i. Multiple sources may be combined and a priority may be assigned to each source.
  - j. Individual port start address and offset are required for ease of use.
- 8. Physical.
  - a. The N32G-2F/2M wall mount gateway shall be a maximum of 4.85" high x 4.88" wide x 5.41" deep and shall weigh 2.0 lbs. The shipping weight shall be 4.5 lbs.
  - b. The N3T2G-2F/2M touring gateway shall be a maximum of 6.47" high x 4.88" wide x 5.41" deep and shall weigh 3.9 lbs. The shipping weight shall be 4.8 lbs.
- K. Multi Box Plug In Stations.
  - 1. The Multi Box Plug-in Stations shall consist of the appropriate connectors required for the system in use. These stations shall be available with DMX input or output, Remote Focus Unit, ETCNet, ETCLink or architectural control connectors. Custom control connectors shall be available.
  - 2. The following standard components shall be available for Remote Plug-in Stations:
    - a. 5-Pin male XLR connectors for DMX input.
    - b. 5-Pin female XLR connectors for DMX output.
    - c. 6-Pin female XLR connectors for RFU connections.
    - d. RJ45 connectors for ETCNet connections Twisted Pair.
    - e. Unison Portable Station Connectors.
  - 3. Station faceplates shall be .08" aluminum, finished in fine texture, scratch-resistant black powder coat. Silk-screened graphics shall be white.
  - 4. The station panel shall mount into an industry standard back box, depending on size and quantity of connectors. A terminal block shall be supplied for contractor terminations.
- L. Provide the following:
  - 1. Northwest Auditorium:
    - a. Reuse existing equipment rack.
    - b. Disconnect existing network connections from existing patch bays and switches. The connections are to be reinstalled in the new equipment. Test all existing cables and connections to verify proper function.
    - c. Test and inspect all existing net taps and gateways including housing, jack and Belden cable. Replace or repair any nonfunctioning components. Inspect and repair other stations as required.
    - d. Test and inspect all existing DMX port, including housing, jack and Belden cable. Replace or repair any nonfunctioning components.
    - e. Provide One (1) 52 Port POE Ethernet Switch, which can be mounted in a 19" accessory rack.
    - f. Provide Two (2), wireless access points, Cisco WAP371 or similar, and install in locations as shown on the drawings. Exact locations shall be determined in the field to provide full coverage of the auditorium and stage and be unobtrusive to the audience.
    - g. Provide Five (5) Portable One-port Gateways with One (1) DMX outputs with pipe clamp and safety cable.
    - h. Provide Five (5) 10'0" Ethernet Cables to be used with the portable Gateways.
    - i. Provide One (1) Rack mount Uninterruptable Power Supply capable of powering the entire network for a period of not less than 90 minutes.
    - j. Provide Six (6) Network jacks to be installed in the locations of the existing LCD plug-in stations. Pull new Belden 1583a for each station.
    - k. Provide Two (2) new Net stations. Install one in the booth and one in the stage right wing for the wireless access points.
    - I. Provide (1) Rack Mount 4-port gateway with one DMX-in and Three DMX-out.
    - j. Provide all cable, patch bays, power supplies, patch cables for the correct wiring and operation of the Theatrical Control Network. Reconnect all existing devices that are not being replaced. Label all patch bays to indicate locations of each port.
  - 2. Northwest Little Theatre:
    - a. Removing existing DIN Box. Provide New DIN box containing, (1) 2-in and 1-out DMX Merger, Echo Expansion bridge (listed above), Echo DMX Scene Controller (Listed above), Echo Power supply (listed above), (1) 1-in and 7-out DMX Opto Splitter, and power supply. Connect existing (5) DMX outs (2) DMX-In and new Echo stations and DMX devices.
    - b. Provide Two (2) DMX Out Stations. Install in locations show on the plans.
    - c. Provide all cable, patch bays, power supplies, patch cables for the correct wiring and operation of the Theatrical Control Network. Label all patch bays to indicate locations of each port.
  - 3. South Auditorium:
    - a. Reuse existing equipment rack.
    - b. Disconnect existing network connections from existing patch bays and switches. The connections are to be reinstalled in the new equipment. Test all existing cables and connections to verify proper function.
    - c. Test and inspect all existing net taps, including housing, jack and Belden cable. Replace or repair any nonfunctioning components. Inspect and repair other stations as required.
    - d. Test and inspect all existing DMX port, including housing, jack and Belden cable. Replace or repair any nonfunctioning components.
    - e. Provide One (1) 48 Port POE Ethernet Switch, Cisco SG250-50HP or similar, which can be mounted in a 19" accessory rack.
    - f. Provide Two (2), wireless access points, Cisco WAP371 or similar, and install in locations as shown on the drawings. Exact locations shall be determined in the

field to provide full coverage of the auditorium and stage and be unobtrusive to the audience.

- g. Provide Two (2) Net Stations Each with (1) RJ-45 connector. The station shall be labeled lighting network above the jack and shall have the maximum allowable length of extension cable below the jack.
- h. Provide Five (5) RJ-45 connectors. Replace existing Unsion LCD Plug-in stations in the locations indicated. Replace wiring.
- i. Provide Two (2) pipe mount Two-port gateways with (2) DMX Out. Install in catwalks in location of existing network gateways.
- j. Provide Two (2) wall mount Two-port gateways with (2) DMX Out. Install in on stage in location of existing network gateways.
- k. Provide (1) rack mount Four-port gateway with (1) DMX input and (3) DMX Outputs.
- I. Provide Four (4) Portable Two-port Gateways with two (2) DMX outputs with pipe clamp and safety cable.
- m. Provide Two (2) Portable one port gateways with (1) DMX output with pipe clamp and safety cable.
- n. Provide Six (6) 10'0" Ethernet Cables to be used with the portable Gateways.
- o. Reroute the existing DMX-1 line. The current path is Booth the Dimmer Rack 1. The new path shall be booth to equipment rack to dimmer rack 1.
- p. Provide One (1) Rack mount Uninterruptable Power Supply capable of powering the entire network for a period of not less than 90 minutes.
- q. Provide all cable, patch bays, power supplies, patch cables for the correct wiring and operation of the Theatrical Control Network. Cable to be pulled by the Electrical Contractor.
- 4. West Auditorium:
  - a. Reuse existing equipment rack.
  - b. Disconnect existing network connections from existing patch bays and switches. The connections are to be reinstalled in the new equipment. Test all existing cables and connections to verify proper function.
  - c. Test and inspect all existing net taps, including housing, jack and Belden cable. Replace or repair any nonfunctioning components. Inspect and repair other stations as required.
  - d. Test and inspect all existing DMX ports, including housing, jack and Belden cable. Replace or repair any nonfunctioning components.
  - e. Provide One (1) 48 Port POE Ethernet Switch, Cisco SG250-50HP or similar, which can be mounted in a 19" accessory rack.
  - f. Provide Two (2), wireless access points, Cisco WAP371 or similar, and install in locations as shown on the drawings. Exact locations shall be determined in the field to provide full coverage of the auditorium and stage and be unobtrusive to the audience.
  - g. Provide Six (6) Net stations each with One (1) RJ-45 net jack. Install in locations shown on the plans. The station shall be labeled lighting network above the jack and shall have the maximum allowable length of extension cable below the jack.
  - h. Provide Two (2) Multibox Type 1. Each with Two (2) RJ45 net jacks. Each port shall be labeled lighting network above the jack and shall have the allowable length of extension cable below the jack.
  - i. Provide One (1) Multibox type 3 containing Three (3) RJ-45 network jacks. Each port shall be labeled lighting network above the jack and shall have the allowable length of extension cable below the jack. M ount in the location of the existing Unison Plug-in station in the booth. Replace the existing back box and pull new wiring.
  - j. Provide four (4) pipe mount single port gateways with (1) DMX-Out. Install using U-bolts in locations show on the plans.
  - k. Provide four (4) wall mount single port gateways with (1) DMX-Out. Install in locations shown on the plans

- I. Provide Four (4) Portable Two-port Gateways with two (2) DMX outputs with pipe clamp and safety cable.
- m. Provide four (4) 10'0" Ethernet Cables to be used with the portable Gateways.
- n. Provide One (1) Rack mount Uninterruptable Power Supply capable of powering the entire network for a period of not less than 90 minutes.
- o. Provide all cable, patch bays, power supplies, patch cables for the correct wiring and operation of the Theatrical Control Network. Label all patch bays to indicate locations of each port.

