

PROJECT MANUAL

TRINIDAD STATE JUNIOR COLLEGE TRINIDAD, COLORADO

MASSARI THEATER UPGRADE RE-BID

**CONSTRUCTION DOCUMENTS
JUNE 2021**

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STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM

NOTICE OF APPROVAL OF OCCUPANCY/USE

Date of Occupancy: _____
Date to be inserted by the Architect/Engineer after consultation with Principal Representative

Institution/Agency: Trinidad State Junior College

Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

Portion(s) of project for which occupancy is approved:

Type of Occupancy: Total or Partial

The items identified below if applicable must be completed with before Occupancy is approved.

Date Completed	A/E Signoff	
		1. The Notice of Substantial Completion has been issued and the Building Inspection Record is completely signed-off and attached.
		2a. Notification has been made to the local Fire Department concerning which portion(s) of the building will be occupied and the date(s).
		2b. Fire alarms, smoke detection systems and building fire sprinkler systems have been fully checked and are operable.
		2c. The building's fire connections must be installed and operable, if applicable.
		3. Coordination for final utility and service connections and meters (water, gas, sewer, electricity and telecommunication) has been made and systems are in full operating order.
		4. Sterilization of plumbing systems has been performed.
		5. Operational test of systems and equipment has been performed as required.
		6. Systems adjustments such as balancing, equipment operations, etc., have been performed. Reports have been submitted to the Architect/Engineer for approval.
		7. Principal Representative furnished equipment and furnishings are coordinated and placed.
		8. All elements left unfinished must be in such condition that there would be no hazard to the health or safety of the occupants.

		9. All restroom facilities must be fully functional and operable.
		10. All light fixtures must be installed and operable.
		11. All exit lights and emergency lighting systems have been checked and are operable.
		12. All windows have been glazed and hardware is available for ventilation purposes.
		13. All routes of egress must be clear of construction materials and debris at all times.
		14. There must be a means of pedestrian access to each building. Contractor must have sidewalks installed before occupancy and pedestrian barricades and other means of public protection as required.

Occupancy does not constitute acceptance of the project as being complete. It simply provides the Principal Representative the opportunity to occupy/use the project or the applicable portion thereof prior to final completion and acceptance. Occupants can expect to be impacted by the Contractor's efforts to complete the project. The Contractor would not repair any damage caused by the occupants.

	Date		Date
Architect/Engineer		Principal Representative (Institution or Agency)	
	Date		Date
State Buildings Program (or Authorized Delegate)		Contractor	



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

INFORMATION FOR BIDDERS

Institution or Agency: Trinidad State Junior College
Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

1. **BID FORM:** Bidders are required to use the Bid form attached to the bidding documents. Each bidder is required to bid on all alternates and indicate the time from the date of the Notice to Proceed to Substantial Completion in calendar days, and in addition, the bidder is required to indicate the period of time to finally complete the project from Substantial Completion to Final Acceptance, also in calendar days. Bids indicating times for Substantial Completion and Final Acceptance in excess of the number of days indicated in the Advertisement for Bids for completion of the entire Project may be found non-responsive and may be rejected. The bid shall not be modified or conditioned in any manner. Bids shall be submitted in sealed envelopes bearing the address and information shown below. If a bid is submitted by mail, this aforementioned sealed envelope should be enclosed in an outer envelope and sent to the following addressee:

INSERT NAME OF AGENCY AND ADDRESS WHERE BID SHOULD BE DELIVERED

The outside of the sealed inner envelope should bear the following information:

Project # **TSJC-21-001**

Project Name **Massari Theater Lighting Upgrade**

Name and Address of Bidder

Date of Opening

Time of Opening

2. **INCONSISTENCIES AND OMISSIONS:** Bidders may request clarification of any seeming inconsistencies, or matters seeming to require explanation, in the bidding documents at least three (3) business days prior to the time set for the opening of Bids. Decisions of major importance on such matters will be issued in the form of addendum.
3. **APPLICABLE LAWS AND REGULATIONS:** The bidder's attention is called to the fact that all work under this Contract shall comply with the provisions of all state and local laws, approved state building codes, ordinances and regulations which might in any manner affect the work to be done or those to be employed in or about the work. Attention is also called to the fact that the use of labor for work shall be governed by the provisions of Colorado law which are hereinafter set forth in Articles 27 and 52E of the GENERAL CONDITIONS.
4. **UNAUTHORIZED IMMIGRANTS:** Note that the Special Provisions of the General Conditions of the Contract includes the following language: PUBLIC CONTRACTS FOR SERVICES - CRS 8-17.5-101 and PUBLIC CONTRACTS WITH NATURAL PERSONS - 24-76.5-101. The Contractor certifies that the Contractor shall comply with the provisions of CRS 8-17.5-101 et seq. The Contractor shall not knowingly employ or contract with an illegal alien to perform work under this contract or enter into a contract with a subcontractor that fails to certify to the Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this contract. The Contractor represents, warrants, and agrees that it (i) has verified that it does not employ any illegal aliens, through participation in the Basic Pilot Employment Verification Program administered by the Social Security Administration and Department of Homeland Security, and (ii) otherwise will comply with the requirements of CRS 8-17.5-102(2)(b). The Contractor shall comply with all reasonable requests made in the course of an investigation under CRS 8-17.5-102 by the Colorado Department of Labor and Employment. If the Contractor fails to comply with any requirement of this provision or CRS 8-17.5-101 et seq., the State may terminate this contract for breach and the Contractor shall be liable for actual and consequential damages to the State.

A Contractor that operates as a sole proprietor hereby swears or affirms under penalty of perjury that the Contractor (i) is a citizen of the United States or otherwise lawfully present in the United States pursuant to federal law, (ii) shall comply with the provisions of CRS 24-76.5-101 et seq, and (iii) shall produce one of the forms of identification required by CRS 24-76.5-103 prior to the effective date of this Contract. Except where

exempted by federal law and except as provided in CRS 24-76.5-103(3), a Contractor that receives federal or state funds under this contract must confirm that any individual natural person eighteen years of age or older is lawfully present in the United States pursuant to CRS 24-76.5-103(4) if such individual applies for public benefits provided under this contract.

5. **TAXES:** The bidder's attention is called to the fact that the Bid submitted shall exclude all applicable federal excise or manufacturers' taxes and all state sales and use taxes as hereinafter set forth in Article 9C of the GENERAL CONDITIONS.
6. **OR EQUAL:** The words "OR EQUAL" are applicable to all specifications and drawings relating to materials or equipment specified. Any material or equipment that will fully perform the duties specified, will be considered "equal", provided the bid submits proof that such material or equipment is of equivalent substance and function and is approved, in writing. Requests for the approval of "or equal" shall be made in writing at least five (5) business days prior to bid opening. During the bidding period, all approvals shall be issued by the Architect/Engineer in the form of addenda at least two (2) business days prior to the bid opening date.
7. **ADDENDA:** Owner/architect initiated addenda shall not be issued later than two (2) business days prior to bid opening date. All addenda shall become part of the Contract Documents and receipt must be acknowledged on the Bid form.
8. **METHOD OF AWARD - LOWEST RESPONSIBLE BIDDER:** If the bidding documents for this project require alternate prices, additive and/or deductible alternates shall be listed on the alternates bid form provided by the Principal Representative. Bidders should note the Method of Award is applicable to this Bid as stated below.
 - A. **DEDUCTIBLE ALTERNATES:** The lowest responsible Bid, taking into account the Colorado resident bidder preference provision of Colorado law, will be determined by and the contract will be awarded on the base bid combined with deductible alternates, deducted in numerical order in which they are listed in the alternates bid form provided by the Principal Representative. The subtraction of alternates shall result in a sum total within available funds. If this bid exceeds such amount, the right is reserved to reject all bids. An equal number of alternates shall be subtracted from the base bid of each bidder within funds available for purposes of determining the lowest responsible bidder.
 - B. **ADDITIVE ALTERNATES:** The lowest responsible Bid, taking into account the Colorado resident bidder preference provision of Colorado law, will be determined by and the contract will be awarded on the base bid plus all additive alternates added in the numerical order in which they are listed in the alternates bid form provided by the Principal Representative. The addition of alternates shall result in a sum total within available funds. If this bid exceeds such amount, the right is reserved to reject all bids. An equal number of alternates shall be added to the base bid of each bidder within funds available for purposes of determining the lowest responsible bidder.
 - C. **DEDUCTIBLE AND ADDITIVE ALTERNATES:** Additive alternates will not be used if deductible alternates are used and deductible alternates will not be used if additive alternates are used.
9. **NOTICE OF CONTRACTOR'S SETTLEMENT** – Agencies/institutions must indicate in the initial Solicitation (Advertisement for Bids, Documented Quotes, or Requests for Proposals) whether settlement will be advertised in newspapers or electronic media.

The Advertisement for Bids can be located at the web site: www.colorado.gov/pacific/osa/cdnotices
(Click on the appropriate link [ColoradoVSS or ColoradoBIDS] or on the State Purchasing Office website)



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

BID

Institution/Agency: Trinidad State Junior College

Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

Bidder Acknowledges Receipt of Addenda Numbers:

Bidder Anticipates Services outside the United States or Colorado:*

No Yes If Yes see 3A below

Bidder will comply with 80% Colorado Labor on project above \$500,000:

Yes No If No see 3B below

Bidder is a Service-Disabled Veteran Owned Small Business:*

No Yes If Yes see 3C below

Base Bid

\$ _____

(Refer to Bid Alternate Form SC-6.13.1 Attached, If Applicable)

Bidder's Time of Completion

a. Time Period from Notice to Proceed to Substantial Completion: _____

b. Time Period from Substantial Completion to Final Acceptance: _____

c. Total Time of Completion of Entire Project (a + b): _____

1. **BID:** Pursuant to the advertisement by the State of Colorado dated _____ the undersigned bidder hereby proposes to furnish all the labor and materials and to perform all the work required for the complete and prompt execution of everything described or shown in or reasonably implied from the Bidding Documents, including the Drawings and Specifications, for the work and for the base bid indicated above. Bidders should include all taxes that are applicable.
2. **EXAMINATION OF DOCUMENTS AND SITE:** The bidder has carefully examined the Bidding Documents, including the Drawings and Specifications, and has examined the site of the Work, so as to make certain of the conditions at the site and to gain a clear understanding of the work to be done.
3. **PARTIES INTERESTED IN BID:** The bidder hereby certifies that the only persons or parties interested in this Bid are those named herein, and that no other bidder or prospective bidder has given any information concerning this Bid.
 - A. If the bidder anticipates services under the contract or any subcontracts will be performed outside the United States or Colorado, the bidder shall provide in a written statement which must include, but need not be limited to the type of services that will be performed at a location outside the United States or Colorado and the reason why it is necessary or advantageous to go outside the United States or Colorado to perform such services. (Does not apply to any project that receives federal moneys) *
 - B. For State Public Works projects per C.R.S. 8-17-101, Colorado labor shall be employed to perform at least 80% of the work. Colorado Labor means any person who is a resident of the state of Colorado at the time of the Public Works project. Bidders indicating that their bid proposal will not comply with the 80% Colorado Labor requirement are required to submit written justification along with the bid submission. (Does not apply to any project that receives federal moneys) *
 - C. A Service-Disabled Veteran Owned Small Business (SDVOSB) per C.R.S. 24-103-211, means a business that is incorporated or organized in Colorado or maintains a place of business or has an office in Colorado and is officially registered and verified by the Center for Veteran Enterprise within the U.S. Department of Veteran Affairs. Attach proof of certification along with the bid submission. *
4. **BID GUARANTEE:** This Bid is accompanied by the required Bid Guarantee. You are authorized to hold said Bid Guarantee for a period of not more than thirty (30) days after the opening of the Bids for the work above indicated, unless the undersigned bidder is awarded the Contract, within said period, in which event the Director, State Buildings Programs, may retain said Bid Guarantee, until the undersigned bidder has executed the required Agreement and furnished the required Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance and Affidavit Regarding Unauthorized Immigrants.
5. **TIME OF COMPLETION:** The bidder agrees to achieve Substantial Completion of the Project from the date of the Notice to Proceed within the number of calendar days entered above, and in addition, further agrees that the period between Substantial Completion and Final Acceptance of the Project will not exceed the number of

calendar days noted above. If awarded the Work, the bidder agrees to begin performance within ten (10) days from the date of the Notice to Proceed subject to Article 46, Time of Completion and Liquidated Damages of the General Conditions of the Contract, and agrees to prosecute the Work with due diligence to completion. The bidder represents that Article 7D of the Contractor's Agreement (SC-6.21) has been reviewed to determine the type and amount of any liquidated damages that may be specified for this contract.

- 6. EXECUTION OF DOCUMENTS:** The bidder understands that if this Bid is accepted, bidder must execute the required Agreement and furnish the required Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance and Affidavit Regarding Unauthorized Immigrants within ten (10) days from the date of the Notice of Award, and that the bidder will be required to sign to acknowledge and accept the Contract Documents, including the Drawings and Specifications.
- 7. ALTERNATES:** Refer to the Information for Bidders (SC-6.12) for Method of Award for Alternates and use State Form SBP-6.13.1 Bid Alternates form to be submitted with this bid form if alternates are requested by the institution/agency in the solicitation documents.
- 8. Submit wage rates** (direct labor costs) for prime contractor and subcontractor as requested by the institution/agency in the solicitation documents.
- 9. The right is reserved to waive informalities and to reject any and all Bids.**

**Does not apply to projects for Institutions of Higher Education that have opted out of the State Procurement Code.*

SIGNATURES: If the Bid is being submitted by a Corporation, the Bid shall be signed by an officer, i.e., President or Vice-President. If a sole proprietorship or a partnership is submitting the Bid, the Bid shall so indicate and be properly signed.

Dated this _____ Day of _____, 20_____

THE BIDDER:

Company Name

Address (including city, state and zip)

Phone number:

Name (Print) and Title

Signature



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM

BID BOND

Institution/Agency: Trinidad State Junior College

Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, _____ hereinafter called the "PRINCIPAL", is submitting a PROPOSAL for the above described project, to the STATE OF COLORADO, hereinafter called the "OBLIGEE".

WHEREAS, the Advertisement for Bids has required as a condition of receiving the Proposals that the Principal submit with the PROPOSAL GUARANTY in an amount not less than five per cent (5%) of the Proposal, which sum it is specifically agreed is to be forfeited as Liquidated Damages in the event that the Principal defaults in his obligation as hereinafter specified, and, in pursuance of which Requirement, this Bid is made, executed and delivered.

NOW THEREFORE, the Principal and _____ a corporation of the State of _____, duly authorized to transact business in Colorado, as Surety, are held and firmly bound unto the Obligee, in the sum of five per cent (5%) of the Principal's total bid price, lawful money of the United States for the payment of which sum, well and truly to be made to the Obligee, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

FURTHER THAT, a condition of the obligation that the Principal shall maintain his Proposal in full force and effect for thirty (30) days after the opening of the proposals for the project, or, if the Principal's Proposal is accepted, the Principal shall, within the prescribed time, execute the required Agreement, furnish the required Performance Bond, Labor and Material Payment Bond, Insurance Policy, Certificates of Insurance and Certification and Affidavit Regarding Illegal Aliens, then this obligation shall be null and void, otherwise it shall remain in full force and effect, and subject to forfeiture upon demand as Liquidated Damages.

IN WITNESS WHEREOF said Principal and Surety have executed this Bond, this _____ day of _____, A.D., 20_____.

(Corporate Seal)

ATTEST

Secretary

Name (Print)

THE PRINCIPAL

Company Name

Address (including city, state and zip)

Phone number: _____

Signature

Name (Print) and Title

SIGNATURES

If the "Principal" is doing business as a Corporation, the Bid Bond shall be signed by an officer, i.e., President or Vice President. The signature of the officer shall be attested to by the Secretary and properly sealed.

If the "Principal" is an individual or a partnership, the Bid Bond shall so indicate and be properly signed.

(Corporate Seal)

THE SURETY

By _____

Attorney-in-Fact

Secretary

**THIS BOND MUST BE ACCOMPANIED BY POWER OF ATTORNEY, EFFECTIVELY DATED.
FAILURE TO PROVIDE A PROPERLY EXECUTED BID BOND WITH A PROPERLY EXECUTED POWER OF
ATTORNEY WILL RESULT IN THE BIDDER'S PROPOSAL BEING DEEMED NON-RESPONSIVE.**



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM

NOTICE TO PROCEED (DESIGN/BID/BUILD CONTRACT)

Date of Notice: _____
Date to be inserted by the Principal Representative
Date/Description of Contract Documents: _____
Institution/Agency: Trinidad State Junior College
Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

Attach Notice of Code Compliance from Code Review Agent/Building Official for Documents Listed Above

To:

This is to advise you that your Performance Bond, Labor and Material Payment Bond, Insurance Policy and Certificates of Insurance, and Affidavit Regarding Unauthorized Immigrants have been received. Our issuance of this Notice does not relieve you of responsibility to assure that the bond and insurance requirements of the Contract Documents are met for the duration of the Agreement. The Agreement dated _____ covering the above described work has been fully executed.

You are hereby authorized and directed to proceed within ten (10) days from date of this Notice as required in the Agreement. Any liquidated damages for failure to achieve Substantial Completion by the date agreed that may be applicable to this Contract will be calculated using the date of this Notice for the date of the commencement of the Work.

The total completion date (including close-out) of the Project is _____ (M/D/YYYY).

By _____ Date _____
State Buildings Program
(or Authorized Delegate)

By _____ Date _____
Principal Representative
(Institution or Agency)

When completely executed, this form is to be sent by certified mail to the Contractor by the Principal Representative; or delivered by any other means to which the parties agree.



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM

NOTICE OF FINAL ACCEPTANCE

Date of Notice of Acceptance: _____

Date to be inserted by A/E after consultation with the Principal Representative

Institution/Agency: Trinidad State Junior College

Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

TO:

Notice is hereby given that the State of Colorado, acting by and through the _____,
accepts as complete* the above numbered project.

State Buildings Program (or Authorized Delegate)	Date	Principal Representative (Institution or Agency)	Date
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*When completely executed, this form is to be sent by **certified mail** to the Contractor by the Principal Representative or delivered by any other means to which the parties agree.



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM

BID ALTERNATES FORM

Institution/Agency: Trinidad State Junior College

Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

Additive alternates will not be used if deductible alternates are used and deductible alternates will not be used if additive alternates are used.

Additive Alternates

Refer to specification section 01 23 00 for descriptions of add alternates. If the add alternates are accepted, the base bid would be modified by the amount entered by the bidder.

A.A. No. 1	Interior Lighting in Classrooms, Lower Level and Restrooms	Add \$	_____
A.A. No. 2	Stage Floor	Add \$	_____
A.A. No. 3	Theatrical Lighting Spare Equipment	Add \$	_____
A.A. No. 4	Theatrical A/V Spare Equipment	Add \$	_____
A.A. No. 5	Wireless Microphone System	Add \$	_____
A.A. No. 6	Monitoring & Page System	Add \$	_____
A.A. No. 7	Scrim Curtain	Add \$	_____
A.A. No. 8	Stock Fabric	Add \$	_____
A.A. No. 9	_____	Add \$	_____
A.A. No. 10	_____	Add \$	_____

THE BIDDER:

Company Name

Signature

Date



STATE OF COLORADO
 OFFICE OF THE STATE ARCHITECT
 STATE BUILDINGS PROGRAM

NOTICE OF SUBSTANTIAL COMPLETION

Date of Substantial Completion: _____
Date to be inserted by the Principal Representative

Institution/Agency: Trinidad State Junior College

Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

TO:

Principal Representative

and

Contractor

This is to advise you that the Work has been reviewed, inspected and determined, to the best knowledge, information and belief of the Architect/Engineer, to be substantially complete as of the date noted above in accordance with the criteria outlined in Article 41 of The General Conditions of the Contract in SC-6.23 and SC-8.1 or Article 17.3 in SC-6.4 and the Specifications, including without limitation a) suitable for occupancy, b) inspected for code compliance with Building Inspection Records signed by code officials for the State, c) determined to be fully and comfortably usable, and d) fully cleaned and appropriate for presentation to the public.

A punch list of work to be completed, work not in compliance with the Drawings or Specifications, and unsatisfactory work is attached hereto, along with the Contractor's schedule for the completion of each and every item identified on the punch list specifying the Subcontractor or trade responsible for the work, and the dates the completion or correction will be commenced and finished within any period indicated in the Agreement for punch list completion prior to Final Acceptance.

Except as stated on the reverse side of this Notice of Substantial Completion, all manufacturers' warranties, other special warranties and the Contractor's one-year obligation to perform remedial work, shall commence on the Date of Substantial Completion noted above.

This Notice of Substantial Completion shall be effective and establish the Date of Substantial Completion only when fully executed by the Contractor and the Principal Representative. The Principal Representative accepts the Work as substantially complete as of the Date of Substantial Completion herein noted. The Contractor agrees to complete or correct the Work identified on the attached punch list and to do so in accordance with attached punch list completion schedule

Architect/Engineer	Date	Contractor	Date
--------------------	------	------------	------

State Buildings Program	Date	Principal Representative	Date
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(or Authorized Delegate)

(Institution or Agency)

The responsibilities of the Principal Representative and the Contractor for security, maintenance, heat, utilities, and insurance shall be as specified in the Contract Documents or as otherwise hereafter noted:

Exceptions, if any, to the commencement of warranties shall be:

The attached final punch list consists of _____ pages, and the attached Contractor's schedule showing the dates of commencement and completion of each punch list item consists of _____ pages.

When completely executed, this form shall be sent to the Contractor and the Principal Representative with a copy to State Buildings Program.



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM

NOTICE OF CONTRACTOR'S SETTLEMENT

Institution/Agency: _____
Notice Number: Trinidad State Junior College
Project No./Title: Massari Theater Lighting Upgrade / TSJC-21-001

Notice is hereby given that on ____ *date* ____ at ____ *address* ____ Colorado, final settlement will be made by the STATE OF COLORADO with ____ *vendor name* ____, hereinafter called the "CONTRACTOR", for and on account of the contract for the construction of a PROJECT as referenced above.

1. Any person, co-partnership, association or corporation who has an unpaid claim against the said project, for or on account of the furnishing of labor, materials, team hire, sustenance, provisions, provender, rental machinery, tools, or equipment and other supplies used or consumed by such Contractor or any of his subcontractors in or about the performance of said work, may at any time up to and including said time of such final settlement, file a verified statement of the amount due and unpaid on account of such claim
2. All such claims shall be filed with the Authority for College, Institution, Department or Agency.
3. Failure on the part of a creditor to file such statement prior to such final settlement will relieve the State of Colorado from any and all liability for such claim

Authorized Facility Manager or Authorized Individual

Name: _____
Approval Date: _____
Agency: _____
Phone: _____
Fax: _____
Email: _____

MEDIA OF PUBLICATION:

PUBLICATION DATES:

First:

Second:

(At least ten (10) days prior to above settlement date)

NOTES TO EDITOR:

Transmit two (2) copies of the Affidavit of Publication, and invoice, to:

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**



**CONTRACTOR'S DESIGN/BID/BUILD (D/B/B) AGREEMENT
(STATE FORM SC-6.21)**

DEPARTMENT ID: _____

CONTRACT ID #: _____

PROJECT #: TSJC-21-001

PROJECT NAME: Massari Theater Lighting Upgrade

VENDOR NAME: _____

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.21)**

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EXHIBITS:

- A.** Contractor's Bid (Form SC-6.13)
- B.** Performance Bond (Form SC-6.22)
- C.** Labor and Material Payment Bond (Form SC-6.221)
- D.** Insurance Certificates
- E.** Certification and Affidavit Regarding Unauthorized Immigrants (State Form UI - 1), (required at contract signing prior to commencing work)
- F.** Building Code Compliance Policy: Coordination of Approved Building Codes, Plan Reviews and Building Inspections.

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**CONTRACTOR'S DESIGN/BID/BUILD (D/B/B) AGREEMENT
(STATE FORM SC-6.21)**

Department ID: _____ Contract ID #: _____ Project #: _____

1. PARTIES. THIS AGREEMENT is entered into by and between the STATE OF COLORADO, acting by and through the [agency], hereinafter referred to as the Principal Representative, and [vendor name] having its offices at [vendor address] hereinafter referred to as the Contractor.

2. EFFECTIVE DATE AND NOTICE OF NONLIABILITY. This Agreement shall not be effective or enforceable until it is approved and signed by the State Controller or its designee (hereinafter called the "Effective Date"), but shall be effective and enforceable thereafter in accordance with its provisions. The State shall not be liable to pay or reimburse Contractor for any performance hereunder or be bound by any provision hereof prior to the Effective Date.

RECITALS:

WHEREAS, the Principal Representative intends to procure [project name] hereinafter called the Project; and

WHEREAS, authority exists in the Law and Funds have been budgeted, appropriated, and otherwise made available, and a sufficient unencumbered balance thereof remains available for payment In Fund Number _____, Account Number _____; and

WHEREAS, this is a phase one waived contract, waiver number 156 Contractors Agreement for Capital Construction Form SC6.21.

WITNESSETH, that the State of Colorado and the Contractor agree as follows:

ARTICLE 1. PERFORMANCE OF THE WORK

The Contractor shall perform all of the Work required for the complete and prompt execution of everything described or shown in, or reasonably implied from the Contract Documents for the above referenced Project.

ARTICLE 2. PROVISIONS OF THE CONTRACT DOCUMENTS

The Contractor agrees to perform the Work to the highest industry standards and to the satisfaction of the State of Colorado and its Architect/Engineer in strict accordance with the provisions of the Contract Documents.

ARTICLE 3. TIME OF COMPLETION

The Contractor agrees to Substantially Complete the Project within _____ calendar days from the date of the Notice to Proceed, in addition, the Contractor agrees to finally complete the Project from Substantial Completion to Final Acceptance within _____ calendar days for a total time of completion of the entire Project of _____ calendar days. The Contractor shall perform the Work with due diligence to completion.

ARTICLE 4. ESSENTIAL CONDITION

Timely completion of the Project is an essential condition of this Agreement. The Contractor shall be subject to any liquidated damages described in Article 7.4 for failure to satisfactorily complete the Work within the time periods in Article 3 above.

ARTICLE 5. CONTRACT SUM

The Contractor shall be paid for the performance of this Agreement, subject to any additions and deductions as provided for in Articles 32, 34 and 35 of The General Conditions of the Construction Contract SC-6.23, the sum of _____ DOLLARS AND NO/100* (\$_____*)).

	Description of Work/Date	Dollar Amount
Base Contract Amount		
Alt. #01		
Alt. #02		
	Total Contract Sum	\$ -

ARTICLE 6. CONTRACT DOCUMENTS

The Contract Documents, as enumerated in Article 1 of The General Conditions of the Contractor’s Design/Bid/Build (D/B/B) Agreement SC-6.23, are all essential parts of this Agreement and are fully incorporated herein.

ARTICLE 7. OPTIONAL PROVISIONS AND ELECTIONS

The provisions of this Article 7 alter the Articles (The General Conditions of the Contractor’s Design/Bid/Build Agreement SC-6.23) or enlarge upon them as indicated:

The Principal Representative and or the State Buildings Program shall mark boxes and initial where applicable.

1. MODIFICATION OF ARTICLE 45. GUARANTEE INSPECTIONS AFTER COMPLETION

If the box below is marked the six month guarantee inspection is not required.

_____ Principal Representative initial

2. MODIFICATION OF ARTICLE 27. LABOR AND WAGES

If the box is marked the Federal Davis-Bacon Act shall be applicable to the Project. The minimum wage rates to be paid on the Project shall be furnished by the Principal Representative and included in the Contract Documents.

_____ Principal Representative initial

3. MODIFICATION OF ARTICLE 39. NON-BINDING DISPUTE RESOLUTION – FACILITATED NEGOTIATIONS

If the box is marked, and initialed by the State as noted, the requirement to participate in facilitated negotiations shall be deleted from this Contract. Article 39, Non-Binding Dispute Resolution – Facilitated Negotiations, shall be deleted in its entirety and all references to the right to the same where ever they appear in the contract shall be similarly deleted.

The box may be marked only for projects with an estimated value of less than \$500,000.

_____ Principal Representative initial

4. MODIFICATION OF ARTICLE 46. TIME OF COMPLETION AND LIQUIDATED DAMAGES

If an amount is indicated immediately below, liquidated damages shall be applicable to this Project as, and to, the extent shown below. Where an amount is indicated below, liquidated damages shall be assessed in accordance with and pursuant to the terms of The General Conditions of the Design/Bid/Build Agreement Article 46, Time of Completion And Liquidated Damages, in the amounts and as here indicated. The election of liquidated damages shall limit and control the parties right to damages only to the extent noted.

4.1. For the inability to use the Project, for each day after the number of calendar days specified in the Contractor's bid for the Project and the Agreement for achievement of Substantial Completion, until the day that the Project has achieved Substantial Completion and the Notice of Substantial Completion is issued, the Contractor agrees that an amount equal to _____ (\$ _____) shall be assessed against Contractor from amounts due and payable to the Contractor under the Contract, or the Contractor and the Contractor's Surety shall pay to the Principal Representative such sum for any deficiency, if amounts on account thereof are deducted from remaining amounts due, but amounts remaining are insufficient to cover the entire assessment.

4.2. For damages related to or arising from additional administrative, technical, supervisory and professional expenses related to and arising from the extended closeout period, for each day in excess of the number of calendar days specified in the Contractor's bid for the Project and the Agreement to finally complete the Project as defined by the issuance of the Notice of Final Acceptance) after the issuance of the final Notice of Substantial Completion, the Contractor agrees that an amount equal to _____ (\$ _____) shall be assessed against Contractor from amounts due and payable to the Contractor under the Contract, or the Contractor and the Contractor's Surety shall pay to the Principal Representative such sum for any deficiency, if amounts on account thereof are deducted from remaining amounts due but amounts remaining are insufficient to cover the entire assessment.

ARTICLE 8. NOTICE IDENTIFICATION

All Notices pertaining to General Conditions or otherwise required to be given shall be transmitted in writing, to the individuals at the addresses listed below, and shall be deemed duly given when received by the parties at their addresses below or any subsequent persons or addresses provided to the other party in writing.

Notice to Principal Representative:

With copies to (State Buildings Program (or Delegate) State of Colorado):

Notice to Contractor:

With copies to:
File

SIGNATURE APPROVALS:

THE PARTIES HERETO HAVE EXECUTED THIS CONTRACT

*Persons signing for Contractor hereby swear and affirm that they are authorized to act on Contractor's behalf and acknowledge that the State is relying on their representations to that effect. **Principal is not a recognized title and will not be accepted**

THE CONTRACTOR

STATE OF COLORADO, acting by and through:
(Insert Name of Agency or IHE)

Legal Name of Contracting Entity

By: _____
(Insert Name & Title of Principal Representative for Agency or IHE)

Date: _____

*Signature

APPROVED
DEPARTMENT OF PERSONNEL &
ADMINISTRATION
STATE BUILDINGS PROGRAM
State Architect (or authorized Delegate)

By _____
Name (print) Title

By: _____
(Insert Name of Authorized Individual)

Date: _____

Date: _____

ALL CONTRACTS MUST BE APPROVED BY THE STATE CONTROLLER:

C.R.S. § 24-30-202 requires the State Controller to approve all State Contracts. This Contract is not valid until signed and dated below by the State Controller or delegate. Contractor is not authorized to begin performance until such time. If Contractor begins performing prior thereto, the State of Colorado is not obligated to pay Contractor for such performance or for any goods and/or services provided hereunder.

APPROVED:
STATE OF COLORADO
STATE CONTROLLER'S OFFICE
State Controller (or authorized Delegate)

By: _____
(Insert Name & Title of Authorized Individual)

Date: _____

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.21)**

EXHIBIT A

CONTRACTOR'S BID (Form SBP-6.13)

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.21)**

EXHIBIT B

PERFORMANCE BOND (Form SC-6.22)

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.21)**

EXHIBIT C

LABOR AND MATERIAL PAYMENT BOND (Form SC-6.221)

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.21)**

EXHIBIT D

INSURANCE CERTIFICATE(S) (attached)

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.21)**

EXHIBIT E

Certification and Affidavit Regarding Unauthorized Immigrants (State Form UI-1), (required at contract signing prior to commencing work)

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.21)**

EXHIBIT F

Building Code Compliance Policy: Coordination of Approved Building Codes, Plan Reviews and Building Inspections



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM

PERFORMANCE BOND

Institution/Agency: Trinidad State Junior College

Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

BONDING COMPANY: DO NOT MAKE ANY CHANGES TO THE LANGUAGE IN THIS BOND.

KNOW ALL PERSONS BY THESE PRESENTS:

That the Contractor

as Principal and hereinafter called "Principal,"

and

as Surety and hereinafter called "Surety," a corporation organized and existing under the laws of _____ are held and firmly bound unto **the STATE OF COLORADO**

acting by and through _____
(AGENCY OR INSTITUTION)

hereinafter called the "Principal Representative", in the sum of _____
Dollars (\$ _____)

for the payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly, by these presents.

WHEREAS, the Principal and the State of Colorado acting by and through the Principal Representative have entered into a certain Contract, hereinafter called "Contract," dated _____, 20____, for the construction of a PROJECT described as

which Contract is hereby by reference made a part hereof;

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION, is such that, if the Principal shall promptly, fully and faithfully perform all the undertakings, covenants, terms, conditions and agreements of said Contract during the original term of said Contract any extensions thereof that may be granted by the Principal Representative with or without notice to the Surety, and during the life of any guaranty required under the Contract, and shall also well and truly perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

AND THE SAID SURETY, for value received hereby stipulates and agrees that whenever the Principal shall be, and declared by the Principal Representative to be in default under said Contract, the State of Colorado having performed its obligations thereunder, the Surety may promptly remedy the default or shall promptly (1) Complete the Contract in accordance with its terms and conditions, or (2) Obtain a bid or bids for submittal to the Principal Representative for completing the Contract in accordance with its terms and conditions, and upon determination by the Principal Representative and Surety of the lowest responsible bidder, arrange for a contract between such bidder and the State of Colorado acting by and through the Principal Representative and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion, less the balance of the contract price but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount hereinbefore set forth. The term "balance of the contract price" as herein used shall mean the total amount payable to the Principal under the Contract and any amendments thereto, less the amount properly paid by the State of Colorado to the Contractor.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the State of Colorado.

IN WITNESS WHEREOF said Principal and Surety have executed this Bond, this _____ day of , A.D., _____ 20____.

(Corporate Seal)

THE PRINCIPAL

ATTEST:

By: _____

Title: _____

Secretary

(Corporate Seal)

SURETY

By: _____

Attorney-in-fact

THIS BOND MUST BE ACCOMPANIED BY POWER OF ATTORNEY, EFFECTIVELY DATED

Note: This bond is issued simultaneously with another bond conditioned for the full and faithful payment for all labor and material of the contract.

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**



**THE GENERAL CONDITIONS OF THE CONTRACTOR'S DESIGN/BID/BUILD (D/B/B)
AGREEMENT
(STATE FORM SC-6.23)**

**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**THE GENERAL CONDITIONS OF THE CONTRACTOR’S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.23)**

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**STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM**

**THE GENERAL CONDITIONS OF THE CONTRACTOR'S DESIGN/BID/BUILD AGREEMENT
(STATE FORM SC-6.23)**

ARTICLE 1. DEFINITIONS

CONTRACT DOCUMENTS

The Contract Documents consist of the following some of which are procedural documents used in the administration and performance of the Agreement:

1. Contractor's Design/Bid/Build Agreement; (SC-6.21);
2. Performance Bond (SC-6.22) and Labor and Material Payment Bond (SC-6.221);
3. General Conditions of the Contractor's Design/Bid/Build Agreement (SC- 6.23) and if applicable, Supplementary General Conditions;
4. Detailed Specification Requirements, including all addenda issued prior to the opening of the bids; and,
5. Drawings, including all addenda issued prior to the opening of the bids.
6. Change Orders (SC-6.31) and Amendments (SC-6.0), if any, when properly executed.
7. Authorization to Bid (SBP-6.10)
8. Information for Bidders (SBP-6.12);
9. Bid (SBP-6.13);
10. Bid Bond (SBP-6.14);
11. Notice of Award (SBP-6.15);
12. Builder's risk insurance certificates of insurance (ACORD 25-S);
13. Liability and Workers' compensation certificates of insurance;
14. Notice to Proceed (Design/Bid/Build) (SBP-6.26);
15. Notice of Approval of Occupancy/Use (SBP-01);
16. Notice of Partial Substantial Completion (SBP-071);
17. Notice of Substantial Completion (SBP-07);
18. Notice of Partial Final Acceptance (SC-6.27);
19. Notice of Final Acceptance (SBP-6.271);
20. Notice of Partial Contractor's Settlement (SC-7.3);
21. Notice of Contractor's Settlement (SBP-7.31);
22. Application and Certificate for Contractor's Payment (SBP-7.2);
23. Other procedural and reporting documents or forms referred to in the General Conditions, the Supplementary General Conditions, the Specifications or required by the State Buildings Program or the Principal Representative, including but not necessarily limited to Pre-Acceptance Check List (SBP-05) and the Building Inspection Record (SBP-BIR). A list of the current standard State Buildings Program forms applicable to this Contract may be obtained from the Principal Representative on request.

DEFINITIONS OF WORDS AND TERMS USED

1. **AGREEMENT.** The term "Agreement" shall mean the written agreement entered into by the State of Colorado acting by and through the Principal Representative and the Contractor for the performance of the Work and payment therefore, on State Form SC-6.21. The term Agreement when used without reference to State Form SC-6.21 may also refer to the entirety of the parties' agreement to perform the Work described in the Contract Documents or reasonably inferable there from. The term "Contract" shall be interchangeable with this latter meaning of the term Agreement
2. **AMENDMENT:** The term "Amendment" means a written order signed by the Principal Representative or its authorized agent, issued after the execution of this Agreement, authorizing a change in the Work, the method or manner of performance, an adjustment in the Contract Sum, or

- the Contract Time as required by State Building Program's policy Contract Modification Guidelines.
3. ARCHITECT/ENGINEER. The term "Architect/Engineer" shall mean either the architect of record or the engineer of record under contract to the State of Colorado for the Project identified in the Contract Documents.
 4. CHANGE ORDER. The term "Change Order" means a written order directing the Contractor to make changes in the Work, in accordance with Article 35A, The Value of Changed Work.
 5. COLORADO LABOR. The term "Colorado labor", as provided in C.R.S. § 8-17-101(2)(a), as amended, means any person who is a resident of the state of Colorado, at the time of the public Works project, without discrimination as to race, color, creed, sex, sexual orientation, marital status, national origin, ancestry, age, or religion except when sex or age is a bona fide occupational qualification. A resident of the state of Colorado is a person who can provide a valid Colorado driver's license, a valid Colorado state-issued photo identification, or documentation that he or she has resided in Colorado for the last thirty days.
 6. CONTRACTOR. The word "Contractor" shall mean the person, company, firm, corporation or other legal entity entering into a contract with the State of Colorado acting by and through the Principal Representative
 7. DAYS. The term "days" whether singular or plural shall mean calendar days unless expressly stated otherwise. Where the term "business days" is used it shall mean business days of the State of Colorado.
 8. DRAWINGS. The term "Drawings" shall mean all drawings approved by appropriate State officials which have been prepared by the Architect/Engineer showing the Work to be done, except that where a list of drawings is specifically enumerated in the Supplementary General Conditions or division 1 of the Specifications, the term shall mean the drawings so enumerated, including all addenda drawings.
 9. EMERGENCY FIELD CHANGE ORDER. The term "Emergency Field Change Order" shall mean a written change order for extra Work or a change in the Work necessitated by an emergency as defined in Article 35D executed on State form SC 6.31 and identified as an Emergency Field Change Order. The use of such orders is limited to emergencies and to the amounts shown in Article 35D.
 10. FINAL ACCEPTANCE. The terms "final acceptance" or "finally complete" mean the stage in the progress of the Work, after substantial completion, when all remaining items of Work have been completed, all requirements of the Contract Documents are satisfied and the Notice of Acceptance can be issued. Discrete physical portions of the Project may be separately and partially deemed finally complete at the discretion of the Principal Representative when that portion of the Project reaches such stage of completion and a partial Notice of Acceptance can be issued.
 11. FIXED LIMIT OF CONSTRUCTION COST. The term "Fixed Limit of Construction Cost" shall set forth a dollar amount available for the total Construction Cost of all elements of the Work as specified by the Principal Representative.
 12. NOTICE. The term "Notice" shall mean any communication in writing from either contracting party to the other by such means of delivery that receipt cannot properly be denied. Notice shall be provided to the person identified to receive it in Article 8 of the Agreement. Notice Identification, or to such other person as either party identifies in writing to receive Notice. Notice by facsimile transmission where proper transmission is evidence shall be adequate where facsimile numbers are included in Article 8 of the Agreement. Notwithstanding an email delivery or return receipt, email Notice shall not be adequate. Acknowledgment of receipt of a voice message shall not be deemed to waive the requirement that Notice, where required, shall be in writing.
 13. OCCUPANCY. The term "Occupancy" means occupancy taken by the State as Owner after the Date of Substantial Completion at a time when a building or other discrete physical portion of the Project is used for the purpose intended. The Date of Occupancy shall be the date of such first use, but shall not be prior to the date of execution of the Notice of Approval of Occupancy/Use. Prior to the date of execution of a Notice of Approval of Occupancy/Use, the state shall have no right to occupy and the project may not be considered safe for occupancy for the intended use.

