

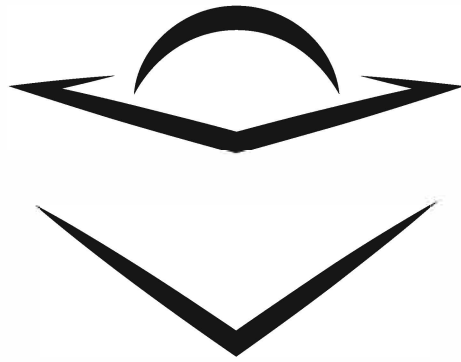


CENTRALBIDDING
FROM CENTRAL AUCTION HOUSE

BID 25-002: Jackson Planetarium Improvements
Jackson Redevelopment Authority

Project documents obtained from www.CentralBidding.com

11-Feb-2025 10:20:29 AM



JACKSON PLANETARIUM

BID 25-002: JACKSON PLANETARIUM IMPROVEMENTS

**201 EAST PASCAGOULA STREET
JACKSON, MISSISSIPPI**

**PROJECT MANUAL
JANUARY 31, 2025**

CONSTRUCTION DOCUMENTS

PROJECT MANUAL

JACKSON PLANETARIUM IMPROVEMENTS
BID 25-002

JACKSON REDEVELOPMENT AUTHORITY
JACKSON, MISSISSIPPI

CDFL 20-152

JANUARY 31, 2025

PREPARED BY:

CDFL ARCHITECTS + ENGINEERS PA 3221
OLD CANTON ROAD, SUITE 200 JACKSON,
MISSISSIPPI 39216
PHONE (601) 366-3110
FAX (601) 366-3181

TABLE OF CONTENTS
JACKSON PLANETARIUM IMPROVEMENTS
JACKSON REDEVELOPMENT AUTHORITY

CDFL 20-152

DIVISION 00	BIDDING / CONTRACT REQUIREMENTS
Section 00 21 13	Advertisement for Bids
Section 00 41 00	Instructions to Bidders
	Bid Form
Section 00 50 00	City of Jackson Equal Business Opportunity Plan and Application
Section 00 52 00	Contracting Forms and Supplements
	Agreement Form
	Additional Contract Provisions
	Davis-Bacon Wage Rates
Section 00 60 00	Project Forms
Section 00 65 00	Certificate of Insurance Instructions
	Standard Construction Contract Certificate of Insurance
Section 00 72 14	General Conditions
Section 00 73 13	Supplementary Conditions
	E-Verification / Good Faith Compliance
DIVISION 01	GENERAL REQUIREMENTS
Section 01 10 00	Summary
Section 01 20 00	Price and Payment Procedures
	Affidavit Certifying Payment to All Subcontractors
Section 01 21 00	Allowances
Section 01 23 00	Alternates
Section 01 30 00	Administrative Requirements
Section 01 32 00	Cutting and Patching
Section 01 32 16	Construction Progress Schedule
Section 01 40 00	Quality Requirements
Section 01 50 00	Temporary Facilities and Controls
Section 01 60 00	Product Requirements
Section 01 63 00	Substitutions and Product Options
	Substitution Request Form
Section 01 70 00	Execution and Closeout Requirements
Section 01 75 00	Warranties and Bonds
Section 01 78 00	Closeout Submittals
DIVISION 09	FINISHES
Section 09 91 23	Interior Painting

DIVISION 11

EQUIPMENT

Section 119000-1	16 Meter Diameter Dome Projection Screen
Section 119000-2	Two-Projector Fulldome Digital Space Simulator/Planetarium Projector
Section 119000-3	One Inset Instructional Projector
Section 119000-4	Sound System (PSS)
Section 119000-5-1	Basic LED RGB & Cove Lighting System
Section 119000-5-2	Add Alternate- White Light Cove Lighting System
Section 6000-1	Planetarium Control Console
Section 6000-2	Central Barrier for Planetarium
Section 12000-1	ADA-Compliant Fixed Seating
Section 12000-2	Moveable/Portable Storable Seating
Section 11000-6	Add Alternate Theatrical Lighting System
Section 11000-7	Add Alternate LASER Graphics Projection System

END OF TABLE OF CONTENTS

**INVITATION FOR BIDS
JACKSON PLANETARIUM IMPROVEMENTS
JACKSON REDEVELOPMENT AUTHORITY
JACKSON, MISSISSIPPI**

Sealed bids will be received by the Jackson Redevelopment Authority, Jackson, Mississippi until **2:00 PM local time on March 11, 2025**, at which time bids will be publicly opened and read aloud for:

**Jackson Planetarium Improvements
Jackson Redevelopment Authority
Jackson, Mississippi**

Proposals may be submitted electronically via www.centralbidding.com. For assistance with the electronic bidding process, please contact Central Bidding at 225-810-4814.