#### 2.06 LIGHTING INSTRUMENTS

- A. All fixtures are manufactured as specified.
- B. All fixtures are to be delivered to the job site complete with pipe clamps and safety cables. Pattern holder, color frame, DMX and PowerCON cable when applicable. All fixtures are to be correctly installed by the contractor.
- C. Provide the following Fixtures:
  - 1. Northwest Auditorium:
    - a. Provide Ten (10) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #426LT 26degree lens tubes. The fixtures shall utilize 5-pin xlr connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
    - b. Provide Twelve (12) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #436LT 36degree lens tubes. The fixtures shall utilize 5-pin XLR connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
    - c. Provide Ten (10) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #450HDLT 50degree lens tubes. The fixtures shall utilize 5-pin XLR connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
    - d. Provide Twenty (20) ETC ColorSource PAR #CSPARDB, LED wash luminaries with Deep Blue array. Provide each fixture complete with pipe clamp, safety cable, color frame, with very narrow, narrow, medium and wide round lenses, and a 5' male Edison to Power Con power input cord. Hang circuit and focus as directed by Consultant.
    - e. Provide Eight (8), Altman 3000K LED work lights, each complete with pipe clamp, safety cable, male parallel blade U-Ground "Edison" connector. Hang circuit and focus in auditorium as directed by Consultant.
    - f. Provide Twelve (12), ETC ColorSource Cyc, Cyc lights: each complete with hanging bracket, pipe clamp, safety cable, and 5' Male Edison connector to PowerCon power input cord. Hang circuit and focus on the fourth electric in the auditorium as directed by Consultant.
    - g. Provide the following theatrical lighting accessories:
      - 1) Provide Seventy (70) 5-pin DMX cables in the following lengths with male connector on one end and a female connector on the other.
        - a) Provide Sixty (60) 10' cables.
        - b) Provide Ten (10) 25' cables

- 2) Provide Seventy (70) PowerCON cables in the following lengths with male connector on one end and a female connector on the other.
  - a) Provide Seventy (70) 10' cables.
  - b) Provide Ten (10) 25' cables.
- 3) Provide Ten (10) 5-Pin XLR DMX Terminators.
- 2. Northwest Little Theatre:
  - a. Provide Four (4) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #426LT 26degree lens tubes. The fixtures shall utilize 5-pin xlr connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
  - b. Provide Four (4) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #436LT 36degree lens tubes. The fixtures shall utilize 5-pin XLR connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
  - c. Provide four (4) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #450hdLT 50degree lens tubes. The fixtures shall utilize 5-pin XLR connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
  - d. Provide Eight (8) ETC ColorSource PAR #CSPARDB, LED wash luminaries with Deep Blue array. Provide each fixture complete with pipe clamp, safety cable, color frame, with very narrow, narrow, medium and wide round lenses, and a 5' male Edison to Power Con power input cord. Hang circuit and focus as directed by Consultant.
  - e. Provide the following theatrical lighting accessories:
    - 1) Provide Twenty (20) 5 pin DMX cables in the following lengths with male connector on one end and a female connector on the other.
      - a) Provide Five (5) 5' cables.
      - b) Provide Fifteen (15) 10' cables.
    - 2) Provide Twenty (20) PowerCON cables in the following lengths with male connector on one end and a female connector on the other.
      - a) Provide Five (5) 5' cables.
      - b) Provide Fifteen (15) 10' cables.
- 3. South Auditorium:
  - a. Provide Eight (8) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #419LT 19degree lens tubes. The fixtures shall utilize 5-pin XLR connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
  - b. Provide Twelve (12) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #426LT 26degree lens tubes. The fixtures shall utilize 5-pin XLR connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
  - c. Provide Twelve (12) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #436LT 36degree lens tubes. The fixtures shall utilize 5-pin xlr connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male

Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.

- d. Provide Twenty (20) ETC ColorSource PAR #CSPARDB, LED wash luminaries with Deep Blue array. Provide each fixture complete with pipe clamp, safety cable, color frame, with very narrow, narrow, medium and wide round lenses, and a 5' male Edison to Power Con power input cord. Hang circuit and focus as directed by Consultant.
- e. Provide Eight (8), Altman 3000K LED work lights, each complete with pipe clamp, safety cable, male parallel blade U-Ground "Edison" connector. Hang circuit and focus in auditorium as directed by Consultant.
- f. Provide Twelve (12), ETC ColorSource Cyc, Cyc lights: each complete with hanging bracket, pipe clamp, safety cable, and 5' Male Edison connector to PowerCon power input cord. Hang circuit and focus on the fourth electric in the auditorium as directed by Consultant.
- g. Provide the following theatrical lighting accessories:
  - 1) Provide Seventy (70) 5-pin DMX cables in the following lengths with male connector on one end and a female connector on the other.
    - a) Provide Sixty (60) 10' cables.
    - b) Provide Ten (10) 25' cables
  - 2) Provide Seventy (70) PowerCON cables in the following lengths with male connector on one end and a female connector on the other.
    - a) Provide Seventy (70) 10' cables.
    - b) Provide Ten (10) 25' cables.
  - 3) Provide Ten (10) 5-Pin XLR DMX Terminators.
- 4. West Auditorium:
  - a. Provide Eight (8) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #419LT 19degree lens tubes. The fixtures shall utilize 5-pin XLR connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
  - b. Provide Twelve (12) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #426LT 26degree lens tubes. The fixtures shall utilize 5-pin XLR connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
  - c. Provide Twelve (12) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights, with #436LT 36degree lens tubes. The fixtures shall utilize 5-pin xlr connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang circuit and focus in little theatre as directed by Consultant.
  - d. Provide Twenty (20) ETC ColorSource PAR #CSPARDB, LED wash luminaries with Deep Blue array. Provide each fixture complete with pipe clamp, safety cable, color frame, with very narrow, narrow, medium and wide round lenses, and a 5' male Edison to Power Con power input cord. Hang circuit and focus as directed by Consultant.
  - e. Provide Eight (8), Altman 3000K LED work lights, each complete with pipe clamp, safety cable, male parallel blade U-Ground "Edison" connector. Hang circuit and focus in auditorium as directed by Consultant.
  - f. Provide Twelve (12), ETC ColorSource Cyc, Cyc lights: each complete with hanging bracket, pipe clamp, safety cable, and 5' Male Edison connector to PowerCon power input cord. Hang circuit and focus on the fourth electric in the auditorium as directed by Consultant.
  - g. Provide the following theatrical lighting accessories:

- 1) Provide Seventy (70) 5-pin DMX cables in the following lengths with male connector on one end and a female connector on the other.
  - a) Provide Sixty (60) 10' cables.
  - b) Provide Ten (10) 25' cables
- 2) Provide Seventy (70) PowerCON cables in the following lengths with male connector on one end and a female connector on the other.
  - a) Provide Seventy (70) 10' cables.
  - b) Provide Ten (10) 25' cables.
- 3) Provide Ten (10) 5-Pin XLR DMX Terminators.

#### 2.07 DISTRIBUTION EQUIPMENT

- A. Enclosures shall be code gauge steel with receptacles in place and ready for connection to building wiring.
- B. Wire receptacles in connector strips to terminal blocks. Identify wires and terminals with numbers corresponding to circuit schedule.
- C. The terminal blocks shall be molded barrier type with tubular screw clamp suitable for connecting to multi-conductor feed or incoming wire. Two terminals per circuit shall be provided to accept 18-8 AWG (10/20/30A), 18-4 AWG (50A), or 10-1/0 AWG (60/100A) wire.
- D. Identification of load receptacles: designate each receptacle with white characters in correspondence with the circuit schedule.
  - 1. Connector strips: Number with 2" characters above receptacles on both sides except where noted otherwise.
  - 2. Outlet Boxes: Number with 3/4" characters below receptacles.
- E. Load receptacle devices except where noted shall be 20A stage pin receptacle/body/plug: 2 pole + ground.
- F. Connector Strips and outlet boxes shall be furnish with all necessary hardware; straps, U- bolts, etc., for mounting connector strips to rigged 1 1/2" pipe, wall or supporting steel as specified.
  - 1. Prime and paint all metal parts black enamel.
  - 2. Connector strip shall be code gauge steel with removable cover sections.
- G. Northwest High Auditorium
  - 1. Replace Forty-two (42) stage pin outlets with PBG Edison outlets and relabel those circuits in the locations indicated on the plans.
  - 2. Relabel floor pockets and wall boxes as indicated on the plans.
- H. South Auditorium
  - 1. Replace Sixty-eight (68) stage pin outlets with PBG Edison outlets and relabel those circuits in the locations indicated on the plans.
  - 2. Relabel floor pockets and wall boxes as indicated on the plans.
  - 3. Provide Four Stage pin to Edison adapters, 6" maximum length, with a male stage pin and a female Edison.
- I. West Auditorium