14. OWNER. The term "Owner" shall mean the Principal Representative.
15. PRINCIPAL REPRESENTATIVE. The term "Principal Representative" shall be defined, as provided in C.R.S. § 24-30-1301(14), as the governing board of a state department, institution, or agency; or if there is no governing board, then the executive head of a state department, institution, or agency, as designated by the governor or the general assembly and as specifically identified in the Contract Documents, or shall have such other meaning as the term may otherwise be given in C.R.S. § 24-30-1301(14), as amended. The Principal Representative may delegate authority. The Contractor shall have the right to inquire regarding the delegated authority of any of the Principal Representative's representatives on the project and shall be provided with a response in writing when requested.
16. PRODUCT DATA. The term "Product Data" shall mean all submittals in the form of printed manufacturer's literature, manufacturer's specifications, and catalog cuts.
17. PROJECT. The "Project" is the total construction of which the Work performed under the Contract Documents is a part, and may include construction by the Principal Representative or by separate contractors.
18. REASONABLY INFERABLE. The phrase "reasonably inferable" means that if an item or system is either shown or specified, all material and equipment normally furnished with such items or systems and needed to make a complete installation shall be provided whether mentioned or not, omitting only such parts as are specifically excepted, and shall include only components which the Contractor could reasonably anticipate based on his or her skill and knowledge using an objective, industry standard, not a subjective standard. This term takes into consideration the normal understanding that not every detail is to be given on the Drawings and Specifications. If there is a difference of opinion, the Principal Representative shall make the determination as to the standards of what reasonably inferable.
19. SAMPLES. The term "Samples" shall mean examples of materials or Work provided to establish the standard by which the Work will be judged.
20. SBP. The term "SBP" means "State Buildings", which is used in connection with labeling applicable State form documents (e.g., "SBP-01" is the form number for Notice of Approval of Occupancy/Use).
21. SC. The term "SC" means "State Contract" which is used in connection with labeling applicable State form documents (e.g. "SC 6.23" is the State form number for these General Conditions of the Contractor's Design/Bid/Build Agreement).
22. SCHEDULE OF VALUES. The term "Schedule of Values" is defined as the itemized listing of description of the Work by Division and Section of the Specifications. The format shall be the same as Form SC-7.2. Included shall be the material costs, and the labor and other costs plus the sum of both.
23. SHOP DRAWINGS. The term "Shop Drawings" shall mean any and all detailed drawings prepared and submitted by Contractor, Subcontractor at any tier, vendors or manufacturers providing the products and equipment specified on the Drawings or called for in the Specifications.
24. SPECIFICATIONS. The term "Specifications" shall mean the requirements of the CSI divisions of the project manual prepared by the Architect/Engineer describing the Work to be accomplished.
25. STATE BUILDINGS PROGRAM. Shall refer to the Office of the State Architect within the Department of Personnel & Administration of Colorado State government responsible for project administration, review, approval and coordination of plans, construction procurement policy, contractual procedures, and code compliance and inspection of all buildings, public Works and improvements erected for state purposes; except public roads and highways and projects under the supervision of the division of wildlife and the division of parks and outdoor recreation as provided in C.R.S. § 24-30-1301, *et seq.* The term State Buildings Program shall also mean that individual within a State Department agency or institution, including institutions of higher education, who has signed an agreement accepting delegation to perform all or part of the responsibilities and functions of State Buildings Program.
26. SUBCONTRACTOR. The term "Subcontractor" shall mean a person, firm or corporation supplying labor, materials, equipment and/or Services for Work at the site of the Project for, and under separate contract or agreement with the Contractor.

27. SUBMITTALS. The term "submittals" means drawings, lists, tables, documents and samples prepared by the Contractor to facilitate the progress of the Work as required by these General Conditions or the Drawings and Specifications. They consist of Shop Drawings, Product Data, Samples, and various administrative support documents including but not limited to lists of subcontractors, construction progress schedules, schedules of values, applications for payment, inspection and test results, requests for information, various document logs, and as-built drawings. Submittals are *required* by the Contract Documents, but except to the extent expressly specified otherwise are not themselves a part of the Contract Documents.
28. SUBSTANTIAL COMPLETION. The terms "substantial completion" or "substantially complete" mean the stage in the progress of the Work when the construction is sufficiently complete, in accordance with the Contract Documents as modified by any Change Orders, so that the Work, or at the discretion of the Principal Representative, any designated portion thereof, is available for its intended use by the Principal Representative and a Notice of Substantial Completion can be issued. Portions of the Project may, at the discretion of the Principal Representative, be designated as substantially complete.
29. SUPPLIER. The term "Supplier" shall mean any manufacturer, fabricator, distributor, material man or vendor.
30. SURETY. The term "Surety" shall mean the company providing the labor and material payment and performance bonds for the Contractor as obligor.
31. VALUE ENGINEERING. "Value Engineering" or "VE" is defined as an analysis and comparison of cost versus value of building materials, equipment, and systems. VE considers the initial cost of construction, coupled with the estimated cost of maintenance, energy use, life expectancy and replacement cost. VE related to this Project shall include the analysis and comparison of building elements in an effort to reduce overall Project costs, while maintaining or enhancing the quality of the design intent, whenever possible.
32. WORK. The term "Work" shall mean all or part of the labor, materials, equipment, and other services required by the Contract Documents or otherwise required to be provided by the Contractor to meet the Contractor's obligations under the Contract.

ARTICLE 2. EXECUTION, CORRELATION, INTENT OF DOCUMENTS, COMMUNICATION AND COOPERATION

A. EXECUTION

The Contractor, within ten (10) days from the date of Notice of Award, will be required to:

1. Execute the Agreement, State Form SC-6.21;
2. Furnish fully executed Performance and Labor and Material Payment Bonds on State Form s SC-6.22 and SC-6.221; and
3. Furnish certificates of insurance evidencing all required insurance on standard Acord forms designed for such purpose.
4. Furnish certified copies of any insurance policies requested by the Principal Representative.

B. CORRELATION

By execution of the Agreement the Contractor represents that the Contractor has visited the site, has become familiar with local conditions and local requirements under which the Work is to be performed, including the building code programs of the State Buildings Program as implemented by the Principal Representative, and has correlated personal observations with the requirements of the Contract Documents.

C. INTENT OF DOCUMENTS

The Contract Documents are complementary, and what is called for by any one document shall be as binding as if called for by all. The intention of the documents is to include all labor, materials, equipment and transportation necessary for the proper execution of the Work. Words describing materials or Work which have a well-known technical or trade meaning shall be held to refer to such recognized standards.

In any event, if any error exists, or appears to exist, in the requirements of the Drawings or Specifications, or if any disagreement exists as to such requirements, the Contractor shall have the

same explained or adjusted by the Architect/Engineer before proceeding with the Work in question. In the event of the Contractor's failure to give prior written Notice of any such errors or disagreements of which the Contractor or the Subcontractors at any tier are aware, the Contractor shall, at no additional cost to the Principal Representative, make good any damage to, or defect in, Work which is caused by such omission.

Where a conflict occurs between or within standards, Specifications or Drawings, which is not resolved by reference to the precedence between the Contract Documents, the more stringent or higher quality requirements shall apply so long as such more stringent or higher quality requirements are reasonably inferable. The Architect/Engineer shall decide which requirements will provide the best installation.

With the exception noted in the following paragraph, the precedence of the Contract Documents is in the following sequence:

1. The Agreement (SC-6.21);
2. The Supplementary General Conditions, if any;
3. The General Conditions (SC-6.23); and
4. Drawings and Specifications, all as modified by any addenda.

Change Orders and Amendments, if any, to the Contract Documents take precedence over the original Contract Documents.

Notwithstanding the foregoing order of precedence, the Special Provisions of Article 52 of the General Conditions, Special Provisions, shall take precedence, rule and control over all other provisions of the Contract Documents.

Unless the context otherwise requires, form numbers in this document are for convenience only. In the event of any conflict between the form required by name or context and the form required by number, the form required by name or context shall control. The Contractor may obtain State forms from the Principal Representative upon request.

D. PARTNERING, COMMUNICATIONS AND COOPERATION

In recognition of the fact that conflicts, disagreements and disputes often arise during the performance of construction contracts, the Contractor and the Principal Representative aspire to encourage a relationship of open communication and cooperation between the employees and personnel of both, in which the objectives of the Contract may be better achieved and issues resolved in a more fully informed atmosphere.

The Contractor and the Principal Representative each agree to assign an individual who shall be fully authorized to negotiate and implement a voluntary partnering plan for the purpose of facilitating open communications between them. Within thirty days (30) of the Notice to Proceed, the assigned individuals shall meet to discuss development of an informal agreement to accomplish these goals.

The assigned individuals shall endeavor to reach an informal agreement, but shall have no such obligation. Any plans these parties voluntarily agree to implement shall result in no change to the contract amount, and no costs associated with such plan or its development shall be recoverable under any contract clause. In addition, no plan developed to facilitate open communication and cooperation shall alter, amend or waive any of the rights or duties of either party under the Contract unless and except by written Amendment to the Contract, nor shall anything in this clause or any subsequently developed partnering plan be deemed to create fiduciary duties between the parties unless expressly agreed in a written Amendment to the Contract. It is also recognized that projects with relatively low contract values may not justify the expense or special efforts required. In the case of small projects with an initial Contract value under \$500,000, the requirements of the preceding paragraph shall not apply.

ARTICLE 3. COPIES FURNISHED

The Contractor will be furnished, free of charge, the number of copies of Drawings and Specifications as specified in the Contract Documents, or if no number is specified, all copies reasonably necessary for the execution of the Work.

ARTICLE 4. OWNERSHIP OF DRAWINGS

Drawings or Specifications, or copies of either, furnished by the Architect/Engineer, are not to be used on any other Work. At the completion of the Work, at the written request of the Architect/Engineer, the Contractor shall endeavor to return all Drawings and Specifications.

The Contractor may retain the Contractor's Contract Document set, copies of Drawings and Specifications used to contract with others for any portion of the Work and a marked up set of as-built drawings.

ARTICLE 5. ARCHITECT/ENGINEER'S STATUS

The Architect/Engineer is the representative of the Principal Representative for purposes of administration of the Contract, as provided in the Contract Documents and the Agreement. In case of termination of employment or the death of the Architect/Engineer, the Principal Representative will appoint a capable Architect/Engineer against whom the Contractor makes no reasonable objection, whose status under the Contract shall be the same as that of the former Architect/Engineer.

ARTICLE 6. ARCHITECT/ENGINEER DECISIONS AND JUDGMENTS, ACCESS TO WORK AND INSPECTION

A. DECISIONS

The Architect/Engineer shall, within a reasonable time, make decisions on all matters relating to the execution and progress of the Work or the interpretation of the Contract Documents, and in the exercise of due diligence shall be reasonably available to the Contractor to timely interpret and make decisions with respect to questions relating to the design or concerning the Contract Documents.

B. JUDGMENTS

The Architect/Engineer is, in the first instance, the judge of the performance required by the Contract Documents as it relates to compliance with the Drawings and Specifications and quality of Workmanship and materials.

The Architect/Engineer shall make judgments regarding whether directed Work is extra or outside the scope of Work required by the Contract Documents at the time such direction is first given. If, in the Contractor's judgment, any performance directed by the Architect/Engineer is not required by the Contract Documents or if the Architect/Engineer does not make the judgment required, it shall be a condition precedent to the filing of any claim for additional cost related to such directed Work that the Contractor, before performing such Work, shall first obtain in writing, the Architect/Engineer's written decision that such directed Work is included in the performance required by the Contract Documents. If the Architect/Engineer's direction to perform the Work does not state that the Work is within the performance required by the Contract Documents, the Contractor shall, in writing, request the Architect/Engineer to advise in writing whether the directed Work will be considered extra Work or Work included in the performance required by the Contract Documents.

The Architect/Engineer shall respond to any such written request for such a decision within three (3) business days and if no response is provided, or if the Architect/Engineer's written decision is to the effect that the Work is included in the performance required by the Contract Documents, the Contractor may file with the Principal Representative and the Architect/Engineer a Notice of claim in accordance with Article 36, Claims. Whether or not a Notice of claim is filed, the Contractor shall proceed with the ordered Work. Disagreement with the decision of the Architect/Engineer shall not be grounds for the Contractor to refuse to perform the Work directed or to suspend or terminate performance.

C. ACCESS TO WORK

The Architect/Engineer, the Principal Representative and representatives of State Buildings Program shall at all times have access to the Work. The Contractor shall provide proper facilities for such access and for their observations or inspection of the Work.

D. INSPECTION

The Architect/Engineer has agreed to make, or that structural, mechanical, electrical engineers or other consultants will make, periodic visits to the site to generally observe the progress and quality of the Work to determine in general if the Work is proceeding in accordance with the Contract Documents. Observation may extend to all or any part of the Work and to the preparation, fabrication or manufacture of materials.

Without in any way meaning to be exclusive or to limit the responsibilities of the Architect/Engineer or the Contractor, the Architect/Engineer has agreed to observe, among other aspects of the Work, the following for compliance with the Contract Documents:

1. Compaction testing reports based upon the findings and recommendations of the Principal Representative's testing consultant;
2. Bearing surfaces of excavations before concrete is placed based upon the findings and recommendations of the Principal Representative's soils engineering consultant;
3. Reinforcing steel after installation and before concrete is poured;
4. Structural concrete;
5. Laboratory reports on all concrete testing based upon the findings and recommendations of the Principal Representative's testing consultant;
6. Structural steel during and after erection and prior to its being covered or enclosed;
7. Steel welding; Principal Representative will furnish steel welding inspection consultant/agency if required or necessary for the project;
8. Mechanical and plumbing Work following its installation and prior to its being covered or enclosed;
9. Electrical Work following its installation and prior to its being covered or enclosed; and
10. Any special or quality control testing required in the Contract Documents provided by the Principal Representative's testing consultant.

If the Specifications, the Architect/Engineer's instructions, laws, ordinances of any public authority require any Work to be specifically tested or approved, the Contractor shall give the Principal Representative, Architect/Engineer and appropriate testing agency (if necessary) timely notice of its readiness for observation by the Architect/Engineer or inspection by another authority, and if the inspection is by another authority, of the date fixed for such inspection, required certificates of inspection being secured by the Contractor. The Contractor shall give all required Notices to the Principal Representative or his or her designee for inspections required for the building inspection program. It shall be the responsibility of the Contractor to determine the Notice required by the State pursuant to Building Inspection Record for the Project, according to State form SBP-B.I.R., or the equivalent form required by the Principal Representative as approved by the State Buildings Program. If any portion of the Work should be covered contrary to the reasonable request of the Architect/Engineer, or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect/Engineer, be uncovered for its observation and shall be replaced at the Contractor's expense.

If any other portion of the Work has been covered which the Architect/Engineer has not specifically requested to observe prior to it's being covered, it may request to see such work and it shall be uncovered by the Contractor. If such work is found in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Amendment or Change Order, be charged to the Principal Representative. If such work is found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it is found that this condition was caused by the Principal Representative or a separate Contractor as provided in Article 18, in which event, the Principal Representative shall be responsible for the payment of such costs.

ARTICLE 7. CONTRACTOR'S SUPERINTENDENCE AND SUPERVISION

The Contractor shall employ, and keep present (as applicable) on the Project during its progress, a competent project manager as satisfactory to the Principal Representative. The project manager shall not be changed except with the consent of the Principal Representative, unless the project manager proves to be unsatisfactory to the Contractor and ceases to be in his or her employ. The project manager shall represent the Contractor for the Project, and in the absence of the Contractor, all directions given to the project manager shall be as binding as if given to the Contractor. Directions received by the project manager shall be documented by the project manager and communicated in writing with the Contractor.

The Contractor shall employ, and keep present on the Project during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Architect/Engineer and the Principal Representative. The superintendent shall not be changed except with the consent of the Architect/Engineer and the Principal Representative, unless the superintendent proves to be unsatisfactory to the Project Manager/Contractor and ceases to be in his or her employ. The superintendent shall represent the Project Manager/Contractor in his or her absence and all directions given to the superintendent shall be as binding as if given to the Project Manager/Contractor. Directions received by the superintendent shall be documented by the superintendent and confirmed in writing with the Project Manager/Contractor.

The Contractor shall give efficient supervision to the Work, using his or her best skill and attention. He or she shall carefully study and compare all Drawings, Specifications and other written instructions and shall without delay report any error, inconsistency or omission which he or she may discover in writing to the Architect/Engineer. The Contractor shall not be liable to the Principal Representative for damage to the extent it results from errors or deficiencies in the Contract Documents or other instructions by the Architect/Engineer, unless the Contractor knew or had reason to know, that damage would result by proceeding and the Contractor fails to so advise the Architect/Engineer.

The superintendent shall see that the Work is carried out in accordance with the Contract Documents and in a uniform, thorough and first-class manner in every respect. The Contractor's superintendent shall establish all lines, levels, and marks necessary to facilitate the operations of all concerned in the Contractor's Work. The Contractor shall lay out all Work in a manner satisfactory to the Architect/Engineer, making permanent records of all lines and levels required for excavation, grading, foundations, and for all other parts of the Work.

ARTICLE 8. MATERIALS AND EMPLOYEES

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of the Work.

Unless otherwise specified, all materials shall be new and both workmanship and materials shall be first class and of uniform quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor is fully responsible for all acts and omissions of the Contractor's employees and shall at all times enforce strict discipline and good order among employees on the site. The Contractor shall not employ on the Work any person reasonably deemed unfit by the Principal Representative or anyone not skilled in the Work assigned to him.

ARTICLE 9. SURVEYS, PERMITS, LAWS, TAXES AND REGULATIONS

A. SURVEYS

The Principal Representative shall furnish all surveys, property lines and bench marks deemed necessary by the Architect/Engineer, unless otherwise specified.

B. PERMITS AND LICENSES

Permits and licenses necessary for the prosecution of the Work shall be secured and paid for by the Contractor. Unless otherwise specified in the Specifications, no local municipal or county building permit shall be required. However, State Buildings Program requires each Principal Representative to

administer a building code inspection program, the implementation of which may vary at each agency or institution of the State. The Contractors' employees shall become personally familiar with these local conditions and requirements and shall fully comply with such requirements. State electrical and plumbing permits are required, unless the requirement to obtain such permits is altered by State Building's Programs. The Contractor shall obtain and pay for such permits.

Easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Principal Representative, unless otherwise specified.

C. TAXES

1. Refund of Sales and Use Taxes

The Contractor shall pay all local taxes required to be paid, including but not necessarily limited to all sales and use taxes. If requested by the Principal Representative prior to issuance of the Notice to Proceed or directed in the Supplementary General Conditions or the Specifications, the Contractor shall maintain records of such payments in respect to the Work, which shall be separate and distinct from all other records maintained by the Contractor, and the Contractor shall furnish such data as may be necessary to enable the State of Colorado, acting by and through the Principal Representative, to obtain any refunds of such taxes which may be available under the laws, ordinances, rules or regulations applicable to such taxes. When so requested or directed, the Contractor shall require Subcontractors at all tiers to pay all local sales and use taxes required to be paid and to maintain records and furnish the Contractor with such data as may be necessary to obtain refunds of the taxes paid by such Subcontractors. No State sales and use taxes are to be paid on material to be used in this Project. On application by the purchaser or seller, the Department of Revenue shall issue to a Contractor or to a Subcontractor at any tier, a certificate or certificates of exemption per C.R.S. § 39-26-703(2)(b), and C.R.S. § 39-26-708.

2. Federal Taxes

The Contractor shall exclude the amount of any applicable federal excise or manufacturers' taxes from the proposal. The Principal Representative will furnish the Contractor, on request exemption certificates.

D. LAWS AND REGULATIONS

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn or specified. If the Contractor observes that the Drawings or Specifications require Work which is at variance therewith, the Contractor shall without delay notify the Architect/Engineer in writing and any necessary changes shall be adjusted as provided in Article 35, Changes In The Work.

The Contractor shall bear all costs arising from the performance of Work required by the Drawings or Specifications that the Contractor knows to be contrary to such laws, ordinances, rules or regulations, if such Work is performed without giving Notice to the Architect/Engineer.

ARTICLE 10. PROTECTION OF WORK AND PROPERTY

A. GENERAL PROVISIONS

The Contractor shall continuously maintain adequate protection of all Work and materials, protect the property from injury or loss arising in connection with this Contract and adequately protect adjacent property as provided by law and the Contract Documents. The Contractor shall make good any damage, injury or loss, except to the extent:

1. Directly due to errors in the Contract Documents;
2. Caused by agents or employees of the Principal Representative; and,
3. Due to causes beyond the Contractor's control and not to fault or negligence; provided such damage, injury or loss would not be covered by the insurance required to be carried by the Contractor;

B. SAFETY PRECAUTIONS

The Contractor shall take all necessary precautions for the safety of employees on the Project, and shall comply with all applicable provisions of federal, State and municipal safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the Work is being performed. He or she shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of Workers and the public and shall post danger signs warning against the hazards created by such features of construction as protruding nails, hoists, well holes, elevator hatchways, scaffolding, window openings, stairways and falling materials; and he or she shall designate a responsible member of his or her organization on the Project, whose duty shall be the prevention of accidents. The name and position of any person so designated shall be reported to the Architect/Engineer by the Contractor.

The Contractor shall provide all necessary bracing, shoring and tying of all structures, decks and framing to prevent any structural failure of any material which could result in damage to property or the injury or death of persons; take all precautions to insure that no part of any structure of any description is loaded beyond its carrying capacity with anything that will endanger its safety at any time during the execution of this Contract; and provide for the adequacy and safety of all scaffolding and hoisting equipment. The Contractor shall not permit open fires within the building enclosure. The Contractor shall construct and maintain all necessary temporary drainage and do all pumping necessary to keep excavations and floors, pits and trenches free of water. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work, except as otherwise noted.

The Contractor shall take due precautions when obstructing sidewalks, streets or other public ways in any manner, and shall provide, erect and maintain barricades, temporary walkways, roadways, trench covers, colored lights or danger signals and any other devices necessary or required to assure the safe passage of pedestrians and automobiles.

C. EMERGENCIES

In an emergency affecting the safety of life or of the Work or of adjoining property, the Contractor without special instruction or authorization from the Architect/Engineer or Principal Representative, is hereby permitted to act, at his or her discretion, to prevent such threatened loss or injury; and he or she shall so act, without appeal, if so authorized or instructed. Provided the Contractor has no responsibilities for the emergency, if the Contractor incurs additional cost not otherwise recoverable from insurance or others on account of any such emergency Work, the Contract sum shall be equitably adjusted in accordance with Article 35, Changes In The Work.

ARTICLE 11. DRAWINGS AND SPECIFICATIONS ON THE WORK

The Contractor shall keep on the job site one copy of the Contract Documents in good order, including current copies of all Drawings and Specifications for the Work, and any approved Shop Drawings, Product Data or Samples, and as-built drawings. As-built drawings shall be updated weekly by the Contractor and Subcontractors to reflect actual constructed conditions including dimensioned locations of underground Work and the Contractor's failure to maintain such updates may be grounds to withhold portions of payments otherwise due in accordance with Article 33, Payments Withheld. All such documents shall be available to the Architect/Engineer and representatives of the State. In addition, the Contractor shall keep on the job site one copy of all approved addenda, Change Orders and requests for information issued for the Work.

The Contractor shall develop procedures to insure the currency and accuracy of as-built drawings and shall maintain on a current basis a log of requests for information and responses thereto, a Shop Drawing and Product Data submittal log, and a Sample submittal log to record the status of all necessary and required submittals.

ARTICLE 12. REQUESTS FOR INFORMATION AND SCHEDULES

A. REQUESTS FOR INFORMATION

The Architect/Engineer shall furnish additional instructions with reasonable promptness, by means of drawings or otherwise, necessary for the proper execution of the Work. All such drawings and instructions shall be consistent with the Contract Documents and reasonably inferable there from. The Architect/Engineer shall determine what additional instructions or drawings are necessary for the proper execution of the Work.

The Work shall be executed in conformity with such instructions and the Contractor shall do no Work without proper drawings, specifications or instructions. If the Contractor believes additional instructions, specifications or drawings are needed for the performance of any portion of the Work, the Contractor shall give Notice of such need in writing through a request for information furnished to the Architect/Engineer sufficiently in advance of the need for such additional instructions, specifications or drawings to avoid delay and to allow the Architect/Engineer a reasonable time to respond. The Contractor shall maintain a log of the requests for information and the responses provided.

B. SCHEDULES

1. Submittal Schedules

Prior to filing the Contractor's first application for payment, a schedule shall be prepared which may be preliminary to the extent required, fixing the dates for the submission and initial review of required Shop Drawings, Product Data and Samples for the beginning of manufacture and installation of materials, and for the completion of the various parts of the Work. It shall be prepared so as to cause no delay in the Work or in the Work of any other contractor. The schedule shall be subject to change from time to time in accordance with the progress of the Work, and it shall be subject to the review and approval by the Architect/Engineer. It shall fix the dates at which the various Shop Drawings Product Data and Samples will be required from the Architect/Engineer. The Architect/Engineer, after review and agreement as to the time provided for initial review, shall review and comment on the Shop Drawings, Product Data and Samples in accordance with that schedule. The schedule shall be finalized, prepared and submitted with respect to each of the elements of the Work in time to avoid delay, considering reasonable periods for review, manufacture or installation.

At the time the schedule is prepared, the Contractor, the Architect/Engineer and Principal Representative shall jointly identify the Shop Drawing, Product Data and Samples, if any, which the Principal Representative shall receive simultaneously with the Architect/Engineer for the purposes of owner coordination with existing facility standards and systems. The Contractor shall furnish a copy for the Principal Representative when so requested. Transmittal of Shop Drawings and Product Data copies to the Principal Representative shall be solely for the convenience of the Principal Representative and shall neither create nor imply responsibility or duty of review by the Principal Representative.

The Contractor may also, or at the direction of the Principal Representative at any time shall, prepare and maintain a schedule, which may also be preliminary and subject to change to the extent required, fixing the dates for the initial responses to requests for information or for detail drawings which will be required from the Architect/Engineer to allow the beginning of manufacture, installation of materials and for the completion of the various parts of the Work. The schedule shall be subject to review and approval by the Architect/Engineer. The Architect/Engineer shall, after review and agreement, furnish responses and detail drawings in accordance with that schedule. Any such schedule shall be prepared and approved in time to avoid delay, considering reasonable periods for review, manufacture or installation, but so long as the request for information schedule is being maintained, it shall not be deemed to transfer responsibility to the Contractor for errors or omissions in the Contract Documents where circumstances make timely review and performance impossible.

The Architect/Engineer shall not unreasonably withhold approval of the Contractor's schedules and shall inform the Contractor and the Principal Representative of the basis of any refusal to

agree to the Contractor's schedules. The Principal Representative shall attempt to resolve any disagreements.

2. Schedule of Values

Within twenty-one (21) calendar days after the date of the Notice to Proceed, the Contractor shall submit to the Architect/Engineer and Principal Representative, for approval, and to the State Buildings Program when specifically requested, a complete itemized schedule of the values of the various parts of the Work, as estimated by the Contractor, aggregating the total price. The schedule of values shall be in such detail as the Architect/Engineer or the Principal Representative shall require, prepared on forms acceptable to the Principal Representative. It shall, at a minimum, identify on a separate line each division of the Specifications including the general conditions costs to be charged to the Project. The Contractor shall revise and resubmit the schedule of values for approval when, in the opinion of the Architect/Engineer or the Principal Representative, such resubmittal is required due to changes or modifications to the Contract Documents or the Contract sum.

The total cost of each line item so separately identified shall, when requested by the Architect/Engineer or the Principal Representative, be broken down into reasonable estimates of the value of:

- a. Material, which shall include the cost of material actually built into the Project plus any local sales or use tax paid thereon; and,
- b. Labor and other costs.

The cost of subcontracts shall be incorporated in the Contractor's schedule of values, and when requested by the Architect/Engineer or the Principal Representative, shall be separately shown as line items.

The Architect/Engineer shall review the proposed schedules and approve it after consultation with the Principal Representative, or advise the Contractor of any required revisions within ten (10) days of its receipt. In the event no action is taken on the submittal within ten days, the Contractor may utilize the schedule of values as its submittal for payment until it is approved or until revisions are requested.

When the Architect/Engineer deems it appropriate to facilitate certification of the amounts due to the Contractor, further breakdown of subcontracts, including breakdown by labor and materials, may be directed.

This schedule of values, when approved, will be used in preparing Contractor's applications for payment on State Form SC-7.2, Application for Payment.

3. Construction Schedules

Within twenty-one (21) calendar days after the date of the Notice to Proceed, the Contractor shall submit to the Architect/Engineer and the Principal Representative, and to the State Buildings Program when specifically requested, on a form acceptable to them, an overall timetable of the construction schedule for the Project. Unless the Supplementary General Conditions or the Specifications allow scheduling with bar charts or other less sophisticated scheduling tools, the Contractor's schedule shall be a critical-path method (CPM) construction schedule. The CPM schedule shall start with the date of the Notice to Proceed and include submittals activities, the various construction activities, change order Work (when applicable), close-out, testing, demonstration of equipment operation when called for in the Specifications, and acceptance. The CPM schedule shall at a minimum correlate to the schedule of values line items and shall be cost loaded if requested by the Architect/Engineer or Principal Representative. The completion time shall be the time specified in the Agreement and all Project scheduling shall allocate float utilizing the full period available for construction as specified in the Agreement on State Form SC 6.13, without indication of early completion,

unless such earlier completion is approved in writing by the Principal Representative and State Building Programs.

The time shown between the starting and completion dates of the various elements within the construction schedule shall represent one hundred per cent (100%) completion of each element.

All other elements of the CPM schedule shall be as required by the Specifications. In addition, the Contractor shall submit monthly updates or more frequently, if required by the Principal Representative, updates of the construction schedule. These updates shall reflect the Contractor's "Work in place" progress.

When requested by the Architect/Engineer, the Principal Representative or the State Buildings Program, the Contractor shall revise the construction schedule to reflect changes in the schedule of values.

When the testing of materials is required by the Specifications, the Contractor shall also prepare and submit to the Architect/Engineer and the Principal Representative a schedule for testing in accordance with Article 14, Samples and Testing.

ARTICLE 13. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. SUBMITTAL PROCESS

The Contractor shall check and field verify all dimensions. The Contractor shall check, approve and submit to the Architect/Engineer in accordance with the schedule described in Article 12, Requests for Information and Schedules, all Shop Drawings, Product Data and Samples required by the specifications or required by the Contractor for the Work of the various trades. All Drawings and Product Data shall contain identifying nomenclature and each submittal shall be accompanied by a letter of transmittal identifying in detail all enclosures. The number of copies of Shop Drawings and Product Data to be submitted shall be as specified in the Specifications and if no number is specified then three copies shall be submitted.

The Architect/Engineer shall review and comment on the Shop Drawings and Product Data within the time provided in the agreed upon schedule for conformance with information given and the design concept expressed in, or reasonably inferred from, the Contract Documents. The nature of all corrections to be made to the Shop Drawings and Product Data, if any, shall be clearly noted, and the submittals shall be returned to the Contractor for such corrections. If a change in the scope of the Work is intended by revisions requested to any Shop Drawings and Product Data, the Contractor shall be requested to prepare a change proposal in accordance with Article 35, Changes In The Work. On resubmitted Shop Drawings, Product Data or Samples, the Contractor shall direct specific attention in writing on the transmittal cover to revisions other than those corrections requested by the Architect/Engineer on any previously checked submittal. The Architect/Engineer shall promptly review and comment on, and return, the resubmitted items.

The Contractor shall thereafter furnish such other copies in the form approved by the Architect/Engineer as may be needed for the prosecution of the Work.

B. FABRICATION AND ORDERING

Fabrication shall be started by the Contractor only after receiving approved Shop Drawings from the Architect/Engineer. Materials shall be ordered in accordance with approved Product Data. Work which is improperly fabricated, whether through incorrect Shop Drawings, faulty workmanship or materials, will not be acceptable.

C. DEVIATIONS FROM DRAWINGS OR SPECIFICATIONS

The review and comments of the Architect/Engineer of Shop Drawings, Product Data or Samples shall not relieve the Contractor from responsibility for deviations from the Drawings or Specifications, unless he or she has in writing called the attention of the Architect/Engineer to such deviations at the time of submission, nor shall it relieve the Contractor from responsibility for errors of any sort in Shop Drawings or Product Data. Review and comments on Shop Drawings or Product Data containing identified deviations from the Contract Documents shall not be the basis for a Change Order or a claim based on a change in the scope of the Work unless Notice is given to the Architect/Engineer and Principal Representative of all additional costs, time and other impacts of the identified deviation by bring it to their attention in writing at the time the submittals are made, and any subsequent change in the Contract sum or the Contract time shall be limited to cost, time and impacts so identified.

D. CONTRACTOR REPRESENTATIONS

By preparing, approving, and/or submitting Shop Drawings, Product Data and Samples, the Contractor represents that the Contractor has determined and verified all materials, field measurements, and field construction criteria related thereto, and has checked and coordinated the information contained within each submittal with the requirements of the Work, the Project and the Contract Documents and prior reviews and approvals.

ARTICLE 14. SAMPLES AND TESTING

A. SAMPLES

The Contractor shall furnish for approval, with such promptness as to cause no delay in his or her Work or in that of any other Contractor, all Samples as directed by the Architect/Engineer. The Architect/Engineer shall check and approve such Samples, with reasonable promptness, but only for conformance with the design intent of the Contract Documents and the Project, and for compliance with any submission requirements given in the Contract Documents.

B. TESTING - GENERAL

The Contractor shall provide such equipment and facilities as the Architect/Engineer may require for conducting field tests and for collecting and forwarding samples to be tested. Samples themselves shall not be incorporated into the Work after approval without the permission of the Architect/Engineer.

All materials or equipment proposed to be used may be tested at any time during their preparation or use. The Contractor shall furnish the required samples without charge and shall give sufficient Notice of the placing of orders to permit the testing thereof. Products may be sampled either prior to shipment or after being received at the site of the Work.

Tests shall be made by an accredited testing laboratory. Except as otherwise provided in the Specifications, sampling and testing of all materials, and the laboratory methods and testing equipment, shall be in accordance with the latest standards and tentative methods of the American Society of Testing Materials (ASTM). The cost of testing which is in addition to the requirements of the Specifications shall be paid by the Contractor if so directed by the Architect/Engineer, and the Contract sum shall be adjusted accordingly by Change Order; provided however, that whenever testing shows portions of the Work to be deficient, all costs of testing including that required to verify the adequacy of repair or replacement Work shall be the responsibility of the Contractor.

C. TESTING - CONCRETE AND SOILS

Unless otherwise specified or provided elsewhere in the Contract Documents, the Principal Representative will contract for and pay for the testing of concrete and for soils compaction testing through an independent laboratory or laboratories selected and approved by the Principal Representative. The Contractor shall assume the responsibility of arranging, scheduling and coordinating the concrete sample collection efforts and soils compaction efforts in an efficient and cost effective manner. Testing shall be performed in accordance with the requirements of the Specifications, and if no requirements are specified, the Contractor shall request instructions and testing shall be as directed by the Architect/Engineer or the soils engineer, as applicable, and in accordance with standard industry practices.

The Principal Representative and the Architect/Engineer shall be given reasonable advance notice of each concrete pour and reserve the right to either increase or decrease the number of cylinders or the frequency of tests.

Soil compaction testing shall be at random locations selected by the soils engineer. In general, soils compaction testing shall be as directed by the soils engineer and shall include all substrate prior to backfill or construction.

D. TESTING - OTHER

Additional testing required by the Specifications will be accomplished and paid for by the Principal Representative in a manner similar to that for concrete and soils unless noted otherwise in the Specifications. In any case, the Contractor will be responsible for arranging, scheduling and coordinating additional tests. Where the additional testing will be contracted and paid for by the Principal Representative the Contractor shall give the Principal Representative not less than one-month advance written Notice of the date the first such test will be required.

ARTICLE 15. SUBCONTRACTS

A. CONTRACT PERFORMANCE OUTSIDE OF THE UNITED STATES OR COLORADO

After the contract is awarded, Contractor is required to provide written notice to the Principal Representative no later than twenty (20) days after deciding to perform services under this contract outside the United States or Colorado or to subcontract services under this contract to a subcontractor that will perform such services outside the United States or Colorado. The written notification must include, but need not be limited to, a statement of the type of services that will be performed at a location outside the United States or Colorado and the reason why it is necessary or advantageous to go outside the United States or Colorado to perform the services. All notices received by the State pursuant to outsourced services shall be posted on the Colorado Department of Personnel & Administration's website. If Contractor knowingly fails to notify the Principal Representative of any outsourced services as specified herein, the Principal Representative, at its discretion, may terminate this contract as provided in the Colorado Procurement Code or the applicable procurement code for institutions of higher education (Does not apply to any project that receives federal moneys)

B. SUBCONTRACTOR LIST

Prior to the Notice to Proceed to commence construction, the Contractor shall submit to the Architect/Engineer, the Principal Representative and State Buildings Program a preliminary list of Subcontractors. It shall be as complete as possible at the time, showing all known Subcontractors planned for the Work. The list shall be supplemented as other Subcontractors are determined by the Contractor and any such supplemental list shall be submitted to the Architect/Engineer, the Principal Representative and State Buildings Program not less than ten (10) days before the Subcontractor commences Work.

C. SUBCONTRACTOR SUBSTITUTIONS

The Contractor's list shall include those Subcontractors, if any, which the Contractor indicated in its bid, would be employed for specific portions of the Work if such indication was requested in the bid documents issued by the State. The substitution of any Subcontractor listed in the Contractor's bid shall be justified in writing not less than ten (10) days after the date of the Notice to Proceed to commence construction, and shall be subject to the approval of the Principal Representative. For reasons such as the Subcontractor's refusal to perform as agreed, subsequent unavailability or later discovered bid errors, or other similar reasons, but not including the availability of a lower Subcontract price, such substitution may be approved. The Contractor shall bear any additional cost incurred by such substitutions.

D. CONTRACTOR RESPONSIBLE FOR SUBCONTRACTORS

The Contractor shall not employ any Subcontractor that the Architect/Engineer, within ten (10) days after the date of receipt of the Contractor's list of Subcontractors or any supplemental list, objects to in writing as being unacceptable to either the Architect/Engineer, the Principal Representative or State Buildings Program. If a Subcontractor is deemed unacceptable, the Contractor shall propose a

substitute Subcontractor and the Contract sum shall be adjusted by any demonstrated difference between the Subcontractor's bids, except where the Subcontractor has been debarred by the State or fails to meet qualifications of the Contract Documents to perform the Work proposed.

The Contractor shall be fully responsible to the Principal Representative for the acts and omissions of Subcontractors and of persons either directly or indirectly employed by them. All instructions or orders in respect to Work to be done by Subcontractors shall be given to the Contractor.

ARTICLE 16. RELATIONS OF CONTRACTOR AND SUBCONTRACTOR

The Contractor agrees to bind each Subcontractor to the terms of these General Conditions and to the requirements of the Drawings and Specifications, and any Addenda thereto, and also all the other Contract Documents, so far as applicable to the Work of such Subcontractor. The Contractor further agrees to bind each Subcontractor to those terms of the General Conditions which expressly require that Subcontractors also be bound, including without limitation, requirements that Subcontractors waive all rights of subrogation, provide adequate general commercial liability and property insurance, automobile insurance and workers' compensation insurance as provided in Article 25, Insurance.

Nothing contained in the Contract Documents shall be deemed to create any contractual relationship whatsoever between any Subcontractor and the State of Colorado acting by and through its Principal Representative.

ARTICLE 17. MUTUAL RESPONSIBILITY OF CONTRACTORS

Should the Contractor cause damage to any separate contractor on the Work, the Contractor agrees, upon due Notice, to settle with such contractor by agreement, if he or she will so settle. If such separate contractor sues the Principal Representative on account of any damage alleged to have been so sustained, the Principal Representative shall notify the Contractor, who shall defend such proceedings if requested to do so by Principal Representative. If any judgment against the Principal Representative arises there from, the Contractor shall pay or satisfy it and pay all costs and reasonable attorney fees incurred by the Principal Representative, in accordance with Article 52C, Indemnification, provided the Contractor was given due Notice of an opportunity to settle.

ARTICLE 18. SEPARATE CONTRACTS

The Principal Representative reserves the right to enter into other contracts in connection with the Project or the Contract. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their Work, and shall properly connect and coordinate his or her Work with theirs. If any part of the Contractor's Work depends, for proper execution or results, upon the Work of any other contractor, the Contractor shall inspect and promptly report to the Architect/Engineer any defects in such Work that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the other contractor's Work as fit and proper for the reception of Work, except as to defects which may develop in the other Contractor's Work after the execution of the Contractor's Work.

To insure the proper execution of subsequent Work, the Contractor shall measure Work already in place and shall at once report to the Architect/Engineer any discrepancy between the executed Work and the Drawings.

ARTICLE 19. USE OF PREMISES

The Contractor shall confine apparatus, the storage of materials and the operations of workmen to limits indicated by law, ordinances, permits and any limits lines shown on the Drawings. The Contractor shall not unreasonably encumber the premises with materials.

The Contractor shall enforce all of the Architect/Engineer's instructions and prohibitions regarding, without limitation, such matters as signs, advertisements, fires and smoking.

ARTICLE 20. CUTTING, FITTING OR PATCHING

The Contractor shall do all cutting, fitting or patching of Work that may be required to make its several parts come together properly and fit it to receive or be received by Work of other Contractors shown upon, or reasonably inferred from, the Drawings and Specifications for the complete structure, and shall provide for such finishes to patched or fitted Work as the Architect/Engineer may direct. The Contractor shall not endanger any Work by cutting, excavating or otherwise altering the Work and shall not cut or alter the Work of any other Contractor save with the consent of the Architect/Engineer.

ARTICLE 21. UTILITIES

A. TEMPORARY UTILITIES

Unless otherwise specifically stated in the Specifications or on the Drawings, the Principal Representative shall be responsible for the locations of all utilities as shown on the Drawings or indicated elsewhere in the Specifications, subject to the Contractor's compliance with all statutory or regulatory requirements to call for utility locates. When actual conditions deviate from those shown the Contractor shall comply with the requirements of Article 37, Differing Site Conditions. The Contractor shall provide and pay for the installation of all temporary utilities required to supply all the power, light and water needed by him and other Contractors for their Work and shall install and maintain all such utilities in such manner as to protect the public and Workmen and conform with any applicable laws and regulations. Upon completion of the Work, he or she shall remove all such temporary utilities from the site. The Contractor shall pay for all consumption of power, light and water used by him or her and the other Contractors, without regard to whether such items are metered by temporary or permanent meters. The Superintendent shall have full authority over all trades and Subcontractors at any tier to prevent waste. The cut-off date on permanent meters shall be either the agreed date of the date of the Notice of Substantial Completion or the Notice of Approval of Occupancy/Use of the Project.

B. PROTECTION OF EXISTING UTILITIES

Where existing utilities, such as water mains, sanitary sewers, storm sewers and electrical conduits, are shown on the Drawings, the Contractor shall be responsible for the protection thereof, without regard to whether any such utilities are to be relocated or removed as a part of the Work. If any utilities are to be moved, the moving must be conducted in such manner as not to cause undue interruption or delay in the operation of the same.

C. CROSSING OF UTILITIES

When new construction crosses highways, railroads, streets, or utilities under the jurisdiction of State, city or other public agency, public utility or private entity, the Contractor shall secure proper written permission before executing such new construction. The Contractor will be required to furnish a proper release before final acceptance of the Work.

ARTICLE 22. UNSUITABLE CONDITIONS

The Contractor shall not Work at any time, or permit any Work to be done, under any conditions contrary to those recommended by manufacturers or industry standards which are otherwise proper, unsuited for proper execution, safety and performance. Any cost caused by ill-timed Work shall be borne by the Contractor unless the timing of such Work shall have been directed by the Architect/Engineer or the Principal Representative, after the award of the Contract, and the Contractor provided Notice of any additional cost.

ARTICLE 23. TEMPORARY FACILITIES

A. OFFICE FACILITIES

The Contractor shall provide and maintain without additional expense for the duration of the Project temporary office facilities, as required and as specified, for its own use and the use of the Architect/Engineer, representatives of the Principal Representative and State Buildings Program.