Bids may also be sent or delivered to:

Jackson Redevelopment Authority
Attention: Christopher Pike
218 South President Street
Jackson, MS 39201

Obtaining RFP Documents: The official bid documents may be obtained from the following sources:

1. Central Bidding Website: www.centralbidding.com
2. Jackson Redevelopment Authority's website: www.jrams.org

Questions regarding plan clarifications or requests for information should be directed to the architect as follows:

CDFL Architects + Engineers PA
601-366-3110 ext. 240
Attention: Daniel Zegel
Email: dzegel@cdfi.com

Jackson Redevelopment Authority hereby notifies all bidders that in compliance with Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. 2000d to 2000d-4 that all bidders will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

JRA is committed to the principle of non-discrimination in public contracting. It is the policy of the JRA to promote full and equal business opportunity for all persons doing business with the City. As a precondition of selection, each contractor, bidder, or offeror shall submit a completed and signed **Equal Business Opportunity (EBO) Plan Application**, with the bid submission, in accordance with the provisions of the City of Jackson's Equal Business Opportunity (EBO) Executive Order. Failure to comply with the City's Executive Order shall disqualify a contractor, bidder or offeror from being awarded an eligible contract. For more information on the City of Jackson's Equal Business Opportunity Program, please contact of the Division of Equal Business Opportunity at 601-960-1856. Copies of the Executive Order, EBO Plan Applications and a copy of the Program, as attached, are available at 200 South President Street, Second Floor, Jackson, Mississippi.

Bid preparation will be in accordance with the Instructions to Bidders bound in the project manual. The Jackson Redevelopment Authority reserves the right to reject any and all proposals, waive any irregularities or informalities in any proposal, and award the contract to the proposer deemed to offer the most advantageous proposal to JRA, as determined by JRA in its sole discretion.

Dates of Publication:

1st Ad – February 11, 2025
2nd Ad – February 18, 2025

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Document 01 10 00 - Summary.
- B. Document 00 41 00 - Bid Form.
- C. Document 00 73 13 - Supplementary Conditions

1.2 INVITATION

- A. Bid Submission:
 - 1. Bids shall be submitted before 2:00 p.m. local standard time on the eleventh (11th) day of March 2025.
- B. Work Identified in the Contract Documents:
 - 1. Work of this proposed Contract comprises Jackson Planetarium Improvements, including general construction Work.
 - 2. Location: Interior Improvements located at Jackson Planetarium.
- C. Contract Time:
 - 1. Perform the Work in 270 calendar days after issuance of Notice to Proceed.

1.3 BID DOCUMENTS AND CONTRACT DOCUMENTS

- A. Contract Documents Identification:
 - 1. The Contract Documents are Jackson Planetarium Improvements, as prepared by Architect who is located at 3221 Old Canton Road, Suite 200, Jackson, Mississippi 39216, and with contents as identified in the Table of Contents.
- B. Availability:
 - 1. Plans holders are required to register and order digital bid documents at www.cdfplanroom.com. All plan holders are required to have a valid email address for registration. Questions regarding website registration and online orders please contact Plan House Printing at (662) 407-0193.
 - 2. If applicable, deposits will be returned upon the Architect's receipt of the bid documents in good condition within ten (10) days after the opening of bids.
 - 3. No partial sets of documents will be issued or accepted for return.
 - 4. Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not grant a license for other purposes.
- C. Inquiries/Addenda:
 - 1. Direct questions to Daniel Zegel, email; dzege1@cdf1.com.
 - 2. Addenda may be issued during the bidding period. All Addenda become part of Contract Documents. Include resultant costs in the Bid Amount.
 - 3. Verbal answers are not binding on any party.

PART 2 QUALIFICATIONS

2.1 BIDDER'S QUALIFICATIONS

- A. The Owner may make such investigation as he deems necessary to determine the ability of the Bidder or subcontractors or suppliers to perform the Work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and/or to complete the work contemplated therein within the time required.
- B. The Bidder is specifically advised that any person, firm or other party to whom it proposes to award a subcontract or purchase order under this Contract must be acceptable to the Owner.
- C. Experience
 - 1. Bidder to have ten (10) or more years of experience with projects of similar scope and scale to this one.

2.2 CERTIFICATE OF RESPONSIBILITY

- A. Each Bidder submitting a bid in excess of \$50,000.00 on public projects and in excess of \$100,000.00 on private projects shall have a Certificate of Responsibility Number, as required by Section 31-3-5 and 31-3-21 (latest edition) Mississippi Code of 1972. If the bid does not exceed the amount of \$50,000.00 on public projects or \$100,000.00 on private projects, a notation so stating must appear on the bid form.
- B. When multiple contractors submit a joint venture bid in excess of \$50,000.00 on public projects or \$100,000.00 on private projects, a Joint Venture Certificate of Responsibility Number is required on the bid form. If the Joint Venture has no Joint Venture Certificate of Responsibility number, then each member of the Joint Venture must indicate their individual Certificate of Responsibility numbers on the bid form.
- C. Each Subcontractor whose Subcontract exceeds \$50,000.00 on public projects and \$100,000.00 on private projects shall have a Certificate of Responsibility Number, as required by Section 31-3-15 and 31-3-21 (latest version), Mississippi Code.
- D. No bid will be opened, considered or accepted unless the above information is given as specified. Sufficient evidence that said Certificate of Responsibility has been issued and is in effect at the time of receiving bids must be submitted when required by the Owner or the Architect. Likewise, it shall be the responsibility of the Prime Contractor to require a Certificate of Responsibility Number from any subcontractor where applicable.