- 1. Replace Sixty (60) stage pin outlets with PBG Edison outlets and relabel those circuits in the locations indicated on the plans.
- 2. Provide Two (2), 8' 0" Raceways each with Five (5) circuits, one RJ-45 network connector and (1) One-port gateway with one DMX-Output. Each section shall have three (3) circuits wired into 3 evenly spaced flush mount female 2-pin and ground "Stage Pin" connectors, two (2) circuits wired into 4 evenly spaced flush mount female 20Amp parallel blade U-Ground "Edison" connectors for relay circuits. The connectors shall be labeled from top to bottom R245, 213, R246, 214, R245, 215, R246 and R243, 219, R244, 220, R243, 221, R244. Each label shall be placed above the associated connectors or pigtails on both sides of the raceway. The Net jack shall be labeled Lighting network above the jack, and the maximum allowable extension shall be listed below the jack. Mount to side wall of the auditorium adjacent to the front torm pipes. Provide with all hardware required to mount to the wall.
- 3. Provide Five (5) floor pocket outlet plates. Each with One flush mount female 2-pin and ground "Stage Pin" connector, and One flush mount female 20Amp parallel blade U-Ground "Edison" connectors for relay circuits. The plates are to be mounted in existing floor pockets. Label stage pin connectors 222, 223, 224, 229, and 232 in the locations indicated. Label the Edison connectors R233, R234, R235, R238, & R240 in the locations indicated.
- 4. Provide Two (2) floor pocket outlet plates. Each with Two flush mount female 2-pin and ground "Stage Pin" connector, and Two flush mount female 20Amp parallel blade U-Ground "Edison" connectors for relay circuits. The plates are to be mounted in existing floor pockets. Label stage pin connectors 225, 226 and 227, 228 in the locations indicated. Label the Edison connectors R236, R247, and 237, R248 in the locations indicated.
- 5. Provide One (1) floor pocket outlet plate with Two flush mount female 2-pin and ground "Stage Pin" connector, and One flush mount female 20Amp parallel blade U-Ground "Edison" connectors for relay circuits. The plate is to be mounted in existing floor pockets. Label stage pin connectors 230 and 231 in the locations indicated. Label the Edison connectors R239 in the locations indicated.

#### 2.08 DEMOLITION

- A. Northwest Auditorium
  - 1. Remove all Architectural control equipment. Wiring is to be reused unless called out to be replaced.
  - 2. Removing existing patch bays and network switches.
  - 3. Remove all existing LCD Plug-in stations.
  - 4. All distribution is to remain. Selected connectors are to be removed and replaced. Existing connectors remain with the district.
  - 5. All demoed equipment is to be recycled by the contractor unless specifically called out to remain the property of Shawnee Mission Schools or is being reused in the project.
  - 6. All back boxes and conduit are to be reused if possible. Any abandoned locations shall have wires removed and blank cover plates installed.
- B. Northwest Little Theatre
  - 1. Remove existing DMX Din Box. All existing DMX Lines are to remain and will be reconnected in the new system.
  - 2. All demoed equipment is to be recycled by the contractor unless specifically called out to remain the property of Shawnee Mission Schools or is being reused in the project.
  - 3. All back boxes and conduit are to be reused if possible. Any abandoned locations shall have wires removed and blank cover plates installed.

- C. South Auditorium
  - 1. Remove all Architectural control equipment and wiring.
  - 2. Removing all networking gateways, patch bays and network switches.
  - 3. Remove all existing LCD Plug-in stations.
  - 4. All distribution is to remain. Selected connectors are to be removed and replaced. Existing connectors remain with the district.
  - 5. All demoed equipment is to be recycled by the contractor unless specifically called out to remain the property of Shawnee Mission Schools or is being reused in the project.
  - 6. All back boxes and conduit are to be reused if possible. Any abandoned locations shall have wires removed and blank cover plates installed.
- D. West High School Auditorium
  - 1. Remove all Architectural control equipment. Wiring is to be reused unless called out to be replaced.
  - 2. Removing existing patch bays and network switches.
  - 3. Remove all existing LCD Plug-in stations.
  - 4. All distribution strips are to remain. Selected connectors are to be removed and replaced. Existing connectors remain with the district.
  - 5. Remove all floor pocket outlet plates. Cover plates and wiring are to be remain.
  - 6. All demoed equipment is to be recycled by the contractor unless specifically called out to remain the property of Shawnee Mission Schools or is being reused in the project.
  - 7. All back boxes and conduit are to be reused if possible. Any abandoned locations shall have wires removed and blank cover plates installed.

## PART 3 EXECUTION

#### 3.01 PREPARATION

- A. Inspect the areas and conditions where theatrical equipment will be installed. Notify the Architect and Owner of any conditions that would adversely affect the installation or subsequent utilization of the equipment. Do not proceed with the installation until unsatisfactory conditions are corrected.
  - 1. Coordinate work and work schedule with related work with the architect and owner. Provide items to be installed during approved time schedules.
  - 2. The facility will be in use during this project. Materials may not be stored on site unless approved by the owner. No work may take place outside of hours approved by the owner.

## 3.02 GENERAL INSTALLATION

- A. Install all theatrical equipment, hardware and accessories at locations indicated in the drawings utilizing qualified stage technicians and a licensed electrician.
  - 1. Provide all tools, accessories, connecting and attaching devices as required for a complete and properly functioning installation.
- B. Install equipment true and plumb, and securely anchored in place in accordance with the manufacture's recommendations.
- C. Properly test and demonstrate all equipment after installation.

## 3.03 STAGE LIGHTING CONTROLS

- A. Furnish all materials as indicated, including all necessary low voltage control cables and multifeeder cable, back boxes and grid iron junction boxes. The Electrical Contractor as a sub contractor of the theatrical contractor will perform the electrical service hookup and load circuit terminations.
- B. All system components shall arrive on the job site freight prepaid and completely pre-wired with all field connections clearly labeled. All equipment shall be UL listed and shall comply with National Electrical Code.
- C. The lighting system and controls shall be fully factory-tested prior to shipment and shall be guaranteed against defects in material and workmanship for two years from date of substantial completion. The warranty shall be on a factory exchange or repair basis. No equipment having a shorter warranty will be considered and all equipment provided shall be covered by this warranty. Unspecified length warranty will not be acceptable.
- D. Furnish three sets of closeout documents and manuals in both printed and electronic formats. The document should include but not limited to; system layouts, maintenance procedures, operation, and tutorials. One additional electronic set is to be provided to consultant.
- E. Provide the services of a qualified technician to instruct the owner's personnel in the proper operation of the specified control system at a time acceptable to the owner after the final punch or two weeks after turn on, whichever is later; training time not to exceed four hours.
  - 1. Upon owner's request, up to 1 year after the initial training, provide the services of a qualified technician to instruct the owner's personnel on a follow up training session date to be determined by the district; training time to be two hours.

## 3.04 CLEAN-UP

A. Upon completion of installation, remove all debris from the site. Leave work areas broom clean and ready for use.

END OF SECTION 116100

## SECTION 116101 – MIDDLE SCHOOL THEATRICAL EQUIPMENT

PART 1 GENERAL

#### 1.01 REQUIREMENTS

A. As set forth in the headings of Division 0 and Division 1, General Conditions and General Requirements shall apply to this branch of the Work.

#### 1.02 SUMMARY

- A. This section includes the fabrication, furnishing, delivery and installation of the following stage equipment:
  - 1. Stage Lighting System and Instrument Product Information.
  - 2. Dimming and Switching.
  - 3. Lighting Control Console and Accessories.
  - 4. Architectural Control.
  - 5. Theatrical Control Network.
  - 6. Lighting Instruments.
  - 7. Distribution Equipment.
  - 8. Demolition.

## 1.03 SUBMITTALS

- A. Comply with the requirements of Shawnee Mission School District and Section 013000.
- B. Product Data: Submit manufacturer's material specifications with quantities on bill of materials and installation instructions. Include instruction for handling, storage, protection, and maintenance.
- C. Shop Drawings: Show system layouts, construction methods, equipment and types, locations and materials.
- D. Submittals: Show system layouts, equipment, and complete bill of materials. Cut sheets will not be considered submittals and will be returned unread.
- E. Samples: If requested, submit samples of any equipment, hardware, light fixtures or controls.

## 1.04 QUALITY ASSURANCE

- A. Theatrical Contractor: All items of work included in this specification shall be furnished and installed by experienced stage technicians in the employ of a single contractor so that there will be no division of responsibility for the proper operation of the equipment after installation.
  - 1. Each Theatrical Contractor must furnish a written listing of at least five installations that are equal to or surpass the scope of this project and that have been installed within the last five years.
- B. If products are known to be discontinued within a year of system turn on, or are introduced with technology advances, new software, product upgrades, or replaced with newer models, it is the responsibility of the manufacture to make these conditions know to the owner and consultant.

Any equipment substitutions will be at the discretion of the owner and consultant and must be approved in writing by the owner and consultant before the substitution will be allowed.

#### 1.05 DELIVERY, STORAGE AND HANDLING

- A. Coordinate storage of all equipment, hardware, and accessories with the owner and other contractors to assure that storage does not inhibit work by other trades or disrupt school activity.
- B. The theatrical contractor shall be responsible for the handling of all equipment, hardware and accessories, including unloading and transport to the designated storage area.
- C. Deliver all lighting components, electrical equipment and their accessories to the job site no sooner than two weeks prior to their installation in order to limit possible damage to the equipment while being stored.
  - 1. Deliver materials in manufacturer's original undamaged containers with identification labels intact.
  - 2. Remove packaging materials from site and dispose of at appropriate recycling facilities.
- D. Electrical distribution boxes and hardware shall be laid flat and blocked clear of the floor, in a manner to prevent damage while being stored.