B. TEMPORARY HEAT

The Contractor shall furnish and pay for all the labor, facilities, equipment, fuel and power necessary to supply temporary heating, ventilating and air conditioning, except to the extent otherwise specified, and shall be responsible for the installation, operation, maintenance and removal of such facilities and

equipment. Unless otherwise specified, the permanent HVAC system shall not be used for temporary heat in whole or in part. If the Contractor desires to put the permanent system into use, in whole or in part, the Contractor shall set it into operation and furnish the necessary fuel and manpower to safely operate, protect and maintain that HVAC system. Any operation of all or any part of the permanent HVAC system including operation for testing purposes shall not constitute acceptance of the system, nor shall it relieve the Contractor of his or her one-year guarantee of the system from the date of the Notice of Substantial Completion of the entire Project, and if necessary due to prior operation, the Contractor shall provide manufacturers' extended warranties from the date of the Contractor's use prior to the date of the Notice of Substantial Completion.

C. WEATHER PROTECTION

The Contractor shall, at all times, provide protection against weather, so as to maintain all Work, materials, apparatus and fixtures free from injury or damages.

D. DUST PARTITIONS

If the Work involves Work in an occupied existing building, the Contractor shall erect and maintain during the progress of the Work, suitable dust-proof temporary partitions, or more permanent partitions as specified, to protect such building and the occupants thereof.

E. BENCH MARKS

The Contractor shall maintain any site bench marks provided by the Principal Representative and shall establish any additional benchmarks specified by the Architect/Engineer as necessary for the Contractor to layout the Work and ascertain all grades and levels as needed.

F. SIGN

The Contractor shall erect and permit one 4' x 8' sign only at the site to identify the Project as specified or directed by the Architect/Engineer which shall be maintained in good condition during the life of the Project.

G. SANITARY PROVISION

The Contractor shall provide and maintain suitable, clean, temporary sanitary toilet facilities for any and all workmen engaged on the Work, for the entire construction period, in strict compliance with the requirement of all applicable codes, regulations, laws and ordinances, and no other facilities, new or existing, may be used by any person on the Project. When the Project is complete the Contractor shall promptly remove them from the site, disinfect, and clean or treat the areas as required. If any new construction surfaces in the Project other than the toilet facilities provided for herein are soiled at any time, the entire areas so soiled shall be completely removed from the Project and rebuilt. In no event may present toilet facilities of any existing building at the site of the Work be used by employees of any contractor.

ARTICLE 24. CLEANING UP

The Contractor shall keep the building and premises free from all surplus material, waste material, dirt and rubbish caused by employees or Work, and at the completion of the Work shall remove all such surplus material, waste material, dirt, and rubbish, as well as all tools, equipment and scaffolding, and shall wash and clean all window glass and plumbing fixtures, perform cleanup and cleaning required by the Specifications and leave all of the Work clean unless more exact requirements are specified.

ARTICLE 25. INSURANCE

A. GENERAL

The Contractor shall procure and maintain all insurance requirements and limits as set forth below, at his or her own expense, for the length of time set forth in Contract requirements. The Contractor shall continue to provide evidence of such coverage to State of Colorado on an annual basis during the aforementioned period including all of the terms of the insurance and indemnification requirements of this agreement. All below insurance policies shall include a provision preventing cancellation without thirty (30) days' prior notice by certified mail. A completed Certificate of Insurance shall be filed with the Principal Representative and State Buildings Program within ten (10) days after the date of the

Notice of Award, said Certificate to specifically state the inclusion of the coverages and provisions set forth herein and shall state whether the coverage is "claims made" or "per occurrence".

B. COMMERCIAL GENERAL LIABILITY INSURANCE (CGL)

This insurance must protect the Contractor from all claims for bodily injury, including death and all claims for destruction of or damage to property (other than the Work itself), arising out of or in connection with any operations under this Contract, whether such operations be by the Contractor or by any Subcontractor under him or anyone directly or indirectly employed by the Contractor or by a Subcontractor. All such insurance shall be written with limits and coverages as specified below and shall be written on an occurrence form.

General Aggregate	\$2,000,000
Products – Completed Operations Aggregate	\$2,000,000
Each Occurrence	\$1,000,000
Personal Injury	\$1,000,000

The following coverages shall be included in the CGL:

1. Per project general aggregate (CG 25 03 or similar)
2. Additional Insured status in favor of the State of Colorado and any other parties as outlined in The Contract and must include both ONGOING Operations AND COMPLETED Operations per CG2010 10/01 and CG 2037 10/01 or equivalent as permitted by law.
3. The policy shall be endorsed to be **primary and non-contributory** with any insurance maintained by Additional Insureds.
4. A waiver of Subrogation in favor of all Additional Insured parties.
5. Personal Injury Liability
6. Contractual Liability coverage to support indemnification obligation per Article 53.I
7. Explosion, collapse and underground (xcu)

The following exclusionary endorsements are prohibited in the CGL policy:

1. Damage to Work performed by Subcontract/Vendor (CG 22-94 or similar)
2. Contractual Liability Coverage Exclusion modifying or deleting the definition of an "insured contract" from the unaltered SO CG 0001 1001 policy from (CG 24 26 or similar)
3. If applicable to the Work to be performed: Residential or multi-family
4. If applicable to the Work to be performed: Exterior insulation finish systems
5. If applicable to the Work to be performed: Subsidence or Earth Movement

The Contractor shall maintain general liability coverage including Products and Completed Operations insurance, and the Additional Insured with primary and non-contributory coverage as specified in this Contract for three (3) years after completion of the project.

C. AUTOMOBILE LIABILITY INSURANCE and business auto liability covering liability arising out of any auto (including owned, hired and non-owned autos).

Combined Bodily Injury and Property Damage Liability
(Combined Single Limit): \$1,000,000 each accident

Coverages:
Specific waiver of subrogation

D. WORKERS' COMPENSATION INSURANCE

The Contractor shall procure and maintain Workers' Compensation Insurance at his or her own expense during the life of this Contract, including occupational disease provisions for all employees per statutory requirements. Policy shall contain a waiver of subrogation in favor of the State of Colorado.

The Contractor shall also require each Subcontractor to furnish Workers' Compensation Insurance, including occupational disease provisions for all of the latter's employees, and to the extent not furnished, the Contractor accepts full liability and responsibility for Subcontractor's employees.

In cases where any class of employees engaged in hazardous Work under this Contract at the site of the Project is not protected under the Workers' Compensation statute, the Contractor shall provide, and shall cause each Subcontractor to provide, adequate and suitable insurance for the protection of employees not otherwise protected.

E. UMBRELLA LIABILITY INSURANCE (for construction projects exceeding \$10,000,000, provide the following coverage):

The Contractor shall maintain umbrella/excess liability insurance on an occurrence basis in excess of the underlying insurance described in Section B-D above. Coverage shall follow the terms of the underlying insurance, included the additional insured and waiver of subrogation provisions. The amounts of insurance required in Sections above may be satisfied by the Contractor purchasing coverage for the limits specified or by any combination of underlying and umbrella limits, so long as the total amount of insurance is not less than the limits specified in each section previously mentioned.

Each occurrence	\$5,000,000
Aggregate	\$5,000,000

F. BUILDER'S RISK INSURANCE

Unless otherwise expressly stated in the Supplementary General Conditions (e.g. where the State elects to provide for projects with a completed value of less than \$1,000,000), the Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Owner has an insurable interest in the property, or the Date of Notice specified on the Notice of Acceptance, State Form SBP-6.27 or whichever is later.

This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project as named insureds.

All associated deductibles shall be the responsibility of the Contractor. Such policy may have a deductible clause but not to exceed ten thousand dollars (\$10,000.00).

Property insurance shall be on an "all risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, false Work, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

Contractor shall maintain Builders Risk coverage including partial use by Owner.

The Contractor shall waive all rights of subrogation as regards the State of Colorado and the Principal Representative, its officials, its officers, its agents and its employees, all while acting within the scope and course of their employment for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section or other property insurance

applicable to the Work. The Contractor shall require all Subcontractors at any tier to similarly waive all such rights of subrogation and shall expressly include such a waiver in all subcontracts.

Upon request, the amount of such insurance shall be increased to include the cost of any additional Work to be done on the Project, or materials or equipment to be incorporated in the Project, under other independent contracts let or to be let. In such event, the Contractor shall be reimbursed for this cost as his or her share of the insurance in the same ratio as the ratio of the insurance represented by such independent contracts let or to be let to the total insurance carried.

The Principal Representative, with approval of the State Controller, shall have the power to adjust and settle any loss. Unless it is agreed otherwise, all monies received shall be applied first on rebuilding or repairing the destroyed or injured Work.

G. POLLUTION LIABILITY INSURANCE

If Contractor is providing directly or indirectly Work with pollution/environmental hazards, the Contractor must provide or cause those conducting the Work to provide Pollution Liability Insurance coverage. Pollution Liability policy must include contractual liability coverage. State of Colorado must be included as additional insureds on the policy. The policy limits shall be in the amount of \$1,000,000 with maximum deductible of \$25,000 to be paid by the Subcontractor/Vendor.

H. ADDITIONAL MISCELLANEOUS INSURANCE PROVISIONS

Certificates of Insurance and/or insurance policies required under this Contract shall be subject to the following stipulations and additional requirements:

1. Any and all deductibles or self-insured retentions contained in any Insurance policy shall be assumed by and at the sole risk of the Contractor;
2. If any of the said policies shall fail at any time to meet the requirements of the Contract Documents as to form or substance, or if a company issuing any such policy shall be or at any time cease to be approved by the Division of Insurance of the State of Colorado, or be or cease to be in compliance with any stricter requirements of the Contract Documents, the Contractor shall promptly obtain a new policy, submit the same to the Principal Representative and State Building Programs for approval if requested, and submit a Certificate of Insurance as hereinbefore provided. Upon failure of the Contractor to furnish, deliver and maintain such insurance as provided herein, this Contract, in the sole discretion of the State of Colorado, may be immediately declared suspended, discontinued, or terminated. Failure of the Contractor in obtaining and/or maintaining any required insurance shall not relieve the Contractor from any liability under the Contract, nor shall the insurance requirements be construed to conflict with the obligations of the Contractor concerning indemnification;
3. All requisite insurance shall be obtained from financially responsible insurance companies, authorized to do business in the State of Colorado and acceptable to the Principal Representative;
4. Receipt, review or acceptance by the Principal Representative of any insurance policies or certificates of insurance required by this Contract shall not be construed as a waiver or relieve the Contractor from its obligation to meet the insurance requirements contained in these General Conditions.

ARTICLE 26. CONTRACTOR'S PERFORMANCE AND PAYMENT BONDS

The Contractor shall furnish a Performance Bond and a Labor and Material Payment Bond on State Forms SC-6.22, Performance Bond, and SC-6.221, Labor and Material Payment Bond, or such other forms as State Buildings Program may approve for the Project, executed by a corporate Surety authorized to do business in the State of Colorado and in the full amount of the Contract sum. The expense of these bonds shall be borne by the Contractor and the bonds shall be filed with State Buildings Program.

If, at any time, a Surety on such a bond is found to be, or ceases to be in strict compliance with any qualification requirements of the Contract Documents or the bid documents, or loses its right to do business in the State of Colorado, another Surety will be required, which the Contractor shall furnish to State

Buildings Program within ten (10) days after receipt of Notice from the State or after the Contractor otherwise becomes aware of such conditions.

ARTICLE 27. LABOR AND WAGES

In accordance with laws of Colorado, C.R.S. § 8-17-101(1), as amended, Colorado labor shall be employed to perform at least eighty percent of the Work. If the Federal Davis-Bacon Act shall be applicable to the Project, as indicated in Article 6B (Design/Bid/Build Agreement SC-6.21), Modification of Article 27, the minimum wage rates to be paid on the Project will be specified in the Contract Documents.

ARTICLE 28. ROYALTIES AND PATENTS

The Contractor shall be responsible for assuring that all rights to use of products and systems have been properly arranged and shall take such action as may be necessary to avoid delay, at no additional charge to the Principal Representative, where such right is challenged during the course of the Work. The Contractor shall pay all royalties and license fees required to be paid and shall defend all suits or claims for infringement of any patent rights and shall save the State of Colorado harmless from loss on account thereof, in accordance with Article 52C, Indemnification; provided, however, the Contractor shall not be responsible for such loss or defense for any copyright violations contained in the Contract Documents prepared by the Architect/Engineer or the Principal Representative of which the Contractor is unaware, or for any patent violations based on specified processes that the Contractor is unaware are patented or that the Contractor should not have had reason to believe were patented.

ARTICLE 29. ASSIGNMENT

Except as otherwise provided hereafter the Contractor shall not assign the whole or any part of this Contract without the written consent of the Principal Representative. This provision shall not be construed to prohibit assignments of the right to payment to the extent permitted by C.R.S. § 4-9-406, et. seq., as amended, provided that written Notice of assignment adequate to identify the rights assigned is received by the Principal Representative and the controller for the agency, department, or institution executing this Contract (as distinguished from the State Controller). Such assignment of the right to payment shall not be deemed valid until receipt by the Principal Representative and such controller and the Contractor assumes the risk that such written Notice of assignment is received by the Principal Representative and the controller for the agency, department, or institution involved. In case the Contractor assigns all or part of any moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the Contractor shall be subject to all claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the Work called for in this Contract, whether said service or materials were supplied prior to or after the assignment. Nothing in this Article shall be deemed a waiver of any other defenses available to the State against the Contractor or the assignee.

ARTICLE 30. CORRECTION OF WORK BEFORE ACCEPTANCE

The Contractor shall promptly remove from the premises all Work or materials condemned or declared irreparably defective as failing to conform to the Contract Documents on receipt of written Notice from the Architect/Engineer or the Principal Representative, whether incorporated in the Work or not. If such materials shall have been incorporated in the Work, or if any unsatisfactory Work is discovered, the Contractor shall promptly replace and re-execute his or her Work in accordance with the requirements of the Contract Documents without expense to the Principal Representative, and shall also bear the expense of making good all Work of other contractors destroyed or damaged by the removal or replacement of such defective material or Work.

Should any defective Work or material be discovered during the process of construction, or should reasonable doubt arise as to whether certain material or Work is in accordance with the Contract Documents, the value of such defective or questionable material or Work shall not be included in any application for payment, or if previously included, shall be deducted by the Architect/Engineer from the next application submitted by the Contractor.

If the Contractor does not perform repair, correction and replacement of defective Work, in lieu of proceeding by issuance of a Notice of intent to remove condemned Work as outlined above, the Principal

Representative may, not less than seven (7) days after giving the original written Notice of the need to repair, correct, or replace defective Work, deduct all costs and expenses of replacement or correction as instructed by the Architect/Engineer from the Contractor's next application for payment in addition to the value of the defective Work or material. The Principal Representative may also make an equitable deduction from the Contract sum by unilateral Change Order, in accordance with Article 33, Payments Withheld and Article 35, Changes In The Work.

If the Contractor does not remove such condemned or irreparably defective Work or material within a reasonable time, the Principal Representative may, after giving a second seven (7) day advance Notice to the Contractor and the Surety, remove them and may store the material at the Contractor's expense. The Principal Representative may accomplish the removal and replacement with its own forces or with another Contractor. If the Contractor does not pay the expense of such removal and pay all storage charges within ten (10) days thereafter, the Principal Representative may, upon ten (10) days' written Notice, sell such material at auction or at private sale and account for the net proceeds thereof, after deducting all costs and expenses which should have been borne by the Contractor. If the Contractor shall commence and diligently pursue such removal and replacement before the expiration of the seven-day period, or if the Contractor shall show good cause in conjunction with submittal of a revised CPM schedule showing when the Work will be performed and why such removal of condemned Work should be scheduled for a later date, the Principal Representative shall not proceed to remove or replace the condemned Work.

If the Contractor disagrees with the Notice to remove Work or materials condemned or declared irreparably defective, the Contractor may request facilitated negotiation of the issue and the Principal Representative's right to proceed with removal and to deduct costs and expenses of repair shall be suspended and tolled until such time as the parties meet and negotiate the issue

During construction, whenever the Architect/Engineer has advised the Contractor in writing, in the Specifications, by reference to Article 6, Architect/Engineer Decisions and Judgments, of these General Conditions or elsewhere in the Contract Documents of a need to observe materials in place prior to their being permanently covered up, it shall be the Contractor's responsibility to notify the Architect/Engineer at least forty-eight (48) hours in advance of such covering operation. If the Contractor fails to provide such notification, Contractor shall, at his or her expense, uncover such portions of the Work as required by the Architect/Engineer for observation, and reinstall such covering after observation. When a covering operation is continued from day to day, notification of the commencement of a single continuing covering operation shall suffice for the activity specified so long as it proceeds regularly and without interruption from day to day, in which event the Contractor shall coordinate with the Architect/Engineer regarding the continuing covering operation.

ARTICLE 31. APPLICATIONS FOR PAYMENTS

A. CONTRACTOR'S SUBMITTALS

On or before the first day of each month and no more than five days prior thereto, the Contractor may submit applications for payment for the Work performed during such month covering the portion of the Work completed as of the date indicated, and payments on account of this Contract shall be due per C.R.S. § 24-30-202(24) (correct notice of amount due), within forty-five (45) days of receipt by the Principal Representative of application for payments that have been certified by the Architect/Engineer. The Contractor shall submit the application for payment to the Architect/Engineer on State forms SBP-7.2, Certificate for Contractor's Payment, or such other format as the State Buildings Program shall approve, in an itemized format in accordance with the schedule of values or a cost loaded CPM schedule when required, supported to the extent reasonably required by the Architect/Engineer or the Principal Representative by receipts or other vouchers, showing payments for materials and labor, prior payments and payments to be made to Subcontractors and such other evidence of the Contractor's right to payments as the Architect/Engineer or Principal Representative may direct.

If payments are made on account of materials not incorporated in the Work but delivered and suitably stored at the site, or at some other location agreed upon in writing, such payments shall be conditioned upon submission by the Contractor of bills of sale or such other procedure as will establish

the Principal Representative's title to such material or otherwise adequately protect the Principal Representative's interests, and shall provide proof of insurance whenever requested by the Principal Representative or the Architect/Engineer, and shall be subject to the right to inspect the materials at the request of either the Architect/Engineer or the Principal Representative.

All applications for payment, except the final application, and the payments there under, shall be subject to correction in the next application rendered following the discovery of any error.

B. ARCHITECT/ENGINEER CERTIFICATION

In accordance with the Architect/Engineer's agreement with the Principal Representative, the Architect/Engineer after appropriate observation of the progress of the Work shall certify to the Principal Representative the amount that the Contractor is entitled to, and forward the application to the Principal Representative. If the Architect/Engineer certifies an amount different from the amount requested or otherwise alters the Contractor's application for payment, a copy shall be forwarded to the Contractor.

If the Architect/Engineer is unable to certify all or portions of the amount requested due to the absence or lack of required supporting evidence, the Architect/Engineer shall advise the Contractor of the deficiency. If the deficiency is not corrected at the end of ten (10) days, the Architect/Engineer may either certify the remaining amounts properly supported to which the Contractor is entitled, or return the application for payment to the Contractor for revision with a written explanation as to why it could not be certified.

C. RETAINAGE WITHHELD

Unless otherwise provided in the Supplementary General Conditions, an amount equivalent to five percent (5%) of the amount shown to be due the Contractor on each application for payment shall be withheld until the Work required by the Contract has been performed. The withheld percentage of the contract price of any such Work, improvement, or construction shall be administered according to C.R.S. § 24-91-103, as amended, and C.R.S. § 38-26-107, as amended, and Article 31D, shall be retained until the Work or discrete portions of the Work, have been completed satisfactorily, finally or partially accepted, and advertised for final settlement as further provided in Article 41.

D. RELEASE OF RETAINAGE

The Contractor may, for satisfactory and substantial reasons shown to the Principal Representative's satisfaction, make a written request to the Principal Representative and the Architect/Engineer for release of part or all of the withheld percentage applicable to the Work of a Subcontractor which has completed the subcontracted Work in a manner finally acceptable to the Architect/Engineer, the Contractor, and the Principal Representative. Any such request shall be supported by a written approval from the Surety furnishing the Contractor's bonds and any surety that has provided a bond for the Subcontractor. The release of any such withheld percentage shall be further supported by such other evidence as the Architect/Engineer or the Principal Representative may require, including but not limited to, evidence of prior payments made to the Subcontractor, copies of the Subcontractor's contract with the Contractor, any applicable warranties, as-built information, maintenance manuals and other customary close-out documentation. Neither the Principal Representative nor the Architect Engineer shall be obligated to review such documentation nor shall they be deemed to assume any obligations to third parties by any review undertaken.

The Contractor's obligation under these General Conditions to guarantee Work for one year from the date of the Notice of Substantial Completion or the date of any Notice of Partial Substantial Completion of the applicable portion or phase of the Project, shall be unaffected by such partial release; unless a Notice of Partial Substantial Completion is issued for the Work subject to the release of retainage.

Any rights of the Principal Representative which might be terminated by or from the date of any final acceptance of the Work, whether at common law or by the terms of this Contract, shall not be affected by such partial release of retainage prior to any final acceptance of the entire Project.

The Contractor remains fully responsible for the Subcontractor's Work and assumes any risk that might arise by virtue of the partial release to the Subcontractor of the withheld percentage, including the risk that the Subcontractor may not have fully paid for all materials, labor and equipment furnished to the Project.

If the Principal Representative considers the Contractor's request for such release satisfactory and supported by substantial reasons, the Architect/Engineer shall make a "final inspection" of the applicable portion of the Project to determine whether the Subcontractor's Work has been completed in accordance with the Contract Documents. A final punch list shall be made for the Subcontractor's Work and the procedures of Article 41, Completion, Final Inspection, Acceptance and Settlement, shall be followed for that portion of the Work, except that advertisement of the intent to make final payment to the Subcontractor shall be required only if the Principal Representative has reason to believe that a supplier or Subcontractor to the Subcontractor for which the request is made, may not have been fully paid for all labor and materials furnished to the Project.

ARTICLE 32. CERTIFICATES FOR PAYMENTS

State Form SBP-7.2, Certificate For Contractor's Payment, and its continuation detail sheets, when submitted, shall constitute the Certificate of Contractor's Application for Payment, and shall be a representation by the Contractor to the Principal Representative that the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and materials for which payment is requested have been incorporated into the Project except as noted in the application. If requested by the Principal Representative the Certificate of Contractor's Application for Payment shall be sworn under oath and notarized.

ARTICLE 33. PAYMENTS WITHHELD

The Architect/Engineer, the Principal Representative or State Buildings Program may withhold, or on account of subsequently discovered evidence nullify, the whole or any part of any application on account of, but not limited to any of the following:

1. Defective Work not remedied;
2. Claims filed or reasonable evidence indicating probable filing of claims;
3. Failure of the Contractor to make payments to Subcontractors for material or labor;
4. A reasonable doubt that the Contract can be completed for the balance of the contract price then unpaid;
5. Damage or injury to another contractor or any other person, persons or property except to the extent of coverage by a policy of insurance;
6. Failure to obtain necessary permits or licenses or to comply with applicable laws, ordinances, codes, rules or regulations or the directions of the Architect/Engineer;
7. Failure to submit a monthly construction schedule;
8. Failure of the Contractor to keep Work progressing in accordance with the time schedule;
9. Failure to keep a superintendent on the Work;
10. Failure to maintain as built drawings of the Work in progress;
11. Unauthorized deviations by the Contractor from the Contract Documents; or
12. On account of liquidated damages.

In addition, the Architect Engineer, Principal Representative or State Buildings Program may withhold or nullify the whole or any part of any application for any reason noted elsewhere in these General Conditions of the Contractor's Design/Bid/Build Agreement. Nullification shall mean reduction of amounts shown as previously paid on the application. The amount withheld or nullified may be in such amount as the Architect/Engineer or the Principal Representative estimates to be required to allow the State to accomplish the Work, cure the failure and cover any damages or injuries, including an allowance for attorneys' fees and costs where appropriate. When the grounds for such withholding or nullifying are removed, payment shall be made for the amounts thus withheld or nullified on such grounds.

ARTICLE 34. DEDUCTIONS FOR UNCORRECTED WORK

If the Architect/Engineer and the Principal Representative deem it inexpedient to correct Work damaged or not performed in accordance with the Contract Documents, the Principal Representative may, after consultation with the Architect/Engineer and ten (10) days' Notice to the Contractor of intent to do so, make reasonable reductions from the amounts otherwise due the Contractor on the next application for payment. Notice shall specify the amount or terms of any contemplated reduction. The Contractor may during this period correct or perform the Work. If the Contractor does not correct or perform the Work, an equitable deduction from the Contract sum shall be made by Change Order, in accordance with Article 35, Changes in The Work, unilaterally if necessary. If either party elects' facilitation of this issue after Notice is given, the ten-day (10) notice period shall be extended and tolled until facilitation has occurred.

ARTICLE 35. CHANGES IN THE WORK

The Principal Representative may designate, without invalidating the Agreement, and with the approval of State Buildings Program and the State Controller, may order extra Work or make changes with or without the consent of the Contractor as hereafter provided, by altering, adding to or deducting from the Work, the Contract sum being adjusted accordingly. All such changes in the Work shall be within the general scope of and be executed under the conditions of the Contract, except that any claim for extension of time made necessary due to the change or any claim of other delay or other impacts caused by or resulting from the change in the Work shall be presented by the Contractor and adjusted by Change Order to the extent known at the time such change is ordered and before proceeding with the extra or changed Work. Any claims for extension of time or of delay or other impacts, and any costs associated with extension of time, delay or other impacts, which are not presented before proceeding with the change in the Work, and which are not adjusted by Change Order to the extent known, shall be waived.

The Architect/Engineer shall have authority to make minor changes in the Work, not involving extra cost, and not inconsistent with the intent of the Contract Documents, but otherwise, except in an emergency endangering life or property, no extra Work or change in the Contract Documents shall be made unless by 1) a written Change Order, approved by the Principal Representative, State Buildings Program, and the State Controller prior to proceeding with the changed Work; or 2) by an Emergency Field Change Order approved by the Principal Representative and State Buildings Program as hereafter provided in Article 35C, Emergency Field Ordered Changed Work; or 3) by an allocation in writing of any allowance already provided in the encumbered contract amount, the Contract sum being later adjusted to decrease the Contract sum by any unallocated or unexpended amounts remaining in such allowance. No change to the Contract sum shall be valid unless so ordered.

A. THE VALUE OF CHANGED WORK

1. The value of any extra Work or changes in the Work shall be determined by agreement in one or more of the following ways:
 - a. By estimate and acceptance of a lump-sum amount;
 - b. By unit prices specified in the Agreement, or subsequently agreed upon, that are extended by specific quantities;
 - c. By actual cost plus a fixed fee in a lump sum amount for profit, overhead and all indirect and off-site home office costs, the latter amount agreed upon in writing prior to starting the extra or changed Work.
2. Where the Contractor and the Principal Representative cannot agree on the value of extra Work, the Principal Representative may order the Contractor to perform the changes in the Work and a Change Order may be unilaterally issued based on an estimate of the change in the Work prepared by the Architect/Engineer. The value of the change in the Work shall be the Principal Representative's determination of the amount of equitable adjustment attributable to the extra Work or change. The Principal Representative's determination shall be subject to appeal by the Contractor pursuant to the claims process in Article 36, Claims.

3. Except as otherwise provided in Article 35B, Detailed Breakdown, the Cost Principles of the Colorado Procurement Code or the applicable procurement code for institutions of higher education, shall govern all Contract changes.

B. DETAILED BREAKDOWN

In all cases where the value of the extra or changed Work is not known based on unit prices in the Contractor's bid or the Agreement, a detailed change proposal shall be submitted by the Contractor on a Change Order Proposal (SC-6.312), or in such other format as the State Buildings Program approves, with which the Principal Representative may require an itemized list of materials, equipment and labor, indicating quantities, time and cost for completion of the changed Work.

Such detailed change proposals shall be stated in lump sum amounts and shall be supported by a separate breakdown, which shall include estimates of all or part of the following when requested by the Architect/Engineer or the Principal Representative:

1. Materials, indicating quantities and unit prices including taxes and delivery costs if any (separated where appropriate into general, mechanical and electrical and/or other Subcontractors' Work; and the Principal Representative may require in its discretion any significant subcontract costs to be similarly and separately broken down).
2. Labor costs, indicating hourly rates and time and labor burden to include Social Security and other payroll taxes such as unemployment, benefits and other customary burdens.
3. Costs of project management time and superintendence time of personnel stationed at the site, and other field supervision time, but only where a time extension, other than a weather delay, is approved as part of the Change Order, and only where such project management time and superintendence time is directly attributable to and required by the change; provided however that additional cost of on-site superintendence shall be allowable whenever in the opinion of the Architect/Engineer the impact of multiple change requests to be concurrently performed will result in inadequate levels of supervision to assure a proper result unless additional superintendence is provided.
4. Construction equipment (including small tools). Expenses for equipment and fuel shall be based on customary commercially reasonable rental rates and schedules. Equipment and hand tool costs shall not include the cost of items customarily owned by workers.
5. Workers' compensation costs, if not included in labor burden.
6. The cost of commercial general liability and property damage insurance premiums but only to the extent charged the Contractor as a result of the changed Work.
7. Overhead and profit, as hereafter specified.
8. Builder's risk insurance premium costs.
9. Bond premium costs.
10. Testing costs not otherwise excluded by these General Conditions.
11. Subcontract costs.

Unless modified in the Supplementary General Conditions, overhead and profit shall not exceed the percentages set forth in the table below.

	OVERHEAD	PROFIT	COMMISSION
To the Contractor or to Subcontractors for the portion of Work performed with their own forces:	10%	5%	0%
To the Contractor or to Subcontractors for Work performed by others at a tier immediately below either of them:	5%	0%	5%

Overhead shall include: a) insurance premium for policies not purchased for the Project and itemized above, b) home office costs for office management, administrative and supervisory personnel and assistants, c) estimating and change order preparation costs, d) incidental job burdens, e) legal costs, f) data processing costs, g) interest costs on capital, h) general office expenses except those attributable to increased rental expenses for temporary facilities, and all other indirect costs, but shall not include the Social Security tax and other direct labor burdens. The term "Work" as used in the proceeding table shall include labor, materials and equipment and the "Commission" shall include all costs and profit for carrying the subcontracted Work at the tiers below except direct costs as listed in items 1 through 11 above if any.

On proposals for Work involving both additions and credits in the amount of the Contract sum, the overhead and profit will be allowed on the net increase only. On proposals resulting in a net deduct to the amount of the Contract sum, profit on the deducted amount shall be returned to the Principal Representative at fifty percent (50%) of the rate specified. The inadequacy of the profit specified shall not be a basis for refusal to submit a proposal.

Except in the case of Change Orders or Emergency Field Change Orders agreed to on the basis of a lump sum amount or unit prices as described in paragraphs 35A1 and 35A2 above, The Value of Changed Work, the Contractor shall keep and present a correct and fully auditable account of the several items of cost, together with vouchers, receipts, time cards and other proof of costs incurred, summarized on a Change Order form (SC-6.31) using such format for supporting documentation as the Principal Representative and State Buildings Program approve. This requirement applies equally to Work done by Subcontractors. Only auditable costs shall be reimbursable on Change Orders where the value is determined on the basis of actual cost plus a fixed fee pursuant to paragraph 35A3 above, or where unilaterally determined by the Principal Representative on the basis of an equitable adjustment in accordance with the Procurement Rules, as described above in Article 35A, The Value Of Changed Work.

Except for proposals for Work involving both additions and credits, changed Work shall be adjusted and considered separately for Work either added or omitted. The amount of adjustment for Work omitted shall be estimated at the time it is directed to be omitted, and when reasonable to do so, the agreed adjustment shall be reflected on the schedule of values used for the next Contractor's application for payment.

The Principal Representative reserves the right to contract with any person or firm other than the Contractor for any or all extra Work; however, unless specifically required in the Contract Documents, the Contractor shall have no responsibility without additional compensation to supervise or coordinate the Work of persons or firms separately contracted by the Principal Representative.

C. HAZARDOUS MATERIALS

1. The Principal Representative represents that it has undertaken an examination of the site of the Work and has determined that there are no hazardous substances, as defined below, which the Contractor could reasonably encounter in its performance of the Work. In the event the Principal Representative so discovers hazardous substances, the Principal Representative shall render harmless such hazards before the Contractor commences the Work.
2. In the event the Contractor encounters any materials reasonably believed to be hazardous substances which have not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Principal Representative, in writing. For purposes of this Agreement, "hazardous substances" shall include asbestos, lead, polychlorinated biphenyl (PCB) and any or all of those substances defined as "hazardous substance", "hazardous waste", or "dangerous or extremely hazardous wastes" as those terms are used in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), and shall also include materials regulated by the Toxic Substances Control Act (TSCA), the Clean Air Act, the Air

Quality Act, the Clean Water Act, and the Occupational Safety and Health Act. The Work in the affected area shall not therefore be resumed except by written agreement of the Principal Representative and the Contractor, if in fact materials that are hazardous substances have not been rendered harmless. The Work in the affected area shall be resumed only in the absence of the hazardous substances or when it has been rendered harmless or by written agreement of the Principal Representative and the Contractor.

- 3. The contractor shall not be required to perform Work without consent in any areas where it reasonably believes hazardous substances that have not been rendered harmless are present.**

D. EMERGENCY FIELD CHANGE ORDERED WORK

The Principal Representative, without invalidating the Agreement, and with the approval of State Buildings Program and without the approval of the State Controller, may order extra Work or make changes in the case of an emergency that is a threat to life or property or where the likelihood of delays in processing a normal Change Order will result in substantial delays and or significant cost increases for the Project. Emergency Field Orders are not to be used solely to expedite normal Change Order processing absent a clear showing of a high potential for significant and substantial cost or delay. Such changes in the Work may be directed through issuance of an Emergency Field Change Order signed by the Contractor, the Principal Representative (or by a designee specifically appointed to do so in writing), and approved by the Director of State Buildings Program or his or her delegate. The change shall be directed using an Emergency Field Change Order form (SC-6.31E).

If the amount of the adjustment of the Contract price and time for completion can be determined at the time of issuance of the Emergency Field Change Order, those adjustments shall be reflected on the face of the Emergency Field Change Order. Otherwise, the Emergency Field Change Order shall reflect a not to exceed (NTE) amount for any schedule adjustment (increasing or decreasing the time for completion) and an NTE amount for any adjustment to Contract sum, which NTE amount shall represent the maximum amount of adjustment to which the Contractor will be entitled, including direct and indirect costs of changed Work, as well as any direct or indirect costs attributable to delays, inefficiencies or other impacts arising out of the change. Emergency Field Change Orders directed in accordance with this provision need not bear the approval signatures of the State Controller.

On Emergency Field Change Orders where the price and schedule have not been finally determined, the Contractor shall submit final costs for adjustment as soon as practicable. No later than seven (7) days after issuance, except as otherwise permitted, and every seven days thereafter, the Contractor shall report all costs to the Principal Representative and the Architect/Engineer. The final adjustment of the Emergency Field Change Order amount and the adjustment to the Project time for completion shall be prepared on a normal Change Order from (SC-6.31) in accordance with the procedures described in Article 35A, The Value of Changed Work, and B, Detailed Breakdown, above. Unless otherwise provided in writing signed by the Director of State Buildings Program to the Principal Representative and the Contractor, describing the extent and limits of any greater authority, individual Emergency Field Change Orders shall not be issued for more than \$25,000, nor shall the cumulative value of Emergency Field Change Orders exceed an amount of \$100,000.

E. APPROPRIATION LIMITATIONS - C.R.S. § 24-91-103.6, as amended

The amount of money appropriated, as shown on the Contractor's Design/Bid/Build Agreement (SC 6.21), is equal to or in excess of the Contract amount. No Change Order, Emergency Field Change Order, or other type of order or directive shall be issued by the Principal Representative, or any agent acting on his or her behalf, which directs additional compensable Work to be performed, which Work causes the aggregate amount payable under the Contract to exceed the amount appropriated for the original Contract, as shown on the Agreement (SC-6.21), unless one of the following occurs: (1) the Contractor is provided written assurance from the Principal Representative that sufficient additional lawful appropriations exist to cover the cost of the additional Work; or (2) the Work is covered by a contractor remedy provision under the Contract, such as a claim for extra cost. By way of example only, no assurance is required for any order, directive or instruction by the Architect/Engineer or the

Principal Representative to perform Work which is determined to be within the performance required by the Contract Documents; the Contractor's remedy shall be as described elsewhere in these General Conditions.

Written assurance shall be in the form of an Amendment to the Contract reciting the source and amount of such appropriation available for the Project. No remedy granting provision of this Contract shall obligate the Principal Representative to seek appropriations to cover costs in excess of the amounts recited as available to pay for the Work to be performed.

ARTICLE 36. CLAIMS

It is the intent of these General Conditions to provide procedures for speedy and timely resolution of disagreements and disputes at the lowest level possible. In the spirit of on the job resolution of job site issues, the parties are encouraged to use the partnering processes of Article 2D, Partnering, Communications and Cooperation, before turning to the more formal claims processes described in this Article 36, Claims. The use of non-binding dispute resolution, whether through the formal processes described in Article 39, Non-Binding Dispute Resolution – Facilitated Negotiations, or through less formal alternative processes developed as part of a partnering plan, are also encouraged. Where such process cannot resolve the issues in dispute, the claims process that follows is intended to cause the issues to be presented, decided and where necessary, documented in close proximity to the events from which the issues arise. To that end, and in summary of the remedy granting process that follows commencing with the next paragraph of this Article 36, Claims, the Contractor shall 1) first, seek a decision by the Architect/Engineer, and 2) shall second, informally present the claim to Principal Representative as described hereafter, and 3) failing resolution in the field, give Notice of intent to exercise statutory rights of review of a formal contract controversy, and 4) seek resolution outside the Contract as provided by the Colorado Procurement Code or the applicable procurement code for institutions of higher education.

If the Contractor claims that any instructions, by detailed drawings, or otherwise, or any other act or omission of the Architect/Engineer or Principal Representative affecting the scope of the Contractor's Work, involve extra cost, extra time or changes in the scope of the Work under this Contract, the Contractor shall have the right to assert a claim for such costs or time, provided that before either proceeding to execute such Work (except in an emergency endangering life or property), or filing a Notice of claim, the Contractor shall have obtained or requested a written decision of the Architect/Engineer following the procedures as provided in Article 6A and B, Architect/Engineer Decisions and Judgments, respectively; provided, however, that in the case of a directed change in the Work pursuant to Article 35, no written judgment or decision of the Architect/Engineer is required. If the Contractor is delayed by the lack of a response to a request for a decision by the Architect/Engineer, the Contractor shall give Notice in accordance with Article 38, Delays and Extensions of Time.

Unless it is the Architect/Engineer's judgment and determination that the Work is not included in the performance required by the Contract Documents, the Contractor shall proceed with the Work as originally directed. Where the Contractor's claim involves a dispute concerning the value of Work unilaterally directed pursuant to Article 35.A.2 the Contractor shall also proceed with the Work as originally directed while his or her claim is being considered.

The Contractor shall give the Principal Representative and the Architect/Engineer Notice of any claim promptly after the receipt of the Architect/Engineer's decision, but in no case later than three (3) business days after receipt of the Architect/Engineer's decision (or no later than ten (10) days from the date of the Contractor's request for a decision when the Architect/Engineer fails to decide as provided in Article 6). The Notice of claim shall state the grounds for the claim and the amount of the claim to the extent known in accordance with the procedures of Article 35, Changes in the Work. The period in which Notice must be given may be extended by the Principal Representative if requested in writing by the Contractor with good cause shown, but any such extension to be effective shall be in writing.

The Principal Representative shall respond in writing, with a copy to the Architect/Engineer, within a reasonable time, and except where a request for facilitation of negotiation has been made as hereafter provided, in no case later than seven (7) business days (or at such other time as the Contractor and

Principal Representative agree) after receipt of the Contractor's Notice of claim regarding such instructions or alleged act or omission. If no response to the Contractor's claim is received within seven (7) business days of Contractor's Notice (or at such other time as the Contractor and Principal Representative agree) and the instructions have not been retracted, it shall be deemed that the Principal Representative has denied the claim.

The Principal Representative may grant or deny the claim in whole or in part, and a Change Order shall be issued if the claim is granted. To the extent any portion of claim is granted where costs are not clearly shown, the Principal Representative may direct that the value of that portion of the Work be determined by any method allowed in Article 35A, The Value of Changed Work. Except in the case of a deemed denial, the Principal Representative shall provide a written explanation regarding any portion of the Contractor's claim that is denied.

If the Contractor disagrees with the Principal Representative's judgment and determination on the claim and seeks an equitable adjustment of the Contract sum or time for performance, he or she shall give Notice of intent to exercise his or her statutory right to seek a decision on the contract controversy within ten (10) days of receipt of the Principal Representative's decision denying the claim. A "contract controversy," as such term is used in the Colorado Procurement Code or the applicable procurement code for institutions of higher education, shall not arise until the initial claim process described above in this Article 36 has been properly exhausted by the Contractor. The Contractor's failure to proceed with Work directed by the Architect/Engineer or to exhaust the claim process provided above in this Article 36, shall constitute an abandonment of the claim by the Contractor and a waiver of the right to contest the decision in any forum.

At the time of filing the Notice of intent to exercise his or her statutory right to seek a decision on the contract controversy, the Contractor may request that the Principal Representative defer a decision on the contract controversy until a later date or until the end of the Project. If the Principal Representative agrees, he or she shall so advise the Contractor in writing. If no such request is made, or if the Principal Representative does not agree to such a request, the Principal Representative shall render a written decision within twenty (20) business days and advise the Contractor of the reasons for any denial. Unless the claim has been decided by the Principal Representative (as opposed to delegates of the Principal Representative), the person who renders the decision on this statutory contract controversy shall not be the same person who decided the claim. To the extent any portion of the contract controversy is granted where costs are not clearly shown, the Principal Representative may direct that the value of that portion of the Work be determined by any method allowed in Article 35A, The Value of Changed Work. In the event of a denial the Principal Representative shall give Notice to the Contractor of his or her right to administrative and judicial reviews as provided in the Colorado Procurement Code or the applicable procurement code for institutions of higher education. If no decision regarding the contract controversy is issued within twenty (20) business days of the Contractor's giving Notice (or such other date as the Contractor and Principal Representative have agreed), and the instructions have not been retracted or the alleged act or omission have not been corrected, it shall be deemed that the Principal Representative has ruled by denial on the contract controversy. Except in the case of a deemed denial, the Principal Representative shall provide an explanation regarding any portion of the contract controversy that involves denial of the Contractor's claim.

Either the Contractor or the Principal Representative may request facilitation of negotiations concerning the claim or the contract controversy, and if requested, the parties shall consult and negotiate before the Principal Representative decides the issue. Any request for facilitation by the Contractor shall be made at the time of the giving of Notice of the claim or Notice of the contract controversy. Facilitation shall extend the time for the Principal Representative to respond by commencing the applicable period at the completion of the facilitated negotiation, which shall be the last day of the parties' meeting, unless otherwise agreed in writing.

Disagreement with the decision of the Architect Engineer, or the decision of the Principal Representative to deny any claim or denying the contract controversy, shall not be grounds for the Contractor to refuse to perform the Work directed or to suspend or terminate performance. During the period that any claim or contract controversy decision is pending under this Article 36, Claims, the Contractor shall proceed diligently with the Work directed.