#### 1.06 SCOPE

A. The theatre contractor will be responsible for all demo and equipment removal required in this project, and for all of the new equipment outlined in this specification. The intention of the specification is to furnish and install complete and safely operating theatrical and architectural lighting systems with all components, both existing and new, that conform to building conditions at Indian Hills Middle School. The theatrical contractor is required to provide a licensed electrical contractor and shall include their bid with the theatrical bid.

# PART 2 PRODUCTS

#### 2.01 STAGE LIGHTING SYSTEM AND INSTRUMENT PRODUCT INFORMATION

- A. Furnish and install all dimming and controls, distribution, and lighting equipment as indicated in the bill of materials. The installation will conform to the National Electric Code.
- B. The Theatrical Contractor shall have the manufacturer of the stage light control and dimmer system arrange to have an engineering representative on the job site after the installation has been complete and prior to energizing of the system to test and adjust the system and further to instruct persons designated by the Owner in the operation and maintenance of the system. The manufacturer shall furnish such engineering service within 14 days of the request.
- C. Acceptable manufactures of Dimming Equipment:
  - 1. Electronic Theatre Controls, Unison DRd with Paradigm.
  - 2. No substitutions will be accepted.
- D. Acceptable manufactures of Performance Lighting Control equipment:
  - 1. Electronic Theatre Controls, ColorSource 40 AV.

- 2. No substitutions will be accepted.
- E. Acceptable manufacturers of Architectural Lighting Control Equipment
  - 1. Electronic Theatre Controls, Unison Paradigm.
  - 2. No substitutions will be accepted.
- F. Acceptable manufactures of Theatrical Lighting Fixtures:
  - 1. LED Ellipsoidal Spotlights.
    - a. Electronic Theatre Controls, Source 4 LED, Luster.
    - b. No substitutions will be accepted.
  - 2. LED Cyclorama Lighting.
    - a. Electronic Theatre Controls, ColorSource Cyc
    - b. No substitutions will be accepted.
  - 3. LED Follow Spot.
    - a. Lycian Zot LED Follow Spot.
- G. Requests for substitution of other components shall include pertinent performance data; charts and drawings showing in what respect the system will function in accordance with the specifications. This information shall be mandatory as a basis for determining the intent in meeting the full requirements of the specification including time schedule.
  - 1. No substitutions will be accepted for dimming, switching, and control.
- H. If required by the Owner, provide working samples of substitute equipment, including lamps for any lighting fixtures, to be delivered as requested for the examination by the Consultant.
  Handling, shipping, delivery or removal of the samples shall be at the cost of the manufacturer.
  Substitutions will be accepted only by written addendum prior to the bid date.
- I. It shall be understood that the cost of any additions or revisions of wiring required by the use of substitute equipment shall be the responsibility of the bidder making the substitution.
- 2.02 DIMMING AND SWITCHING
  - A. Unison DRd Series Rack Enclosures
    - 1. Rack Enclosures
      - a. The rack enclosure shall be the Unison DRd Series Control Enclosure as manufactured by Electronic Theatre Controls, Inc., or equal.
      - b. Mechanical
        - 1) The Rack Enclosure shall be a surface mounted, deadfront switchboard, constructed of 18-guage formed steel panels with a hinged, lockable full-height door containing an integral electrostatic air filter.
          - a) Filter shall be removable for easy cleaning.
          - b) The enclosure shall support one control processor and one station power module plus accessories
          - c) The enclosure door shall have an opening to allow limited access to the control module face panel.
        - 2) All rack components shall be properly treated and finished.
          - a) Exterior surfaces shall be finished in fine textured, scratch-resistant, epoxy paint.
        - 3) The fully digital rack enclosure shall be available with six or twelve dimmer module spaces, one processor and a single station power supply, Rack dimensions and weights (without modules) shall not exceed:

- a) DRd12 31.0" H x 17" W x 9.6" D 51 lb.
- 4) A single low-noise fan shall be located at the top of each rack. The fan shall draw all intake air through the integral electrostatic air filter, over the surfaces of the module housing and out the top of the rack.
  - a) The fan shall maintain the temperature of all components at proper operating levels with dimmers under full load, provided the ambient temperature of the dimmer room does not exceed 40°C/104°F.
  - b) In the event of an over-temperature condition, only the affected dimmer module(s) shall shut down. A red indicator LED will flash and an error message shall appear on the Control Processor.
- 5) Rack Enclosures shall be designed to allow easy insertion and removal of dimmer and control modules without the use of tools. (230 volt racks with CE certification shall require a screwdriver.)
  - a) Supports shall be provided for precise alignment of modules into power and signal connector blocks.
  - b) With modules removed, racks shall provide clear front access to all load, neutral and control wire terminations.
- 6) Rack Enclosures shall support use of any combination of rack option cards designed to provide additional rack features. Rack option cards shall include:
  - a) FLO The Fluorescent Option Board shall provide termination for 4 wire low voltage electronic fluorescent dimming ballasts. FLO shall provide 24, 0-10Vdc outputs.
  - b) DALI The DALI Option Board shall provide termination for DALI fluorescent dimming ballasts. DRd shall provide 24, DALI outputs for up to 63 ballasts each in a broadcast mode.
- 7) Optional floor mounting pedestal shall be available for the 12-module rack.
- 8) Racks enclosures shall be designed for use with AX series auxiliary racks
  - for Main Circuit Breaker, Main Lug, and cross bussing applications.
- 9) Accessories
  - a) RideThru Option (RTO)
    - 1] The Rack Enclosure shall support an optional, short-term backup power source for the control electronics.
    - 2] The short-term back-up power source shall automatically engage upon the loss of normal power, seamlessly transitioning the supply power for the control electronics power to itself.
    - 3] The short-term back-up power supply shall detect the return of normal power, and seamlessly return the control electronics to normal power.
    - 4] The short-term back-up power source shall support the control electronics for at least 10 seconds.
  - b) BatteryPack Option (BPO)
    - 1] The Rack Enclosure shall support an optional, long-term backup power source for the control electronics.
    - 2] The long-term back-up power source shall automatically engage upon the loss of normal power, seamlessly transitioning the supply power for the control electronics power to itself.
    - 3] The long-term back-up power supply shall detect the return of normal power, and seamlessly return the control electronics to normal power.
    - 4] A test switch/indicator shall be available without opening the rack door or removal of any modules/components.
    - 5] The long-term back-up power source shall supply power to the control electronics for at least 90 minutes.

- c. Electrical
  - 1) Rack enclosures shall be available in 100, 120, 230, 240 and 277 volt, three-phase, main lug configurations.
    - a) 120 volt rack enclosures shall be field configurable for single phase operation without the need for additional components
  - 2) Rack enclosures shall be completely pre-wired by the manufacturer. The contractor shall provide input feed, load, and control wiring.
  - Standard Short Circuit Current Ratings (SCCR) shall be 22,000 at 100-277 Volt
    - a) Higher SCCR ratings, up to 100,000 amps SCCR at 120V, shall be possible when used with an AX series Auxiliary Rack Enclosure.
    - b) Higher SCCR ratings, up to 65,000 amps SCCR at 240V and 277V, shall be possible when used with an AX series Auxiliary Rack Enclosure.
  - 4) All control wire connections shall be terminated via factory provided connectors.
  - 5) Rack enclosures shall support dimming for incandescent, fluorescent, neon, cold cathode, electronic low voltage and magnetic low voltage transformer load types.
  - 6) The rack enclosure shall support 16-bit DMX input
  - 7) The rack enclosure shall support 65,000 steps of dimming.
  - 8) The rack enclosure dimming engine shall support multiple dimmer curves including modified square law, linear, switched, fluorescent, pre-heat and electronic low voltage.
  - 9) The rack enclosure shall support voltage regulation including, minimum and maximum scale voltages with offsets
  - 10) Rack enclosure shall support a UL924 listed contact input for emergency lighting control bypass.
    - a) Emergency lighting input shall support load shedding
  - 11) Rack enclosures shall be designed to support the following wire terminations:
    - a) AC
    - b) Echelon link power (Belden 8471 or equivalent)
    - c) 24Vdc (2- 16AWG Wire)
    - d) DMX512A Port A (In or Out) (Belden 9729 or equivalent)
    - e) DMX512A Port B (Out) (Belden 9729 or equivalent)
    - f) RS232 Serial In/Out (Belden 9729 or equivalent)
    - g) Unshielded Twisted Pair (UTP) Category 5/5e Ethernet
    - h) Contact Closure In (14AWG to 26AWG Wire)
    - i) Contact Closure Out (14AWG to 26AWG Wire)
      - 1] Contact Closure Out shall provide 1A @ 30vDC
  - 12) Station Power Modules
    - a) Station power modules shall provide power for the connected control bus. Options shall be available for use with Paradigm, Echo and SmartLink control protocols
    - b) Station power modules shall support over-current/short protection
    - c) Station Power Modules shall support fault detection for the data bus.
  - 13) All control wire connections shall be terminated via factory provided connectors.
  - 14) Main feed lugs shall accept a maximum of 350 MCM wire.
  - 15) Load terminals shall accept a maximum of #6 AWG wire.
- d. Thermal
  - 1) Ambient room temperature: 0-40°C / 32-104°F
  - 2) Ambient humidity: 10-90% non-condensing
- B. The system shall consist of the following:

- 1. Provide One (1) Unison DRd 12-24-120 dimmer racks. Install in the location of the existing older Unison DR rack.
  - a. Install One (1), P-ACP control processor (as specified in architectural control section, below).
  - b. Provide One (1) Unison P-SPM station power module. Install in DRd rack.
  - d. Provide Two (2), R20 Dual 20 amp relay modules. Install in the slots for circuits 1/2 and 3/4.
  - e. Provide Four (4) Air Flow Modules. Install in the slots for circuits 5/6, 7/8, 9/10, and 11/12.
  - f. Use existing D20 and Air Flow Modules to populate the new rack.
  - g. All remaining dimmer modules shall be reinstalled in their current positions.
  - h. Any unused modules shall be returned to the owner.
  - i. Land all circuits:
    - 1) The circuits currently landed in dimmers 1-3 shall be landed in relay #1.
    - 2) The circuits currently landed in dimmers 4-6 shall be landed in relay #2.
    - 3) The circuits currently landed in dimmers 7-9 shall be landed in relay #3.
    - 4) The circuits currently landed in dimmers 10-12 shall be landed in relay #4.
    - 5) All remaining circuits shall be landed in the same circuit they are currently landed in.
  - j. Install new circuit label strips on each dimmer rack indicating the circuit number controlled by each breaker.
  - k. Remove the existing control modules form both racks and return them to ETC for repair and upgrade. Install one in the remaining DR rack and return the other to the owner.
  - I. Remove all dimming and airflow modules from both racks and thoroughly clean the racks, blowing out all dust and cleaning all surfaces as recommended by the manufacturer.
  - Mathematical methods and a static state of the sign shall be affixed to the front of the new and existing dimmer racks. The font on the sign shall be 1/4" tall and shall be Arial or similar: The sign shall contain the following information:

Indian Hills Middle School Indian Hills Middle Logo DR1 Circuits 1-24 Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Electronic Theatre Controls, Inc For service call: 1-800-688-4116 Job Reference # Indian Hills Middle School Indian Hills Middle Logo DR2 Circuits 25-38 Theatrical Consultant: Peerbolte Creative LLC Installed by: Contractor and phone Manufactured by Electronic Theatre Controls, Inc. For service call: 1-800-688-4116 Job Reference #

2. Provide as part of Alternate TH3: One (1) R20 Dual 20 amp relay modules. Install in a slot at the stage right end of the 3<sup>rd</sup> electric.

## 2.03 LIGHTING CONSOLE AND ACCESSORIES

- A. ColorSource 40 AV
  - 1. General.
    - a. The lighting control console shall be a microprocessor-based system specifically designed to provide complete control of stage, studio, and entertainment lighting systems. The console shall be the ColorSource 40 AV as manufactured by Electronic Theatre Controls, Inc., or equal.
    - b. The control system shall be Net3 native output protocols over the network. The system shall also be able to control third party sACN devices directly. The system shall provide control of 2,560 networked addresses or up to 1024 local DMX addresses on a maximum of eighty (80) control channels/devices.
    - c. A maximum of 999 cues may be contained in non-volatile electronic memory and stored to an onboard 32GB SSD hard disk or to any USB storage device.
    - d. Forty (40) faders shall provide access to individual intensity channels, intensity for devices as well as playbacks.
    - e. Four (4) configurable faders shall provide functionality for controlling audio volume, output of bump buttons, output from the cue list, output from playbacks, or crossfade control.
    - f. The console shall have one (1) built-in 7" color multi-touch touchscreen. The touchscreen shall provide the primary interface for system configuration, programming show data and multi-parameter control.
    - g. Six (6) softkey buttons shall be provided, five (5) of which may be configured by the user.
    - h. Console shall be equipped with an on-board help system, with on-board tutorial videos.
    - i. Console shall not require the use of an external monitor for normal use. Optional displays shall be accessible via connection to an external HDMI<sup>™</sup> compatible monitor.
    - j. Console software upgrades shall be made by the user via USB memory stick. Changing internal components shall not be required.
    - Controls and Playback.
      - a. Patching

2.

- The console shall provide patching facilities for dimmers and multiparameter devices via a built in library of fixture definitions. The fixture library shall be updated via software based updates. It shall be possible to create custom fixture definitions using an offline application.
- The console shall support patching, address setting, and mode changes using Remote Device Management (RDM) on local DMX/RDM ports and on Net3 DMX/RDM Gateway ports.
- b. Channel or Playback Faders
  - 1) Twenty (20) or forty (40) proportional, fully overlapping faders shall be provided with 45mm potentiometers and select/bump buttons.
  - 2) The faders shall provide direct manual control of intensity for all channels. Channel levels may be changed at any time by using the individual channel faders. Buttons shall select associated channels for control.
  - Faders shall also control up to ten (10) pages of twenty (20) (or forty (40)) recordable memories or sequences. Memories shall record user-selected channel levels. Sequences shall record user-selected memories or channel levels.

a) With color mixing systems, output of color from fixtures shall appear to be a combination of the active memories in a color space.

# c. Programming.

- 1) The console shall provide a 7" color multi-touch touch screen with six (6) soft keys, as well as touch-based controls. The LCD shall provide system configuration, programming show data and multi-parameter control.
- 2) Touch-based tools shall include:
  - a) Forty (40) programmable color chips and color picker.
  - b) Touch-based parameter controls.
  - c) Virtual Level/Rate wheel.
  - d) Virtual keypad for level entry.
  - e) Customizable channel display using Stage Map. It shall be possible to rearrange the graphical representations for control channels to closely mimic the positions of fixtures in the venue.
  - f) Effects (intensity, color, shape, and parameter)
    - 1] It shall be possible to assign multiple effects to the same channel and parameters. The playback of those effects shall play levels back relative to the combination of the two effects.
- 3) Fixture selection shall be made via:
  - a) Auto fixture selection on fader moves.
  - b) Pressing the selection button under channel faders.
  - c) Touching the channel icon in the stage map display on the touch screen.
  - d) Fixture Tags for Quick Selects.
    - 1] Selection of multiple fixture shall be possible through a special controls dock that groups channels together based on the channel tile positions within a pre-defined area in the topographical view for channels.
    - 2] Selection shall be possible through the use of informational tags. Selecting a predefined tag selects all fixtures sharing that same tag. At least two tags may be assigned to any one channel.
    - 3] There shall be at least 27 Quick Select groupings.
- 4) Fixture selection shall be made via:
  - a) Auto fixture selection on fader moves.
  - b) Pressing the selection button under channel faders.
  - c) Touching the channel icon in the stage map display on the touch screen.
  - d) Fixture Tags for Quick Selects.
    - 1] Selection of multiple fixture shall be possible through a special controls dock that groups channels together based on the channel tile positions within a pre-defined area in the topographical view for channels.
    - 2] Selection shall be possible through the use of informational tags. Selecting a predefined tag selects all fixtures sharing that same tag. At least two tags may be assigned to any one channel.
    - 3] There shall be at least 27 Quick Select groupings.
- 5) Two independent channels shall be provided with on/off functionality. Independents shall be patched in a location separate from patch.
- 6) Audio playback.
  - a) It shall be possible to import sound clips and files to be stored on the console's internal drive.
    - 1] Sound files shall be played back from cues, playback faders as well as selecting the file and playing from the audio tab.

- 7) Sound to Light.
  - a) The console shall have the ability to analyze sound wave and trigger playbacks 1 through 5 based on base through treble. Playback 6 shall act as a background state.
  - b) Sound2Light shall apply to the current page of playbacks.
- 8) Image playback.
  - a) It shall be possible to import image files to be stored on the console's internal drive.
    - 1] Image files shall be played back from cues, playback faders as well as selecting the file and playing from the image tab.
- 9) Video Toy interactive video effects generator.
  - a) Console shall have a series of predefined video effects that shall be triggered or manipulated though xy positioning of the user's fingers on the on-board multi-touch screen.
    - 1] These effects shall be output via the HDMI port.
    - 2] The video toy engine shall have the ability to be set to automatically trigger the effects based on a set of predefined parameters.
- 10) Amigo Browser based remote.
  - a) Console shall provide a locally hosted web based control interface accessible by a web browser from a device connected to the same network as the console.
  - b) Web based interface shall allow for color control, playback control, recording of playbacks and cues.
- d. Playback Controls
  - A cue list of up to 999 cues shall be provided. Cues may be made up of channel levels and parameter settings or contain a reference to a recorded memory. Cues shall be editable and shall be able to be individually deleted and inserted.
  - 2) Playback Toy for filtered and timed execution of playbacks.
  - 3) Multiple bump modes (Flash, Solo, SoloChange, Move/GO).
  - 4) Full history rubberbanding for playbacks.
- 3. Interface Options.
  - a. The AV console shall provide connectors for the following:
    - 1) 12V AC or DC input for external power supply.
    - 2) DMX512-A/RDM output (two (2) 5-pin XLR connectors).
    - 3) USB connection (two (2) type A connectors).
    - 4) RJ45 Ethernet connection (sACN, ArtNet, OSC, Web Interface remote).
    - 5) 3.5mm audio line in and line out connectors.
    - 6) HDMI port for console monitor or media playback.
      - a) HDMI connection may be used either for an external monitor to display live show data and onscreen data editing or as an output to a display device (projector, monitor, etc.) for show imagery (pictures, VideoToy).
- 4. Physical.
  - a. All operator controls and console electronics for a standard system shall be housed in a single desktop console, not to exceed 26.31" wide 11" deep 2.36" high and 9.55 lbs.
  - b. Console power shall be 95 265V AC at 50 or 60Hz, console shall be provided with a universal external 12V AC or DC power supply.
- B. Provide the following:
  - 1. Provide One (1) ETC ColorSource 40AV lighting control console.
  - 2. Provide One (1) Dust cover for the console.