In all cases where the Contractor proceeds with the Work and seeks equitable adjustment by filing a claim and or statutory appeal, the Contractor shall keep a correct account of the extra cost, in accordance with Article 35B, Detailed Breakdown supported by receipts. The Principal Representative shall be entitled to reject any claim or contract controversy whenever the foregoing procedures are not followed and such accounts and receipts are not presented.

The payments to the Contractor in respect of such extra costs shall be limited to reimbursement for the current additional expenditure by the Contractor made necessary by the change in the Work, plus a reasonable amount for overhead and profit, determined in accordance with Article 35B, Detailed Breakdown, determined solely with reference to the additional Work, if any, required by the change.

ARTICLE 37. DIFFERING SITE CONDITIONS

A. NOTICE IN WRITING

The Contractor shall promptly, and where possible before conditions are disturbed, give the Architect/Engineer and the Principal Representative Notice in writing of:

1. subsurface or latent physical conditions at the site differing materially from those indicated in or reasonably assumed from the information provided in the Contract Documents; and,
2. unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents.

The Architect/Engineer shall promptly investigate the conditions, and if it is found that such conditions do materially so differ and cause an increase or decrease in the Contractor's costs of performance of any part of the Work required by the Contract Documents, whether or not such Work is changed as a result of such conditions, an equitable adjustment shall be made and the Contract sum shall be modified in accordance with Article 35, Changes in the Work.

If the time required for completion of the Work affected by such materially differing conditions will extend the Work on the critical path as indicated on the CPM schedule, the time for completion shall also be equitably adjusted.

B. LIMITATIONS

No claim of the Contractor under this clause shall be allowed unless the Contractor has given the Notice required in Article 37A, Notice in Writing, above. The time prescribed for presentation and adjustment in Articles 36, Claims and 38, Delays and Extensions of Time, shall be reasonably extended by the State to the extent required by the nature of the differing conditions; provided, however, that even when so extended no claim by the Contractor for an equitable adjustment hereunder shall be allowed if not quantified and presented prior to the date the Contractor requests a final inspection pursuant to Article 41A, Notice Of Completion.

ARTICLE 38. DELAYS AND EXTENSIONS OF TIME

If the Contractor is delayed at any time in the progress of the Work by any act or neglect of the State of Colorado or the Architect/Engineer, or of any employee or agent of either, or by any separately employed Contractor or by strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties or any other causes beyond the Contractor's control, including weather delays as defined below, the time of Completion of the Work shall be extended for a period equal to such portion of the period of delays directly affecting the completion of the Work as the Contractor shall be able to show he or she could not have avoided by the exercise of due diligence.

The Contractor shall provide Notice in writing to the Architect/Engineer, the Principal Representative and State Buildings Program within three (3) business days from the beginning of such delay and shall file a written claim for an extension of time within seven (7) business days after the period of such delay has ceased, otherwise, any claim for an extension of time is waived.

Provided that the Contractor has submitted reasonable schedules for approval when required by Article 12, Requests for Information and Schedules, if no schedule is agreed to fixing the dates on which the responses to requests for information or detail drawings will be needed, or Shop Drawings, Product Data or Samples are to be reviewed as required or allowed by Article 12B, Schedules, no extension of time will be allowed for the Architect/ Engineer's failure to furnish such detail drawings as needed, or for the failure to initially review Shop Drawings, Product Data or Samples, except in respect of that part of any delay in furnishing detail drawings or instructions extending beyond a reasonable period after written demand for such detailed drawings or instructions is received by the Architect/Engineer. In any event, any claim for an extension of time for such cause will be recognized only to the extent of delay directly caused by failure to furnish detail drawings or instructions or to review Shop Drawings, Product Data or Samples pursuant to schedule, after such demand.

All claims for extension of time due to a delay claimed to arise or result from ordered changes in the scope of the Work, or due to instructions claimed to increase the scope of the Work, shall be presented to the Architect/Engineer, the Principal Representative and State Buildings Program as part of a claim for extra cost, if any, in accordance with Article 36, Claims, and in accordance with the Change Order procedures required by Article 35, Changes in The Work.

Except as otherwise provided in this paragraph, no extension of time shall be granted when the Contractor has failed to utilize a CPM schedule or otherwise identify the Project's critical path as specified in Article 12, Requests for Information and Schedules, or has elected not to do so when allowed by the Supplementary General Conditions or the Specifications to use less sophisticated scheduling tools, or has failed to maintain such a schedule. Delay directly affecting the completion of the Work shall result in an extension of time only to the extent that completion of the Work was affected by impacts to the critical path shown on Contractor's CPM schedule. Where the circumstances make it indisputable in the opinion of the Architect/Engineer that the delay affected the completion of the Work so directly that the additional notice of the schedule impact by reference to a CPM schedule was unnecessary, a reasonable extension of time may be granted.

Extension of the time for completion of the Work will be granted for delays due to weather conditions only when the Contractor demonstrates that such conditions were more severe and extended than those reflected by the ten-year average for the month, as evidenced by the Climatological Data, U. S. Department of Commerce, for the Project area.

Extensions of the time for completion of the Work due to weather will be granted on the basis of one and three tenths (1.3) calendar days for every day that the Contractor would have Worked but was unable to Work, with each separate extension figured to the nearest whole calendar day.

For weather delays and delays caused by events, acts or omissions not within the control of the Principal Representative or any person acting on the Principal Representative's behalf, the Contractor shall be entitled to an extension of time only and shall not be entitled to recovery of additional cost due to or resulting from such delays. This Article does not, however, preclude the recovery of damages for delay by either party under other provisions in the Contract Documents.

ARTICLE 39. NON-BINDING DISPUTE RESOLUTION – FACILITATED NEGOTIATIONS

The Contractor and Principal Representative agree to designate one or more mutually acceptable persons willing and able to facilitate negotiations and communications for the resolution of conflicts, disagreements or disputes between them at the specific request of either party with regard to any Project decision of either of them or any decision of the Architect/Engineer. The designation of such person(s) shall not carry any obligation to use their services except that each party agrees that if the other party requests the intervention of such person(s) with respect to any such conflict, dispute or disagreement, the non-requesting party shall participate in good faith attempts to negotiate a resolution of the issue in dispute. If the parties cannot agree on a mutually acceptable person to serve in this capacity one shall be so appointed; provided, however, that either party may request the director of State Buildings Program to appoint such a person, who, if appointed, shall be accepted for this purpose by both the Contractor and the Principal Representative.

The cost, if any, of the facilitative services of the person(s) so designated shall be shared if the parties so agree in any partnering plan; or in the absence of agreement the cost shall be borne by the party requesting the facilitation of negotiation.

Any dispute, claim, question or disagreement arising from or relating to the Contract or an alleged breach of the Contract may be subject to a request by either party for facilitated negotiation subject to the limitations hereafter listed, and the parties shall participate by consultation and negotiation with each other, as guided by the facilitator and with recognition of their mutual interests, in an attempt to reach an equitable solution satisfactory to both parties.

The obligation to participate in facilitated negotiations shall be as described above and elsewhere in these General Conditions, as by way of example in Article 36, Claims, or Article 34, Deductions for Uncorrected Work and to the extent not more particularly described or limited elsewhere, each party's obligations shall be as follows:

1. a party shall not initiate communication with the facilitator regarding the issues in dispute; except that any request for facilitation shall be made in writing with copies sent, faxed or delivered to the other party;
2. a party shall prepare a brief written description of its position if so requested by the facilitator (who may elect to first discuss the parties' positions with each party separately in the interest of time and expense);
3. a party shall respond to any reasonable request for copies of documents requested by the facilitator, but such requests, if voluminous, may consist of an offer to allow the facilitator access to the parties' documents;
4. a party shall review any meeting agenda proposed by a facilitator and endeavor to be informed on the subjects to be discussed;
5. a party shall meet with the other party and the facilitator at a mutually acceptable place and time, or, if none can be agreed to, at the time and place designated by the facilitator for a period not to exceed four hours unless the parties agree to a longer period;
6. a party shall endeavor to assure that any facilitation meeting shall be attended by any other persons in their employ that the facilitator requests be present, if reasonably available, including the Architect/Engineer;
7. each party shall participate in such facilitated face-to-face negotiations of the issues in dispute through persons fully authorized to resolve the issue in dispute;
8. each party shall be obligated to participate in negotiations requested by the other party and to perform the specific obligations described in paragraphs (1) through (10) this Article 39, Facilitated Negotiation, no more than three times during the course of the Project;
9. neither party shall be under any obligation to resolve any issue by facilitated negotiation, but each agrees to participate in good faith and the Principal Representative shall direct the Architect/Engineer to appropriately document any resolution or agreement reached and to execute any Amendment or Change Order to the Contract necessary to implement their agreement; and,
10. any discussions and documents prepared exclusively for use in the negotiations shall be deemed to be matters pertaining to settlement negotiations and shall not be subsequently available in further proceedings except to the extent of any documented agreement.

In accordance with State Fiscal Rules and Article 52F, Choice of Law; No Arbitration, nothing in this Article 39 shall be deemed to call for arbitration or otherwise obligate the State to participate in any form of binding alternative dispute resolution.

A partnering plan developed as described in Article 2D, Communications and Cooperation, may modify or expand the requirements of this Article but may not reduce the obligation to participate in facilitated negotiations when applicable. In the case of small projects estimated to be valued under \$500,000, the requirements of this Article may be deleted from this Contract, by modification in Article 7 (Contractor's Agreement SC-6.21), Optional Provisions and Elections. When so modified, the references to the parties' right to elect facilitated negotiation elsewhere in these General Conditions shall be deleted.

ARTICLE 40. RIGHT OF OCCUPANCY

The Principal Representative shall have the right to take possession of and to use any completed or partially completed portions of the Work, even if the time for completing the entire Work or portions of the Work has not expired and even if the Work has not been finally accepted, and the Contractor shall fully cooperate with the Principal Representative to allow such possession and use. Such possession and use shall not constitute an acceptance of such portions of the Work.

Prior to any occupancy of the Project, an inspection shall be made by the Principal Representative, State Buildings Program and the Contractor. Such inspection shall be made for the purpose of ensuring that the building is secure, protected by operation safety systems as designed, operable exits, power, lighting and HVAC systems, and otherwise ready for the occupancy intended and the Notice of Substantial Completion has been issued for the occupancy intended. The inspection shall also document existing finish conditions to allow assessment of any damage by occupants. The Contractor shall assist the Principal Representative in completing and executing State Form SBP-01, Approval of Occupancy/Use, prior to the Principal Representative's possession and use. Any and all areas so occupied will be subject to a final inspection when the Contractor complies with Article 41, Completion, Final Inspection, Acceptance and Settlement.

ARTICLE 41. COMPLETION, FINAL INSPECTION, ACCEPTANCE AND SETTLEMENT

A. NOTICE OF COMPLETION

When the Work, or a discrete physical portion of the Work (as hereafter described) which the Principal Representative has agreed to accept separately, is substantially complete and ready for final inspection, the Contractor shall file a written Notice with the Architect/Engineer that the Work, or such discrete physical portion, in the opinion of the Contractor, is substantially complete under the terms of the Contract. The Contractor shall prepare and submit with such Notice a comprehensive list of items to be completed or corrected prior to final payment, which shall be subject to review and additions as the Architect/Engineer or the Principal Representative shall determine after inspection. If the Architect/Engineer or the Principal Representative believe that any of the items on the list of items submitted, or any other item of Work to be corrected or completed, or the cumulative number of items of Work to be corrected or completed, will prevent a determination that the Work is substantially complete, those items shall be completed by the Contractor and the Notice shall then be resubmitted.

B. FINAL INSPECTION

Within ten (10) days after the Contractor files written Notice that the Work is substantially complete, the Architect/Engineer, the Principal Representative, and the Contractor shall make a "final inspection" of the Project to determine whether the Work is substantially complete and has been completed in accordance with the Contract Documents. State Buildings Program shall be notified of the inspection not less than three (3) business days in advance of the inspection. The Contractor shall provide the Principal Representative and the Architect/Engineer an updated punch list in sufficient detail to fully outline the following:

1. Work to be completed, if any; and
2. Work not in compliance with the Drawings or Specifications, if any.

A final punch list shall be made by the Architect/Engineer in sufficient detail to fully outline to the Contractor:

1. Work to be completed, if any;
2. Work not in compliance with the Drawings or Specifications, if any; and
3. unsatisfactory Work for any reason, if any.

The required number of copies of the final punch list will be countersigned by the authorized representative of the Principal Representative and will then be transmitted by the Architect/Engineer to the Contractor, the Principal Representative, and State Buildings Program. The Architect/Engineer's final punch list shall control over the Contractor's preliminary punch list.

C. NOTICE OF SUBSTANTIAL COMPLETION

Notice of Substantial Completion shall establish the date of substantial completion of the Project. The Contractor acknowledges and agrees that because the departments, agencies and institutions of the State of Colorado are generally involved with the business of the public at large, greater care must be taken in establishing the date of substantial completion than might otherwise be the case to ensure that a project or building or discrete physical portion of the Work is fully usable and safe for public use, and that such care necessarily raises the standard by which the concept of substantial completion is applied for a public building.

The Notice of Substantial Completion shall not be issued until the following have been fully established:

1. All required building code inspections have been called for and the appropriate code officials have affixed their signatures to the Building Inspection Record indicating successful completion of all required code inspections;
2. All required corrections noted on the Building Inspection Record shall have been completed unless the Architect/Engineer, the Principal Representative and State Buildings Program, in their complete and absolute discretion, all concur that the condition requiring the remaining correction is not in any way life threatening, does not otherwise endanger persons or property, and does not result in any undue inconvenience or hardship to the Principal Representative or the public;
3. The building, structure or Project can be fully and comfortably used by the Principal Representative and the public without undue interference by the Contractor's employees and Workers during the completion of the final punch list taking into consideration the nature of the public uses intended and taking into consideration any stage or level of completion of HVAC system commissioning or other system testing required by the Specifications to be completed prior to issuance of the Notice of Substantial Completion;
4. The Project has been fully cleaned as required by these General Conditions, and as required by any stricter requirements of the Specifications, and the overall state of completion is appropriate for presentation to the public; and
5. The Contractor has provided a schedule for the completion of each and every item identified on the punch list which specifies the Subcontractor or trade responsible for the Work, and the dates the completion or correction of the item will be commenced and finished; such schedule will show completion of all remaining final punch list items within the period indicated in the Contract for final punch list completion prior to Final Acceptance, with the exception of only those items which are beyond the control of the Contractor despite due diligence. The schedule shall provide for a reasonable punch list inspection process. Unless liquidated damages have been specified in Article 7.4 of the Contractor's Design/Bid/Build Agreement SC-6.21), the cost to the Principal Representative, if any, for re-inspections due to failure to adhere to the Contractor's proposed punch-list completion schedule shall be the responsibility of the Contractor and may be deducted by the Principal Representative from final amounts due to the Contractor.

Substantial completion of the entire Project shall not be conclusively established by a decision by the Principal Representative to take possession and use of a portion, or all of the Project, where portions of the Project cannot meet all the criteria noted above. Notice of Substantial Completion for the entire Project shall, however, only be withheld for substantial reasons when the Principal Representative has taken possession and uses all of the Project in accordance with the terms of Article 40, Right of Occupancy. Failure to furnish the required completion schedule shall constitute a substantial reason for withholding the issuance of any Notice of Substantial Completion.

The Contractor shall have the right to request a final inspection of any discrete physical portion of the Project when in the opinion of the Principal Representative, The Architect/Engineer and State Buildings Program a final punch list can be reasonably prepared, without confusion as to which portions of the Project are referred to in any subsequent Notice of Partial Final Settlement which might be issued after such portion is finally accepted. Discrete physical portions of the Project may be, but

shall not necessarily be limited to, such portions of the Project as separate buildings where a Project consists of multiple buildings. Similarly, an addition to an existing building where the Project also calls for renovation or remodeling of the existing building may constitute a discrete physical portion of the Project. In such circumstances, when in the opinion of the Principal Representative, the Architect/Engineer and State Buildings Program, the requirements for issuance of a Notice of Substantial Completion can be satisfied with respect to the discrete portion of the Project, a partial Notice of Substantial Completion may be issued for such discrete physical portion of the Project.

D. NOTICE OF ACCEPTANCE

The Notice of Acceptance shall establish the completion date of the Project. It shall not be authorized until the Contractor shall have performed all of the Work to allow completion and approval of the Pre-Acceptance Checklist (SBP-05).

Where partial Notices of Substantial Completion have been issued, partial Notices of Final Acceptance may be similarly issued when appropriate for that portion of the Work. Partial Notice of Final Acceptance may also be issued to exclude the Work described in Change Orders executed during late stages of the Project where a later completion date for the Change Ordered Work is expressly provided for in the Contract as amended by the Change Order, provided the Work can be adequately described to allow partial advertisement of any Notice of Partial Final Settlement to be issued without confusion as to the Work included for which final payment will be made.

E. SETTLEMENT

Final payment and settlement shall be made on the date fixed and published for such payment except as hereafter provided. The Principal Representative shall not authorize final payment until all items on the Pre-Acceptance check list (SBP-05) have been completed, the Notice of Acceptance issued, and the Notice of Contractors Settlement published. If the Work shall be substantially completed, but Final Acceptance and completion thereof shall be prevented through delay in correction of minor defects, or unavailability of materials or other causes beyond the control of the Contractor, the Principal Representative in his or her discretion may release all amounts due to the Contractor except such amounts as may be in excess of three times the cost of completing the unfinished Work or the cost of correcting the defective Work, as estimated by the Architect/Engineer and approved by State Buildings Program. Before the Principal Representative may issue the Notice of Contractor's Settlement and advertise the Project for final payment, the Contractor shall have corrected all items on the punch list except those items for which delayed performance is expressly permitted, subject to withholding for the cost thereof, and shall have:

1. Delivered to the Principal Representative:
 - a. All guarantees and warranties;
 - b. All statements to support local sales tax refunds, if any;
 - c. Required operating maintenance instructions as per the Principal Representative; and,
 - d. One (1) set of hard copy as-built Contract Documents, and one (1) electronic copy showing all job changes.
2. Demonstrated to the operating personnel of the Principal Representative the proper operation and maintenance of all equipment.
3. Delivered to the State of Colorado Department of Personnel & Administration in accordance with the Colorado Procurement Code or the applicable procurement code for institutions of higher education:
 - a. A written disclosure of the five most costly goods incorporated into the project, including iron, steel, or related manufactured goods and the total cost and country of origin of those five goods and whether the project was subject to any existing domestic content preferences.

Upon completion of the foregoing the Project shall be advertised in accordance with the Notice of Contractor's Settlement by two publications of Notice, the last publication appearing at least ten (10) days prior to the time of final settlement. Publication and final settlement should not be postponed or delayed solely by virtue of unresolved claims against the Project or the Contractor from Subcontractors, suppliers or materialmen based on good faith disputes; the resolution of the question of payment in such cases being directed by statute.

Except as hereafter provided, on the date of final settlement thus advertised, provided the Contractor has submitted a written Notice to the Architect/Engineer that no claims have been filed, and further provided the Principal Representative shall have received no claims, final payments and settlement shall be made in full. If any unpaid claim for labor, materials, rental machinery, tools, supplies or equipment is filed before payment in full of all sums due the Contractor, the Principal Representative and the State Controller shall withhold from the Contractor on the date established for final settlement, sufficient funds to insure the payment of such claim, until the same shall have been paid or withdrawn, such payment or withdrawal to be evidenced by filing a receipt in full or an order for withdrawal signed by the claimant or his or her duly authorized agent or assignee. The amount so withheld may be in the amount of 125% of the claims or such other amount as the Principal Representative reasonably deems necessary to cover expected legal expenses. Such withheld amounts shall be in addition to any amount withheld based on the cost to compete unfinished Work or the cost to repair defective Work. However, as provided by statute, such funds shall not be withheld longer than ninety (90) days following the date fixed for final settlement with the Contractor, as set forth in the published Notice of Contractor's Settlement, unless an action at law shall be commenced within that time to enforce such unpaid claim and a Notice of such action at law shall have been filed with the Principal Representative and the State Controller. At the expiration of the ninety (90) day period, the Principal Representative shall authorize the State Controller to release to the Contractor all other money not the subject of such action at law or withheld based on the cost to compete unfinished Work or the cost to repair defective Work.

Notices of Partial Final Settlement may be similarly advertised, provided all conditions precedent have been satisfied as though that portion of the Work affected stood alone, a Notice of Partial Acceptance has been issued, and the consent of surety to the partial final settlement has been obtained in writing. Thereafter, partial final payments may be made to the Contractor subject to the same conditions regarding unpaid claims.

ARTICLE 42. GENERAL WARRANTY AND CORRECTION OF WORK AFTER ACCEPTANCE

The Contractor warrants that the materials used and the equipment furnished shall be new and of good quality unless specified to the contrary. The Contractor further warrants that the Work shall, in all respects, be free from material defects not permitted by the Specifications and shall be in accordance with the requirements of the Contract Documents. Neither the final certificate for payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for defects or faulty materials or Workmanship. The Contractor shall be responsible to the Principal Representative for such warranties for the longest period permitted by any applicable statute of limitations.

In addition to these general warranties, and without limitation of these general warranties, for a period of one year after the date of any Notice of Substantial Completion, or any Notice of Partial Substantial Completion if applicable, the Contractor shall remedy defects, and faulty Workmanship or materials, and Work not in accordance with the Contract Documents which was not accepted at the time of the Notice of Final Acceptance, all in accordance with the provisions of Article 44, One-Year Guarantee And Special Guarantees And Warranties.

ARTICLE 43. LIENS

Colorado statutes do not provide for any right of lien against public buildings. In lieu thereof, C.R.S. § 38-26-107, provides adequate relief for any claimant having furnished labor, materials, rental machinery, tools, equipment, or services toward construction of the particular public Work in that final payment may not be made to a Contractor until all such creditors have been put on Notice by publication in the public press of

such pending payment and given opportunity for a period of up to ninety (90) days to stop payment to the Contractor in the amount of such claims.

ARTICLE 44. ONE-YEAR GUARANTEE AND SPECIAL GUARANTEES AND WARRANTIES

A. ONE-YEAR GUARANTEE OF THE WORK

The Contractor shall guarantee to remedy defects and repair or replace the Work for a period of one year from the date of the Notice of Substantial Completion or from the dates of any partial Notices of Substantial Completion issued for discrete physical portions of the Work. The Contractor shall remedy any defects due to faulty materials or Workmanship and shall pay for, repair and replace any damage to other Work resulting there from, which shall appear within a period of one year from the date of such Notice(s) of Substantial Completion. The Contractor shall also remedy any deviation from the requirements of the Contract Documents which shall later be discovered within a period of one year from the date of the Notice of Substantial Completion; provided, however, that the Contractor shall not be required to remedy deviations from the requirements of the Contract Documents where such deviations were obvious, apparent and accepted by the Architect/Engineer or the Principal Representative at the time of the Notice of Final Acceptance. The Principal Representative shall give Notice of observed defects or other Work requiring correction with reasonable promptness. Such Notice shall be in writing to the Architect/Engineer and the Contractor.

The one year guarantee of the Contractor's Work may run separately for discrete physical portions of the Work for which partial Notices of Substantial Completion have been issued, however, it shall run from the last Notice of Substantial Completion with respect to all or any systems common to the Work to which more than one Notice of Substantial Completion may apply.

This one-year guarantee shall not be construed to limit the Contractor's general warranty described in Article 42, General Warranty and Correction of Work After Acceptance, that all materials and equipment are new and of good quality, unless specified to the contrary, and that the Work shall in all respects be free from material defects not permitted by the Specifications and in accordance with the requirements of the Contract Documents.

B. SPECIAL GUARANTEES AND WARRANTIES

In case of Work performed for which product, manufacturers or other special warranties are required by the Specifications, the Contractor shall secure the required warranties and deliver copies thereof to the Principal Representative through the Architect/Engineer upon completion of the Work.

These product, manufacturers or other special warranties, as such, do not in any way lessen the Contractor's responsibilities under the Contract. Whenever guarantees or warranties are required by the Specifications for a longer period than one year, such longer period shall govern.

ARTICLE 45. GUARANTEE INSPECTIONS AFTER COMPLETION

The Architect/Engineer, the Principal Representative and the Contractor together shall make at least two (2) complete inspections of the Work after the Work has been determined to be substantially complete and accepted. One such inspection, the "Six-Month Guarantee Inspection," shall be made approximately six (6) months after date of the Notice of Substantial Completion, unless in the case of smaller projects valued under \$500,000 this inspection is declined in Article 7A (Contractor's Agreement SC-6.21), Modification of Article 45, in which case the inspection to occur at six months shall not be required. Another such inspection, the "Eleven-Month Guaranty Inspection" shall be made approximately eleven (11) months after the date of the Notice of Substantial Completion. The Contractor shall schedule and so notify all parties concerned, and the Principal Representative shall so notify State Buildings Program, of these inspections. If more than one Notice of Substantial Completion has been issued at the reasonable discretion of the Principal Representative separate eleven month inspections may be required where the one year guarantees do not run reasonably concurrent.

Written punch lists and reports of these inspections shall be made by the Architect/Engineer and forwarded to the Contractor, the Principal Representative, State Buildings Program, and all other participants within ten (10) days after the completion of the inspections. The punch list shall itemize all guarantee items, prior

punch list items still to be corrected or completed and any other requirements of the Contract Documents to be completed which were not waived by final acceptance because they were not obvious or could not reasonably have been previously observed. The Contractor shall immediately initiate such remedial Work as may be necessary to correct any deficiencies or defective Work shown by this report, and shall promptly complete all such remedial Work in a manner satisfactory to the Architect/Engineer, the Principal Representative and State Buildings Program.

If the Contractor fails to promptly correct all deficiencies and defects shown by this report, the Principal Representative may do so, after giving the Contractor ten (10) days written Notice of intention to do so.

The State of Colorado, acting by and through the Principal Representative, shall be entitled to collect from the Contractor all costs and expenses incurred by it in correcting such deficiencies and defects, as well as all damages resulting from such deficiencies and defects.

ARTICLE 46. TIME OF COMPLETION AND LIQUIDATED DAMAGES

It is hereby understood and mutually agreed, by and between the parties hereto, that the date of beginning, rate of progress, and the time for completion of the Work to be done hereunder are ESSENTIAL CONDITIONS of this Agreement, and it is understood and agreed that the Work embraced in this Contract shall be commenced at the time specified in the Notice to Proceed (SC-6.26).

It is further agreed that time is of the essence of each and every portion of this Contract, and of any portion of the Work described on the Drawings or Specifications, wherein a definite and certain length of time is fixed for the performance of any act whatsoever. The parties further agree that where under the Contract additional time is allowed for the completion of the Work or any identified portion of the Work, the new time limit or limits fixed by such extension of the time for completion shall be of the essence of this Agreement.

The Contractor acknowledges that subject to any limitations in the Advertisement for Bids, issued for the Project, the Contractor's bid is consistent with and considers the number of days to substantially complete the Project and the number of days to finally complete the Project to which the parties may have stipulated in the Agreement, which stipulation was based on the Contractor's bid. The Contractor agrees that Work shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as will ensure the Project will be substantially complete, and fully and finally complete, as recognized by the issuance of all required Notices of Substantial Completion and Notices of Final Acceptance, within any times stipulated and specified in the Agreement, as the same may be amended by Change Order or other written modification, and that the Principal Representative will be damaged if the times of completion are delayed.

It is expressly understood and agreed, by and between the parties hereto, that the times for the Substantial Completion of the Work or for the final acceptance of the Work as may be stipulated in the Agreement, and as applied here and in Article 7.4 of the Contractor's Design/Bid/Build Agreement SC-6.21), Modifications of Article 46, are reasonable times for these stages of completion of the Work, taking into such consideration all factors, including the average climatic range and usual industrial conditions prevailing in the locality of the building operations.

If the Contractor shall neglect, fail or refuse to complete the Work within the times specified in the Agreement, such failure shall constitute a breach of the terms of the Contract and the State of Colorado, acting by and through the Principal Representative, shall be entitled to liquidated damages for such neglect, failure or refusal, as specified in Article 7.4 of the Contractor's Design/Bid/Build Agreement SC-6.21, Modification of Article 46.

The Contractor and the Contractor's Surety shall be jointly liable for and shall pay the Principal Representative, or the Principal Representative may withhold, the sums hereinafter stipulated as liquidated damages for each calendar day of delay until the entire Project is 1) substantially completed, and the Notice (or all Notices) of Substantial Completion are issued, 2) finally complete and accepted and the Notice (or all Notices) of Acceptance are issued, or 3) both. Delay in substantial completion shall be measured from the Date of the Notice to Proceed and delay in final completion and acceptance shall be measured from the Date of the Notice of Substantial Completion.

In the first instance, specified in Article 7.4.1 of the Contractor's Design/Bid/Build Agreement SC-6.21, Modification of Article 46, liquidated damages, if any, shall be the amount specified therein, for each calendar day of delay beginning after the stipulated number of days for Substantial Completion from the date of the Notice to Proceed, until the date of the Notice of Substantial Completion. Unless otherwise specified in any Supplementary General Conditions, in the event of any partial Notice of Substantial Completion, liquidated damages shall accrue until all required Notices of Substantial Completion are issued.

In the second instance, specified in Article 7.4.2 of the Contractor's Design/Bid/Build Agreement SC-6.21, Modification of Article 46, liquidated damages, if any, shall be the amount specified in Article 7.4.2 of the Contractor's Design/Bid/Build Agreement SC-6.21, Modification of Article 46, for each calendar day in excess of the number of calendar days specified in the Contractor's bid for the Project and stipulated in the Agreement to finally complete the Project (as defined by the issuance of the Notice of Acceptance) after the final Notice of Substantial Completion has been issued.

In the third instance, when so specified in both Articles 7.4.1 and 7.4.2 of the Contractor's Agreement SC-6.21, both types of liquidated damages shall be separately assessed where those delays have occurred.

The parties expressly agree that said amounts are a reasonable estimate of the presumed actual damages that would result from any of the breaches listed, and that any liquidated damages that are assessed have been agreed to in light of the difficulty of ascertaining the actual damages that would be caused by any of these breaches at the time this Contract was formed; the liquidated damages in the first instance representing an estimate of damages due to the inability to use the Project; the liquidated damages in the second instance representing an estimate of damages due to the additional administrative, technical, supervisory and professional expenses related to and arising from the extended closeout period including delivery of any or all guarantees and warranties, the submittals of sales and use tax payment forms, the calling for the final inspection and the completion of the final punch list.

The parties also agree and understand that the liquidated damages to be assessed in each instance are separate and distinct, although potentially cumulative, damages for the separate and distinct breaches of delayed substantial completion or final acceptance. Such liquidated damages shall not be avoided by virtue of the fact of concurrent delay caused by the Principal Representative, or anyone acting on behalf of the Principal Representative, but in such event the period of delay for which liquidated damages are assessed shall be equitably adjusted in accordance with Article 38, Delays and Extensions Of Time.

ARTICLE 47. DAMAGES

If either party to this Contract shall suffer damage under this Contract in any manner because of any wrongful act or neglect of the other party or of anyone employed by either of them, then the party suffering damage shall be reimbursed by the other party for such damage. Except to the extent of damages liquidated for the Contractor's failure to achieve timely completion as set forth in Article 46, Time of Completion and Liquidated Damages, the Principal Representative shall be responsible for, and at his or her option may insure against, loss of use of any existing property not included in the Work, due to fire or otherwise, however caused. Notwithstanding the foregoing, or any other provision of this Contract, to the contrary, no term or condition of this contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protection, or other provisions of the Colorado Governmental Immunity Act, Section 24-10-101, *et seq.*, CRS, as now or hereafter amended. The parties understand and agree that liability for claims for injuries to persons arising out of negligence of the State of Colorado, its departments, institutions, agencies, boards, officials and employees is controlled and limited by the provisions of Section 24-101-101, *et seq.*, CRS, as now or hereafter amended and the risk management statutes, Section 24-30-1501, *et seq.*, CRS, as now or hereafter amended.

Notice of intent to file a claim under this clause shall be made in writing to the party liable within a reasonable time of the first observance of such damage and not later than the time of final payment, except that in the case of claims by the Principal Representative involving warranties against faulty Work or materials Notice shall be required only to the extent stipulated elsewhere in these General Conditions. Claims made to the Principal Representative involving extra cost or extra time arising by virtue of instructions to the Contractor to which Article 36, Claims, applies shall be made in accordance with Article

36. Other claims arising under the Contract involving extra cost or extra time which are made to the Principal Representative under this clause shall also be made in accordance with the procedures of Article 36, whether or not arising by virtue of instructions to the Contractor; provided however that it shall not be necessary to first obtain or request a written judgment of the Architect/Engineer.

Provided written Notice of intent to file a claim is provided as required in the preceding paragraph, nothing in this Article shall limit or restrict the rights of either party to bring an action at law or to seek other relief to which either party may be entitled, including consequential damages, if any, and shall not be construed to limit the time during which any action might be brought. Nothing in these General Conditions shall be deemed to limit the period of time during which any action may be brought as a matter of contract, tort, warranty or otherwise, it being the intent of the parties to allow any and all actions at law or in equity for such periods as the law permits. All such rights shall, however be subject to the obligation to assert claims and to appeal denials pursuant to Article 36, Claims, where applicable.

ARTICLE 48. STATE'S RIGHT TO DO THE WORK; TEMPORARY SUSPENSION OF WORK; DELAY DAMAGES

A. STATE'S RIGHT TO DO THE WORK

If after receipt of Notice to do so, the Contractor should neglect to prosecute the Work properly or fail to perform any provision of the Contract, the Principal Representative, after a second seven (7) days' advance written Notice to the Contractor and the Surety may, without prejudice to any other remedy the Principal Representative may have, take control of all or a portion of the Work, as the Principal Representative deems necessary and make good such deficiencies deducting the cost thereof from the payment then or thereafter due the Contractor, as provided in Article 30, Correction Of Work Before Acceptance and Article 33, Payments Withheld, provided, however, that the Architect/Engineer shall approve the amount charged to the Contractor by approval of the Change Order.

B. TEMPORARY SUSPENSION OF WORK

The State, acting for itself or by and through the Architect/Engineer, shall have the authority to suspend the Work, either wholly or in part, for such period or periods as may be deemed necessary due to:

1. Unsuitable weather;
2. Faulty Workmanship;
3. Improper superintendence or project management;
4. Contractor's failure to carry out orders or to perform any provision of the Contract Documents;
5. Loss of, or restrictions to, appropriations;
6. Conditions, which may be considered unfavorable for the prosecution of the Work.

If it should become necessary to stop Work for an indefinite period, the Contractor shall store materials in such manner that they will not become an obstruction or become damaged in any way; and he or she shall take every precaution to prevent damage to or deterioration of the Work, provide suitable drainage and erect temporary structures where necessary.

Notice of suspension of Work shall be provided to the Contractor in writing stating the reasons therefore. The Contractor shall again proceed with the Work when so notified in writing.

The Contractor understands and agrees that the State of Colorado cannot predict with certainty future revenues and could ultimately lack the revenue to fund the appropriations applicable to this Contract. The Contractor further acknowledges and agrees that in such event that State may, upon Notice to the Contractor, suspend the Work in anticipation of a termination of the Contract for the convenience of the State, pursuant to Article 50, Termination for Convenience of State. If the Contract is not so terminated the Contract sum and the Contract time shall be equitably adjusted at the time the Principal Representative directs the Work to be recommenced and gives Notice that the revenue to fund the appropriation is available.

C. DELAY DAMAGES

The Principal Representative and the State of Colorado shall be liable to the Contractor for the payment of any claim for extra costs, extra compensation or damages occasioned by hindrances or delays encountered in the Work only when and to the limited extent that such hindrance or delay is caused by an act or omission within the control of the Principal Representative, the Architect/Engineer or other persons or entities acting on behalf of the Principal Representative. Further, the Principal Representative and the State of Colorado shall be liable to the Contractor for the payment of such a claim only if the Contractor has provided required Notice of the delay or impact, or has presented its claim for an extension of time or claim of other delay or other impact due to changes ordered in the Work before proceeding with the changed Work. Except as otherwise provided, claims for extension of time shall be Noticed and filed in accordance with Article 38, Delays and Extensions of Time, within three (3) business days of the beginning of the delay with any claim filed within seven (7) days after the delay has ceased, or such claim is waived. Claims for extension of time or for other delay or other impact resulting from changes ordered in the Work shall be presented and adjusted as provided in Article 35, Changes in the Work.

ARTICLE 49. STATE'S RIGHTS TO TERMINATE CONTRACT

A. GENERAL

If the Contractor should be adjudged bankrupt, or if he or she should make a general assignment for the benefit of his or her creditors, or if a receiver should be appointed to take over his affairs, or if he or she should fail to prosecute his or her Work with due diligence and carry the Work forward in accordance with the construction schedule and the time limits set forth in the Contract Documents, or if he or she should fail to subsequently perform one or more of the provisions of the Contract Documents to be performed by him, the Principal Representative may serve written Notice on the Contractor and the Surety on performance and payment bonds, stating his or her intention to exercise one of the remedies hereinafter set forth and the grounds upon which the Principal Representative bases his or her right to exercise such remedy.

In such event, unless the matter complained of is satisfactorily cleared within ten (10) days after delivery of such Notice, the Principal Representative may, without prejudice to any other right or remedy, exercise one of such remedies at once, having first obtained the concurrence of the Architect/Engineer in writing that sufficient cause exists to justify such action.

B. CONDITIONS AND PROCEDURES

1. The Principal Representative may terminate the services of the Contractor, which termination shall take effect immediately upon service of Notice thereof on the Contractor and his or her Surety, whereupon the Surety shall have the right to take over and perform the Contract. If the Surety does not provide Notice to the Principal Representative of its intent to commence performance of the Contract within ten (10) days after delivery of the Notice of termination, the Principal Representative may take over the Work, take possession of and use all materials, tools, equipment and appliances on the premises and prosecute the Work to completion by such means as he or she shall deem best. In the event of such termination of his or her service, the Contractor shall not be entitled to any further payment under the Contract until the Work is completed and accepted. If the Principal Representative takes over the Work and if the unpaid balance of the contract price exceeds the cost of completing the Work, including compensation for any damages or expenses incurred by the Principal Representative through the default of the Contractor, such excess shall be paid to the Contractor. If, however, the cost, expenses and damages as certified by the Architect/Engineer exceed such unpaid balance of the contract price, the Contractor and his or her Surety shall pay the difference to the Principal Representative.
2. The Principal Representative may require the Surety on the Contractor's bond to take control of the Work and see to it that all the deficiencies of the Contractor are made good, with due diligence within ten (10) days of delivery of Notice to the Surety to do so. As between the Principal Representative and the Surety, the cost of making good such deficiencies shall all be borne by the Surety. If the Surety takes over the Work, either by election upon termination of the services of the Contractor pursuant to Section B(1) of this Article 49, State's Right To

Terminate Contract, or upon instructions from the Principal Representative to do so, the provisions of the Contract Documents shall govern the Work to be done by the Surety, the Surety being substituted for the Contractor as to such provisions, including provisions as to payment for the Work, the times of completion and provisions of this Article as to the right of the Principal Representative to do the Work or to take control of all or a portion of the Work.

3. The Principal Representative may take control of all or a portion of the Work and make good the deficiencies of the Contractor, or the Surety if the Surety has been substituted for the Contractor, with or without terminating the Contract, employing such additional help as the Principal Representative deems advisable in accordance with the provisions of Article 48A, State's Right to Do the Work; Temporary Suspension of Work; Delay Damages. In such event, the Principal Representative shall be entitled to collect from the Contractor and his or her Surety, or to deduct from any payment then or thereafter due the Contractor, the costs incurred in having such deficiencies made good and any damages or expenses incurred through the default of Contractor, provided the Architect/Engineer approves the amount thus charged to the Contractor. If the Contract is not terminated, a Change Order to the Contract shall be executed, unilaterally if necessary, in accordance with the procedures of Article 35, Changes in The Work.

C. **ADDITIONAL CONDITIONS**

If any termination by the Principal Representative for cause is later determined to have been improper, the termination shall be automatically converted to and deemed to be a termination by the Principal Representative for convenience and the Contractor shall be limited in recovery to the compensation provided for in Article 50, Termination for Convenience of State. Termination by the Contractor shall not be subject to such conversion.

ARTICLE 50. TERMINATION FOR CONVENIENCE OF STATE

A. **NOTICE OF TERMINATION**

The performance of Work under this Contract may be terminated, in whole or from time to time in part, by the State whenever for any reason the Principal Representative shall determine that such termination is in the best interest of State. Termination of Work hereunder shall be effected by delivery to the Contractor of a Notice of such termination specifying the extent to which the performance of Work under the Contract is terminated and the date upon which such termination becomes effective.

B. **PROCEDURES**

After receipt of the Notice of termination, the Contractor shall, to the extent appropriate to the termination, cancel outstanding commitments hereunder covering the procurement of materials, supplies, equipment and miscellaneous items. In addition, the Contractor shall exercise all reasonable diligence to accomplish the cancellation or diversion of all applicable outstanding commitments covering personal performance of any Work terminated by the Notice. With respect to such canceled commitments, the Contractor agrees to:

1. settle all outstanding liabilities and all claims arising out of such cancellation of commitments, with approval or ratification of the Principal Representative, to the extent he or she may require, which approval or ratification shall be final for all purposes of this clause; and,
2. assign to the State, in the manner, at the time, and to the extent directed by the Principal Representative, all of the right, title, and interest of the Contractor under the orders and subcontracts so terminated, in which case the State shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.

The Contractor shall submit his or her termination claim to the Principal Representative promptly after receipt of a Notice of termination, but in no event later than three (3) months from the effective date thereof, unless one or more extensions in writing are granted by the Principal Representative upon written request of the Contractor within such three-month period or authorized extension thereof. Upon failure of the Contractor to submit his or her termination claim within the time allowed, the Principal Representative may determine, on the basis of information available to him, the amount, if

any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

Costs claimed, agreed to, or determined pursuant to the preceding and following paragraph shall be in accordance with the provisions of the Colorado Procurement Code or the applicable procurement code for institutions of higher education.

Subject to the preceding provisions, the Contractor and the Principal Representative may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the termination under this clause, which amount or amounts may include any reasonable cancellation charges thereby incurred by the Contractor and any reasonable loss upon outstanding commitments for personal services which he or she is unable to cancel; provided, however, that in connection with any outstanding commitments for personal services which the Contractor is unable to cancel, the Contractor shall have exercised reasonable diligence to divert such commitments to other activities and operations. Any such agreement shall be embodied in an Amendment to this Contract and the Contractor shall be paid the agreed amount.

The State may from time to time, under such terms and conditions as it may prescribe, make partial payments against costs incurred by the Contractor in connection with the termination portion of this Contract, whenever, in the opinion of the Principal Representative, the aggregate of such payments is within the amount to which the Contractor will be entitled hereunder.