- 3. Provide One (1) 19" wide screen HDMI Flat Panel Monitor with appropriate cables.
- 4. Provide an Uninterruptible power supply capable of powering console and monitors for 30 minutes.
- 5. Provide all necessary network, DMX, power cables, connectors and any other required items for a working system. Network and DMX cables shall be 25' in length.

# 2.04 ARCHITECTURAL CONTROL

- A. The Architectural Control Processor shall be the Unison Paradigm P-ACP Series Control Processor as manufactured by Electronic Theatre Controls, Inc.
- B. Mechanical.
  - 1. The Architectural Control Processor (ACP) assembly shall be designed for use in DRd Series Dimming Enclosures and ERn Series Control Enclosures.
  - 2. The processor shall utilize microprocessor based, solid state technology to provide multiscene lighting and building control.
  - 3. ACP module electronics shall be contained in a plug-in assembly. The module shall be housed in a formed steel body and contain no discrete wire connections. No tools shall be required for module removal or insertion.
  - 4. The ACP shall be convection cooled.
  - 5. The ACP User Interface shall utilize a backlit liquid crystal display capable of graphics and eight lines of text. It shall also provide:
    - a. The ACP shall provide an alpha-numeric keypad for data entry and navigation.
    - b. The ACP shall provide a touch-sensitive control wheel for navigation.
    - c. The ACP shall provide shortcut buttons to assist in navigation, selection, and data entry.
    - d. The ACP keypad, buttons, and wheel shall be backlit for use in low-light conditions. The backlight shall have a user selectable time out, including no time out.
  - 6. The ACP shall provide a front-panel RJ45 jack for Ethernet connection to the processor for configuration, live control, and web-browser-based system access. The Ethernet port shall be secured behind the locking door.
  - 7. The ACP shall provide a Secure Digital (SD) Removable Media slot on the front panel for transfer of configuration data. The SD slot shall be secured behind the locking door.
  - 8. The ACP shall provide a Universal Serial Bus (USB) port on the front panel for transfer of configuration data. The USB port shall be secured behind the locking door.
  - 9. Architectural Lighting System configuration and program information shall be stored in flash memory, which does not require battery backup.
    - a. The ACP shall provide a Compact Flash (CF) Card as backup flash memory and storage.
    - b. The CF Card is stored in the back of the ACP, and can be accessed only by removing the ACP.
    - c. The ACP data can be exchanged by inserting the CF card into another ACP.
- C. Electrical.
  - 1. The ACP shall require no discrete wiring connections; all wiring shall be terminated into Dimming or Control Enclosure.
  - 2. The ACP shall require low-voltage power supplied by the Dimming or Control enclosure and shall be hot-swap capable.
  - 3. The ACP shall support Echelon LinkPower communications with remote devices, including button stations, button/fader stations, Touchscreen stations, sensors, and third party LonMARK compliant products.

- a. The LinkPower network shall utilize polarity-independent, low-voltage Class II twisted pair wiring, type Belden 8471 (unshielded) or Belden 8719 (shielded) or equivalent. One # 14 AWG drain wire will be required for system not using grounded metal conduit. Touchscreen stations, interface stations and portable stations connectors will also require (2) #16 AWG wires.
- b. The LinkPower network shall be topology free. Network wiring may be bus, loop, home run, star or any combination of these.
- c. Link power wiring shall permit a total wire run of 1640 ft. (500m) without a repeater. Repeater option modules shall be available to increase wiring maximums in increments of 1640 ft. (500m).
- d. Link power wiring between stations shall not exceed 1313 ft. (400m).
- 4. The ACP shall support 10/100BaseTX, auto MDI/MDIX, 802.3af compliant Ethernet networking using TCP/IP, ESTA BSR E1.17 Advanced Control Networks (ACN) and ESTA BSR E1.31 (sACN) Protocols for internal communication and integration with third-party equipment.
- 5. The ACP shall support EIA-RS232 serial protocol for bi-directional command and communication with third-party equipment.
- 6. The ACP shall support two discrete ESTA DMX512A ports, configurable as input or output ports. When used in a Dimming Enclosure, the second port is always an output port.
- 7. The ACP shall provide four onboard dry contact closure inputs for integration with thirdparty products.
- 8. The ACP shall provide four onboard contact closure outputs, rated at 1A@30VDC, for integration with third-party equipment.
- D. Functional Capacity.
  - 1. Shall support 1024 channels of control.
  - 2. Shall support 2 physical DMX ports, each of which may be configured as an input or output.
- E. Functional System.
  - 1. Runtime application shall utilize support Net3 system interoperability.
  - 2. System shall support the use of Network Time Protocol for real time clock synchronization.
  - 3. System shall support remote firmware upload an over Ethernet connection from a connected PC running the Light Designer software or another connected processor.
  - 4. System shall support local firmware upload from removable media (SD Card, USB Flash Drive).
- F. Functional Diagnostics.
  - 1. Shall output an Event log.
  - 2. Standard log shall store a fixed-length history of recent activity.
  - 3. Separate critical log shall only store important messages (such as boot-up settings).
- G. Functional Configuration Data.
  - 1. Configuration Data can be uploaded over an Ethernet connection from a PC running Light Designer application.
  - 2. Configuration Data can be retrieved from another Paradigm Processor.
  - 3. A Paradigm Processor shall make its configuration data available for retrieval by another Processor as a backup/recovery mechanism.
  - 4. Configuration Data shall be stored on solid-state media that can be removed to facilitate transfer between Processor units.

- 5. Configuration Data may be loaded to and from removable media access provided on front panel.
- 6. Configuration Data for the entire System shall be available for download from any single Processor.
- 7. Shall store configuration data for Dimming enclosure processors and shall make available for download.
- H. Functional Scalability.
  - 1. Adding additional Processors to a System shall proportionately increase its overall capabilities up to a maximum System size.
  - 2. The maximum number of Processors configured as a System shall be at least 12.
  - 3. Multiple Processors shall utilize the Ethernet network to remain time synchronized and share control information.
  - 4. Multiple Processors shall utilize the Ethernet network to maintain configuration data synchronization as modifications are made.
  - 5. Failure of a single Processor shall not prohibit continuing operation of the remaining processors.
  - 6. It shall be possible for multiple Systems to coexist on the same physical network with logical isolation between Systems.
- I. Functional Local User Interface.
  - 1. Shall provide access to Processor setup (IP address).
  - 2. Shall provide access to Processor status and diagnostics.
  - 3. Where the Processor is installed within a Dimming enclosure, shall provide access to dimming enclosure setup, status and diagnostics.
  - 4. Shall provide control functionality for Control Channels, Zones, Fixtures, Groups, Presets, Macros, Walls and Sequences within the current configuration.
  - 5. Shall provide functionality to schedule astronomical and real time events (add/edit/delete).
  - 6. Shall allow for display of local DMX information.
  - 7. Shall allow for transfer of log files to local removable media.
  - 8. Shall allow to perform firmware upgrades for connected Dimming enclosures.
  - 9. Shall allow for transfer of configuration to and from Dimming enclosures using removable media.
  - 10. Shall allow for transfer of configuration to and from LCD Stations using removable media.
  - 11. Shall allow for binding of Stations.
- J. Functional Access Controls.
  - 1. There shall be 2 user accounts Administrator and User with separate password protection.
  - 2. Account and password settings shall be local to each Processor.
  - 3. Access Controls shall be applied to certain areas of the Paradigm Local Interface and Web Interface User.
- K. Functional Web User Interface.
  - 1. Shall be an internal web server accessible via Ethernet port.
  - 2. Shall support common web browsers on Windows and Mac platforms.
  - 3. Shall provide functionality to Activate and Deactivate Presets.
  - 4. Shall provide functionality to schedule timed events (add/delete).
  - 5. Shall display status information.
  - 6. Shall display log files.
  - 7. Shall allow for configuration of Processor settings (date, time).

- 8. Shall allow for upload and download of configuration data.
- 9. There shall be links to other web-enabled devices in the System, including other Paradigm Processors.
- L. Functional Stations.
  - 1. Stations shall be connected to a Paradigm Processor via a LinkPower network or Ethernet.
  - 2. Station discovery and binding shall be accomplished from the Local User Interface or Light Designer.
- M. Functional Net3 and ACN Devices.
  - 1. Net3 Devices shall be connected to and controlled from Paradigm Processors via Ethernet.
  - 2. Paradigm Processors shall provide DMX-Net3 gateway functionality.
  - 3. It shall be possible to send and receive Macro triggers defined within the System configuration via Net3.
  - 4. There shall be support for Streaming ACN on up to 24 universes per Processor.
- N. Functional Operation.
  - 1. When contained in a dimming enclosure, a snapshot of the dimming enclosure output data shall be stored in persistent memory so that hardware can access it for immediate output on boot.
  - 2. DMX output refresh rate shall be configurable.
  - 3. There shall be support for 16-bit DMX Attributes.
  - 4. DMX inputs may be patched to DMX and Streaming ACN outputs as external sources.
  - 5. Streaming ACN inputs shall be patched to DMX outputs (gateway) as external sources.
  - 6. Where there are multiple external sources then priority and HTP shall be used to perform arbitration.
  - 7. External and internal sources shall be arbitrated based on user-selection of standard or custom rules.
  - 8. On Preset Record, the values of Attributes within the Preset shall be updated to reflect the current output.
  - 9. The total output may be the combination of many different Presets running concurrently.
  - 10. There shall be no hard limit on number of concurrent cross fades.
  - 11. Multiple Presets controlling the same Attribute shall first interact based on priority and second based on Latest Takes Precedence (LTP) or Highest Takes Precedence (HTP).
  - 12. LTP and HTP operation shall be supported simultaneously and interact (at the same priority) using HTP.
  - 13. Settings due to LTP Presets may be automatically discarded from operation when overridden.
  - 14. It shall be possible to specify that a Preset or Attribute Control will persist when overridden.
  - 15. A Preset may be designated as an HTP Override and shall cause HTP values to be discarded.
  - 16. It shall be possible to modify the rate of a Preset (Cross fades, Effects) from a Control within the System.
  - 17. Each Preset shall have a status that can be Activated, Deactivated or Altered.
  - 18. Preset status may be set based on matching levels in the current output as an option.
  - 19. On startup the System shall be capable of automatically executing timed events within the previous 24 hours to synchronize its initial output state with the current time of day.
- O. Serial Input/Output.

- 1. RS232 shall support 8-bit word length, parity selection and 1 or 2 stop bits.
- 2. RS232 shall support baud rates from 4800 to 115,200 bps.
- 3. Serial input and output messages are fully customizable.
- 4. Serial output messages can be generated by any Control or Event.
- P. The Touchscreen Control Stations shall be the Unison Paradigm Touchscreen P-LCD Series Control Stations as manufactured by Electronic Theatre Controls, Inc.
  - 1. All touchscreen stations shall support default and fully graphical control pages.
  - 2. The Touchscreen station shall operate using graphic buttons, faders and other images on at least 30 separate programmable control pages.
  - 3. Touchscreen stations shall also allow programming of page pass-code, lock out and visibility levels.
- Q. Mechanical.
  - 1. Touchscreen stations shall consist of a seven inch, backlit liquid crystal display (LCD) with a minimum resolution of 800 by 400 pixels and 12-bit color depth with a touch interface.
  - 2. Touchscreen bezels shall be constructed of aluminum and shall have no visible means of attachment.
    - a. The bezel shall install and remove without the use of tools.
    - b. The bezel shall provide two working positions for the Touchscreen: service and operating.
  - 3. The Touchscreen shall have a protective overlay over the display.
    - a. The overlay shall reduce wear.
    - b. The overlay shall reduce glare.
  - 4. The manufacturer shall provide back boxes for all LCD stations.
    - a. Flush back box dimensions shall be 7.94" wide x 5.33" high x 3.25" deep.
    - b. Surface back box dimensions shall be 8.3" wide x 5.6" high x 2.55" deep.

#### R. Electrical.

- 1. Touchscreens shall be powered entirely by the System network.
- 2. Touchscreens shall connect to the System using an Ethernet network with Power over Ethernet (POE) or the Unison control station Echelon® Link power network. Ethernet network shall be 10/100BaseTX, auto MDI/MDIX, 802.3af compliant and shall utilize Unshielded Twisted Pair (UTP) Category 5 wiring.
- 3. Echelon® Link power network.
  - a. Link power shall utilize low-voltage Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
  - b. Touchscreen stations shall also require (2) #16 AWG stranded wires for 24Vdc operating power. 24Vdc wiring shall be topology free.
  - c. Network wiring may be bus, loop, home run, star or any combination of these.
  - d. Network insulation displacement connectors shall be provided with all stations.
- S. Functional System.
  - 1. The Touchscreen shall support configuration firmware upload from a Paradigm Processor as proxy.
  - 2. The Touchscreen shall support configuration or firmware upload from local removable media.
- T. Functional Setup Mode.

- 1. There shall be a setup display that is separate from any user-defined configuration.
  - a. It shall be possible to view and modify connectivity settings.
  - b. It shall be possible to view status information.
  - c. It shall be possible to view and modify LCD screen settings.
  - d. It shall be possible to perform Touchscreen calibration.
  - e. It shall be possible to view and modify audio settings.
  - f. The appearance of the setup display shall be standard and not editable.
  - g The setup display may be invoked from within the user-defined configuration and/or physical button on the Touchscreen.
  - h. There shall be a default protected method to invoke the setup display.
- U. Functional Configurations.
  - 1. It shall be possible to have multiple configurations stored within an LCD Station.
  - 2. Only one configuration may be active on the LCD Station.
  - 3. It shall be possible for Touchscreen Stations connected via the Echelon® Link power network to select a configuration automatically based on the configuration of the physical connection.
  - 4. Where multiple configurations are stored there shall be a boot menu to allow selection of a configuration.
  - 5. Each configuration shall be identified as a different Station within the System.
- V. Functional Operation.
  - 1. The Unison Paradigm Control System shall be designed to allow control of lighting and associated systems via Touchscreen controls. System shall allow the control of presets, sequences, macros and time clock events.
  - 2. System presets shall be programmable via Button, Button/Fader, Touchscreen, or LightDesigner software.
    - a. Presets shall have a discrete fade time, programmable from zero to 84,600 seconds with a resolution of one hundred milliseconds.
    - b. Presets shall be selectable via Touchscreen stations.
  - 3. System macros and sequences shall be programmable via LightDesigner system software.
    - a. Macro and sequence steps shall provide user selectable steps, and allow the application of conditional logic.
    - b. Macro and sequences shall be activated by button, time clock event or LightDesigner software.
  - 4. System time clock events shall be programmable via the Touchscreen, LightDesigner system software, the processor user interface, or the internal web server.
    - a. Time clock events shall be assigned to system day types. Standard day types include: anyway, weekday, weekend, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday. System shall support programming of additional custom or special day types.
    - b. Time clock events shall be activated based on sunrise, sunset, time of day or periodic event. System shall automatically compensate for regions using a fully configurable daylight saving time.
  - 5. Touchscreen stations shall be designed to operate standard default or custom system functions. Components shall operate default functions unless re-assigned via LightDesigner, the Windows-based configuration program.
    - a. Optional button functions include: preset selection, manual mode activation, record mode activation, station lockout, raise, lower, macro activation, and cue light, or room join/separate.
    - b. Optional fader functions include master control, individual channel control, fade rate control or preset master control.

- 6. Touchscreen stations shall allow programming of station and component electronic lockout levels via Light Designer.
- 7. It shall be possible to adjust LCD contrast and brightness.
- 8. It shall be possible to program the station to dim during periods of inactivity.
- W. The system shall consist of the following:
  - 1. Provide One (1) Unison P-TS7 Wall mounted LCD Station. Mount in the location of the existing LCD Controller.
  - 2. Provide One (1) Seven button seven fader station. Install in location of existing station.
  - 3. Program the architectural control system based on notes provided by the consultant.