The Contractor agrees to transfer title and deliver to the State, in the manner, at the time, and to the extent, if any, directed by the Principal Representative, such information and items which, if the Contract had been completed, would have been required to be furnished to the State, including:

- a. completed or partially completed plans, Drawings and information; and,
- b. materials or equipment produced or in process or acquired in connection with the performance of the Work terminated by the Notice.

Other than the above, any termination inventory resulting from the termination of the Contract may, with written approval of the Principal Representative, be sold or acquired by the Contractor under the conditions prescribed by and at a price or prices approved by the Principal Representative. The proceeds of any such disposition shall be applied in reduction of any payments to be made by the State to the Contractor under this Contract or shall otherwise be credited to the price or cost of Work covered by this Contract or paid in such other manners as the Principal Representative may direct. Pending final disposition of property arising from the termination, the Contractor agrees to take such action as may be necessary, or as the Principal Representative may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the State has or may acquire an interest.

Any disputes as to questions of fact, which may arise hereunder, shall be subject to the Remedies provisions of the Colorado Procurement Code or the applicable procurement code for institutions of higher education.

ARTICLE 51. CONTRACTOR'S RIGHT TO STOP WORK AND/OR TERMINATE CONTRACT

If the Work shall be stopped under an order of any court or other public authority for a period of three (3) months through no act or fault of the Contractor or of any one employed by him, then the Contractor may on seven (7) days' written Notice to the Principal Representative and the Architect/Engineer stop Work or terminate this Contract and recover from the Principal Representative payment for all Work executed, any losses sustained on any plant or material, and a reasonable profit only for the Work completed. If the Architect/Engineer shall fail to issue or otherwise act in writing upon any certificate for payment within ten (10) days after it is presented and received by the Architect/Engineer, as provided in Article 31, Applications For Payments, or if the Principal Representative shall fail to pay the Contractor any sum certified that is not disputed in whole or in part by the Principal Representative in writing to the Contractor and the Architect/Engineer within thirty (30) days after the Architect/Engineer's certification, then the Contractor may

on ten (10) days' written Notice to the Principal Representative and the Architect/Engineer stop Work and/or give written Notice of intention to terminate this Contract.

If the Principal Representative shall thereafter fail to pay the Contractor any amount certified by the Architect/Engineer and not disputed in writing by the Principal Representative within ten (10) days after receipt of such Notice, then the Contractor may terminate this Contract and recover from the Principal Representative payment for all Work executed, any losses sustained upon any plant or materials, and a reasonable profit only for the Work completed. The Principal Representative's right to dispute an amount certified by the Architect/Engineer shall not relieve the Principal Representative of the obligation to pay amounts not in dispute as certified by the Architect/Engineer.

ARTICLE 52. SPECIAL PROVISIONS

A. CONTROLLER'S APPROVAL C.R.S. § 24-30-202(1)

This contract shall not be valid until it has been approved by the Colorado State Controller or designee.

B. FUND AVAILABILITY C.R.S. § 24-30-202(5.5)

Financial obligations of the State payable after the current fiscal year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

C. GOVERNMENTAL IMMUNITY

Liability for claims for injuries to persons or property arising from the negligence of the State, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, C.R.S. § 24-10-101 et seq.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State's risk management statutes, §§24-30-1501, et seq. C.R.S. No term or condition of this contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

D. INDEPENDENT CONTRACTOR

Contractor shall perform its duties hereunder as an independent contractor and not as an employee. Neither Contractor nor any agent or employee of Contractor shall be deemed to be an agent or employee of the State. Contractor shall not have authorization, express or implied, to bind the State to any agreement, liability, or understanding, except as expressly set forth herein. **Contractor and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Contractor or any of its agents or employees. Contractor shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to this contract. Contractor shall (a) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (b) provide proof thereof when requested by the State, and (c) be solely responsible for its acts and those of its employees and agents.**

E. COMPLIANCE WITH LAW

Contractor shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

F. CHOICE OF LAW, JURISDICTION, AND VENUE

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Contract. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Contract shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

G. PROHIBITED TERMS

Any term included in this Contract that requires the State to indemnify or hold Contractor harmless; requires the State to agree to binding arbitration; limits Contractor's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Nothing in this Contract shall be construed as a waiver of any provision of C.R.S. §24-106-109. Any term included in this Contract that limits Contractor's liability that is not void under this section shall apply only in excess of any insurance to be maintained under this Contract, and no insurance policy shall be interpreted as being subject to any limitations of liability of this Contract.

H. SOFTWARE PIRACY PROHIBITION.

State or other public funds payable under this Contract shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Contractor hereby certifies and warrants that, during the term of this Contract and any extensions, Contractor has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Contractor is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Contract, including, without limitation, immediate termination of this contract and any remedy consistent with federal copyright laws or applicable licensing restrictions.

I. EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST C.R.S. § 24-18-201 & C.R.S. § 24-50-507

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this contract. Contractor has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Contractor's services and Contractor shall not employ any person having such known interests.

J. VENDOR OFFSET AND ERRONEOUS PAYMENTS C.R.S. § 24-30-202(1) & C.R.S. § 24-30-202.4

The State Controller may withhold payment under the State's vendor offset intercept system for debts owed to State Agencies for: **(a)** unpaid child support debts or child support arrearages; **(b)** unpaid balances of tax, accrued interest, or other charges specified in §39-21-101, et seq. C.R.S.; **(c)** unpaid loans due to the Student Loan Division of the Department of Higher Education; **(d)** amounts required to be paid to the Unemployment Compensation Fund; and **(e)** other unpaid debts owing to the State as a result of final agency determination or judicial action. The State may also recover, at the State's discretion, payments made to Contractor in error for any reason, including, but not limited to, overpayments or improper payments, and unexpended or excess funds received by Contractor by deduction from subsequent payments under this Contract, deduction from any payment due under any other contracts, grants or agreements between the State and Contractor, or by any other appropriate method for collecting debts owed to the State.

K. PUBLIC CONTRACTS FOR SERVICES. C.R.S. § 8-17.5-101.

Contractor certifies, warrants, and agrees that it does not knowingly employ or contract with an illegal alien who will perform work under this Contract and will confirm the employment eligibility of all employees who are newly hired for employment in the United States to perform work under this contract, through participation in the E-Verify Program or the Department program established pursuant to C.R.S. § 8-17.5-102(5)(c), Contractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract or enter into a contract with a subcontractor that fails to certify to Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract. Contractor **(a)** shall not use E-Verify Program or Department program procedures to undertake pre-employment screening of job applicants while this Contract is being performed, **(b)** shall notify the subcontractor and the contracting State Agency within three days if Contractor has actual knowledge that a subcontractor is employing or contracting with an illegal alien for work under this Contract, **(c)** shall terminate the subcontract if a subcontractor does not stop employing or contracting with the illegal alien within three days of receiving the notice, and **(d)** shall comply with reasonable requests made in the course of an investigation, undertaken pursuant to C.R.S. § 8-17.5-102(5), by the Colorado Department of Labor and Employment. If Contractor

participates in the Department program, Contractor shall deliver to the contracting State Agency, Institution of Higher Education or political subdivision a written, notarized affirmation, affirming that Contractor has examined the legal work status of such employee, and shall comply with all of the other requirements of the Department program. If Contractor fails to comply with any requirement of this provision or C.R.S. § 8-17.5-101 et seq., the contracting State Agency, Institution of Higher Education or political subdivision may terminate this Contract for breach and, if so terminated, Contractor shall be liable for damages.

- L. PUBLIC CONTRACTS WITH NATURAL PERSONS. C.R.S. § 24-76.5-101.
Contractor, if a natural person eighteen (18) years of age or older, hereby swears and affirms under penalty of perjury that Contractor **(a)** is a citizen or otherwise lawfully present in the United States pursuant to federal law, **(b)** shall comply with the provisions of C.R.S. § 24-76.5-101 et seq., and **(c)** has produced one form of identification required by C.R.S. § 24-76.5-103 prior to the effective date of this Contract.

ARTICLE 53. MISCELLANEOUS PROVISIONS

A. CONSTRUCTION OF LANGUAGE

The language used in these General Conditions shall be construed as a whole according to its plain meaning, and not strictly for or against any party. Such construction shall, however, construe language to interpret the intent of the parties giving due consideration to the order of precedence noted in Article 2C, Intent of Documents.

B. SEVERABILITY

Provided this Agreement can be executed and performance of the obligations of the Parties accomplished within its intent, the provisions hereof are severable and any provision that is declared invalid or becomes inoperable for any reason shall not affect the validity of any other provision hereof, provided that the Parties can continue to perform their obligations under this Agreement in accordance with its intent.

C. SECTION HEADINGS

The captions and headings in this Agreement are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions.

D. AUTHORITY

Each person executing the Agreement and its Exhibits in a representative capacity expressly represents and warrants that he or she has been duly authorized by one of the parties to execute the Agreement and has authority to bind said party to the terms and conditions hereof.

E. INTEGRATION OF UNDERSTANDING

This Contract is intended as the complete integration of all understandings between the parties and supersedes all prior negotiations, representations, or agreements, whether written or oral. No prior or contemporaneous addition, deletion, or other amendment hereto shall have any force or effect whatsoever, unless embodied herein in writing. No subsequent novation, renewal, addition, deletion, or other amendment hereto shall have any force or effect unless embodied in a written Change Order or Amendment to this Contract.

F. NO THIRD PARTY BENEFICIARIES

Enforcement of this Agreement and all rights and obligations hereunder are reserved solely to the Parties. Any services or benefits which third parties receive as a result of this Contract are incidental to the Contract, and do not create any rights for such third parties.

G. WAIVER

Waiver of any breach under a term, provision, or requirement of this Agreement, or any right or remedy hereunder, whether explicitly or by lack of enforcement, shall not be construed or deemed as a waiver of any subsequent breach of such term, provision or requirement, or of any other term, provision, or requirement.

H. INDEMNIFICATION

Contractor shall indemnify, save, and hold harmless the State, its employees and agents, against any and all claims, damages, liability and court awards including costs, expenses, and attorney fees , to the extent such claims are caused by any negligent act or omission of the Contractor, its employees, agents, subcontractors or assignees pursuant to the terms of this Contract, but not to the extent such claims are caused by any negligent act or omission of, or breach of contract by, the State, its employees, agents, other contractors or assignees, or other parties not under control of or responsible to the Contractor.

I. STATEWIDE CONTRACT MANAGEMENT SYSTEM

If the maximum amount payable to Contractor under this Contract is \$100,000 or greater, either on the Effective Date or at anytime thereafter, this shall apply. Contractor agrees to be governed by and comply with the Colorado Procurement Code or the applicable procurement code for institutions of higher education, regarding the monitoring of vendor performance and the reporting of contract performance information in the State's contract management system ("Contract Management System" or "CMS"). Contractor performance shall be subject to evaluation and review in accordance with the terms and conditions of this Contract, Colorado statutes governing CMS, and State Fiscal Rules and State Controller policies.

J. CORA DISCLOSURE

To the extent not prohibited by federal law, this Agreement and the performance measures and standards under the Colorado Procurement Code or the applicable procurement code for institutions of higher education, if any, are subject to public release through the Colorado Open Records Act, C.R.S. § 24-72-201, et seq.



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAM

LABOR AND MATERIAL BOND

Institution/Agency: Trinidad State Junior College

Project No./Name: Massari Theater Lighting Upgrade / TSJC-21-001

BONDING COMPANY: DO NOT MAKE ANY CHANGES TO THE LANGUAGE IN THIS BOND.

KNOW ALL PERSONS BY THESE PRESENTS:

That the Contractor

as Principal and hereinafter called "Principal,"

and

as Surety and hereinafter called "Surety," a corporation organized and existing under the laws of _____ are held and firmly bound unto the STATE OF COLORADO acting by and through _____

(agency or institution)

hereinafter called "Principal Representative," and to all subcontractors and any others who have supplied or furnished or shall supply or furnish materials, rental machinery, tools, or equipment actually used in the performance of the hereinafter identified Contract, or who have performed or shall perform labor in the performance of or in connection with said Contract, hereinafter called "Obligees" in the sum of _____ Dollars (\$ _____)

together with interest at the rate of eight per cent (8%) per annum on all payments becoming due in accordance with said Contract, from the time such payments shall become due until such payment shall be made, for the payment of which, well and truly made to the Obligees, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly, by these presents.

WHEREAS, the Principal and the State of Colorado acting by and through the Principal Representative have entered into a certain Contract, hereinafter called "Contract," dated _____, 20____ for the construction of a PROJECT described as

which Contract is hereby by reference made a part hereof;

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal and the Surety shall fully indemnify and save harmless the State of Colorado and the Principal Representative from and against any and all costs and damages, including patent infringements, which either may suffer by reason of any failure or failures of the Principal promptly and faithfully to perform all terms and conditions of said Contract and shall fully reimburse and repay the State of Colorado and the Principal Representative all outlay and expense which the State of Colorado and the Principal Representative may incur in making good any such failure or failures, and further, if the Principal and his subcontractors shall duly and promptly pay for any and all labor, materials, team hire, sustenance, provisions, provender, rental machinery, tools, or equipment and other supplies which have been or shall be used or consumed by said Principal or his subcontractors in the performance of the work of said Contract , and it said Principal shall duly and promptly pay all his subcontractors the sums due them for any and all materials, rental machinery, tools, or equipment and labor that have been or shall be furnished, supplied, performed or used in connection with performance of said Contract, and shall also fully indemnify and save harmless the State of Colorado and the Principal Representative to the extent of any and all expenditures which either or both of them may be required to make by reason of any failures or defaults by the Principal or any subcontractor in connection with such payments; then this obligation shall be null and void, otherwise it shall remain in full force and effect.

It is expressly understood and agreed that any alterations which may be made in the terms of said Contract or in the work to be done under said Contract, or any extension(s) of time for the performance of the Contract, or any forbearance on the part of either the State of Colorado or the Principal to any of the others, shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alteration, extension or forbearance being hereby waived.

IN WITNESS WHEREOF, the Principal and the Surety have executed this Bond, this _____ day of _____, A.D., 20_____.

(Corporate Seal)

THE PRINCIPAL

ATTEST:

By: _____

Title: _____

Secretary

(Corporate Seal)

SURETY

By: _____

Attorney-in-fact

THIS BOND MUST BE ACCOMPANIED BY POWER OF ATTORNEY, EFFECTIVELY DATED

Note: This bond is issued simultaneously with another bond conditioned for the full and faithful performance of the contract.



STATE OF COLORADO
OFFICE OF THE STATE ARCHITECT
STATE BUILDINGS PROGRAMS

CERTIFICATION AND AFFIDAVIT REGARDING UNAUTHORIZED IMMIGRANTS

Institution/Agency: Trinidad State Junior College

Project No./Name: Massari Theater Lighting Upgrade TSJC-21-001

A. CERTIFICATION STATEMENT CRS 8-17.5-101 & 102 (HB 06-1343, SB 08-193)

The Vendor, whose name and signature appear below, certifies and agrees as follows:

1. The Vendor shall comply with the provisions of CRS 8-17.5-101 et seq. The Vendor shall not knowingly employ or contract with an unauthorized immigrant to perform work for the State or enter into a contract with a subcontractor that knowingly employs or contracts with an unauthorized immigrant.
2. The Vendor certifies that it does not now knowingly employ or contract with an unauthorized immigrant who will perform work under this contract, and that it will participate in either (i) the "E-Verify Program", jointly administered by the United States Department of Homeland Security and the Social Security Administration, or (ii) the "Department Program" administered by the Colorado Department of Labor and Employment in order to confirm the employment eligibility of all employees who are newly hired to perform work under this contract.
3. The Vendor shall comply with all reasonable requests made in the course of an investigation under CRS 8-17.5-102 by the Colorado Department of Labor and Employment. If the Vendor fails to comply with any requirement of this provision or CRS 8-17.5-101 et seq., the State may terminate work for breach and the Vendor shall be liable for damages to the State.

Or

B. SOLE PROPRIETOR AFFIDAVIT CRS 24-76.5-101 (HB 06S-1023)

1. If the Vendor is a **sole proprietor**, the undersigned hereby swears or affirms under penalty of perjury under the laws of the State of Colorado that (check one):

- I am a United States citizen, or
- I am a Permanent Resident of the United States, or
- I am lawfully present in the United States pursuant to Federal law.

I understand that this sworn statement is required by law because I am a sole proprietor entering into a contract to perform work for the State of Colorado. I understand that state law requires me to provide proof that I am lawfully present in the United States prior to starting work for the State. I further acknowledge that I will comply with the requirements of CRS 24-76.5-101 et seq. and will produce the required form of identification prior to starting work. I acknowledge that making a false, fictitious, or fraudulent statement or representation in this sworn affidavit is punishable under the criminal laws of Colorado as perjury in the second degree under CRS 18-8-503 and it shall constitute a separate criminal offense each time a public benefit is fraudulently received.

CERTIFIED and AGREED to this _____ day of _____, 20_____.

VENDOR:

Enter vendor legal name here
Vendor Full Legal Name

BY _____
:
Signature of Authorized Representative

Enter Title here

Title

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 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.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of removal and replacement of existing theatrical system.
 - 1. Project Location: Massari Theater, Trinidad State Junior College, Trinidad, Colorado.
 - 2. Owner: Trinidad State Junior College.
- B. Architect Identification: The Contract Documents, dated 29 January, 2021, were prepared for Project by Schendt Engineering Corp., 5145 Centennial Blvd, Colorado Springs, CO 80919.
- C. Project Coordinator: Mr. Al Malespini has been appointed by Owner to serve as Project Coordinator.
- D. The Work includes demolition of existing theatrical lighting and replacement, and classroom lighting and controls replacement.
 - 1. Add Alternate work is detailed in the design.
 - 2. The Work includes associated electrical modifications.

1.3 CONTRACT

- A. Project will be constructed under a general construction contract. However the owner reserves the right to self perform or separately contract some of the work.

1.4 WORK SEQUENCE

- A. The Work shall be conducted in single phase.
 - 1. Phase: Work of this phase shall be substantially complete and ready for occupancy within 120 days of the Notice to Proceed.

1.5 USE OF PREMISES

- A. General: Each Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Each Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project. All Contractor representatives shall coordinate timing of all activities with Owner to avoid educational use of the space.
- B. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Owner Occupancy: Allow for Owner occupancy of Project site.

2. Driveways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
3. Limit construction operations to those methods and procedures which will not adversely and unduly affect the working environment of the Owner's occupied spaces, including noise, dust, odors, air pollution, ambient discomfort, poor lighting, hazards and other undesirable effects and conditions.
4. Disruptive operations: Noisy and disruptive operations (such as use of man lift and other noisy equipment) shall not be allowed at times that will disrupt the Owner's existing operations.
 - a. Schedule and coordinate such operations with Owner.
 - b. Upon notification from Owner, cease operations which are, in the opinion of the Owner, disruptive to operations. Schedule such operations as described above.
5. Power Outages: Do not interrupt power, lighting, plumbing, telephone and HVAC services to occupied areas. Coordinate and schedule any required utility outages with the Owner at least 30 days in advance of the outage; have Owner's approval.
6. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.6 OWNER'S OCCUPANCY REQUIREMENTS

- A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits, unless otherwise indicated.
 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
- B. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
 1. Architect will prepare a Notice of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
 2. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.
 3. On acceptance of Notice of Substantial Completion, Owner will assume responsibility for maintenance and custodial service for occupied portions of building

1.7 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with Owner and separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Concurrent Work: **Owner may award or self-perform separate contract(s)** for the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract. Contractor shall cooperate with all other work at Owner's direction.

1.8 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 33-division format and CSI/CSC's "MasterFormat" numbering system.
 - 1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

END OF SECTION 01 10 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
 - 2. Include costs listed for each alternate include costs of related coordination, revision, or adjustment
- B. Execute accepted alternates under the same conditions as other work of the Contract.
- C. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Total of 4 alternates

1. Base Bid: All critical theatrical lighting components and associated electrical power, including emergency lighting inverter, theatrical lights, house lights, dimming controller, projector and screen, and all required components. Refer to E- and T- sheets.
2. Alternate #1: additional lighting and controls for entire basement level, stairs, front classroom and restrooms. Refer to E-101 and E-102.
3. Alternate #2: renovate floor surface of stage. Refer to TS-106.
4. Alternate #3: spare equipment for theatrical lighting system. Refer to Spec Section 26 55 61
5. Alternate #4: spare equipment for theatrical A/V. Refer to Spec Section 26 55 61

END OF SECTION 012300

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Conservation.
 - 3. Coordination Drawings.
 - 4. Administrative and supervisory personnel.
 - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
- B. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Pre-installation conferences.
 7. Start-up and adjustment of systems.
 8. Project closeout activities.
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Indicate relationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.
 3. Refer to Division 23 Section "Basic Mechanical Materials and Methods" and Division 26 Section "Basic Electrical Materials and Methods" for specific Coordination Drawing requirements for mechanical and electrical installations.
- B. Staff Names: Within 10 days of starting construction operations, submit a list of principal staff assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
1. Include special personnel required for coordination of operations with other contractors.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within 3 days of the meeting.
- B. Pre-construction Conference: Schedule a pre-construction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Designation of responsible personnel.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for processing Applications for Payment.
 - g. Distribution of the Contract Documents.
 - h. Submittal procedures.
 - i. Preparation of Record Documents.
 - j. Use of the premises.
 - k. Responsibility for temporary facilities and controls.
 - l. Parking availability.
 - m. Office, work, and storage areas.
 - n. Equipment deliveries and priorities.
 - o. First aid.
 - p. Security.
 - q. Progress cleaning.
 - r. Working hours.
- C. Progress Meetings: Conduct progress meetings at monthly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction 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 within the Contract Time.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.

- 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
 - 14) Documentation of information for payment requests.
3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- D. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work
 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's Construction Schedule. Determine how construction 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 within the Contract Time.
 - b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.

- 12) Quality and work standards.
- 13) Change Orders.

- 3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. Related Sections include the following:
 - 1. Division 1 Section "Project Management and Coordination" for submitting Coordination Drawings.
 - 2. Division 1 Section "Quality Requirements" for submitting test and inspection reports and Delegated-Design Submittals.
 - 3. Division 1 Section "Closeout Procedures" for submitting warranties Project Record Documents and operation and maintenance manuals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's approval. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 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 parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - 3. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Submittals Schedule: Comply with requirements for list of submittals and time requirements for scheduled performance of related construction activities.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.
 - 1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect

- will advise Contractor when a submittal being processed must be delayed for coordination.
2. Concurrent Review: Where concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow 15 days for initial review of each submittal.
 3. If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Allow 10 days for processing each resubmittal.
 5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information on 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. Unique identifier, including revision number.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
 2. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
 2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
 3. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.

- g. Submittal purpose and description.
 - h. Submittal and transmittal distribution record.
 - i. Remarks.
 - j. Signature of transmitter.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Use only final submittals with mark indicating action taken by Architect in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
1. Number of Copies: Submit one electronic copy. Mark up and retain one returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as much as available:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operating and maintenance manuals.
 - k. Compliance with recognized trade association standards.
 - l. Compliance with recognized testing agency standards.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.

- g. Templates and patterns.
 - h. Schedules.
 - i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 24 by 36 inches.
 4. Number of Copies: Submit four blue- or black-line prints of each submittal, unless prints are required for operation and maintenance manuals. Architect will retain two prints; remainder will be returned. Mark up and retain one returned print as a Project Record Drawing.
- D. Coordination Drawings: Comply with requirements in Division 1 Section "Project Management and Coordination."
- E. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product.
 2. Number and name of room or space.
 3. Location within room or space.
- F. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."
- G. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
- B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- C. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

- D. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- E. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- F. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures."
- G. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- H. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement that products at Project site comply with requirements.
 - 3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 5. Statement whether conditions, products, and installation will affect warranty.
 - 6. Other required items indicated in individual Specification Sections.
- I. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- J. Material Safety Data Sheets: Submit information directly to Owner. If submitted to Architect, Architect will not review this information but will return it with no action taken.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. No Exceptions Taken.
 2. Rejected.
 3. Submit Specified Item.
 4. Make Corrections Noted.
 5. Revise & Resubmit.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 01 33 00

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 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.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Architect": Architect or Engineer in responsible charge of the project.

C.D. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."

D.E. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E.F. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F.G. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G.H. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H.I. "Provide": Furnish and install, complete and ready for the intended use.

I.J. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not 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 tradespeople of the corresponding generic name.

J.K. "Experienced": When used with an entity, "experienced" means having successfully completed a minimum of ~~five~~ <Insert number>5 previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

K.L. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless 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 to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
 - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.
- D. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.
- E. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-5434
CFR	Code of Federal Regulations Available from Government Printing Office www.access.gpo.gov/nara/cfr	(888) 293-6498 (202) 512-1530
CRD	Handbook for Concrete and Cement Available from Army Corps of Engineers Waterways Experiment Station www.wes.army.mil	(601) 634-2355
DOD	Department of Defense Specifications and Standards Available from Defense Automated Printing Service www.astimage.daps.dla.mil/online	(215) 697-6257
FED-STD	Federal Standard (See FS)	

FS	Federal Specification Available from Defense Automated Printing Service www.astimage.daps.dla.mil/online	(215) 697-6257
	Available from General Services Administration www.fss.gsa.gov/pub/fed-specs.cfm	(202) 619-8925
	Available from National Institute of Building Sciences www.nibs.org	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MILSPEC	Military Specification and Standards Available from Defense Automated Printing Service www.astimage.daps.dla.mil/online	(215) 697-6257
UFAS	Uniform Federal Accessibility Standards Available from Access Board www.access-board.gov	(800) 872-2253 (202) 272-5434

1.4 ABBREVIATIONS AND ACRONYMS

A.	Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."	
B.	Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.	
AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AAN	American Association of Nurserymen (See ANLA)	
AASHTO	American Association of State Highway and Transportation Officials www.aashto.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155

ACI	American Concrete Institute/ACI International www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AFPA	American Forest & Paper Association (See AF&PA)	
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
AHA	American Hardboard Association www.hardboard.org	(847) 934-8800
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen) www.anla.org	(202) 789-2900
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts	(505) 522-1437

www.aosaseed.com

APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(941) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ASCA	Architectural Spray Coaters Association www.ascassoc.com	(609) 848-6120
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (212) 591-7722
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9585
AWCI	AWCI International (Association of the Wall and Ceiling Industries International) www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (See WCMA)	
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(817) 326-6300
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010

BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963
CCC	Carpet Cushion Council www.carpetcushion.org	(203) 637-1312
CCFSS	Center for Cold-Formed Steel Structures www.umn.edu/~ccfss	(573) 341-4471
CDA	Copper Development Association Inc. www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CGSB	Canadian General Standards Board www.pwgsc.gc.ca/cgsb	(819) 956-0425
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRI	Carpet & Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(800) 463-6727 (416) 747-4000
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute	(281) 583-4087

	(Formerly: Cooling Tower Institute) www.cti.org	
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eifsfacts.com	(800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
FCI	Fluid Controls Institute www.fluidcontrolsintstitute.org	(216) 241-7333
FGMA	Flat Glass Marketing Association (See GANA)	
FM	Factory Mutual System (See FMG)	
FMG	FM Global (Formerly: FM - Factory Mutual System) www.fmgglobal.com	(401) 275-3000
FSC	Forest Stewardship Council www.fscoax.org	52 951 5146905
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) www.glasswebsite.com/gana	(785) 271-0208
GRI	Geosynthetic Research Institute www.drexel.edu/gri	(215) 895-2343
GTA	Glass Tempering Division of Glass Association of North America (See GANA)	
HI	Hydraulic Institute www.pumps.org	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association (See NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550

IAS	International Approval Services (See CSA)	
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance (The) www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISSFA	International Solid Surface Fabricators Association	(702) 567-8150
I3A	International Imaging Industry Association (Formerly: PIMA - Photographic & Imaging Manufacturers Association) www.pima.net	(914) 698-7603
ITS	Intertek Testing Services www.itsglobal.com	(800) 345-3851 (607) 753-6711
IWS	Insect Screening Weavers Association (Now defunct)	
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association (Formerly: ALA - American Laminators Association) www.lma.org	(201) 664-2700
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864 (847) 577-7200
LSGA	Laminated Safety Glass Association (See GANA)	
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association www.maplefloor.org	(847) 480-9138

MFMA	Metal Framing Manufacturers Association www.metalframingmfg.org	(312) 644-6610
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(614) 228-6194
ML/SFA	Metal Lath/Steel Framing Association (See SSMA)	
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(312) 332-0405
NAAMM	North American Association of Mirror Manufacturers (See GANA)	
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(281) 228-6200
NAIMA	North American Insulation Manufacturers Association (The) www.naima.org	(703) 684-0084
NAMI	National Accreditation and Management Institute, Inc.	(304) 258-5100
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(414) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-3550
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200

NETA	InterNational Electrical Testing Association www.netaworld.org	(303) 697-8441
NFPA	National Fire Protection Association www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-6372
NGA	National Glass Association www.glass.org	(703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	National Oak Flooring Manufacturers Association www.nofma.org	(901) 526-5016
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSA	National Stone Association (See NSSGA)	
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association (Formerly: NSA - National Stone Association) www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo and Mosaic Association, Inc. www.ntma.com	(800) 323-9736 (703) 779-1022
NWWDA	National Wood Window and Door Association (See WDMA)	
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting and Decorating Contractors of America www.pdca.com	(800) 332-7322 (703) 359-0826
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (508) 230-3516
PGI	PVC Geomembrane Institute //pgi-tp.ce.uiuc.edu	(217) 333-3929
RCSC	Research Council on Structural Connections www.boltcouncil.org	(800) 644-2400 (312) 670-2400

RFCI	Resilient Floor Covering Institute www.rfci.com	Contact by mail only
RIS	Redwood Inspection Service www.calredwood.org	(888) 225-7339 (415) 382-0662
SAE	SAE International www.sae.org	(724) 776-4841
SDI	Steel Deck Institute www.sdi.org	(847) 462-1930
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabfurn.com	(516) 294-5424
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SIGMA	Sealed Insulating Glass Manufacturers Association (See IGMA)	
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.screenmfgassociation.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPI/SPFD	Society of the Plastics Industry (The) Spray Polyurethane Foam Division (See SPFA)	
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org	(781) 444-0242
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association) www.ssma.com	(312) 456-5590
SSPC	SSPC: The Society for Protective Coatings	(877) 281-7772

	www.sspc.org	(412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, and Restoration Institute www.swrionline.org	(816) 472-7974
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TPI	Truss Plate Institute	(608) 833-5900
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 705-9898
UL	Underwriters Laboratories Inc. www.ul.com	(800) 704-4050 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USITT	United States Institute for Theatre Technology, Inc. www.culturenet.ca/usitt	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association (See WCSC)	
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association) www.windowcoverings.org	(800) 506-4636 (212) 661-4261
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WIC	Woodwork Institute of California www.wicnet.org	(916) 372-9943
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

BOCA	BOCA International, Inc. www.bocai.org	(708) 799-2300
CABO	Council of American Building Officials (See ICC)	
IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org	(909) 595-8449
ICBO	International Conference of Building Officials www.icbo.org	(800) 284-4406 (562) 699-0541
ICC	International Code Council, Inc. (Formerly: CABO - Council of American Building Officials) www.intlcode.org	(703) 931-4533
SBCCI	Southern Building Code Congress International, Inc. www.sbcci.org	(205) 591-1853

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers www.usace.army.mil	
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-0990
DOC	Department of Commerce www.doc.gov	(202) 482-2000
EPA	Environmental Protection Agency www.epa.gov	(202) 260-2090
FAA	Federal Aviation Administration www.faa.gov	(202) 366-4000
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(202) 708-5082
HUD	Department of Housing and Urban Development	(202) 708-1112

	www.hud.gov	
LBL	Lawrence Berkeley Laboratory (See LBNL)	
LBNL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-5605
NCHRP	National Cooperative Highway Research Program (See TRB)	
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PBS	Public Building Service (See GSA)	
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web-site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CAPUC (See CPUC)

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation www.dca.ca.gov/bhfti	(800) 952-5210 (916) 574-2041
CPUC	California Public Utilities Commission www.cpuc.ca.gov	(415) 703-2782
TFS	Texas Forest Service Forest Products Laboratory //txforests.service.tamu.edu	(936) 639-8180

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
 - 1. Division 1 Section "References" for applicable industry standards for products specified.
 - 2. Division 1 Section "Closeout Procedures" for submitting warranties for contract closeout.
 - 3. Divisions 2 through 33 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.
- D. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

1.4 SUBMITTALS

- A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
 2. Form: Tabulate information for each product under the following column headings:
 - a. Specification Section number and title.
 - b. Generic name used in the 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.
 - h. Identification of items that require early submittal approval for scheduled delivery date.
 3. Initial Submittal: Within 15 days after date of commencement of the Work, submit electronic copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.
 4. Completed List: Within 30 days after date of commencement of the Work, submit electronic copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 5. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.
- B. Substitution Requests: Submit electronic copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use CSI Form 13.1A.
 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - f. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

- g. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - h. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - i. Cost information, including a proposal of change, if any, in the Contract Sum.
 - j. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - k. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
- a. Form of Acceptance: Change Order.
 - b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
- C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
- 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 5. Store products to allow for inspection and measurement of quantity or counting of units.
 - 6. Store materials in a manner that will not endanger Project structure.

7. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
9. Protect stored products from damage.

- B. Storage: Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
 3. Refer to Divisions 2 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
 7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures: Procedures for product selection include the following:

1. Product: Where Specification paragraphs or subparagraphs titled "Product" name a single product and manufacturer, provide the product named.
 - a. Substitutions may be considered, unless otherwise indicated.
2. Manufacturer/Source: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
3. Products: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
4. Manufacturers: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
 - a. Substitutions may be considered, unless otherwise indicated.
5. Available Products: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
6. Available Manufacturers: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
7. Product Options: Where Specification paragraphs titled "Product Options" indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer. Comply with provisions in "Product Substitutions" Article.
8. Basis-of-Design Products: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Products" are included and also introduce or refer to a list of manufacturers' names, provide either the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Substitutions will not be considered, unless otherwise indicated.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily.
 - a. If no product available within specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents on "substitutions" for selection of a matching product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within 10 days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.
- B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 2. Requested substitution does not require extensive revisions to the Contract Documents.
 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 4. Substitution request is fully documented and properly submitted.
 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 7. Requested substitution is compatible with other portions of the Work.
 8. Requested substitution has been coordinated with other portions of the Work.
 9. Requested substitution provides specified warranty.
 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

- A. Where products or manufacturers are specified by name, submit the following, in addition to other required submittals, to obtain approval of an unnamed product:
 1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 73 10 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Division 1 Section "Selective Demolition" for demolition of selected portions of the building for alterations.
 - 2. Division 7 Section "Through-Penetration Firestop Systems" for patching fire-rated construction.
 - 3. Divisions 2 through 33 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
 - a. Requirements in this Section apply to fire suppression, plumbing, mechanical and electrical installations. Refer to Divisions 21, 22, 23 and 26 Sections for other requirements and limitations applicable to cutting and patching fire suppression, plumbing, mechanical and electrical installations.

1.3 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 - 1. Primary operational systems and equipment.
 - 2. Air or smoke barriers.
 - 3. Fire-protection systems.
 - 4. Control systems.
 - 5. Communication systems.
 - 6. Electrical wiring systems.

- C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
1. Water, moisture, or vapor barriers.
 2. Membranes and flashings.
 3. Exterior curtain-wall construction.
 4. Equipment supports.
 5. Piping, ductwork, vessels, and equipment.
 6. Noise- and vibration-control elements and systems.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
1. If possible, retain original Installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or fabricator, engage another recognized, experienced, and specialized firm.
 - a. Processed concrete finishes.
 - b. Stonework and stone masonry.
 - c. Preformed metal panels.
 - d. Roofing.
 - e. Firestopping.
 - f. Wall covering.
 - g. HVAC enclosures, cabinets, or covers.
- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of these Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 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 Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers 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, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: 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. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

END OF SECTION 01 73 10

SECTION 01 73 20 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected site elements.
 - 2. Repair procedures for selective demolition operations.
- B. Related Sections include the following:
 - 1. Division 1 Section "Summary" for use of the premises and phasing requirements.
 - 2. Division 1 Section "Cutting and Patching" for cutting and patching procedures for selective demolition operations.
 - 3. Division 26 Sections for demolishing, cutting, patching, or relocating electrical items.

1.3 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.
- 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.

1.4 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.

1.5 SUBMITTALS

- A. Qualification Data: For firms and persons 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 building manager's on-site operations are uninterrupted.
 - 2. Interruption of utility services.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Locations of temporary partitions and means of egress.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- 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.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Professional Engineer Qualifications: Comply with Division 1 Section "Quality Requirements."
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.

1.7 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to and including selective 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 walkways, corridors, and other adjacent occupied or used facilities.
 - 1. Do not close or obstruct walkways, corridors, 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 will be encountered in the Work. Fluorescent lamps and ballasts are known to exist and part of the demolition scope.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- 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.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.
 1. If possible, retain original Installer or fabricator to patch the exposed Work listed below that is damaged during selective demolition. If it is impossible to engage original Installer or fabricator, engage another recognized experienced and specialized firm.
 - a. Firestopping.
 - b. Wall covering.
 - c. HVAC enclosures, cabinets, or covers.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

- 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 installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 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. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 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' 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. Arrange to shut off indicated utilities with utility companies.
 - 3. 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 building.
 - 4. 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.

3.3 PREPARATION

- A. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 2. Cover and protect furniture, furnishings, and equipment that have not been removed.
- B. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.

3.4 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, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. 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. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches.
 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 6. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 7. Dispose of demolished items and materials promptly.
 8. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Comply with building manager's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building 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. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- 3.5 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."
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

- E. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.6 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 and dispose of at designated spoil areas on Owner's property.
- D. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 SELECTIVE DEMOLITION SCHEDULE

- A. The extent of selective demolition is generally defined on the drawings. The owner reserves the right to salvage any equipment, components or devices removed during demolition. Demolition shall include removal of the following miscellaneous items not shown to be removed that would otherwise be abandoned in place:
 - 1. Conduit and piping that has been disconnected.
 - 2. Control wiring and devices that have been disconnected.
 - 3. Previously abandoned conduit, wiring, tubing, piping, and devices.

END OF SECTION 01 73 20

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project Record Documents.
 - 3. Operation and maintenance manuals.
 - 4. Warranties.
 - 5. Instruction of Owner's personnel.
 - 6. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 1 Section "Demonstration and Training" for requirements for instruction of Owner's personnel.
 - 2. Divisions 2 through 33 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, and similar final record information.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Complete startup testing of systems.
 - 8. Submit test/adjust/balance records.
 - 9. Terminate and remove construction tools, and similar elements.
 - 10. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 - 11. Complete final cleaning requirements, including touchup painting.
 - 12. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 - 1. Submit a final Application for Payment.
 - 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Revise paragraph and subparagraph below to comply with office policy and Project requirements.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit electronic copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.

1.6 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
 2. Mark record sets with erasable, red-colored pencil or red-colored waterproof pen. Use other colors to distinguish between changes for different categories of the Work at the same location.
 3. Mark important additional information that was either shown schematically or omitted from original Drawings.
 4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Note related Change Orders, Record Drawings, and Product Data, where applicable.
- D. Record Product Data: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, Record Drawings, and Record Specifications, where applicable.
- E. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual

performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.7 OPERATION AND MAINTENANCE MANUALS

- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
1. Operation Data:
 - a. Emergency instructions and procedures.
 - b. System, subsystem, and equipment descriptions, including operating standards.
 - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
 - d. Description of controls and sequence of operations.
 2. Maintenance Data:
 - a. Manufacturer's information, including list of spare parts.
 - b. Name, address, and telephone number of Installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance and service schedules for preventive and routine maintenance.
 - e. Maintenance record forms.
 - f. Sources of spare parts and maintenance materials.
 - g. Copies of maintenance service agreements.
 - h. Copies of warranties and bonds.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.8 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark 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 Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 - 3. Schedule training with Owner, through Architect, with at least seven days' advance notice.
 - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
 - 5. Provide all instructional and reference materials in printed form necessary for successful operation and modification of the system. Provide one copy for each attendee.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
 - 1. System design and operational philosophy.
 - 2. Review of documentation.
 - 3. Operations.
 - 4. Adjustments.
 - 5. Troubleshooting.
 - 6. Maintenance.
 - 7. Repair.

3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

- a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - f. Sweep concrete floors broom clean in unoccupied spaces.
 - g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - i. Remove labels that are not permanent.
 - j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - l. Replace parts subject to unusual operating conditions.
 - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - o. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - q. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01 77 00

SECTION 01 82 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 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.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.

1.3 SUBMITTALS

- A. Instruction Program: Submit electronic copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. At completion of training, submit two complete printed and bound training manuals for Owner's use.
- B. Qualification Data: For firms and persons 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.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.
- E. Demonstration and Training Videotape: Submit electronic copies at end of each training module.

1.4 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 1 Section "Quality Requirements," experienced in operation and maintenance procedures and training.

- C. Pre-instruction Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
 - 1. Inspect and discuss locations and other facilities required for instruction.
 - 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 - 3. Review required content of instruction.

1.5 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:
 - 1. Equipment, including stage equipment, projection screens, theatrical lighting and controls, house lighting and controls.
 - 2. Electrical service and distribution, including emergency lighting inverter, switchboard and panelboard.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project Record Documents.
 - e. Identification systems.
 - f. Warranties and bonds.

- g. Maintenance service agreements and similar continuing commitments.
- 3. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Routine and normal operating instructions.
 - c. Regulation and control procedures.
 - d. Control sequences.
 - e. Safety procedures.
 - f. Instructions on stopping.
 - g. Normal shutdown instructions.
 - h. Operating procedures for emergencies.
 - i. Operating procedures for system, subsystem, or equipment failure.
 - j. Seasonal and weekend operating instructions.
 - k. Required sequences for electric or electronic systems.
 - l. Special operating instructions and procedures.
- 4. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
- 5. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 6. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Instruction on use of special tools.
- 7. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
 - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
 - 3. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.
- D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of an oral, a written, or a demonstration performance-based test.
- E. Demonstration and Training Videotape: Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
 - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

END OF SECTION 01 82 00

SECTION 26 00 10 - GENERAL ELECTRICAL

PART 1 - GENERAL.

1.1 RESPONSIBILITIES

- A. The Bidding Requirements, Conditions of Contract, General Specifications and General Requirements, and this specification shall be binding on the Contractor and shall apply to all electrical work to be completed.
- B. The Contractor shall be responsible for the work from the date of this contract until its acceptance by the Owner, and must repair all damages sustained from whatever cause. The contractor shall use proper care and diligence in bracing and securing all parts of the work and shall in all cases judge as to the amount of protection required.

1.2 ORDINANCES, LAWS AND CODES

- A. All work shall conform to the rules and regulations of the National Electrical Code, Local Codes, Occupational Safety and Health Act and the Local Fire Marshall's Office. All certificates of approval shall be delivered to the Architect before final payment will be made.
- B. Should any change in the drawings and/or specifications be required to conform to the above mentioned laws and ordinances, the Architect shall be notified by the Bidder prior to the bid date, so that the necessary changes may be completed. After the bid date, all work necessary to meet the requirements shall be at the Contractor's expense with no additional cost to the Owner.
- C. The Contractor shall pay for all fees, permits, taxes, inspections, connections, etc., associated with the electrical work under this contract. Any costs, charges, or connection fees which are required to obtain permanent and temporary electrical service to the project facility will be paid by the Contractor as part of this contract.

1.3 DATA AND MEASUREMENT

- A. The data given herein and on the drawings is as exact as could be secured insofar as building construction and existing conditions are concerned. Extreme accuracy is not guaranteed. The drawings and specifications are intended for the assistance of the Contractor in achieving the end result. Exact locations, measurements, distance, levels, etc., will be governed by conditions at the job site.
- B. The Contractor shall verify that the size of the equipment supplied by the selected manufacturers does not exceed the available mounting space.
- C. The Engineer reserves the right to change location or size of conduits, outlets, fixtures or other pieces of equipment as may be necessary to avoid conflicts. No extra compensation will be allowed for such changes unless additional cost to the Contractor is caused.
- D. It is strongly recommended that the bidders visit the project site so that they may have knowledge of conditions at the job site and adapt their bids and work to such conditions.

1.4 DRAWINGS AND SPECIFICATIONS

- A. Anything mentioned in this specification and not shown on the drawings, or vice versa, shall be of like effect, as shown or mentioned in both. In any case of discrepancy or differences in the figures, drawings or specifications, the Bidder shall promptly report such discrepancies to the

Architect who shall make a decision in writing. Any adjustment by the Contractor without this decision shall be at the expense of the Contractor.

1.5 QUALITY OF WORKMANSHIP

- A. The Contractor shall give his personal superintendence and direction to the work. He shall also keep a competent foreman or superintendent on the project at all times.
- B. All equipment, controls and junction boxes shall be located for ready access, operation, repair and maintenance.
- C. Any additional drawings necessary for the prosecution of the work will be furnished by the Architect as promptly as possible. The Contractor shall request any additional instructions needed and shall do no work without drawings and instructions.
- D. Any discrepancies between the mechanical, electrical, structural and architectural drawings shall be reported to the Architect prior to the Bid Date.

1.6 GUARANTEE

- A. The Contractor shall guarantee all materials, workmanship and the successful operation of all apparatus furnished and installed by him for a period of one year from the date of the final acceptance of the whole work, and shall guarantee to repair or replace at his own expense any part of the apparatus which may show defect during that time, provided such defect is, in the opinion of the Architect, due to imperfect material or workmanship and not to carelessness or improper operation. Guarantee period for the replacement shall begin with the date of replacement.
- B. The Owner shall notify the Contractor of any failure of any part or parts which occur during the guarantee period.
- C. The Contractor shall also guarantee the systems and the apparatus to be working properly to meet all conditions as specified.

1.7 SHOP DRAWINGS

- A. Shop drawings, catalog sheets and manufacturer's data shall be submitted in accordance with the requirements of Paragraph "Shop Drawings" of the General Conditions. On or before thirty days after award of contract; the Contractor shall submit six copies of all fabricated work and equipment to be purchased. Data shall be sufficiently completed to permit evaluation and comparison with specified equipment and material. Refer to the table at the end of this section for a summary of the requirements. The table is not project specific and may indicate submittals that are not required for this project. Refer to the individual specification sections for the required submittals.
- B. All drawings shall bear the Contractor's stamp of approval and must be dated.
- C. Shop drawings and/or catalog and data sheets shall include, but not be limited to the following:
 - 1. Lighting Fixtures
 - 2. Contactors
 - 3. Low Voltage Switching System
 - 4. Emergency Auxiliary Equipment
 - 5. Audio System Components
 - 6. Boxes and Devices
 - 7. Fuses
 - 8. Lighting System Components (sensors, relays, etc.)

9. Programmable Lighting System.
10. Light Dimming Equipment
11. Wiring Devices (switches, receptacles, etc.)
12. Device Wall Plates

- D. A notation shall be made on each item submitted as to its specified use or description of specific location in the work.
- E. None of the preceding items shall be purchased, delivered to the site or installed until the item has been properly submitted in writing and reviewed by the Engineer.
- F. Submittals shall be made even though the item is exactly as specified.
- G. Should the Contractor fail to comply with any of the requirements as stated, the Architect reserves the right to select a full line of materials, appliances, and equipment which shall be final and binding upon the Contractor.

1.8 SUBMITTAL DATA

- A. Review of submittal data is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for: dimensions that shall be confirmed and correlated at the job site, fabrication processes and techniques of construction, coordination of his work with that of all other trades and the satisfactory performance of his work.
- B. Contractor will be limited to one review on a singular piece of equipment.
- C. The listing of a manufacturer as "acceptable" does not imply automatic compliance with contract documents. It is the sole responsibility of the Contractor to insure that any price quotations received and submittals made are for equipment/systems which meet or exceed the specifications included herein.

1.9 EQUAL MANUFACTURERS/EQUIPMENT

- A. Any approval requests for manufacturer/equipment to be considered as equal other than as specified herein and on the drawings shall be submitted to the Engineer not less than 10 days prior to bid date.
- B. Requests for review shall be sufficiently complete to permit evaluation and comparison with specified equipment and material.
- C. Requests for substitutions shall be accompanied by a written comparison between the specified item and the substituted item. Request submittals shall be accompanied by complete technical data, including laboratory reports, if applicable on the proposed product. Each item proposed for substitution shall be clearly identified. Explain fully the differences, if any, between the proposed product and the products named in the Specifications. Failure to provide the above information may result in the rejection of the submittal.
- D. Only one request for substitution for each product will be considered. If the substitution is not accepted, provide specified product.
- E. If at any time during the project it is determined that a product has been misrepresented as an equal to a specified product. The contractor shall be required to replace the product at their expense. This stipulation applies even if the engineer has provided his/her stamp of approval.

1.10 RE-SUBMITTAL AND ALTERNATE PRODUCT

- A. Submittals: The Contractor is urged to carefully review each submittal from their suppliers and sub-subcontractors for compliance to minimize re-submittal review charges. The Engineer has included in their contract with the Owner, one (1) review for each submittal item. Therefore, the Contractor shall agree to pay the Engineer to review any and all re-submittals for this project. Re-submittal reviews will be billed at a rate of \$165.00/hour and shall be paid before final payment to the Contractor for this project.
- B. As-Built Drawings: The Engineer has included in their contract with the Owner, preparation of as-built drawings based on changes required due to conflicts with the bid documents only. Therefore, the contractor shall agree to pay the Engineer to make revisions required due to equipment substitution, or field changes requested or initiated by the Contractor. Whether or not the requirement for compensation is enforced is left to the discretion of the Engineer.

1.11 SCHEDULE OF VALUES

- A. Schedule of values shall be submitted within 30 days after award of contract or as specified in Division 1 or General Conditions of contract.
- B. The schedule of values shall be broken down by individual specification section and shall delineate materials and labor. Specific cost breakdown information provided to the engineer will be held in confidence.

PART 2 - PRODUCTS

2.1 PROTECTION OF FIXTURES AND WARES

- A. The Contractor shall apply the necessary protective coverage to fixtures and other equipment to prevent scratches and mars to such equipment.

2.2 STORAGE

- A. The Contractor shall provide and be responsible for safe storage of his materials and such storage shall not interfere with the work of others or progress of the project in any manner.

2.3 PAINTING (Refer to painting specification for appropriate preparation and materials)

- A. All exposed conduit, boxes, mounting hardware, etc. in rooms to be painted shall be painted to match the surrounding surface. Exposed conduit, boxes, mounting hardware, etc. installed in rooms that are not painted may be left un-painted. Unless otherwise noted, prior approval must be obtained before mounting exposed conduit, boxes, etc.

PART 3 - EXECUTION

3.1 COORDINATION

- A. Before installing any work, the Contractor shall coordinate the electrical work with all other contractors on the project, with the owner's representative, with the electric utility company and the City Code enforcing department.
- B. All electrical work shall be installed in proper sequence and so arranged with other trades that there will be no delay in the proper installation and completion of any part or parts of all piping systems and mechanical equipment.

- C. The Contractor shall carefully examine the drawings and shall be responsible for the proper fitting of equipment and conduit as indicated without major alteration. If alterations are required, a detailed drawing of the proposed departure due to actual field conditions or other causes shall be submitted to the Architect for approval.
- D. Whenever interferences might occur, before installing any of the work in question, the Electrical Contractor shall consult with other contractors and shall come to an agreement with them as to the exact location and level of his conduit, light fixtures, and/or parts of his installation.
- E. Where recessed electrical devices (speakers, fixtures, etc.) are installed in fire-rated ceilings, the Contractor shall provide an enclosure (approved by authorities having jurisdiction) to surround each device as required to maintain the fire integrity rating of the ceiling. Adequate clearance between device and enclosure shall be provided in accordance with device manufacturer's recommendations. Verify clearance requirements with device manufacturer prior to installation of fixture.
- F. When low voltage cabling is required to penetrate through a fire rated partition and the cabling is not installed in a sealed metallic conveyance, provide an approved fire rated "Thru-Wall Fitting" such as the Wiremold Flame Stopper Series unit.
- G. All changes in the work of the Contractor, caused by their neglect to follow these instructions, shall be made at this Contractor's expense.

3.2 EQUIPMENT CONNECTIONS

- A. Coordinate and provide the hook up of the following equipment with the Contractor required to furnish and install them. See the appropriate sections in the General Construction Work specifications for further information.
 - 1. Mechanical Equipment
 - 2. Cabinetry Equipment
 - 3. Owner Furnished Equipment
- B. Verify fuse or circuit breaker requirements for electrical connections to equipment and provide overcurrent devices accordingly.

3.3 WORK IN EXISTING BUILDING

- A. Inasmuch as work under this contract includes adding to the existing building, it shall be the responsibility of each bidder to fully inform themselves of any and all conditions which influence or are influenced by work contemplated by these specifications and accompanying drawings. The submission of a proposal by any bidder will be construed as an admission by them that they have examined and are fully familiar with the premises and all conditions thereon and adjacent thereto, and has included in this proposal a proper and adequate amount to cover rearrangement of old work for the proper installation and operation of the new and existing equipment as shown on the drawings specified herein, or as required. Such work shall be neatly and properly done.
- B. Maintain existing electrical service and feeders to occupied areas and operational facilities, unless otherwise indicated, or when authorized otherwise in writing by Owner, or Architect. Provide temporary service during interruptions to existing facilities. When necessary, schedule momentary outages for equipment replacement and the system cut-overs. When the "cutting-over" has been successfully accomplished, remove, relocate, or abandon existing wiring as indicated.
- C. The operation of all special systems within the building shall be maintained, including but not limited to; fire alarm, telephone, intercom, data communications, security, emergency call, etc.

Provide temporary connections and/or equipment as required to maintain operations during construction. Anticipated momentary outages in any system must be scheduled with the owner before starting work.

3.4 DEMOLITION AND REMOVAL OF EXISTING EQUIPMENT AND MATERIALS

- A. Existing conduits may, at the Contractor's option, be removed, or reused.
- B. Conduits may not be abandoned in place in unfinished and accessible areas. Conduits may be abandoned in place when concealed in walls, floors and/or above hard ceilings.
- C. All conduits to be reused shall be thoroughly tested and checked for continuity with DLRO.
- D. Electrical items must be removed where they interfere with or are not concealed by new construction such as new ceilings, walls, etc.
- E. Existing fixtures, outlets, receptacles and other equipment and material shall be relocated, removed, reconnected or left in place as indicated on the drawings. Where an existing device is shown removed from an existing circuit, new wiring shall be provided as required to insure continuity of existing circuit. If existing devices or other electrical items, such as electrically operated equipment interfere with the location of a new partition, relocation of existing equipment, new equipment, etc., the existing items including electrical components of electrically operated equipment shall be disconnected and removed or satisfactorily relocated and reconnected even though not specifically indicated on the drawings. All material removed which is considered salvageable by the Owner and is not specifically designated to be reused on the drawings or not practical to be reused shall remain in the property of the Owner and shall be neatly stockpiled in a specially designated location.

3.5 CLEANING

- A. The Contractor shall at all times keep the premises free of waste, surplus materials, rubbish, and debris which are caused by the electrical crew or resulting from their work.
- B. After all equipment and fixtures have been installed and building is ready for occupancy, the Electrical Contractor shall remove all stickers, rust stains, labels, temporary covers, plaster marks, paint spots, etc. on new electrical equipment. All foreign matter shall be blown out or flushed out of all conduits, panels, motors, devices, switches, fixtures, etc.
- C. Identification plates and trims on all equipment shall be free of paint and polished.
- D. The Contractor shall leave the electrical portion of the work in a safe, clean and very neat condition ready for operation.

3.6 RECORD DRAWINGS

- A. The Contractor shall maintain an up-to-date set of plans and specifications on the job site. He shall annotate all field changes, addendums, change orders, etc. on this set and see that a copy of all changes is furnished to the Engineer at the end of the project for review.

OR

- B. The Contractor shall maintain an up-to-date set of plans and specifications on the job site. He shall annotate all field changes, addendums, change orders, etc. on this set. Once the job is complete, the contractor shall supply this set of drawings, updated in AutoCAD (minimum Version 2015) to the Engineer for review.

- C. The drawings shall also include as-built conditions such as equipment and device locations, routing of service entrance and major feeders, branch circuit changes, final panelboard schedules, etc.

3.7 INSTRUCTION IN OPERATION BOOKS AND SPARE PARTS

- A. After all tests and adjustments have been made, the Contractor shall furnish the necessary qualified personnel to place the special systems in continuous operation, during which time they shall provide complete operating and maintenance instructions to the Owner's representative with an outline of instructions in written form. These personnel shall reserve adequate time to instruct an Owner's representative on proper operation (including all phases of the system and each of its component parts).
- B. Contractor shall furnish Owner with three sets of all operating instructions, maintenance instruction and spare parts lists of all equipment furnished under this contract. Lists shall include current unit prices and sources of supply for each item of operable equipment.

3.8 TESTS AND ADJUSTMENTS

- A. Upon completion of installation of electrical connections, and after circuitry has been energized with rated power source, test connections to demonstrate capability and compliance with requirements. Ensure that direction of rotation of each motor fulfills requirement. Correct malfunctioning units at site, then retest to demonstrate compliance.
- B. During the progress and after completion of the work included under this specification, the Contractor shall make all required tests at his own expense in the presence of the Architect as required hereinafter and by local ordinances, codes, laws, and regulations. Such tests shall be in accordance with other sections of this division. The Owner's representative shall be notified five days in advance as to the time when such tests are to be performed that a representative of the Architect may be present.

3.9 DISPOSAL OF HAZARDOUS ELECTRICAL MATERIALS - (BALLASTS AND LAMPS)

- A. The Contractor shall be responsible for the removal, storage and disposal of all electrical related hazardous material from the work site in an EPA approved manner.
- B. All hazardous material shall be stored in a safe and secure area pending disposal. All PCB ballasts shall be stored in metal 55 gallon drums with a bolt on lid securing ring, or in other locked metal containers. The enclosure shall be properly labeled per EPA guidelines while awaiting shipment to a disposal facility.
- C. Fluorescent lamps containing mercury or other hazardous materials shall be sent to an EPA approved Recycling Center. Disposal of lamps at a standard landfill shall not be permitted.
- D. PCB ballasts shall only be disposed of by incineration at an EPA registered PCB incineration facility. Disposal of ballasts at a standard landfill shall not be permitted.
- E. The contractor shall keep accurate records of all such hazardous materials and provide the engineer with properly completed Certificates of Disposal, issued by the receiving disposal facility. Certificates of disposal issued by a third party other than the final disposal facility itself will not be acceptable. Final project payment may be withheld pending the engineer's receipt of properly completed Certificates of Disposal.

ELECTRICAL SUBMITTAL REQUIREMENTS

SECTION	ITEM	SUBMITTAL TYPE					
		PD	SD	OM	CA	TR	O
26 00 10	Lighting Fixtures	X					
26 00 10	Contactors and Time Clocks	X					
26 00 10	Low Voltage Switching System	X					
26 00 10	Emergency Engine Generator, Transfer Switch, Auxiliary Equipment	X					
26 00 10	Audio System Components	X					
26 00 10	Boxes and Devices	X					
26 00 10	Fuses	X					
26 00 10	Lighting System Components (relays, sensors, etc.)	X					
26 00 10	Light Dimming Equipment	X					
26 00 10	Wiring Devices – Switches, Receptacles, etc.	X					
26 00 10	Device Wall Plates	X					
26 00 10	Product Substitutions *	X	X				
26 00 10	Schedule of Values						X
26 00 10	Record Drawings		X				
26 00 10	Operations and Maintenance Manuals			X			
26 08 05	Test Report					X	
26 05 26	Inspection Wells	X					
26 32 13	Emergency Generator Set	X				X	
26 36 23	Automatic Transfer Switch	X				X	
28 31 05	Fire Alarm System Components	X	X		X	X	
26 43 13	SPD for MDP	X				X	
26 43 14	SPD for Panelboards	X				X	

Abbreviations:

PD: Product Data

SD: Shop Drawings

OM: Operation & Maintenance Manuals

CA: Calculations

TR: Test Reports

O: Other

*: Required Prior to Bid Opening

END OF SECTION 26 00 10

SECTION 26 05 19 - LOW VOLTAGE POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Extent of electrical wire and cable work is indicated by drawings and schedules.
- B. Types of electrical wire, cable, and connectors specified in this section include the following:
 - 1. Copper conductors.
 - 2. Tap type connectors.
 - 3. Compression type connectors.
 - 4. Wire nut connectors.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements of this specification.

2.2 WIRES AND CABLES

- A. General: All references to size in these specifications or on drawings is for copper conductors (THHN/THWN). Provide electrical wires, cables, and connectors of manufacturer's standard materials, as indicated by published product information; designed and constructed as recommended by manufacturer, for a complete installation, and for application indicated. Except as otherwise indicated, provide copper conductors with conductivity of not less than 98% at 20°C (68°F).
- B. Aluminum conductors may not be provided in lieu of copper conductors.
- C. Building Wires: Provide factory-fabricated wires of sizes, ampacity ratings, and materials for applications and services indicated. Where not indicated, provide proper wire selection as determined by Installer to comply with project's installation requirements, NEC, and NEMA standards.
- D. Cables: Provide UL-type factory-fabricated cables of sizes, ampacity ratings, materials and jacketing/sheathing as indicated for services indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements, NEC and NEMA standards.

2.3 CONNECTORS

- A. General: Provide UL-type factory-fabricated, metal connectors of sizes, ampacity ratings, materials, types, and classes for applications and for services indicated. Where not indicated, provide proper selection as determined by Installer to comply with project's installation requirements, NEC, and NEMA standards.
- B. Compression type connectors: Compression connections shall be the type requiring hydraulic compression tools operating at a minimum pressure of 7000psi with an output pressure of no less than 10 tons.

PART 3 - EXECUTION

3.1 INSTALLATION OF WIRES AND CABLES

- A. General: Install electrical cables, wires, and wiring connectors as indicated, in compliance with applicable requirements of NEC, NEMA, UL, and NECA's "Standard of Installation", and in accordance with recognized industry practices.
- B. Unless specifically indicated otherwise, all low voltage cabling shall be installed in conduit. When indicated the low voltage cabling may be routed exposed above accessible ceilings. Prior approval is required prior to installing any exposed low voltage cabling.
- C. The minimum size shall be 12 AWG. All wire No. 10 and smaller to be solid, all No. 8 and larger shall be stranded.
- D. All service entrance, feeder, and branch circuit wiring shall be type THHN/THWN.
- E. Pull conductors simultaneously where more than one is being installed in the same raceway.
- F. Use pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Use of soap will not be permitted as pulling lubricant.
- G. Insulation on conductors shall be permanently marked with wire size, insulation type, voltage range, and manufacturer's name. The insulation on conductors shall be color coded as follows:
 - 1. 120/208 volt circuit: Phase A - Black; Phase B - Red; Phase C - Blue; Neutral - White; Ground - Green.
- H. The phase conductors shall be tagged and shall remain the same throughout the circuit.
- I. Switch legs shall be color coded to distinguish them from the un-switched Phase Conductors.
- J. Switch legs occurring in the same box or enclosure shall be color coded separately.
- K. Exceptions to the color coding as listed above shall be as follows:
 - 1. Wiring for special systems shall be color coded or labeled as required by the manufacturer.
- L. Use pulling means including fish tape, cable, rope and basket weave wire/cable grips that will not damage cables or raceway.
- M. Install exposed cable, parallel and perpendicular to surfaces, or exposed structural members, and follow surface contours, where possible. Prior approval is required for all exposed cabling.
- N. Keep conductor splices to a minimum.
- O. Install splices and taps that possess equivalent-or-better mechanical strength and insulation ratings than conductors being spliced.
- P. Use splice and tap connectors that are compatible with conductor material.
- Q. All splices and taps shall be made in outlet, junction, and pull boxes. Splices on circuit wiring shall be of the pigtail type using solderless connectors. Larger sizes of conductors requiring un-insulated connectors of the bolt type shall be taped with pressure sensitive vinyl tape.
- R. For branch circuit wiring, conductor fill per conduit run shall not contain more than eight current carrying wires. Conduits containing both circuit switch legs and/or traveler wires may contain

more than the number stated above, providing the conduit is of adequate size and the wire size is de-rated as required by the National Electrical Code. Whenever a 120V, single-phase branch circuit is over 70 feet in length and the load is in excess of 50 percent of the branch circuit protective device, the conductors shall be increased one size to the first outlet box unless specifically noted otherwise. For special systems, conductor fill of conduit is per manufacturer's specifications furnished with each system, noted on the drawings or shall be as required by code.

- S. Tighten electrical connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values. Where manufacturer's torque requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std. 486A and B.
- T. On occasion, the Contractor might have to route branch circuits in a non-direct path to the equipment/device to avoid unforeseen obstacles. The contractor shall evaluate and upgrade these branch circuits (either low voltage or 600V) as needed to minimize voltage drop. The maximum allowable voltage drop for branch circuits is 3% and a total of 5% for both feeders and branch circuits combined.
- U. Multi-wire branch circuits as defined by the National Electrical code (circuits with common neutral) shall not be used. Exception: Where an equipment manufacturer requires a multi-wire branch circuit for only one piece of utilization equipment and where all ungrounded conductors of that circuit are opened simultaneously by the branch circuit over-current device.

3.2 FIELD QUALITY CONTROL

- A. Prior to energization of circuitry, check installed wires and cables with megaohm meter to determine insulation resistance levels to ensure requirements are fulfilled.
- B. Prior to energization, test wires and cables for electrical continuity and for short-circuits.
- C. Subsequent to wire and cable hook-ups, energize circuitry and demonstrate functioning in accordance with requirements. Where necessary, correct malfunctioning units, and then retest to demonstrate compliance.

3.3 ABANDONED WIRING

- A. All existing wiring and cabling left unused as a result of this project shall be removed and disposed of. In the case of cabling, all associated fastening systems such as wire staples, tie-wraps, electrical tape, etc. shall also be removed. All wiring/conductors in unused conveyances shall be removed. The conveyances may or may not require removal. Refer to the drawings and other specification sections for direction regarding unused conveyances.

END OF SECTION 26 05 19

SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Extent of grounding work is indicated by drawings, schedules and as specified herein.
- B. Types of grounding specified in this section include the following:
 - 1. Solid grounding
- C. Requirements of this section apply to electrical grounding work specified elsewhere in these specifications.

PART 2 - PRODUCTS

2.1 GROUNDING SYSTEMS

- A. Materials and Components:
 - 1. General: Except as otherwise indicated, provide electrical grounding systems indicated; with assembly of materials, including, but not limited to, cables/wires, connectors, crimp type lugs, compression type lugs, grounding rods/electrodes, bonding jumper braids and additional accessories needed for complete installation. Where more than one type of unit meets indicated requirements, selection is Installer's option. Where materials or components are not indicated, provide products complying with NEC, UL, IEEE, and established industry standards for applications indicated.
- B. Conductors: Provide copper electrical grounding conductors for grounding connections matching power supply wiring materials and sized according to NEC. All conduits shall contain a minimum of one separate equipment grounding conductor identified and sized according to NEC.
- C. Connectors, Terminals and Clamps: Provide electrical connectors, terminals, lugs and clamps as recommended by connector, terminal and clamp manufacturers for indicated applications.
- D. Electrical Grounding Connection Accessories: Provide electrical insulating tape, heat-shrinkable insulating tubing, welding materials, bonding straps, as recommended by accessories manufacturers for type of services indicated.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Installer must examine areas and conditions under which electrical grounding connections are to be made and notify Contractor in writing of conditions detrimental to proper completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to owner's representative.

3.2 INSTALLATION OF ELECTRICAL GROUNDING

- A. General: Install electrical grounding systems where shown, in accordance with applicable portions of NEC, with NECA's "Standard of Installation", and in accordance with recognized industry practices to ensure that products comply with requirements and serve intended functions.
- B. The equipment grounding conductor shall be connected directly to the equipment grounding screw provided on receptacles.
- C. At switch outlets, where self-grounding type switches are installed in metal boxes, the equipment grounding conductor shall be connected directly to the metal box.
- D. Where switches installed in non-metallic boxes have metallic cover plates or screws, provide switches with green hexagonal equipment ground screw and connect to the equipment grounding conductor.
- E. Coordinate with other electrical work as necessary to interface installation of electrical grounding system with other work.

END OF SECTION 26 05 26

SECTION 26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes secure support from the building structure for electrical items by means of hangers, supports, anchors, sleeves, inserts, seals, and associated fastenings.
 - 1. Refer to other Division 26 sections for additional specific support requirements that may be applicable to specific items.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements of this specification.

2.2 COATINGS

- A. Coatings: Supports, support hardware, and fasteners shall be protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic. Products for use outdoors shall be hot-dip galvanized.

2.3 MANUFACTURED SUPPORTING DEVICES

- A. Raceway Supports: Clevis hangers, riser clamps, conduit straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring steel clamps.
- B. Fasteners: Types, materials, and construction features as follows:
 - 1. Expansion Anchors: Lead, carbon steel wedge or sleeve type. Plastic expansion anchors (for conduit 1" and smaller only).
 - 2. Toggle Bolts: All steel springhead type.
- C. U-Channel Systems: 16-gage steel channels, with 9/16-inch diameter holes, at a minimum of 8 inches on center in top surface. Provide fittings and accessories that mate and match the U-channel and are of the same manufacture.

2.4 FABRICATED SUPPORTING DEVICES

- A. General: Shop- or field-fabricated supports or manufactured supports assembled from U-channel components.
- B. Steel Brackets: Fabricated of angles, channels, and other standard structural shapes. Connect with welds and machine bolts to form rigid supports.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install supporting devices to fasten electrical components securely and permanently in accordance with NEC requirements.
- B. Coordinate with the building structural system and with other electrical installations.
- C. Raceway Supports: Comply with the NEC and the following requirements:
 - 1. Conform to manufacturer's recommendations for selection and installation of supports.
 - 2. Strength of each support shall be adequate to carry present and future load multiplied by a safety factor of at least four. Where this determination results in a safety allowance of less than 200 lbs, provide additional strength until there is a minimum of 200 lbs safety allowance in the strength of each support.
 - 3. Install individual and multiple (trapeze) raceways hangers and riser clamps as necessary to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.
 - 4. Support parallel runs of horizontal raceways together on trapeze-type hangers.
 - 5. Support individual horizontal raceways by separate pipe hangers. Spring steel fasteners may be used in lieu of hangers only for 1-inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings only. For hanger rods with spring steel fasteners, use 1/4-inch diameter or larger threaded steel. Use spring steel fasteners that are specifically designed for supporting single conduits or tubing.
 - 6. Support exposed and concealed raceway within 1 foot of an unsupported box and access fittings. In horizontal runs, support at the box and access fittings may be omitted where box or access fittings are independently supported and raceway terminals are not made with chase nipples or thread-less box connectors.
- D. Miscellaneous Supports: Support miscellaneous electrical components as required to produce the same structural safety factors as specified for raceway supports. Install metal channel racks for mounting cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers, and other devices.
- E. Support sheet metal boxes directly from the building structure or by bar hangers.
- F. Fastening: Unless otherwise indicated, fasten electrical items and their supporting hardware securely to the building structure, including but not limited to conduits, raceways, cables, cable trays, busways, cabinets, panelboards, transformers, boxes, disconnect switches, and control components in accordance with the following:
 - 1. Fasten by means of wood screws or screw-type nails on wood, toggle bolts on hollow masonry units, concrete inserts or expansion bolts on concrete or solid masonry, and machine screws, welded threaded studs, or spring-tension clamps on steel. Threaded studs driven by a powder charge and provided with lock washers and nuts may be used instead of expansion bolts and machine or wood screws. Do not weld conduit, pipe straps, or items other than threaded studs to steel structures. In partitions of light steel construction, use sheet metal screws.
 - 2. Holes cut to depths of more than 1-1/2 inches in reinforced concrete beams or to depths of more than 3/4 inch in concrete shall not cut the main reinforcing bars. Fill holes that are not used.
 - 3. Ensure that the load applied to any fastener does not exceed 25 percent of the proof test load. Use vibration and shock-resistant fasteners for attachments to concrete slabs.

END OF SECTION 26 05 29

SECTION 26 05 33 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. All wiring shall be installed in continuous raceways as specified herein except where specifically noted otherwise.
- B. The extent of electrical box and associated fitting work is indicated by drawings and schedules and shall comply with the latest requirements of the NEC.
- C. Types of raceways in this section include the following:
 - 1. Electrical metallic tubing.
 - 2. Flexible metal conduit.
- D. Types of electrical boxes and fittings in this section include the following:
 - 1. Outlet boxes.
 - 2. Junction boxes.
 - 3. Bushings.
 - 4. Lock nuts.
 - 5. Knockout closures.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. General: Provide metal conduit, tubing and fittings of types, grades, sizes and weights (wall thicknesses) for each service indicated. Where types and grades are not indicated, provide proper selection determined by Installer to fulfill wiring requirements, and comply with applicable portions of NEC for raceways.
- B. Flexible Metal Conduit: Provide flexible metal conduit conforming to FS WW-C-566 and UL 1.
 - 1. Formed from continuous lengths of spirally wound, interlocked zinc-coated strip steel.
- 1. Flexible Metal Conduit Fittings: Provide conduit fittings for use with flexible steel conduit of threadless hinged clamp type.
 - a. Straight Terminal Connectors: One piece body, female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.
 - b. 45° or 90° Terminal Angle Connectors: Two-piece body construction with removable upper section, female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.
- C. Electrical Metallic Tubing (EMT): Provide electrical metallic tubing conforming to FS WW-C-563, ANSI C80.3 and UL 797.
 - 1. EMT Fittings: Fittings for EMT shall be steel and may be of the screw or compression type except that in poured concrete the screw type is not acceptable. All EMT connectors shall be of the insulated throat type. Cast or indenter fittings are not acceptable.

- D. Conduit Bodies: Provide galvanized cast-metal conduit bodies of types, shapes, and sizes as required to fulfill the job requirements and NEC requirements. Construct conduit bodies with threaded-conduit-entrance ends, removable covers, either cast or of galvanized steel, and corrosion-resistant screws.

2.2 BOXES

- A. Outlet Boxes: Conform to UL 514A, "Metallic Outlet Boxes, Electrical," and UL 514B, "Fittings for Conduit and Outlet Boxes." Boxes shall be of type, shape, size, and depth to suit each location and application.
 - 1. Conform to NEMA OS 1, "Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports." Boxes shall be sheet steel with stamped knockouts, threaded screw holes and accessories suitable for each location including mounting brackets and straps, cable clamps, exterior rings and fixture studs.
- B. Junction and Pull Boxes: Provide galvanized code-gage sheet steel junction and pull boxes, with screw-on covers; of types, shapes and sizes, to suit each respective location and installation; with welded seams and equipped with steel nuts, bolts, screws and washers.
- C. Bushings, Knockout Closures and Lock nuts: Provide corrosion-resistant box knockout closures, conduit lock nuts and conduit bushings, offset connectors, of types and sizes, to suit respective installation requirements and applications.

PART 3 - EXECUTION

3.1 INSTALLATION OF RACEWAYS

- A. General: Install raceways as indicated; in accordance with manufacturer's written installation instructions, and in compliance with NEC, and NECA's "Standards of Installation". Install units plumb and level, and maintain manufacturer's recommended clearances.
- B. Coordinate with other work including wires/cables, boxes, and panel work, as necessary to interface installation of electrical raceways and components with other work.

3.2 INSTALLATION OF CONDUITS

- A. General: All conduits shall be concealed unless noted otherwise. Install concealed conduits either in walls (stud walls, masonry walls, precast walls, etc.), slabs, or above hung/suspended ceilings. In existing work where conduits cannot be concealed in finished areas, surface metal raceways shall be used, but prior approval is required.
 - 1. Mechanically fasten together metal conduits, enclosures, and raceways for conductors to form continuous electrical conductor. Connect to electrical boxes, fittings and cabinets to provide electrical continuity and firm mechanical assembly.
 - 2. Install miscellaneous fittings such as reducers, chase nipples, 3-piece unions, split couplings, and plugs that have been specifically designed and manufactured for their particular application.
 - 3. Use roughing-in dimensions of electrically operated unit furnished by supplier. Set conduit and boxes for connection to units only after receiving review of dimensions and after checking location with other trades.

- B. Conduit Installation: Provide rigid conduit where embedded in concrete on or below grade, in direct contact with earth or fill below slab, wet locations, or installed outdoors. Follow minimum requirements in other areas as follows:
 - 1. Use steel zinc-coated EMT for raceway systems except as specifically specified previously, where not allowed by NEC or noted on drawings. Additionally EMT shall not be acceptable below grade, in or under slabs on grade or in wet locations.
- C. Install pull wires in empty raceways. Use no. 14 AWG zinc-coated steel or monofilament plastic line having not less than 200-lb tensile strength. Leave not less than 12 inches of slack at each end of the pull wire.
- D. Cut conduits straight, properly ream, and cut threads for heavy wall conduit deep and clean. Use temporary closures to prevent foreign matter from entering raceways.
- E. Field-bend conduit with benders designed for purpose so as not to distort nor vary internal diameter.
- F. Size conduits to meet NEC requirements and as shown on drawings or specified herein, except no conduit smaller than 3/4 inch shall be embedded in or below concrete or in masonry walls.
- G. Conduits are not to cross vertical or horizontal openings such as pipe shafts, elevator shafts, ventilating duct openings, etc.
- H. Keep conduits a minimum distance of 6" from parallel runs of flues, hot water pipes or other sources of heat. Wherever possible, install horizontal raceway runs above water and steam piping.
- I. Conduit shall be properly supported as specified herein and as required by NEC.
- J. Complete installation of electrical raceways before starting installation of cables/wires within raceways.
- K. Openings around electrical penetrations through fire-resistant-rated walls, partitions, floors, or ceilings shall be fire stopped using approved methods to maintain the fire resistance rating.
- L. Concealed Conduits:
 - 1. Conduits in finished areas shall be installed concealed.
- M. Install conduits as not to damage or run through structural members. Avoid horizontal or cross runs in building partitions or side walls.
- N. Exposed Conduits:
 - 1. In unfinished areas such as janitor closets, storage, mechanical equipment rooms, etc., conduit may be exposed. Prior permission shall be first obtained from the Architect. All exposed conduit shall be installed in a neat manner following the building lines. Horizontal runs shall be close to the ceiling and shall be installed above mechanical piping as much as possible. Single hung conduits shall be supported with strap or rod hangers, wire is not an acceptable hanger. Multiple hung conduits shall be strapped to the channel to hold it in place.

2. Install exposed conduits and extensions from concealed conduit systems neatly, parallel with, or at right angles to walls of building.
3. Install exposed conduit work as not to interfere with ceiling inserts, lights or ventilation ducts or outlets.
4. Support exposed conduits by use of hangers, clamps, or clips. Support conduits on each side of bends and on spacing not to exceed the following: up to 1": 6'-0"; 1-1/4" and over: 8'-0".
5. Above requirements for exposed conduits also apply to conduits installed in space above hung ceilings, and in crawl spaces except that spacing of supports for conduits up to 1" shall not exceed 8'-0".

O. Conduit Fittings:

1. Construct locknuts for securing conduit to metal enclosure with sharp edge for digging into metal, and ridged outside circumference for proper fastening.
2. Plastic insulating bushings for terminating rigid conduits smaller than 1-1/4" are to have ribbed sides with smooth upper edges to prevent injury to cable insulation.
3. Install metallic insulated type bushings for terminating rigid conduits 1-1/4" and larger. Bushings are to have flared bottom and ribbed sides. Upper edge to have phenolic insulating ring molded into bushing.

3.3 INSTALLATION OF ELECTRICAL BOXES AND FITTINGS

- A. General: Install electrical boxes and fittings as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.
- B. Surface mounted device boxes in unfinished areas shall be a minimum of 4 inches square, knockout type. Surface mounted boxes in finished and exterior areas, shall be cast metal, threaded hub similar to Bell boxes.
- C. Coordinate installation of electrical boxes and fittings with wire/cable, wiring devices, and raceway installation work.
- D. Provide weather-tight outlets for interior and exterior locations exposed to weather or moisture.
- E. Provide knockout closures to cap unused knockout holes where blanks have been removed.
- F. Install electrical boxes in those locations that insure ready accessibility to enclosed electrical wiring. Junction boxes shall not be installed above non-accessible ceilings.
- G. Avoid installing boxes back-to-back in walls. Provide not less than 24" separation.
- H. Position recessed outlet boxes accurately to allow for surface finish thickness.
- I. Avoid using round boxes where conduit must enter box through side of box, which would result in difficult and insecure connections when fastened with locknut or bushing on rounded surfaces.
- J. Fasten electrical boxes firmly and rigidly to substrates, structural surfaces or solidly embed electrical boxes in concrete or masonry. Box support shall be independent of conduit.
- K. Provide electrical connections for installed boxes.

- L. Subsequent to installation of boxes, protect boxes from construction debris and damage.

3.4 POSITION OF OUTLETS

- A. The Electrical Contractor shall consult with the Mechanical and General Contractor prior to rough-in outlets and shall set boxes to avoid interference with equipment installation in walls or ceilings.
- B. Outlets shall be centered with respect to paneling, trim, furring, etc. Outlets that are improperly located shall be corrected at Contractor's expenses. Outlets shall be set plumb and secured firmly in place. The face of box or plaster ring shall extend to the finished surface (wall, ceiling or floor).
- C. Washers or bushings shall be installed between recessed box and device strap to make a flush rigid installation of the device installed.
- D. The following mounting height schedule is included to assist the Contractor in estimating. All device locations shall be coordinated with Architectural details and elevations. Exact heights shall be obtained from the project superintendent at the time of installation or taken from drawings as shown thereon. Heights of device boxes are noted, in inches, from the finished floor to the top of the device.

Light Switches	48"
Standard Receptacles (Unless otherwise indicated)	20"
Receptacles	
In Janitors Closet	48"
Equipment Room,	48"
Storage Rooms,	48"
Unfinished Utilitarian Areas	48"
Clocks, P.A. Speakers, Etc. (Unless otherwise indicated)	Top of unit 2" below ceiling or 96" (whichever is lower)
Speaker Controls	
Thermostats, Starters, Etc.	48"

* Coordinate receptacle height to match

3.5 GROUNDING

- A. Upon completion of installation work, ground electrical boxes as required by NEC and other Division-26 sections.

END OF SECTION 26 05 33

SECTION 26 05 34 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. The extent of wiring device work is indicated by drawings and schedules. Types of electrical wiring devices in this section include the following:
1. Receptacles
 2. Ground-fault circuit interrupters
 3. Switches
 4. Wall plates
 5. Dimmers
 6. Plugs and connectors

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements of this specification.

2.2 WIRING DEVICES

- A. General: Provide factory-fabricated wiring devices in types, colors, and electrical ratings for applications indicated and which comply with NEMA Standards Pub/No. WD 1. Provide white color devices except as otherwise indicated; color selection to be verified by Contractor with Architect/Engineer. All devices shall be federal specification grade unless otherwise noted. Pigtail receptacles with a connector assembly built into the back of the device and a separate polycarbonate connector housing with wire leads are acceptable.
1. Devices on emergency circuits shall be red.
- B. Receptacles
1. Heavy-Duty Duplex: Provide heavy-duty self-grounding type duplex receptacles, 2-pole, 3-wire, 20-amperes, 125-volts, with green hexagonal equipment ground screw, metal plaster ears, design for side and back wiring with screw activated pressure plate, with NEMA configuration 5-20R unless otherwise indicated.
 2. Ground-Fault Interrupters: Provide "feed-thru" type ground-fault circuit interrupters, with heavy-duty duplex receptacles, capable of protecting connected downstream receptacles on single circuit, and of being installed in a 2-3/4" deep outlet box without adapter, grounding type UL-rated Class A, Group 1, rated 20-amperes, 120-volts, 60 Hz; with solid-state ground-fault sensing and signaling; with 5 milliamperes ground-fault trip level; equip with NEMA configuration 5-20R. GFCI Devices used for exterior applications must be Weather Resistant (WR) rated and be provided with an "In Use Cover".
- C. Plugs and Connectors
1. Plugs and Connectors: Provide plugs and connectors with required amperage ratings, voltage ratings and NEMA configurations, which are designed to suit the atmospheric conditions of the equipment surroundings.
- D. Switches

1. General: Switches shall be provided as specified in this section. Additional features such as key operator, rocker and lighted toggle shall be provided where indicated on the drawings. All switches shall be Federal Specification Grade (WC896).
 2. Single-Pole: Provide heavy-duty flush single-pole AC quiet type, self-grounding type switches, 20-amperes, 120-277 volts, with mounting yoke insulated from mechanism, equip with plaster ears, toggle switch handle, and side-wired screw terminals.
 3. Three Way: Provide heavy-duty flush 3-way AC quiet type, self-grounding type switches, 20-amperes, 120-277 volts, with mounting yoke insulated from mechanism, equip with plaster ears, toggle switch handles, and side-wired screw terminals.
 4. Four Way: Provide heavy-duty flush 4-way AC quiet type, self-grounding type switches, 20-amperes, 120-277 volts, with mounting yoke insulated from mechanism, equip with plaster ears, toggle switch handles, and side-wired screw terminals.
- E. Lamp Dimmers: Provide dimmer controls for the applicable fixture type; voltage and wattage as indicated (or sized for load if not indicated), with continuously adjustable vertical slide control and/or push-button with air gap ON-OFF switch. Equip with electromagnetic filters to eliminate noise/RF interference. All dimmers shall meet U.L. 20 and be appropriately marked. Verify mounting requirements with dimmer manufacturer and provide device box(es) accordingly. Coordinate LED dimmers with the selected/specified driver to ensure compatibility. Characteristics and aesthetics of the dimmers shall be the same as the other devices in the room.