# 2.05 THEATRICAL CONTROL NETWORK

- A. Opto Splitter/Repeater.
  - 1. General
    - a. The eDIN DMX repeater module shall permit star-wiring of DMX512 signals and shall isolate DMX transmitters and DMX receivers from common mode voltages, ground loop currents and other electrical faults.
    - b. The DMX repeater module shall have one input port and, twelve or sixteen output ports. No in-line processing of the input signal is permitted to ensure the highest reliability.
    - c. The Module shall be capable of mounting on a standard 35mm DIN rail.
    - d. The system shall be capable of repeating simplex protocols other than DMX512, provided they meet the electrical requirements of EIA-RS422 or RS485.
    - e. The ambient operating temperature shall be -10° to 50°C and the operating humidity shall be 5% 95% non-condensing.
  - 2. Physical.
    - a. The DMX Repeater module shall be designed to snap on to 35mm DIN rail without the use of tools.
    - b. The Module shall measure 10.25"w x 23.25"h x 4.5"d for twelve or sixteen output models.
    - c. The Module shall weigh 0.4 lb.
    - d. All DMX and power connections shall utilize pluggable Phoenix-type screw terminal blocks, capable of accepting solid or stranded wire sizes from #26 to #16 AWG.
  - 3. Electrical.
    - a. Multiple modules, up to the RS485 limitation of 32, may be daisy-chained on the same DMX input data line.
    - b. The power input shall be supplied by a Class 2 circuit. It shall accept a range of 9 to 30 volts DC and shall consume no more than 5 watts.
    - c. All DMX input and output ports shall be capable of withstanding short-term application of up to 250V without damage to internal components.
    - d. Port protection shall be of the self-healing type, rated for 250V. Replaceable fuses shall not be acceptable.
    - e. The DMX input port shall provide 1500-volt optical isolation between the input signal wiring and output signal wiring.
    - f. DMX outputs are electrically common with each other, i.e. non-isolated, but shall be floating with respect to earth ground.
    - g. DMX outputs shall provide self-healing protection against ground loops between adjacent ports.
  - 4. Features.
    - a. LED indicators shall be provided for Power and Data-In, as well as for DMX activity on each of the four output ports.

- b. The Module shall provide a user-settable DMX input termination switch.
- c. The Module shall be capable of regenerating four (4) exact duplicates of the original source input signal.
- d. Each regenerated output signal shall have the same characteristics and capabilities of the input signal.
- e. Each output shall be capable of driving up to 32 DMX receiving devices over a maximum1600-ft. length of cable.
- f. One (1) DMX pass-thru port shall be provided. The pass-thru port shall be passive, i.e. direct-wired to the input and not repeated, such that failure of the Module shall not adversely affect a signal being passed through to another module or device.
- 5. Compliance.
  - a. The DMX Repeater Module shall meet the requirements of ANSI E1.11 DMX512-A and USITT DMX512 (1990).
  - b. The DMX Repeater Module shall be compliant with the EU RoHS (2002/95/EC) directive.
  - c. The DMX Repeater Module shall conform to all FCC and CE requirements.
  - d. The DMX Repeater Module shall be powered by a UL1310 Class 2 Low Voltage circuit.
  - e. The module circuit board shall be manufactured from FR-4 glass epoxy laminate with a UL 94 flammability rating of V0. The board shall be clearly marked as such.
  - f. The module carrier housing shall be manufactured from extruded rigid PVC with a UL 94 flammability rating of 5VA.
- B. Multi Box Plug In Stations.
  - 1. The Multi Box Plug-in Stations shall consist of the appropriate connectors required for the system in use. These stations shall be available with DMX input or output, Remote Focus Unit, ETCNet, ETCLink or architectural control connectors. Custom control connectors shall be available.
  - 2. The following standard components shall be available for Remote Plug-in Stations:
    - a. 5-Pin male XLR connectors for DMX input.
      - b. 5-Pin female XLR connectors for DMX output.
  - 3. Station faceplates shall be .08" aluminum, finished in fine texture, scratch-resistant black powder coat. Silk-screened graphics shall be white.
  - 4. The station panel shall mount into an industry standard back box, depending on size and quantity of connectors. A terminal block shall be supplied for contractor terminations.
- C. Provide the following:
  - 1. Provide One (1) Pathway 4814 DMX/RDM Installation Repeater with 1 DMX input and 8 DMX Outputs, provide power supply.
  - 2. Provide pipe mount DMX output stations. Install one on the stage left end of each the FOH cages and on Stage Right end of each electric.
  - 3. Provide One (1) wall mount DMX output station. Install in the stage left wing.
  - 4. The DMX signal flow shall be from the existing DMX-input, to the dimmer racks, then to the opto splitter, then to all of the outputs.

# 2.06 LIGHTING INSTRUMENTS

- A. All fixtures are manufactured as specified.
- B. All fixtures are to be delivered to the job site complete with pipe clamps and safety cables. Pattern holder, color frame, DMX and PowerCON cable when applicable. All fixtures are to be correctly installed by the contractor.

- C. Provide the following:
  - Provide Twelve (12) ETC Source Four LED Series 2 Lustr # S4LEDS2LS-0, LED Ellipsoidal Spotlights with #436LT 36degree lens tubes. The fixtures shall utilize 5-pin xlr connectors for DMX In and Thru. Provide each fixture complete with pipe clamp, color frame, safety cable, pattern holder, soft focus diffuser, and a 5' Male Edison to Power Con input cord. Hang, circuit and focus three fixtures in each gym cage to create a general wash on the stage, as directed by Consultant.
  - 2. Provide the following theatrical lighting accessories:
    - a. Provide Twelve (12) 5' 5-pin DMX cables with male connector on one end and a female connector on the other. Each cable shall be provided with an 8" hook-and-loop one-wrap strap.
  - 3. As part of alternate TH3 provide the following:
    - a. Provide Twelve (12), ETC ColorSource Cyc, Cyc lights: each complete with hanging bracket, pipe clamp, safety cable, and 5' Male Edison connector to PowerCon power input cord. Hang circuit and focus on the third electric as directed by Consultant.
      - 1) Provide Twelve (12) 10' 5-pin DMX cables with a male connector on one end and a female connector on the other. Each cable shall be provided with an 8" hook-and-loop one-wrap strap.
      - 2) Provide (1) 5-pin XLR DMX Terminator.
      - 3) Provide Ten (10) 10' PowerCon jumpers. Each cable shall be provided with an 8" hook-and-loop one-wrap strap.
  - 4. As Part of Alternate TH4 provide (2) Lycian ZOT LED Followspots with stand and all components necessary for proper operation of the fixtures.

#### 2.07 DISTRIBUTION EQUIPMENT

- A. Replace all connectors in the FOH cages with 20 amp parallel blade U-ground "Edison" connectors. 12 connectors total.
- B. As part of Alternate TH3 provide the following: Replace connectors on two circuits at the stage right end of the third electric with Edison connectors. These circuits shall be the same circuits reference in the dimming portion of Alternate TH3.

#### 2.08 DEMOLITION

- A. Remove the older of the two existing Unison DR dimmer racks. The existing dimmer and air flow modules are to be reused.
- B. Remove the existing architectural controls. The devices are to be returned to the owner..
- C. All distribution is to remain.
- D. All demoed equipment is to remain the property of Shawnee Mission Schools or is being reused in the project.
- E. All back boxes and conduit are to be reused if possible. Any abandoned locations shall have wires removed and blank cover plates installed.

# PART 3 EXECUTION

#### 3.01 PREPARATION

- A. Inspect the areas and conditions where theatrical equipment will be installed. Notify the Architect and Owner of any conditions that would adversely affect the installation or subsequent utilization of the equipment. Do not proceed with the installation until unsatisfactory conditions are corrected.
  - 1. Coordinate work and work schedule with related work with the architect and owner. Provide items to be installed during approved time schedules.
  - 2. The facility will be in use during this project. Materials may not be stored on site unless approved by the owner. No work may take place outside of hours approved by the owner.

#### 3.02 GENERAL INSTALLATION

- A. Install all theatrical equipment, hardware and accessories at locations indicated in the drawings utilizing qualified stage technicians and a licensed electrician.
  - 1. Provide all tools, accessories, connecting and attaching devices as required for a complete and properly functioning installation.
- B. Install equipment true and plumb, and securely anchored in place in accordance with the manufacture's recommendations.
- C. Properly test and demonstrate all equipment after installation.

## 3.03 STAGE LIGHTING CONTROLS

- A. Furnish all materials as indicated, including all necessary low voltage control cables and multifeeder cable, back boxes and grid iron junction boxes. The Electrical Contractor as a sub contractor of the theatrical contractor will perform the electrical service hookup and load circuit terminations.
- B. All system components shall arrive on the job site freight prepaid and completely pre-wired with all field connections clearly labeled. All equipment shall be UL listed and shall comply with National Electrical Code.
- C. The lighting system and controls shall be fully factory-tested prior to shipment and shall be guaranteed against defects in material and workmanship for two years from date of substantial completion. The warranty shall be on a factory exchange or repair basis. No equipment having a shorter warranty will be considered and all equipment provided shall be covered by this warranty. Unspecified length warranty will not be acceptable.
- D. Furnish three sets of closeout documents and manuals in both printed and electronic formats. The document should include but not limited to; system layouts, maintenance procedures, operation, and tutorials. One additional electronic set is to be provided to consultant.
- E. Provide the services of a qualified technician to instruct the owner's personnel in the proper operation of the specified control system at a time acceptable to the owner after the final punch or two weeks after turn on, whichever is later; training time not to exceed four hours.

1. Upon owner's request, up to 1 year after the initial training, provide the services of a qualified technician to instruct the owner's personnel on a follow up training session date to be determined by the district; training time to be two hours.

## 3.04 CLEAN-UP

A. Upon completion of installation, remove all debris from the site. Leave work areas broom clean and ready for use.

# END OF SECTION 116101