2.3 WIRING DEVICE ACCESSORIES

- A. Wall plates: Provide wall plates for single and combination wiring devices of types, sizes, and with ganging and cutouts as indicated. Select plates which mate and match wiring devices to which attached. Construct with metal screws for securing plates to devices. The screw heads colored to match finish of plates. Wall plates shall be colored to match wiring devices except as noted below. Provide plates possessing the following additional construction features:
1. Finished Areas
Material and Finish: [High impact nylon, smooth
 2. Unfinished Areas
Material and Finish: Steel plate, galvanized.
 3. Surface mounted boxes in unfinished areas shall be furnished with 4" square raised covers, with openings to fit device or devices to be installed.

PART 3 - EXECUTION

3.1 INSTALLATION OF WIRING DEVICES

- A. Install wiring devices as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.
- B. Provide tamper resistant receptacles in all pediatric locations. Provide tamper resistant receptacles in child care facilities and in pre-school/kindergarten facilities where children are normally present throughout the day.
- C. Coordinate with other work including painting, electrical boxes and wiring work as necessary to interface installation of wiring devices with other work.
- D. Install wiring devices only in electrical boxes that are clean; free from excess building materials, dirt, and debris.
- E. Install wiring devices after wiring work is completed.

- F. Install wall plates after painting work is completed.
- G. Connections of wire to devices shall be screw tightened. Connections using only spring pressure are not acceptable.
- H. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for wiring devices. Where manufacturer's torque requirements are not indicated, tighten connectors and terminals to comply with tightening torque specified in UL Standards 486A and B. Use properly scaled torque indicating hand tool.
- I. All switches and receptacles with exposed terminals shall be wrapped with insulating tape equal to Scotch No. 33 such that no live parts are left exposed.

3.2 PROTECTION OF WALL PLATES AND RECEPTACLES

- A. Upon installation of wall plates and receptacles, advise Contractor regarding proper and cautious use of convenience outlets. At time of Substantial Completion, replace those items which have been damaged, including those burned and scored by faulty plugs and those which are not clean and free from paint, dirt and debris.

3.3 GROUNDING

- A. Provide equipment grounding connections for all wiring devices, unless otherwise indicated. Tighten connections to comply with tightening torques specified in UL Standard 486A to assure permanent and effective grounds.

3.4 TESTING

- A. Prior to energizing circuitry, test wiring for electrical continuity and short-circuits. Ensure proper polarity of connections is maintained. Subsequent to energization, test wiring devices to demonstrate compliance with requirements.

END OF SECTION 26 05 34

SECTION 26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Types of electrical identification specified in this section include the following:
 - 1. Electrical power, control and communication conductors
 - 2. Operational instructions and warnings
 - 3. Equipment/system identification signs

PART 2 - PRODUCTS

2.1 ELECTRICAL IDENTIFICATION MATERIALS

- A. Self-Adhesive Plastic Signs:
 - 1. General: Provide manufacturer's standard, self-adhesive or pressure-sensitive, pre-printed, flexible vinyl signs for operational instructions or warnings of sizes suitable for application areas and adequate for visibility, with proper wording for each application, e.g.: 208V, EXHAUST FAN, RECTIFIER.
 - a. Colors: Unless otherwise indicated or required by governing regulations, provide orange signs with black lettering.
- B. Engraved Plastic-Laminate Signs:
 - 1. General: Provide engraving stock melamine plastic laminate, in sizes and thicknesses indicated, engraved with engraver's standard letter style of sizes and wording indicated, black face and white core (letter color) except as otherwise indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.
 - a. Thickness: 1/16", for units up to 20 sq. in. or 8" length; 1/8" for larger units.
 - b. Fasteners: Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate substrate.

2.2 LETTERING AND GRAPHICS

- A. General: Coordinate names, abbreviations and other designations used in electrical identification work with corresponding designations shown, specified or scheduled. Provide numbers, lettering and wording as indicated or, if not otherwise indicated, as recommended by manufacturers or as required for proper identification and operation/maintenance of electrical systems and equipment. Comply with ANSI A13.1 pertaining to minimum sizes for letters and numbers.

PART 3 - EXECUTION

3.1 APPLICATION AND INSTALLATION

- A. General Installation Requirements:

1. Install electrical identification products as indicated, in accordance with manufacturer's written instructions, and requirements of NEC.
2. Coordination: Where identification is to be applied to surfaces which require finish, install identification after completion of painting.
3. Regulations: Comply with governing regulations and requests of governing authorities for identification of electrical work.

B. Equipment/System Identification:

1. General: Install engraved plastic-laminate sign on each major unit of electrical equipment in building including central or master unit of each electrical system including communication/ control/signal systems, unless unit is specified with its own self-explanatory identification or signal system. Signs for disconnect switches, motor starters, contactors, and similar equipment shall indicate the equipment ID and the load it serves. Signs for panelboards shall indicate the equipment ID and where the panel is fed from. Signs for transformers shall indicate the equipment ID and where it is fed from and what it feeds. Except as otherwise indicated, provide single line of text, 3/4" high lettering on 1-1/2" high sign (1/2" letters, 2" high sign where 2 or 3 lines are required), white lettering in black field. Lettering for emergency power system components shall be white lettering in red field. Provide text matching terminology and numbering of the contract documents and shop drawings. Provide signs for each unit of the following categories of electrical work.

- a. Panelboards, electrical cabinets and enclosures
- b. Access panels and doors to electrical facilities
- c. Electrical switchgear (Unit and individual breaker/switches)
- d. Disconnect switches
- e. Electronics racks
- f. Power transfer equipment
- g. Pull boxes and enclosures larger than 6" x 6"
- h. Switches and receptacles *

*Labels for individual devices shall be clear adhesive (Kroy machine type) with black lettering (3/16" high) located near the bottom of the plate. Label switches and receptacles with the panel and circuit number feeding the device. Label all Fire Alarm and Security devices in accordance with the appropriate Fire Alarm and Security specification. Device plates for switches and receptacles shall also be labeled on back side of plate using permanent black ink.

2. Install signs at locations indicated or, where not otherwise indicated, at location for best convenience of viewing without interference with operation and maintenance of equipment. Secure to substrate with fasteners, except use adhesive where fasteners should not or cannot penetrate substrate.

C. Cable/Conductor Identification:

1. General: Apply cable/conductor identification in each box/enclosure/cabinet, except where another form of identification (such as color-coded conductors) is provided. Match identification with marking system used in panelboards, shop drawings, contract documents, and similar previously established identification for project electrical work.

END OF SECTION 26 05 53

SECTION 26 09 23 - LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Lighting Controls: timers, occupancy sensors, etc.
 - 2. Contactor.
 - 3. Low Voltage Lighting Control Systems.

1.2 SUBMITTALS

- A. Product Data: Submit product data in accordance with Submittals Section for the following:
 - 1. Contactors and Contactor Cabinets
 - 2. Low Voltage Lighting Controls (Occupancy Sensors, relays, power packs, etc.)
- B. Shop Drawings: Submit shop drawings in accordance with Submittals Section for the following:
 - 1. Contactors, and Contactor Cabinets.
 - 2. Wiring diagrams for low voltage lighting control showing devices, wire sizes and types

1.3 QUALITY ASSURANCE

- A. Manufacturers: Firms must be regularly engaged in manufacture of lighting control equipment and ancillary equipment, of types and capacities required, whose products have been in satisfactory use in similar service for not less than five years.
- B. Component Pretesting: All components and assemblies are to be pretested and burned-in prior to installation.
- C. NEC Compliance: Comply with NEC as applicable to electrical wiring work.
- D. NEMA Compliance: Comply with applicable portions of the NEMA standards pertaining to types of electrical equipment enclosures.
- E. FCC Emissions: All assemblies are to be in compliance with FCC Emissions Standards specified in Part 15, Subpart J, for Class A applications.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Individual Dimmers:
 - 1. Lutron
 - 2. Pass & Seymour Legrand
 - 3. Leviton
 - 4. Pre-approved Equivalent
- B. Motion Sensors:
 - 1. Watt Stopper

2. Pass & Seymour Legrand
 3. Leviton
 4. Pre-approved Equivalent
- C. Low Voltage Lighting Controls
1. Strand
 2. Marlin
 3. Lutron
 4. Douglas
 5. ETC
 6. Pre-approved Equivalent

2.2 CONTACTORS

- A. Provide 20 ampere multiple pole contactors for control of branch lighting and power circuits as indicated on the plans.

2.3 OCCUPANCY SENSORS

- A. Provide occupancy sensors where shown on drawings. Provide low voltage and/or line voltage units as required. The minimum rating for line voltage occupancy sensors and/or power pack/relay assemblies shall be 20A at 120. Low voltage occupancy sensors shall be provided with the required transformer - power pack/relay assembly. In the absence of specifics shown on the drawings, provide the following in accordance with the applications.
- B. Switch box mounting, dual technology – PIR/ultrasonic, single switch leg, (30' x 30' coverage) Watt Stopper or approved equivalent.
- C. Wall mounting, dual technology – PIR/ultrasonic, (2000 square foot coverage) Watt Stopper or approved Equivalent. Provide either ceiling and or wall mounting assembly for the appropriate mounting as noted on the drawings.
- D. Ceiling mounted, dual technology – PIR/ultrasonic, (1000 square foot coverage) Watt Stopper or approved Equivalent.
- E. Ceiling mounted, – PIR (1200 square foot coverage) Watt Stopper or approved Equivalent.
- F. Restrooms, ceiling mounted, ultra sonic technology, (2200 square foot coverage) Watt Stopper or approved Equivalent.
- G. Switch box mounting, with dimming, PIR technology, (20' x 20' coverage) Watt Stopper WD-170/180 or approved Equivalent.

2.4 ADJUSTING AND FIELD QUALITY CONTROL

- A. Upon installation completion of the lighting systems, demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.
- B. Focusing, Aiming and Adjusting
1. The contractor shall focus and adjust all interior fixtures after all project amenities have been installed. The amenities shall include, but not be limited to: plantings, furniture,

artwork, graphics and signage. Adjustments shall be made in accordance with the Engineer's intent, under his observation.

3. The contractor shall furnish all equipment (tools, ladders, lifts, etc.) as needed to make the final adjustments required. The cost for the equipment shall be included in the base bid.

C. Lighting Controls:

1. Occupancy Sensors

- a. Upon completion of the occupancy sensor system set each of the devices to achieve the average performance described in the paragraph below.
- b. These parameters represent the device sensitivity and time settings to achieve the average performance a sensor must meet to ensure that the lights will not go off when the space is occupied.

- 1) The sensors shall be capable of detecting presence in at least 90 percent of the floor area to be controlled.
- 2) Detection shall be maintained when a person of average size and weight moves only once every ten minutes, within a maximum distance of 12 inches either in a horizontal or vertical manner, at the approximate speed of 12 inches per second.

2. Demonstrate to the engineer the performance of the lighting control systems. Provide such a demonstration in up to 10 percent of the affected spaces. The choice of the spaces to be tested shall be selected by the engineer. If more than two systems fail to achieve the required average performance then re-adjust the settings of all affected spaces in the contract. Re-demonstrate the system performance in 100 percent of the affected spaces to the engineer and continue the process until the systems meet the specified performance.

2.5 HARDWARE

- A. Each occupancy sensor supplied shall be accompanied by its own hardware, brackets, special boxes or covers needed to complete a normal sensor installation on either a suspended or gypsum board ceiling.

2.6 WARRANTY OF OCCUPANCY SENSORS AND POWER CONTROL DEVICES

- A. All devices to be supplied shall have a minimum three-year factory warranty.
- B. Power-packs, if used, shall have a five-year warranty with a 100,000 cycle test operation guarantee under full load.
- C. Each device shall have a label with the date of warranty expiration clearly stamped on it. Serial numbers only will not be acceptable.
- D. Warrant devices to repair or replace as long as the devices have not been abused or damaged by the owner.

2.7 COMPONENT CONTROLS INSTALLATION

- A. Mount contactors in contactor cabinets. Locate cabinets as shown on drawings.

- B. Mount contactor control stations in flush back boxes with engraved device covers.
- C. All low voltage wiring shall be installed in conduit, conductors shall be copper.

2.8 COMMISSIONING

- A. Prior to the installation of the system, a factory authorized service technician shall meet on site with the electrical foreman for the project. At this meeting the foreman will be provided a full set of approved lighting control drawings. The lighting control technician will review photocell placement, occupancy sensor requirements, switch locations, wiring requirements and any other information critical to the installation of the system.
- B. Upon completion of the installation, the system shall be completely commissioned by the manufacturer's factory authorized technician who will verify all adjustments and sensor placement to ensure a trouble-free lighting control system that meets the design intent of the construction documents.
- C. The electrical contractor shall provide both the manufacturer and the electrical engineer with ten working days written notice of the scheduled commissioning date. Upon completion of the system fine tuning the factory authorized technician shall provide the proper training to the owner's personnel in the adjustment and maintenance of the sensors.
- D. The manufacturer shall provide a factory authorized technician to confirm proper installation and operation of all lighting control system components. The startup requirement is intended to verify that:
 - 1. All occupancy, daylighting sensors, etc. are located, installed and adjusted as intended by the factory and the contract documents.
 - 2. The occupancy sensors, daylighting sensors, etc. are operating within the manufacturers specifications.
 - 3. The sensors, relay panels, etc. interact as a complete and operational system to meet the design intent.
 - 4. The manufacturer shall provide a written statement verifying that the system meets the above requirements.
- E. The manufacturer shall provide a factory authorized technician to train owner personnel in the operation, programming and maintenance of the lighting control system, including all occupancy sensors and daylighting controls.
- F. System Programming
 - 1. Manufacturer shall provide system programming including:
 - a. Wiring documentation.
 - b. Switch operation.
 - c. Operating schedules

END OF SECTION 26 09 23

SECTION 26 51 13 - INTERIOR LIGHTING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Extent of lighting fixture work is indicated by drawings and schedules.
- B. Types of lighting fixtures in this section include the following:
 - 1. Incandescent
 - 2. Light Emitting Diode (LED)

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: The type and manufacturer of all lighting fixtures shall be as indicated on the fixture schedule and drawings or prior approval of the products must be obtained.
- B. The base bid shall reflect the price of the specified item or an approved alternate.
- C. Any approval requests for manufacturer/equipment to be considered as equal other than as specified herein and on the drawings shall be submitted to the Engineer not less than 7 days prior to bid date.
- D. Requests for review shall be sufficiently complete to permit evaluation and comparison with the specified equipment and material. The contractor shall provide a comparison checklist that clearly identifies any/all deviations from the specified products. In some situations, point-to-point photometric calculations will be required to verify performance of the proposed fixture. The requirement to provide these calculations will be enforced on a case-to-case basis.
- E. Substitutions will be evaluated on system performance and capacity. The specified product performance will be used as part of the basis for judging acceptance of the proposed substitution. The engineer retains full right of refusal of any proposed substitute for any reason.
- F. Substitutions will not be allowed after the bid.

2.2 LIGHTING FIXTURES

- A. General: Provide lighting fixtures, of sizes, types and ratings indicated; complete with, but not necessarily limited to, housings, lamps, energy efficient ballasts, drivers, starters and wiring.
- B. All recessed fixtures shall be provided with rubber or fiberglass gaskets or of equivalent material to prevent light leaks around flush trim. Fixtures shall be provided with proper thermal protection as required for surrounding environment. Exterior light fixtures shall be furnished with weatherproof, neoprene gaskets for outdoor installations. Recessed fixtures in cavities where insulation will be adjacent to the fixture shall be IC rated or shall be equipped with protective tent to isolate the fixture from the insulation. The use of a protective tent shall not adversely affect the fixtures ability to manage heat dissipation.
- C. No labels on fixtures shall be placed where they will be conspicuous or where they will mar the appearance of the fixture. The complete assemblies and all components for all fixtures shall bear the Underwriter's Laboratories, Inc., label.

- D. LED Fixtures: Other than LED retrofit kits, fixtures employing LEDs as the illumination source shall be specifically designed around the LED array to maximize performance. The fixture shall have an operating temperature -22 degrees F to 120 degrees F. The fixture shall accommodate either 120VAC or 277VAC input power connections. Fixture performance/illumination levels shall be tested and listed per IES LM80. The minimum fixture efficacy shall provide 80 lumens/watt for linear fixtures and 70 lumens/watt for downlights and cylinders.
- E. LED Warranty: The manufacturer shall guarantee all materials, workmanship and the successful operation of driver and LED array for a period of five years from the date of the fixture installation. The Warranty shall cover all materials and labor to replace the defective assembly and or fixture.
- F. LED Drivers: Drivers for LED fixtures shall have an operating temperature -22 degrees F to 140 degrees F. The driver shall have a power factor greater than or equal to .9, a THD rating of less than 20% and shall meet the EMI Filtering Criteria of FCC 47CFR, Part 15, Class A. The driver used in the fixture shall be specifically designed and matched to the associated LED array.
- G. Individual LEDs shall have a minimum efficacy of 80 lumens/watt. They shall produce light at 3500 degrees Kelvin color temperature with a minimum Color Rendering Index (CRI) of 80 and they shall be rated for a 50,000 hour life, at maximum 30% lumen depreciation. LEDs shall be available in multiple color temperatures 2700K, 3500K, 4000K, 5000K and 6000K. It is understood that at the different color temperatures the CRI rating of the LED may vary significantly and may not provide usable criteria for evaluating LED products. In all circumstances, the LEDs shall provide excellent color fidelity and color appearance. Provide 3500K color unless otherwise indicated in the fixture schedule. LEDs shall be tested and listed in accordance with IES LM79.
- H. LED Heat Management: Fixtures employing LEDs as the illumination source shall be designed to effectively manage the heat produced by the LED array and insure optimal life and lumen maintenance.
- I. Provide factory installed integral disconnecting means for all light fixtures in accordance with the NEC.

2.3 LIGHTING FIXTURE TYPES

- A. General: The fixture types are designated by the letters (A, B, C. etc.) located near each fixture symbol and refer to the description as listed in the Fixture Schedule.
- B. All lamps shall be of type specified on the fixture schedule. This Contractor shall furnish lamps for all fixtures as shown on the plans and fixture schedule. These lamps shall be new at the time of building acceptance by the user. Any lamps used for construction lighting shall be replaced prior to acceptance.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine areas and conditions under which lighting fixtures are to be installed, and substrate that will support lighting fixtures. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLATION OF LIGHTING FIXTURES

- A. Install lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of

Installation", NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.

- B. Coordinate with other trades as appropriate to properly interface installation of lighting fixtures with other work. Minor adjustments to the fixture locations may be required to avoid mechanical ductwork and piping. Changes to fixture locations in finished areas shall not be made without prior approval from the engineer.
- C. Where recessed fixtures are specified, Contractor shall provide plaster frames or other framing devices to the ceiling contractor prior to the installation of the fixtures and shall be responsible to see that the proper fixtures are furnished for the specific ceiling used. Hold down clips shall be installed on all fixtures.
- D. Each luminaire shall be securely and independently supported from the structural members and/or structural deck. In no case shall any luminaire be solely supported from a plaster ceiling, gypsum board ceiling, acoustical ceiling, conveyance system, ductwork, piping, etc. Recessed, downlights mounted in acoustical ceilings shall be installed using the appropriate T-bar mounting bracket. Provide support of all lighting fixtures based on the latest addition of the Uniform Building Code and National Electrical Code. Provide separate, distinct, colored hanger wires independent of any ceiling suspension wires to support all electrical appurtenances above ceiling, such as light fixtures, etc. Wire color shall be either "international orange" or "chromate yellow".
- E. Provide a separate junction box for connection to recessed or surface mounted light fixtures.
- F. Where recessed fixtures are installed in fire-rated ceilings, Contractor shall provide an enclosure approved by authorities having jurisdiction to surround each fixture as required to maintain the fire integrity rating of the ceiling. Adequate clearance between fixture and enclosure shall be provided in accordance with fixture manufacturers recommendations. Verify clearance requirements with fixtures manufacturer prior to installation of fixture.
- G. The lamp orientation of all fixtures in a given room must be the same in order to ensure performance and/or aesthetics.
- H. Focusing Aiming and Adjusting
 - 1. The contractor shall focus and adjust all adjustable fixtures. Adjustments shall be made in accordance with the Engineer's intent, under his/her observation.
 - 2. The contractor shall furnish all equipment (tools, ladders, lifts, etc.) as needed to make the final adjustments required. The cost for the equipment shall be included in the base bid.
 - 3. The exact distribution, shielding, etc. of the lamp for the adjustable fixtures on the project will not be known until final aiming and adjustments have been made. The contractor shall provide 20% of the total project lamp quantity in varying types of distributions, shielding, etc. These lamps will be used to facilitate the final aiming and adjusting process. Left over lamps not used may be counted as part of the spare lamp inventory required to be provided to the owner.

3.3 COMMISSIONING

- A. Prior to the installation of the system, a factory authorized service technician shall meet on site with the electrical foreman for the project. At this meeting the foreman will be provided a full set of approved lighting control drawings. The lighting control technician will review photocell placement, occupancy sensor requirements, switch locations, wiring requirements and any other information critical to the installation of the system.

- B. Upon completion of the installation, the system shall be completely commissioned by the manufacturer's factory authorized technician who will verify all adjustments and sensor placement to ensure a trouble-free lighting control system that meets the design intent of the construction documents.
- C. The electrical contractor shall provide both the manufacturer and the electrical engineer with ten working days written notice of the scheduled commissioning date. Upon completion of the system fine tuning the factory authorized technician shall provide the proper training to the owner's personnel in the adjustment and maintenance of the sensors.
- D. The manufacturer shall provide a factory authorized technician to confirm proper installation and operation of all lighting control system components. The startup requirement is intended to verify that:
 - 1. All occupancy, daylighting sensors, etc. are located, installed and adjusted as intended by the factory and the contract documents.
 - 2. The occupancy sensors, daylighting sensors, etc. are operating within the manufacturers specifications.
 - 3. The sensors, relay panels, etc. interact as a complete and operational system to meet the design intent.
 - 4. The manufacturer shall provide a written statement verifying that the system meets the above requirements.
- E. The manufacturer shall provide a factory authorized technician to train owner personnel in the operation, programming and maintenance of the lighting control system, including all occupancy sensors and daylighting controls.
- F. System Programming
 - 1. Manufacturer shall provide system programming including:
 - a. Wiring documentation.
 - b. Switch operation.
 - c. Operating schedules

3.4 CLEANING

- A. Clean lighting fixtures of dirt and debris upon completion of installation.
- B. Protect installed fixtures from damage during construction period.

3.5 FIELD QUALITY CONTROL

- A. Upon installation completion of lighting fixtures, operate the fixtures to demonstrate capability and compliance with requirements. Correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.

3.6 GROUNDING

- A. Provide equipment grounding connections for all lighting fixtures in accordance with the requirements of the NEC and other Division-26 sections. Tighten connections to comply with tightening torques specified in UL Standard 486A to ensure permanent and effective grounds.

END OF SECTION 26 51 13

SECTION 26 55 61 – THEATRICAL SYSTEMS

The scope of the Theatrical Systems Renovation of the Massari can be broken up into four sub-scopes:

- A. General Renovation Contractor [Referred to as GC]
- B. Theatrical Lighting Integrator [Referred to as TLI]
- C. Theatrical Audio/Video Integrator [Referred to as TAVI]
- D. Theatrical Rigging & Drapery [Referred to as TRDI]
- E. Stock Equipment and Expendables [Add Alternates]

PART 1 - GENERAL RENOVATION

1.1. Preparation of the space

- A. Installation of ram-board and tarps over seating area and carpets.
- B. Any additional precautions to prevent unwanted damage to facility, as directed by TSJC.

1.2. Conduit installation/modifications

- A. Modification to existing conduit to accommodate design.
- B. Installation of additional conduit to accommodate design.

1.3. Replacement of stage floor* [ADD ALTERNATE #2, OUTSIDE OF BASE BID SCOPE.]

- A. Sanding down of existing wooden stage floor
- B. Install one layer of masonite-type particle board as specified in drawing package.
- C. Painting and clear-coating of floor with **Rosco Off-Broadway Black 5352** and **Rosco Clear Gloss Glaze 5580**. Painting of stage shall take place close to the end of the installation process so as to prevent undue wear-and-tear from construction work.

1.4. Installation of Stage Rack Boxes

- A. Installation of power (two 20-amp circuits) and conduit to this location.
- B. Installation of two 4-gang boxes with wall plates with D-series panel mount holes such as Redco WPL-404C. Labeling shall reflect TS-111
- C. Installation of project box such as Hammond CHKO12126 and DIN rail inside it.
- D. All conduit necessary to connect the aforementioned boxes to each other and to theatrical systems.

1.5. Installation of projector mount

- A. Supply and install projector mount to SEC specifications.

1.6. Installation of Architectural Lighting in theatre.

- A. Core equipment from ETC shall be provided by the TLI, and installed by the GC. See 2.3.
- B. Additional equipment including but **not** limited to conduit, junction boxes, face plates, etc. shall be provided by the GC.
- C. Primary point of reference for this scope shall be drawings from SEC.
- D. Installer shall work in conjunction with TLI to commission the system after install.
- E. System shall conform to that shown in drawing package and in supplementary Lightwright paperwork. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified fixture(s). A demonstration may be required to prove such equivalency.
 - 1. All fixtures and accessories shall be black, unless otherwise noted.
 - 2. Some fixtures shall be configured and wired as emergency lights per E- drawings.
 - 3. Control equipment shall be mounted as shown on TS-113, next to Panel B in the control booth. Four ETC Foundry Forward-Phase 600W Dimmers, and one ETC Foundry Relay, inside five ETC Unison 4" back boxes with voltage separators. One ETC SC1008 Branch Circuit Emergency Lighting Transfer Switch. One Echo DMX Scene Controller (backstage right).
 - 4. Distributed control shall be three Unison Echo Inspire 8-button preset panels (black), located at entry points specified in drawing package. One Unison Echo Inspire 8-button preset panel and Unison Echo Keyswitch panel (black) shall be in the Control Room, configured to lock out all other stations in performance conditions.
 - 5. Replacement of existing high bay fixtures with flush-mount LTC-3RDW. Reconfigure wiring of these fixtures per TS-108, TS-113.
 - 6. Replacement of bulbs in existing house lighting pendants with 3000K 80CRI Canto RETRO Passive 500 with 26-degree reflectors and E11 bases.
 - 7. Replacement of bulbs in existing recessed house lighting with 3000K 80CRI Canto RETRO Classic 150 Short with 28-degree reflectors and E11 bases.
- F. TLI shall provide all low-voltage control wire terminations for DMX and EchoConnect.

1.7. Installation of ETC Echo Relay Panel with 24 single-pole relays following removal of legacy rack.

1.8. Refresh of space at end of construction

- A. Touch up paint where necessary.
- B. Clean areas within construction scope.
- C. Removal of tarps and boards installed per I.1.A.

1.9. Changes or adjustments to this scope of work may be made, subject to a change order.

PART 2 - THEATRICAL LIGHTING

2.1. GENERAL PRACTICE

- A. All work shall be done in compliance with any applicable ESTA and ANSI standards.
- B. Fixtures shall have NEMA 5-15 electrical connectors when connecting to system power.
- C. Fixtures may connect together using Neutrik powerCON connectors, however use of provided PowerCON to Edison power cable shall be preferred where possible..
- D. All power cabling shall be 12/3 SO or better. ETC'S DPA-A, supplied with fixtures, is acceptable.
- E. Cabling shall be tied up cleanly with any excess slack coiled at the fixture. Only permanent cabling shall be secured with zip-ties. All reconfigurable cabling shall be secured with tie-line.
- F. DMX cabling shall be Belden 9729 or comparable, and shall use 5-pin XLR-type connectors.
- G. CAT6 cabling shall be shielded Belden 7860 or comparable performance. When sharing raceway with power, shall have suitable voltage rating per NEC.
- H. All cables outside of conduit shall be black.
- I. All cable and wall port connections shall be clearly labeled and/or color coded.
- J. All fixtures shall utilize ETC C-Clamps for primary attachment.
- K. All fixtures shall have a secondary means of attachment such as a safety cable.
- L. All fixtures shall be provided with color frames.
- M. All network based devices shall utilize static IP configuration.
- N. All fixtures must have a black finish unless otherwise specified.
- O. Data cables, including CAT and DMX, may run outside of conduit where permitted by code. Cables run outside conduit must be secured and dressed cleanly.

2.2. REMOVAL OF LEGACY LIGHTING FIXTURES

- A. All currently installed fixtures shall be removed.
- B. Existing Source 4 fixtures and 6-inch fresnels shall be incorporated in new system.
- C. Many existing fixtures shall be disposed of except where specified by Designer and TSJC.

2.3. SUPPLY OF NEW DIMMER RACK AND ARCHITECTURAL LIGHTING COMPONENTS FOR INSTALL BY GC.

- A. Theatrical lighting power control shall be ETC Echo Relay Panel Feedthrough with 24 single-pole relays (ERP24-FT241P)
- B. House Lighting Control System
 - 1. Four ETC Foundry Forward-Phase 600W Dimmers

2. One ETC Foundry Relay.
 3. Five ETC Unison 4" back box with voltage separator.
 4. One ETC SC1008 Branch Circuit Emergency Lighting Transfer Switch.
 5. Four Unison Echo Inspire 8-button preset panels.
 6. One Unison Echo Keyswitch panel.
 7. One Echo DMX Scene Controller
- C. TLI shall provide all low-voltage control wire terminations for DMX and EchoConnect.

2.4. INSTALLATION OF NEW THEATRICAL LIGHTING SYSTEM

- A. New lighting fixtures shall be purchased, installed, circuited, and focused by TLI. Designer will direct focusing and programming.
- B. System shall conform to drawing package and supplementary Lightwright paperwork. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified fixture(s). A demonstration may be required to prove such equivalency.
 - 1.
 2. Fifteen ColorSource PAR Deep Blue fixtures. Fifteen shall have Narrow Round lenses
 3. Eight ColorSource Spot Deep Blue fixtures with no lens tube shall be provided. These fixtures will be installed with existing 19-degree lens tubes from current Source 4 inventory.
 4. Five ColorSource Spot Deep Blue fixtures with 26-degree lens tubes. †
 5. Five ColorSource Spot Deep Blue fixtures with 36-degree lens tubes. †

† Eight of the ten fixtures listed above (Section 2.4.4, 2.4.5), shall be ordered with light engine and lens tube only, and utilize shutter assemblies from existing TSJC stock.
 6. Two Elation Fuze Wash z120 using The Light Source Mega-Drop Down 12".
 7. Three Source 4 A-size Gobo holders installed in existing 19-degree fixtures.
 8. Two Tripp Lite SMART1500LCD UPS Batteries.
 9. TLI shall provide all necessary cabling and accessories to install these items.
 10. One 6-channel Leprecon ULD-360 High Power 2-15 Amp dimmer pack to power the five front of house fresnels.
 11. Three sets of 8-leaf barn-doors for the TSJC-provided fresnels.
 12. Fourteen ColorSource Spot Jr. Deep Blue fixtures with gobo holders and gobos per Lightwright.

13. Eight ColorSource Cyc Deep Blue fixtures.
 14. Two Altman LED Work Light fixtures shall be installed in the AP for stage work light.
- C. All gel and gobos specified in the supplementary Lightwright documentation shall be provided by the TLI and installed during focus. When a fixture is specified with two colors of gel and/or diffusion, each color shall be installed in a separate frame.
 - D. All appropriate power and data cabling will be installed in accordance with industry standards. Non-dimmed fixtures that use the same power source may be daisy-chained using powerCON cables, however use of provided PowerCON to Edison power cable shall be preferred where possible. The eight Cyc fixtures shall be daisy-chained with PowerCON thru cables, with the source coming from a circuit of the 4th Electric.
 - E. Data shall be distributed to system as specified in drawing package using ETC Response Mk2 Gateways, Cisco SG350-10P Ethernet Switches. **TLI shall furnish and install all network cables indicated on TS-108, with the exception of CAT6 connecting network switch in booth rack to network switch in stage rack. All network cables shall run thru conduit wherever possible.**
 - F. TLI shall install the following TSJC provided equipment (in addition to the Source 4's specified in 2.4).
 1. Two Lycian 1206 Followspots.
 2. ETC Gio @5 Console w/ Dell P2418HT touchscreen.
 3. TLI shall provide all necessary cabling and accessories to install these items.
 4. Three 6-inch 500 watt fresnels.
 - G. All fixtures shall be patched into the Gio console and confirmed to be working prior to focus.
 - H. Designer shall be present for focus call, and TLI shall provide sufficient labor to execute focus of entire system in no more than 2 working days. Note that scheduling this will require coordination with other contractors to ensure space is ready for focus (stage is clear and painted, system is functioning properly, etc.). Expectation shall be that Designer is on stage calling focus and TLI provides crew to focus lights and operate the console (operation using wifi remotes is acceptable).
 - I. Lightwright and Vectorworks files shall be provided upon awarding of contract.

2.5. INTEGRATION WITH ARCHITECTURAL LIGHTING SYSTEM.

- A. Theatrical lighting system shall be connected to the architectural lighting system as specified in the drawing package.
- B. TLI shall program ten presets and a lockout into the architectural system as directed by Designer.

2.6. FURNISH, ORGANIZE, AND INSTALL STOCK EQUIPMENT. ALL CABLES, ADAPTORS, ETC. SHALL BE BLACK.* [ADD ALTERNATE #3, OUTSIDE OF BASE BID SCOPE.]

- A. Two storage road cases approximately 42x20x19.5 with dividers.
 1. First case:

1. Four 50-foot 12/3 Edison cables
 2. Eight 25-foot 12/3 Edison cables
2. Second case:
1. Twelve Edison power strips
 2. Twelve Edison triple taps
 3. Leftover powerCON and Edison to powerCON cables from install
 4. Four 25-foot 5-pin DMX cables
 5. Eight 10-foot DMX cables
- B. One black locking metal storage cabinet approximately 36x18x72 with 4 shelves; Global Industrial #T9F237635BK or similar.
1. One roll of Black Wrap
 2. Two rolls of Black Tak
 3. Two rolls of glow tape
 4. Sixteen rolls of spike tape (assorted colors)
 5. Two rolls of white 1" console (paper) tape
 6. Two 1000W FEL lamps
 7. Three 5-pin DMX terminators
 8. Two M/F 3 to 5-pin DMX adaptors
 9. Two M/F 5 to 3-pin DMX adaptors
 10. Four rolls of 2" white gaff tape
 11. Six rolls of 2" black gaff tape
 12. Two rolls of 4" black gaff tape
 13. Eight 8-1/4 x 18 x 9 black storage bins Global Industrial #T9F550123BK or similar
 14. Ten 5-1/2 x 14-3/4 x 5 black storage bins Global Industrial #T9F269689BK or similar
- C. Other items
1. One 600-foot roll of tie line
 2. Twelve black 25-pound sandbags

- 2.7. LIGHTING SYSTEM SHALL BE CONSIDERED FULLY OPERATIONAL AND COMPLETE WHEN TURNED OVER TO TSJC.
- 2.8. TRAINING ON USE OF EQUIPMENT WILL BE PROVIDED.
- 2.9. CHANGES OR ADJUSTMENTS TO THIS SCOPE OF WORK MAY BE MADE, SUBJECT TO A CHANGE ORDER.

PART 3 - THEATRICAL AUDIO/VIDEO

3.1. GENERAL PRACTICE

- A. All work shall be done in compliance with any applicable ESTA and ANSI standards.
- B. Cabling shall be tied up cleanly with any excess slack coiled at the speaker.
- C. CAT6 cabling shall be shielded Belden 7860 or comparable performance. When sharing raceway with power, shall have suitable voltage rating per NEC.
- D. All cables not installed in conduits shall be black.
- E. All cable and wall port connections shall be clearly labeled and/or color coded.
- F. All suspended equipment shall have a secondary means of attachment such as a safety cable.
- G. All network based devices shall utilize static IP configuration.

3.2. Wireless spectrum analysis shall be conducted to assure the wireless equipment specified below will function adequately in the space. If analysis determines such equipment will not function as designed, a report on clear frequencies shall be delivered to Designer for consideration.

3.3. REMOVAL OF LEGACY AUDIO EQUIPMENT

- A. All currently installed speakers, consoles, amplifiers, etc. shall be removed.
- B. Majority of existing equipment shall be disposed of except where specified by Designer and TSJC. Some speakers shall be kept as spare equipment.
- C. Intercom wiring shall be left in place for future use or reused in case of Alternate #7.
- D. Existing audio snake shall be removed from conduit, making room for network cabling.

3.4. INSTALLATION OF NETWORK INFRASTRUCTURE

- A. Array of shielded CAT6/CAT5E cables shall be installed as specified in drawing package.
- B. Main network backbone cables shall be run through existing audio snake conduit
- C. CAT6/CAT5E shall be installed early in project timeline to facilitate install of equipment.
- D. Proper tests shall be performed on cabling once installed to assure integrity.

- E. **TAVI shall furnish and install all network cables indicated in TS-110 with the exception of CAT5e cables connecting to VLAN 1 of the booth and stage rack switches. All network cables shall run thru conduit wherever possible.**

3.5. INSTALLATION OF NEW PRIMARY AUDIO SYSTEM

- A. New equipment shall be purchased, installed, connected, programmed, and tuned by TAVI. Designer will approve final tuning.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
1. One QSC NS-1108P network switch.
 2. One QSC TSC-55w-G2-BK touch panel controller.
 3. Two QSC GXD 8 amplifiers.
 4. Two QSC E112 speakers. Two shall be mounted on a focus-able wall mount, allowing for pan and tilt.
 5. Two QSC E118SW 18 inch subwoofers.
 6. -One Furman M-8DX power conditioner.
 7. Two Furman CN-20MP ~~M-8S~~ power sequencers. These units shall be connected to start up in sequence via control signal from Q-Sys.
 8. Two Shure SLXD24D/SM58 microphone sets (for a total of four wireless microphones). These shall be installed with Shure UA844 Antenna Splitter and paddle-type antennae. Microphones shall be stored in Gator Microphone Drawer 2U-GRW-DRWWRLSS or similar. [THIS SHALL BE CONSIDERED ADD ALTERNATE #5, OUTSIDE OF BASE BID SCOPE.]
 9. One Yamaha TF3 [TSJC provided].
 10. One Yamaha Tio 1608-D [TSJC provided].
 11. One Apple iMac w/~~Q-Lab~~ [TSJC provided].
 12. One QSC Q-SYS Core 110f DSP with Dante, scripting, UI licensing [TSJC provided].
 13. All rack accessories specified in drawing package including spacers, shelves, grommets.
 14. Integrator shall provide all necessary cabling and accessories to install these items.
- C. TAVI shall program five presets each for Q-Sys, Q-Lab, and TF3 as directed by Designer.
- D. Tuning of space shall utilize Smaart acoustic analysis technology or equivalent.

3.6. INSTALLATION OF NEW STAGE MONITORING SYSTEM [ADD ALTERNATE #6, OUTSIDE OF BASE BID SCOPE.]

- A. New equipment shall be purchased, installed, connected, programmed, and tuned by TAVI. Designer will approve tuning.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
 - 1. One Shure SM58 microphone for room monitoring. To be hung in discreet position over stage or house (TBD).
 - 2. One TOA PM-660U (or equivalent) page microphone.
 - 3. Four Bogen WB1EZ speakers installed throughout building per drawings.
 - 4. Wiring for this system shall utilize existing "intercom" conduit system.
 - 5. One QSC SPA2-60 amplifier.

3.7. INSTALLATION OF NEW COMMUNICATION SYSTEM

- A. New equipment shall be purchased, installed, connected, programmed by TAVI.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
 - 1. One Eartec Co UPMX4GS5 system.

3.8. INSTALLATION OF NEW ASSISTED LISTENING SYSTEM

- A. New equipment shall be purchased, installed, connected, programmed, and tuned by TAVI. Designer will approve tuning.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
 - 1. One Listen Technologies LS-42-072.

3.9. INSTALLATION OF NEW VIDEO SYSTEM

- A. New equipment shall be purchased, installed, connected, programmed, and focused by TAVI. Designer will approve focus.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
 - 1. One Panasonic PT-RZ120BU w/ ET-DLE170 [TSJC provided].
 - 2. One Tripp Lite P130-000-AUDIO HDMI Extractor.

3. One Tripp Lite B126-1A1 HDMI Extender.
 - C. TAVI shall program projector control into Q-Sys as directed by Designer.
- 3.10. FURNISH AND ORGANIZE STOCK EQUIPMENT. ALL CABLES, ADAPTORS, ETC. SHALL BE BLACK.* [ADD ALTERNATE #4, OUTSIDE OF BASE BID SCOPE.]
- A. One specialty mic stand road case.
 1. Twelve boom style mic stands.
 - B. Two storage road cases approximately 42x20x19.5 with dividers.
 1. First case:
 1. Auxiliary speakers [TSJC Provided]
 2. Four 25-foot NL4 cables
 3. Four NL4 couplers
 2. Second case:
 1. Six 25-foot 1/4" audio cables
 2. Twelve 1/4" to 3-pin XLR cables
 3. Twenty-Four 25-foot 3-pin XLR cables
 4. Twelve 5-foot Shielded CAT6 cables
 5. Six 25-foot Shielded CAT6 cables
 6. Two 50-foot Shielded CAT6 cables
 - C. One music stand dolly (that can hold twelve stands)
 1. Twelve music stands
 - D. One black locking metal storage cabinet approximately 36x18x72 with 4 shelves; Global Industrial #T9F237635BK or similar.
 1. Four Shure MX202B/C microphones
 2. Two Crown PCC-160 microphones
 3. Four Shure SM57 microphones
 4. Six Shure SM58 microphones
 5. Two Shure SM81 microphones
 6. Two Sennheiser MD421 microphones
 7. Two Whirlwind Director II direct boxes
 8. Two Radial ProD2 direct boxes

9. Two 1/4" to XLR adaptors
 10. Two 1/8" to XLR stereo cables
 11. One DVI to HDMI adaptor
 12. One VGA to HDMI adaptor
 13. One DisplayPort to HDMI adaptor
 14. One Mini DisplayPort to HDMI adaptor
 15. Twelve Music Stand Lights (Mighty Bright Hammerhead or similar)
 16. Twelve 11x18x10 black storage bins Global Industrial #T9F550119BK or similar
 17. Five 5-1/2 x 14-3/4 x 5 black storage bins Global Industrial #T9F269689BK or similar
- 3.11. AUDIO/VIDEO SYSTEM SHALL BE CONSIDERED FULLY OPERATIONAL AND COMPLETE WHEN TURNED OVER TO TSJC.
- 3.12. TRAINING ON USE OF EQUIPMENT WILL BE PROVIDED.
- 3.13. CHANGES OR ADJUSTMENTS TO THIS SCOPE OF WORK MAY BE MADE, SUBJECT TO A CHANGE ORDER.

PART 4 - THEATRICAL RIGGING & SOFT GOODS (DRAPERY)

4.1. GENERAL PRACTICE

- A. All work shall be done in compliance with any applicable ESTA and ANSI standards.
- B. All rigging hardware shall be domestic, rated, and stamped/tagged.
- C. All overhead rigging shall be within load limits of the structure as determined by Engineer.
- D. All soft goods shall be fire retardant and shall have burn samples and certificates.

4.2. MARKING OF WORKING LOAD LIMITS

- A. Rigging points shall be clearly and permanently labeled per ANSI 1.4-2-2021. Calculations shall be provided by SEC. TRDI assumes no liability for errors in calculations, and is solely responsible for furnishing and installing the labels.

4.3. REMOVAL OF LEGACY RIGGING AND SOFT GOODS

- A. All currently installed drapes shall be removed ~~and discarded~~.
- B. Legacy main drape electric winch system shall remain in place.
- C. Legacy Schedule 40 hanging pipe shall ~~may~~ be reused provided it remains structurally sound.
- D. Existing curtain track and carriers shall be reused.

4.4. INSTALLATION OF NEW RIGGING AND SOFT GOODS

- A. New equipment shall be purchased and installed by TRDI.
- B. All drapes shall be trimmed to per drawing package, and shall be floor-length. All drapes shall have weight sewn into the bottom (chain or pipe).
- C. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.

1. One Bi-Parting Main Traveling Curtain (2-pieces). Curtain shall be constructed of Rose Brand 21 oz Marvel Velour Navy, sewn with 50% fullness via box pleats. Drape halves shall overlap at center stage by twenty-four inches when closed, and span a 42-foot width. Existing track and carriers shall be used, provided they are in adequate condition.

Drape with Vertical Seams

Material: Velour 54 in FR 21 oz Marvel Navy, Nap Down 20'0" high x 23'0" wide
With 50% Added Fullness via box pleats

Reverse and Repeat, Unlined

Top: Poly webbing grommets & S-hooks, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Turnback, half width in.

Stage Left: Turnback, half width in.

2. One Main Valance, 5-feet high, spanning 42-feet. Curtain shall be constructed of Rose Brand 21 oz Marvel Velour Navy, sewn with 50% fullness via box pleats.

Drape with Vertical Seams

Material: Velour 54 in FR 21 oz Marvel Navy, Nap Down 5'0" high x 42'0" wide
With 50% Added Fullness via box pleats, Unlined

Top: Poly webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

3. One Bi-Parting Upstage Traveling Curtain (2-pieces). Curtain shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with 50% fullness via box pleats. Drape halves shall overlap at center stage by twelve inches when closed, and span a 44-foot width. Traveler shall use existing track. Floor pulley for manual control of drape shall be rigged to off-stage left.

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 20'0" high x 23'0" wide
With 50% Added Fullness via box pleats

Reverse and Repeat, Unlined

Top: Poly webbing grommets & S-hooks, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Turnback, half width in.

Stage Left: Turnback, half width in.

4. Four Leg Curtains (one pair at 6'-width, one pair at 8'-width). Curtains shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with 50% fullness via box pleats.

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 20'0" high x 6'0"/8'0" wide
With 50% Added Fullness via box pleats, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

5. One Border Curtain, 4-feet high, spanning 44-feet. Curtain shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with 0% Fullness.

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 4'0" x 44'0" wide

With 0% Added Fullness, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

6. One Border Curtain, 3-feet high, spanning 48-feet. Curtain shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with 0% Fullness.

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 3'0" x 48'0" wide

With 0% Added Fullness, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

7. One Border Curtain, 3-feet high, spanning 44-feet. Curtain shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with 0% Fullness.

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 3'0" x 48'0" wide

With 0% Added Fullness, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

8. Two Tab Curtains for offstage masking. Curtains shall be constructed of Rose Brand 12 oz Black Commando Cloth, sewn with 0% fullness.

Drape with Vertical Seams

Material: Commando Cloth 54 in FR 12 oz Light Weight Red Dot Black

20 feet - 0 inches high x 6 feet - 0 inches wide

With 0% Added Fullness, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12 inch centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

9. One Cyclorama Curtain. Curtain shall be constructed of Rose Brand White Leno Filled Scrim, sewn with 0% fullness, seamless.

Seamless Drop with Horizontal Fabric

Material: Leno Filled Scrim 29 ft-0 in FR White
20 feet - 0 inches high x 44 feet - 0 inches wide
With 0% Added Fullness, Unlined
Top: Jute webbing grommets & ties, with #3 grommets on 12 inch centers.
Bottom: Pipe pocket w/ skirt (pipe slits), 5 in.
Stage Right: Flat hem, 2 in.
Stage Left: Flat hem, 2 in.

10. One Scrim Curtain. Curtain shall be constructed of Rose Brand Black Sharktooth Scrim, sewn with 0% fullness, seamless. [ADD ALTERNATE #7, OUTSIDE OF BASE BID SCOPE.]

Seamless Drop with Horizontal Fabric
Material: Sharktooth Scrim 25 ft-0 in FR Black
20 feet - 0 inches high x 44 feet - 0 inches wide
With 0% Added Fullness, Unlined
Top: Poly webbing grommets & ties, 3 in. webbing with #3 grommets on 12 inch centers.
Bottom: Pipe pocket w/ skirt (pipe slits), 5 in.
Stage Right: Double hem, 2 in.
Stage Left: Double hem, 2 in.

11. One thirteen-foot schedule 40 iron pipe (OD to match existing sizing) attached to the FOH Catwalk unistrut structure as specified in drawing package.
12. Legacy main curtain motor shall be lubricated and serviced as needed. A machine guard shall be installed to protect from pinch/crush hazards [possible scope for TSJC].

D. TRDI shall complete any corrections necessary to provide a safe and complete rigging system. This includes re-splicing pipes, replacing inappropriate or damaged hardware.

4.5. FURNISH AND ORGANIZE STOCK EQUIPMENT. [ADD ALTERNATE #8, OUTSIDE OF BASE BID SCOPE.]

A. One 65-yard roll of black duvetyn

4.6. RIGGING & DRAPERY SHALL BE CONSIDERED FULLY OPERATIONAL AND COMPLETE WHEN TURNED OVER TO TSJC.

4.7. TRAINING ON USE OF EQUIPMENT WILL BE PROVIDED.

4.8. CHANGES OR ADJUSTMENTS TO THIS SCOPE OF WORK MAY BE MADE, SUBJECT TO A CHANGE ORDER.

PART 5 - TRAINING AND PASS-OFF

5.1 - TRAINING SHALL BE PROVIDED TO ALL NECESSARY FACULTY, STAFF, AND STUDENTS OF TSJC BY INTEGRATION CONTRACTORS.

A - Training shall accommodate up to ten individuals and shall be structured and thorough, and be tailored to the trainees and their desired uses of equipment.

B - Trainers shall be certified or qualified individuals in subject matter.

C - Training shall be a minimum of eight hours per scope.

D - Training does not necessarily provide certification or licensure in any subject.

E - When possible, contractors shall coordinate with Faculty to show students their work during install.

5.1 - LABELING

A - All systems, cables, and equipment shall be sufficiently labeled so as to facilitate proper troubleshooting.

1 Such labeling includes but is not limited to labeling outlets/plugs by where they are fed, labeling cables or connections, and color coding systems.

B - Network based devices shall have their IP Addresses clearly marked.

C - Devices with names and model numbers clearly visible do not require redundant labels.

D - Labels shall be consistent in terminology and design wherever possible.

5.2 - MANUALS AND DOCUMENTATION

A - At the completion of install, each scope shall have a 3-ring binder containing all spec sheets, manuals, and relevant documentation for installed equipment.

1 Included in this documentation shall be a list of recommended Preventative Maintenance Procedures with instructions and recommended intervals between executions.

B - A secondary copy of all of above documentation shall be delivered as digital PDF files.

C - A full list of part numbers of installed equipment for use in acquiring additional equipment in future expansions or replacements.

D - Integrators will provide any as-built patch information, system adjustments, etc. to Designer.

E - A spreadsheet of all network devices shall be provided for both the lighting and AV networks. Must include device name, device type, MAC address, IP address, physical location, etc.

5.2 - FINAL PASS OFF OF SYSTEMS FROM EACH INTEGRATOR SHALL BE APPROVED AFTER TRAINING AND PROOF-TESTING IS COMPLETED TO THE SATISFACTION OF TSJC, SEC, AND DESIGNER.

SECTION 26 55 61 – THEATRICAL SYSTEMS

The scope of the Theatrical Systems Renovation of the Massari can be broken up into four sub-scopes:

- A. General Renovation Contractor [Referred to as GC]
- B. Theatrical Lighting Integrator [Referred to as TLI]
- C. Theatrical Audio/Video Integrator [Referred to as TAVI]
- D. Theatrical Rigging & Drapery [Referred to as TRDI]
- E. Stock Equipment and Expendables [Add Alternates]

PART 1 - GENERAL RENOVATION

1.1. Preparation of the space

- A. Installation of ram-board and tarps over seating area and carpets.
- B. Any additional precautions to prevent unwanted damage to facility, as directed by TSJC.

1.2. Conduit installation/modifications

- A. Modification to existing conduit to accommodate design.
- B. Installation of additional conduit to accommodate design.

1.3. Replacement of stage floor* [ADD ALTERNATE #2, OUTSIDE OF BASE BID SCOPE.]

- A. Sanding down of existing wooden stage floor
- B. Install one layer of masonite-type particle board as specified in drawing package.
- C. Painting and clear-coating of floor with **Rosco Off-Broadway Black 5352** and **Rosco Clear Gloss Glaze 5580**. Painting of stage shall take place close to the end of the installation process so as to prevent undue wear-and-tear from construction work.

1.4. Installation of Stage Rack Boxes

- A. ~~Furnish and install 18U swinging equipment rack on wall backstage right in position to be determined. Rack shall be Middle Atlantic DWR-18-22PD or comparable.~~
- B. Installation of power (two 20-amp circuits) and conduit to this location.
- C. Installation of two 4-gang boxes with wall plates with D-series panel mount holes such as Redco WPL-404C. Labeling shall reflect TS-111
- D. Installation of project box such as Hammond CHKO12126 and DIN rail inside it.
- E. All conduit necessary to connect the aforementioned boxes to each other and to theatrical systems.

- 1.5. ~~Fabrication & installation of Projector Platform~~ **Installation of projector mount**
- A. ~~Fabrication of a platform on which the projector will be installed. Platform will consist of painted wood attached to strut frame that is attached to Front of House Catwalk structure as depicted in drawing package. Paint color shall match existing structure.~~ **Supply and install projector mount to SEC specifications.**
- 1.6. ~~Installation of Architectural Lighting in theatre.~~
- A. ~~Current fixtures and cabling shall be removed and discarded per Division 26.~~
- B. Core equipment from ETC shall be provided by the TLI, and installed by the GC. **See 2.3.**
- C. Additional equipment including but **not** limited to conduit, junction boxes, face plates, etc. shall be provided by the GC.
- D. Primary point of reference for this scope shall be drawings from SEC.
- E. Installer shall work in conjunction with TLI to commission the system after install.
- F. System shall conform to that shown in drawing package and in supplementary Lightweight paperwork. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified fixture(s). A demonstration may be required to prove such equivalency.
1. All fixtures and accessories shall be black, unless otherwise noted.
 2. ~~All ArcSystem fixtures shall be configured with Fade to Warm and DMX/RDM.~~
 3. Some fixtures shall be configured and wired as emergency lights per E- drawings.
 4. ~~Control box shall be mounted to the wall in the Control Booth. It shall be an ETC Unison ERn2 Wall Enclosure with P-ACP Paradigm Control Processor and P-SPM-E Paradigm Station Power Module, with attached Unison BatteryPack.~~ **Control equipment shall be mounted as shown on TS-113, next to Panel B in the control booth. Four ETC Foundry Forward-Phase 600W Dimmers, and one ETC Foundry Relay, inside five ETC Unison 4" back boxes with voltage separators. One ETC SC1008 Branch Circuit Emergency Lighting Transfer Switch. One Echo DMX Scene Controller (backstage right).**
 5. Distributed control shall be ~~three ETC Unison Heritage 10-Button Preset Panels~~ **three Unison Echo Inspire 8-button preset panels** (black), located at entry points specified in drawing package. **One Unison Echo Inspire 8-button preset panel and Unison Echo Keyswitch panel** ~~One ETC Unison Heritage 5-Button + Keyswitch Panel~~ (black) shall be in the Control Room, configured to lock out all other stations in performance conditions.
 6. ~~Four ETC ArcSystem Pro 2-Cell fixtures shall be installed in the AP for stage work light. These fixtures may be powered by one of the three circuits on the raceway, fed from the backstage dimmer rack.~~
 7. ~~Four ETC ArcSystem Pro 1-Cell Recessed Adjustable fixtures shall be mounted into the cloud above the thrust/pit, paired with four ArcSystem D1 Drivers.~~
 8. ~~Eighteen ETC ArcSystem Pro 4-Cell Pendant fixtures shall be installed to replace current pendant lighting. Some fixtures specified as emergency lighting, per SEC drawings.~~
 9. ~~ArcSystem fixtures shall receive DMX over CAT6 per drawing package.~~

- 10. Replacement of existing high bay fixtures with flush-mount LTC-3RDW. Reconfigure wiring of these fixtures per TS-108, TS-113.
 - 11. Replacement of bulbs in existing house lighting pendants with 3000K 80CRI Canto RETRO Passive 500 with 26-degree reflectors and E11 bases.
 - 12. Replacement of bulbs in existing recessed house lighting with 3000K 80CRI Canto RETRO Classic 150 Short with 28-degree reflectors and E11 bases.
- G. TLI shall provide all low-voltage control wire terminations for DMX and EchoConnect.
- 1.7. Installation of ~~ETC Echo Relay Panel with 24 single-pole relays ETC SR3-24 48 channel with ThruPower Modules~~ following removal of legacy rack.
- 1.8. Refresh of space at end of construction
- A. Touch up paint where necessary.
 - B. Clean areas within construction scope.
 - C. Removal of tarps and boards installed per I.1.A.
 - D. ~~Cleaning of carpets in audience seating area.~~
- 1.9. Changes or adjustments to this scope of work may be made, subject to a change order.

PART 2 - THEATRICAL LIGHTING

2.1. GENERAL PRACTICE

- A. All work shall be done in compliance with any applicable ESTA and ANSI standards.
- B. Fixtures shall have NEMA 5-15 electrical connectors when connecting to system power.
- C. Fixtures may connect together using Neutrik powerCON connectors, **however use of provided PowerCON to Edison power cable shall be preferred where possible..**
- D. All power cabling shall be 12/3 SO or better. **ETC'S DPA-A, supplied with fixtures, is acceptable.**
- E. Cabling shall be tied up cleanly with any excess slack coiled at the fixture. Only permanent cabling shall be secured with zip-ties. All reconfigurable cabling shall be secured with tie-line.
- F. DMX cabling shall be Belden 9729 or comparable, and shall use 5-pin XLR-type connectors.
- G. CAT6 cabling shall be shielded Belden 7860 or comparable performance. When sharing raceway with power, shall have suitable voltage rating per NEC.
- H. All cables outside of conduit shall be black.
- I. All cable and wall port connections shall be clearly labeled and/or color coded.
- J. All fixtures shall utilize ETC C-Clamps for primary attachment.
- K. All fixtures shall have a secondary means of attachment such as a safety cable.

- L. All fixtures shall be provided with color frames.
- M. All network based devices shall utilize static IP configuration.
- N. All fixtures must have a black finish unless otherwise specified.
- O. **Data cables, including CAT and DMX, may run outside of conduit where permitted by code. Cables run outside conduit must be secured and dressed cleanly.**

2.2. REMOVAL OF LEGACY LIGHTING FIXTURES

- A. All currently installed fixtures shall be removed.
- B. Existing Source 4 fixtures **and 6-inch fresnels** shall be cleaned, ~~have their reflectors replaced, and be returned for service and~~ incorporated in new system.
- C. Many existing fixtures shall be disposed of except where specified by Designer and TSJC.

2.3. SUPPLY OF NEW DIMMER RACK AND ARCHITECTURAL LIGHTING COMPONENTS FOR INSTALL BY GC.

- A. ~~Rack shall be ETC SR3-24 48 channel with ThruPower Modules.~~
- B. ~~ETC Paradigm Control System~~
 - 1. ~~One Unison ERn2 Wall Mount Enclosure with P-ACP and P-SPM-E modules.~~
 - 2. ~~One Unison Battery Pack.~~
 - 3. ~~Three Unison 10-button Preset Panels.~~
 - 4. ~~One Unison 5-button + Keyswitch Panel.~~
- C. ~~Architectural Fixtures, all with fade to warm and DMX-RDM configuration.~~
 - 1. ~~Twelve ArcSystem Pro Four Cell Pendants.~~
 - 2. ~~Four ArcSystem Pro Four Cell Pendants (Emergency).~~
 - 3. ~~Four ArcSystem Pro Two Cell.~~
 - 4. ~~Four ArcSystem Pro One Cell Recessed with D1 Drivers.~~
- D. **Theatrical lighting power control shall be ETC Echo Relay Panel Feedthrough with 24 single-pole relays (ERP24-FT241P)**
- E. **House Lighting Control System**
 - 1. **Four ETC Foundry Forward-Phase 600W Dimmers**
 - 2. **One ETC Foundry Relay.**
 - 3. **Five ETC Unison 4" back box with voltage separator.**
 - 4. **One ETC SC1008 Branch Circuit Emergency Lighting Transfer Switch.**
 - 5. **Four Unison Echo Inspire 8-button preset panels.**
 - 6. **One Unison Echo Keyswitch panel.**

7. One Echo DMX Scene Controller

F. TLI shall provide all low-voltage control wire terminations for DMX and EchoConnect.

2.4. INSTALLATION OF NEW THEATRICAL LIGHTING SYSTEM

A. New lighting fixtures shall be purchased, installed, circuited, and focused by TLI. Designer will direct focusing and programming.

B. System shall conform to drawing package and supplementary Lightwright paperwork. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified fixture(s). A demonstration may be required to prove such equivalency.

1. ~~Five ETC Source 4 PAR fixtures with VN5P Lenses installed. Five lenses of each of the following types shall also be provided for stock: NSP, MFL, WFL.~~
2. ~~Nineteen~~ Fifteen ColorSource PAR Deep Blue fixtures. Fifteen shall have Narrow Round lenses, ~~four shall have a combination of Narrow Oval lenses and Medium Oval lenses, to be determined at focus. Must have both available at focus.~~
3. Eight ColorSource Spot Deep Blue fixtures with no lens tube shall be provided. These fixtures will be installed with existing 19-degree lens tubes from current Source 4 inventory.
4. Five ColorSource Spot Deep Blue fixtures with 26-degree lens tubes. †
5. Five ColorSource Spot Deep Blue fixtures with 36-degree lens tubes. †

† Eight of the ten fixtures listed above (Section 2.4.4, 2.4.5), shall be ordered with light engine and lens tube only, and utilize shutter assemblies from existing TSJC stock.

6. ~~Three ColorSource Spot Deep Blue fixtures with 15-30-degree zoom lenses.~~
7. ~~Two Elation Fuze Wash z120 Four Vari-Lite VL800 EVENTWASH fixtures, hung below pipe-level at 18' trim using appropriate clamps, pipe, and/or strut~~ using The Light Source Mega-Drop Down 12".
8. ~~Seven Source 4 fixtures with 36-degree lens tubes.~~
9. ~~Eleven 36-degree lens tubes shall be provided and installed with existing Source 4 inventory.~~
10. ~~Six ColorSource Linear 4 Deep Blue fixtures with Wide Linear Vertical lenses.~~
11. ~~Three~~ ~~Twenty-four~~ Source 4 A-size Gobo holders installed in existing 19-degree fixtures.
12. ~~Four ETC ColorSource PAR 4-Leaf Barn Doors.~~
13. Two Tripp Lite SMART1500LCD UPS Batteries.
14. TLI shall provide all necessary cabling and accessories to install these items.

15. One 6-channel Leprecon ULD-360 High Power 2-15 Amp dimmer pack to power the five front of house fresnels.
 16. Three sets of 8-leaf barn-doors for the TSJC-provided fresnels.
 17. Fourteen ColorSource Spot Jr. Deep Blue fixtures with gobo holders and gobos per Lightwright.
 18. Eight ColorSource Cyc Deep Blue fixtures.
 19. Two Altman LED Work Light fixtures shall be installed in the AP for stage work light.
- C. All gel and gobos specified in the supplementary Lightwright documentation shall be provided by the TLI and installed during focus. When a fixture is specified with two colors of gel and/or diffusion, each color shall be installed in a separate frame.
- D. All appropriate power and data cabling will be installed in accordance with industry standards. Non-dimmed fixtures that use the same power source may be daisy-chained using powerCON cables, **however use of provided PowerCON to Edison power cable shall be preferred where possible. The eight Cyc fixtures shall be daisy-chained with PowerCON thru cables, with the source coming from a circuit of the 4th Electric.**
- E. Data shall be distributed to system as specified in drawing package using ETC Response Mk2 Gateways, ~~ETC ColorSource Wireless DMX Transmitters and Receivers~~, Cisco SG350-10P Ethernet Switches, and ~~one Cisco WAP574~~. **Integrator shall confirm the functionality of wireless DMX devices by means of local wireless spectrum analysis. Should such testing serve to discourage the use of wireless data distribution, additional ETC Response Mk2 Gateways shall be used instead. TLI shall furnish and install all network cables indicated on TS-108, with the exception of CAT6 connecting network switch in booth rack to network switch in stage rack. All network cables shall run thru conduit wherever possible.**
- F. TLI shall install the following TSJC provided equipment (in addition to the Source 4's specified in 2.4).
1. Two Lycian 1206 Followspots.
 2. ETC Gio @5 Console w/ Dell P2418HT touchscreen.
 3. TLI shall provide all necessary cabling and accessories to install these items.
 4. **Three 6-inch 500 watt fresnels.**
- G. All fixtures shall be patched into the Gio console and confirmed to be working prior to focus.
- H. **Designer shall be present for focus call, and TLI shall provide sufficient labor to execute focus of entire system in no more than 2 working days. Note that scheduling this will require coordination with other contractors to ensure space is ready for focus (stage is clear and painted, system is functioning properly, etc.). Expectation shall be that Designer is on stage calling focus and TLI provides crew to focus lights and operate the console (operation using wifi remotes is acceptable).**
- I. **Lightwright and Vectorworks files shall be provided upon awarding of contract.**

2.5. INTEGRATION WITH ARCHITECTURAL LIGHTING SYSTEM.

- A. Theatrical lighting system shall be connected to the architectural lighting system as specified in the drawing package.
- B. TLI shall program ten presets and a lockout into the architectural system as directed by Designer.

2.6. FURNISH, ORGANIZE, AND INSTALL STOCK EQUIPMENT. ALL CABLES, ADAPTORS, ETC. SHALL BE BLACK.* [ADD ALTERNATE #3, OUTSIDE OF BASE BID SCOPE.]

- A. Two storage road cases approximately 42x20x19.5 with dividers.
 - 1. First case:
 - 1. Four 50-foot 12/3 Edison cables
 - 2. Eight 25-foot 12/3 Edison cables
 - 2. Second case:
 - 1. Twelve Edison power strips
 - 2. Twelve Edison triple taps
 - 3. Leftover powerCON and Edison to powerCON cables from install
 - 4. Four 25-foot 5-pin DMX cables
 - 5. Eight 10-foot DMX cables
- B. One black locking metal storage cabinet approximately 36x18x72 with 4 shelves; Global Industrial #T9F237635BK or similar.
 - 1. One roll of Black Wrap
 - 2. Two rolls of Black Tak
 - 3. Two rolls of glow tape
 - 4. Sixteen rolls of spike tape (assorted colors)
 - 5. Two rolls of white 1" console (paper) tape
 - 6. Six 750W HPL lamps
 - 7. Two 1000W FEL lamps
 - 8. Three 5-pin DMX terminators
 - 9. Two M/F 3 to 5-pin DMX adaptors
 - 10. Two M/F 5 to 3-pin DMX adaptors
 - 11. Four rolls of 2" white gaff tape
 - 12. Six rolls of 2" black gaff tape
 - 13. Two rolls of 4" black gaff tape

14. Eight 8-1/4 x 18 x 9 black storage bins Global Industrial #T9F550123BK or similar
15. Ten 5-1/2 x 14-3/4 x 5 black storage bins Global Industrial #T9F269689BK or similar

C. Other items

1. One 600-foot roll of tie line
2. Twelve black 25-pound sandbags

2.7. LIGHTING SYSTEM SHALL BE CONSIDERED FULLY OPERATIONAL AND COMPLETE WHEN TURNED OVER TO TSJC.

2.8. TRAINING ON USE OF EQUIPMENT WILL BE PROVIDED.

2.9. CHANGES OR ADJUSTMENTS TO THIS SCOPE OF WORK MAY BE MADE, SUBJECT TO A CHANGE ORDER.

PART 3 - THEATRICAL AUDIO/VIDEO

3.1. GENERAL PRACTICE

- A. All work shall be done in compliance with any applicable ESTA and ANSI standards.
- B. Cabling shall be tied up cleanly with any excess slack coiled at the speaker.
- C. CAT6 cabling shall be shielded Belden 7860 or comparable performance. When sharing raceway with power, shall have suitable voltage rating per NEC.
- D. All cables not installed in conduits shall be black.
- E. All cable and wall port connections shall be clearly labeled and/or color coded.
- F. All suspended equipment shall have a secondary means of attachment such as a safety cable.
- G. All network based devices shall utilize static IP configuration.

3.2. Wireless spectrum analysis shall be conducted to assure the wireless equipment specified below will function adequately in the space. If analysis determines such equipment will not function as designed, a report on clear frequencies shall be delivered to Designer for consideration.

3.3. REMOVAL OF LEGACY AUDIO EQUIPMENT

- A. All currently installed speakers, consoles, amplifiers, etc. shall be removed.
- B. Majority of existing equipment shall be disposed of except where specified by Designer and TSJC. Some speakers shall be kept as spare equipment.
- C. ~~All existing low voltage signal wiring shall be removed from conduits and disposed of. This includes all microphone cable and intercom wiring.~~ **Intercom wiring shall be left in place for future use or reused in case of Alternate #7.**
- D. **Existing audio snake shall be removed from conduit, making room for network cabling.**

3.4. INSTALLATION OF NETWORK INFRASTRUCTURE

- A. Array of shielded CAT6/CAT5E cables shall be installed as specified in drawing package.
- B. **Main network backbone cables shall be run through existing audio snake conduit.** ~~Cables shall run through existing conduit wherever possible. Current conduit runs for the audio snake may be ideal for this use.~~
- C. CAT6/CAT5E shall be installed early in project timeline to facilitate install of equipment.
- D. Proper tests shall be performed on cabling once installed to assure integrity.
- E. **TAVI shall furnish and install all network cables indicated in TS-110 with the exception of CAT5e cables connecting to VLAN 1 of the booth and stage rack switches. All network cables shall run thru conduit wherever possible.**

3.5. INSTALLATION OF NEW PRIMARY AUDIO SYSTEM

- A. New equipment shall be purchased, installed, connected, programmed, and tuned by TAVI. Designer will approve final tuning.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
 - 1. One QSC NS-1108P network switch.
 - 2. One QSC TSC-55w-G2-BK touch panel controller.
 - 3. ~~One~~ **Two** QSC **GXD 8** ~~CX-Q 2K4~~ amplifiers.
 - 4. ~~One QSC CX-Q 4K4 amplifier.~~
 - 5. ~~Three EAW JF29~~ **Two QSC E112 speakers.** Two shall be mounted on a focus-able wall mount, **allowing for pan and tilt.** ~~and one shall be hung from a pipe using appropriate rated hardware.~~
 - 6. Two **QSC E118SW 18 inch** ~~EAW SB180z~~ subwoofers.
 - 7. ~~Four 25-foot Male 1/4" to Male NL4 cables.~~
 - 8. One Furman M-8DX power conditioner.
 - 9. Two Furman **CN-20MP** ~~M-8S~~ power sequencers. These units shall be connected to start up in sequence via control signal from Q-Sys.
 - 10. Two Shure SLXD24D/SM58 microphone sets (for a total of four wireless microphones). These shall be installed with Shure UA844 Antenna Splitter and paddle-type antennae. Microphones shall be stored in Gator Microphone Drawer 2U-GRW-DRWWRLSS **or similar. [THIS SHALL BE CONSIDERED ADD ALTERNATE #5, OUTSIDE OF BASE BID SCOPE.]**
 - 11. One Yamaha TF3 [TSJC provided].
 - 12. ~~One Cisco WAP571.~~

13. One Yamaha Tio 1608-D [TSJC provided].
 14. One Apple iMac w/Q-Lab [TSJC provided].
 15. ~~One Q-Lab Pro Audio license installed on iMac.~~
 16. One QSC Q-SYS Core 110f DSP with Dante, scripting, UI licensing [TSJC provided].
 17. All rack accessories specified in drawing package including spacers, shelves, grommets.
 18. Integrator shall provide all necessary cabling and accessories to install these items.
- C. TAVI shall program five presets each for Q-Sys, Q-Lab, and TF3 as directed by Designer.
- D. Tuning of space shall utilize Smaart acoustic analysis technology or equivalent.

3.6. INSTALLATION OF NEW STAGE MONITORING SYSTEM [ADD ALTERNATE #6, OUTSIDE OF BASE BID SCOPE.]

- A. New equipment shall be purchased, installed, connected, programmed, and tuned by TAVI. Designer will approve tuning.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
1. One Shure SM58 microphone for room monitoring. To be hung in discreet position over stage or house (TBD).
 2. One TOA PM-660U (or equivalent) page microphone.
 3. Four Bogen WB1EZ speakers installed throughout building per drawings.
 4. Wiring for this system shall utilize existing "intercom" conduit system.
 5. **One QSC SPA2-60 amplifier.**

3.7. INSTALLATION OF NEW COMMUNICATION SYSTEM

- A. New equipment shall be purchased, installed, connected, programmed by TAVI.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
1. ~~One Clear-Com CS702 Base Station. Shall connect to 16x16 XLR patchbay via a 6-channel snake.~~
 2. ~~Four Clear-Com RS-703 Belt Packs.~~
 3. ~~Five Clear-Com CC-300-X4 Headsets.~~
 4. ~~Assortment of 3-pin XLR cabling (in addition to cables needed to permanent installation). Twelve each of 5-foot, 10-foot, and 25-foot lengths.~~

5. ~~One Eartec Co UPMX4GS5 system.~~
- C. ~~Array of 3-wire cables shall be installed as specified in drawing package.~~
- D. ~~Cables shall run through existing conduit wherever possible. Current conduit runs for the audio snake may be ideal for this use.~~

3.8. INSTALLATION OF NEW ASSISTED LISTENING SYSTEM

- A. New equipment shall be purchased, installed, connected, programmed, and tuned by TAVI. Designer will approve tuning.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
 1. One Listen Technologies LS-42-072.

3.9. INSTALLATION OF NEW VIDEO SYSTEM

- A. New equipment shall be purchased, installed, connected, programmed, and focused by TAVI. Designer will approve focus.
- B. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
 1. One Panasonic PT-RZ120BU w/ ET-DLE170 [TSJC provided].
 2. One Tripp Lite P130-000-AUDIO HDMI Extractor.
 3. One Tripp Lite B126-1A1 HDMI Extender.
- C. TAVI shall program projector control into Q-Sys as directed by Designer.

3.10. FURNISH AND ORGANIZE STOCK EQUIPMENT. ALL CABLES, ADAPTORS, ETC. SHALL BE BLACK.* [ADD ALTERNATE #4, OUTSIDE OF BASE BID SCOPE.]

- A. One specialty mic stand road case.
 1. Twelve boom style mic stands.
- B. Two storage road cases approximately 42x20x19.5 with dividers.
 1. First case:
 1. Auxiliary speakers [TSJC Provided]
 2. Four 25-foot NL4 cables
 3. Four NL4 couplers
 2. Second case:
 1. Six 25-foot 1/4" audio cables

2. Twelve 1/4" to 3-pin XLR cables
 3. Twenty-Four 25-foot 3-pin XLR cables
 4. Twelve 5-foot Shielded CAT6 cables
 5. Six 25-foot Shielded CAT6 cables
 6. Two 50-foot Shielded CAT6 cables
- C. One music stand dolly (that can hold twelve stands)
1. Twelve music stands
- D. One black locking metal storage cabinet approximately 36x18x72 with 4 shelves; Global Industrial #T9F237635BK or similar.
1. Four Shure MX202B/C microphones
 2. Two Crown PCC-160 microphones
 3. Four Shure SM57 microphones
 4. Six Shure SM58 microphones
 5. Two Shure SM81 microphones
 6. Two Sennheiser MD421 microphones
 7. Two Whirlwind Director II direct boxes
 8. Two Radial ProD2 direct boxes
 9. Two 1/4" to XLR adaptors
 10. Two 1/8" to XLR stereo cables
 11. One DVI to HDMI adaptor
 12. One VGA to HDMI adaptor
 13. One DisplayPort to HDMI adaptor
 14. One Mini DisplayPort to HDMI adaptor
 15. Twelve Music Stand Lights (Mighty Bright Hammerhead or similar)
 16. Twelve 11x18x10 black storage bins Global Industrial #T9F550119BK or similar
 17. Five 5-1/2 x 14-3/4 x 5 black storage bins Global Industrial #T9F269689BK or similar
- 3.11. AUDIO/VIDEO SYSTEM SHALL BE CONSIDERED FULLY OPERATIONAL AND COMPLETE WHEN TURNED OVER TO TSJC.
- 3.12. TRAINING ON USE OF EQUIPMENT WILL BE PROVIDED.
- 3.13. CHANGES OR ADJUSTMENTS TO THIS SCOPE OF WORK MAY BE MADE, SUBJECT TO A CHANGE ORDER.

PART 4 - THEATRICAL RIGGING & SOFT GOODS (DRAPERY)

4.1. GENERAL PRACTICE

- A. All work shall be done in compliance with any applicable ESTA and ANSI standards.
- B. All rigging hardware shall be domestic, rated, and stamped/tagged.
- C. All overhead rigging shall be within load limits of the structure as determined by Engineer.
- D. All soft goods shall be fire retardant and shall have burn samples and certificates.

4.2. MARKING OF WORKING LOAD LIMITS

- A. Rigging points shall be clearly and permanently labeled per ANSI 1.4-2-2021. Calculations shall be provided by SEC. TRDI assumes no liability for errors in calculations, and is solely responsible for furnishing and installing the labels.

4.3. REMOVAL OF LEGACY RIGGING AND SOFT GOODS

- A. All currently installed drapes shall be removed and discarded.
- B. Legacy main drupe electric winch system shall remain in place.
- C. ~~Legacy track, hardware, and accessories shall be removed if in poor condition. These items may be reused in the new design if they conform to the criteria specified by Designer, and are of excellent condition.~~
- D. Legacy Schedule 40 hanging pipe shall may be reused provided it remains structurally sound.
- E. Existing curtain track and carriers shall be reused.

4.4. INSTALLATION OF NEW RIGGING AND SOFT GOODS

- A. New equipment shall be purchased and installed by TRDI.
- B. All drapes shall be trimmed to per drawing package, and shall be floor-length. All drapes shall have weight sewn into the bottom (chain or pipe).
- C. System shall conform to drawing package. Substitutions to specified equipment may be made if Designer agrees recommended substitute meets or exceeds the functionality and build quality of specified equipment. A demonstration may be required to prove such equivalency.
 - 1. One Bi-Parting Main Traveling Curtain (2-pieces). Curtain shall be constructed of Rose Brand 21 oz Marvel Velour Navy, sewn with 50% fullness via box pleats. Drape halves shall overlap at center stage by twenty-four inches when closed, and span a 42-foot width. Existing track and carriers shall be used, provided they are in adequate condition.

Drape with Vertical Seams

Material: Velour 54 in FR 21 oz Marvel Navy, Nap Down 20'0" high x 23'0" wide
With 50% Added Fullness via box pleats

Reverse and Repeat, Unlined

Top: Poly webbing grommets & S-hooks, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Turnback, half width in.

Stage Left: Turnback, half width in.

2. One Main Valance, 5-feet high, spanning 42-feet. Curtain shall be constructed of Rose Brand 21 oz Marvel Velour Navy, sewn with 50% fullness via box pleats.

Drape with Vertical Seams

Material: Velour 54 in FR 21 oz Marvel Navy, Nap Down 5'0" high x 42'0" wide

With 50% Added Fullness via box pleats, Unlined

Top: Poly webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

3. One Bi-Parting Upstage Traveling Curtain (2-pieces). Curtain shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with 50% fullness via box pleats. Drape halves shall overlap at center stage by twelve inches when closed, and span a 44-foot width. ~~Track shall be ADC 170 or 280 with all necessary hardware and carriers. Traveler shall use existing track.~~ Floor pulley for manual control of drape shall be rigged to off-stage left.

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 20'0" high x 23'0" wide

With 50% Added Fullness via box pleats

Reverse and Repeat, Unlined

Top: Poly webbing grommets & S-hooks, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Turnback, half width in.

Stage Left: Turnback, half width in.

4. Four Leg Curtains (one pair at 6'-width, one pair at 8'-width). Curtains shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with 50% fullness via box pleats.

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 20'0" high x 6'0"/8'0" wide

With 50% Added Fullness via box pleats, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

5. One Border Curtain, 4-feet high, spanning 44-feet. Curtain shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with ~~50% fullness via box pleats.~~ **0% Fullness**

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 4'0" x 44'0" wide

With 0% Added Fullness, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

6. One Border Curtain, 3-feet high, spanning 48-feet. Curtain shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with ~~50% fullness via box pleats.~~ **0% Fullness**

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 3'0" x 48'0" wide

With 0% Added Fullness, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

7. One Border Curtain, 3-feet high, spanning 44-feet. Curtain shall be constructed of Rose Brand 16 oz Princess Velour Black, sewn with ~~0% Fullness~~ 50% fullness via box pleats.

Drape with Vertical Seams

Material: Velour 54 in FR 16 oz Princess Black, Nap Down 3'0" x 48'0" wide

With 0% Added Fullness, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12" centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

8. Two Tab Curtains for offstage masking. Curtains shall be constructed of Rose Brand 12 oz Black Commando Cloth, sewn with 0% fullness.

Drape with Vertical Seams

Material: Commando Cloth 54 in FR 12 oz Light Weight Red Dot Black

20 feet - 0 inches high x 6 feet - 0 inches wide

With 0% Added Fullness, Unlined

Top: PP webbing grommets & ties, 3 in. webbing with #3 grommets on 12 inch centers.

Bottom: Chain hem lined, 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

9. One Cyclorama Curtain. Curtain shall be constructed of Rose Brand White Leno Filled Scrim, sewn with 0% fullness, seamless.

Seamless Drop with Horizontal Fabric

Material: Leno Filled Scrim 29 ft-0 in FR White

20 feet - 0 inches high x 44 feet - 0 inches wide

With 0% Added Fullness, Unlined

Top: Jute webbing grommets & ties, with #3 grommets on 12 inch centers.

Bottom: Pipe pocket w/ skirt (pipe slits), 5 in.

Stage Right: Flat hem, 2 in.

Stage Left: Flat hem, 2 in.

10. One Scrim Curtain. Curtain shall be constructed of Rose Brand Black Sharktooth Scrim, sewn with 0% fullness, seamless. [ADD ALTERNATE #7, OUTSIDE OF BASE BID SCOPE.]

Seamless Drop with Horizontal Fabric

Material: Sharktooth Scrim 25 ft-0 in FR Black

20 feet - 0 inches high x 44 feet - 0 inches wide

With 0% Added Fullness, Unlined

Top: Poly webbing grommets & ties, 3 in. webbing with #3 grommets on 12 inch centers.

Bottom: Pipe pocket w/ skirt (pipe slits), 5 in.

Stage Right: Double hem, 2 in.

Stage Left: Double hem, 2 in.

11. One thirteen-foot schedule 40 iron pipe (OD to match existing sizing) attached to the FOH Catwalk unistrut structure as specified in drawing package.

12. Legacy main curtain motor shall be lubricated and serviced as needed. A machine guard shall be installed to protect from pinch/crush hazards [possible scope for TSJC].

D. **TRDI shall complete any corrections necessary to provide a safe and complete rigging system. This includes re-splicing pipes, replacing inappropriate or damaged hardware.**

4.5. FURNISH AND ORGANIZE STOCK EQUIPMENT. **[ADD ALTERNATE #8, OUTSIDE OF BASE BID SCOPE.]**

A. One 65-yard roll of black duvetyn

B. ~~One 72-yard roll of jute webbing~~

4.6. RIGGING & DRAPERY SHALL BE CONSIDERED FULLY OPERATIONAL AND COMPLETE WHEN TURNED OVER TO TSJC.

4.7. TRAINING ON USE OF EQUIPMENT WILL BE PROVIDED.

4.8. CHANGES OR ADJUSTMENTS TO THIS SCOPE OF WORK MAY BE MADE, SUBJECT TO A CHANGE ORDER.

PART 5 - TRAINING AND PASS-OFF

5.1 - TRAINING SHALL BE PROVIDED TO ALL NECESSARY FACULTY, STAFF, **AND STUDENTS** OF TSJC BY INTEGRATION CONTRACTORS.

A - Training shall accommodate up to ten individuals and shall be structured and thorough, and be tailored to the trainees and their desired uses of equipment.

B - Trainers shall be certified or qualified individuals in subject matter.

C - Training shall be a minimum of eight hours per scope.

D - Training does not necessarily provide certification or licensure in any subject.

E - When possible, contractors shall coordinate with Faculty to show students their work during install.

5.1 - LABELING

A - All systems, cables, and equipment shall be sufficiently labeled so as to facilitate proper troubleshooting.

1 Such labeling includes but is not limited to labeling outlets/plugs by where they are fed, labeling cables or connections, and color coding systems.

B - Network based devices shall have their IP Addresses clearly marked.

C - Devices with names and model numbers clearly visible do not require redundant labels.

D - Labels shall be consistent in terminology and design wherever possible.

5.2 - MANUALS AND DOCUMENTATION

A - At the completion of install, each scope shall have a 3-ring binder containing all spec sheets, manuals, and relevant documentation for installed equipment.

1 Included in this documentation shall be a list of recommended Preventative Maintenance Procedures with instructions and recommended intervals between executions.

B - A secondary copy of all of above documentation shall be delivered as digital PDF files.

C - A full list of part numbers of installed equipment for use in acquiring additional equipment in future expansions or replacements.

D - Integrators will provide any as-built patch information, system adjustments, etc. to Designer.

E - A spreadsheet of all network devices shall be provided for both the lighting and AV networks. Must include device name, device type, MAC address, IP address, physical location, etc.

5.2 - FINAL PASS OFF OF SYSTEMS FROM EACH INTEGRATOR SHALL BE APPROVED AFTER TRAINING AND PROOF-TESTING IS COMPLETED TO THE SATISFACTION OF TSJC, SEC, AND DESIGNER.