PART 3 BID SUBMISSION

3.1 SUBMISSION PROCEDURE

- A. Bidders shall be solely responsible for the delivery of their bids in the manner and time prescribed.
- B. Submit one copy of the executed offer on the Bid Forms provided and deliver it in one of the following ways:
 - 1. In person or by mail to the following address:
Jackson Redevelopment Authority
Attn: Christopher Pike
218 South President Street

Jackson, MS 39201

2. Or electronically by submitting bids to www.centralbidding.com. For questions relating to the electronic bidding process, please call Central Bidding at 225-810-4814.

3.2 BID INELIGIBILITY

- A. The Owner reserves the right to award to other than the low Bidder when, in the Owner's judgment, it is in his best interest to do so. A bidder may be disqualified for such reasons as:
 1. Bidder's failure to comply with requirements regarding Certificates of Responsibility.
 2. Bidder's failure to sign Bidder's Proposal Form, or to otherwise properly complete the Proposal Form.
 3. Bidder being in arrears on existing contracts.
 4. Bidder being in litigation with the Owner.
 5. Bidder having defaulted on a previous contract.
 6. Bidder having performed unsatisfactorily on a previous contract, including but not limited to the Bidder's failure to fulfill the warranty obligations of a previous contract with the Owner.
- B. The above is not an inclusive list.
- C. Bids are by invitation, only from selected bidders. Bids from unsolicited bidders will be returned.

3.3 OBLIGATION OF BIDDER

- A. At the bid opening, each Bidder will be presumed to have inspected the site, read and become thoroughly familiar with the plans and specifications, including all addenda.
- B. Conditions of Work: Each Bidder must fully inform himself of all conditions relating to the construction of the Project and employment of labor thereon. Failure to do so will not relieve a successful Bidder of obligations to furnish all material and labor necessary to carry out the provisions of the Contract. Insofar as possible, the Bidder must employ methods, or means, which will not cause interruption of, or interference with, the work of any other Bidder, or Contractor.

3.4 PROPOSAL FORM

- A. Method of Bidding:
 1. Lump sum bids received from General Contractors which shall include general, mechanical, electrical and site work as well as other work shown on and reasonably inferable from the plans and specifications.
 2. The Owner reserves the right to reject any bid if the evidence submitted by Bidder fails to satisfy the Owner that the Bidder has satisfactory qualifications and prior experience performing such work and/or furnishing such materials, equipment and/or products.
- B. Proposal Forms:
 1. The Bidder shall submit its proposal on forms provided and shall fill all applicable blank spaces without interlineation or alteration and must not restate the work to be done. No oral or telegraphic proposals will be considered.
 2. By submission of its bid, Bidder agrees to commence work on or before the date specified in a written notice to proceed and to fully complete the work within the time stated in the bid proposal form.
- C. Substitutions:
 1. No substitutions, qualifications or redefining of the Specification requirements are allowed to be marked on the Proposal Form, unless specifically required by the Bid Documents.
- D. Bidder Identification:

1. Signature: The Proposal Form shall be signed by any individual authorized to bind the Bidder.
 2. Name of Bidder: The name appearing on the Proposal Form should be the same as the name appearing in the current Mississippi State Board of Contractors Roster
 3. Legal Address: The address appearing on the Proposal Form should be the same address appearing in the current Mississippi State Board of Contractors Roster.
 4. Certificate of Responsibility Number(s): The Certificate of Responsibility Number(s) appearing on the Proposal Form should be the same number appearing in the current Mississippi State Board of Contractors Roster.
- E. Performance Assurance:
1. Accepted Bidder: Provide a Performance bond as described in 00 73 00 - Supplementary Conditions.
 2. Include the cost of performance assurance bonds in the Bid Amount.
- F. Insurance:
1. Provide an executed "Certificate of Insurance" on the form provided in accordance with the insurance requirements of the Contract Documents.

3.5 SUBMITTING THE PROPOSAL FORM

- A. Submittal: A bid must be delivered to the All bids must be delivered before 2:00 PM on March 11, 2025.

Name of Bidder
(As it appears in the current Mississippi
State Board of Contractors Roster)

CDFL Architects + Engineers
Attn: Daniel Zegel
3221 Old Canton Road #200
Jackson, MS 39216

Bid for: Jackson Planetarium Improvements
Bid 25-002
201 E Pascagoula St
Jackson, MS 39201

Certificate of Responsibility # _____

- B. Withdrawal of Bid: Any bid may be withdrawn prior to the scheduled time for opening of bids or authorized postponement of same. Any bid received after the date and time specified will not be considered. However, bids received at the scheduled time constitute irrevocable offers to contract at the price in the bid and may not be withdrawn until sixty (60) days after opening of bids.

PART 4 BID OPENING AND AWARD OF CONTRACT

4.1 OPENING OF BIDS

- A. Bids will be opened at the time stated in the Advertisement for Bids.

4.2 IRREGULARITIES

- A. The omission of any information requested on the Proposal Form may be considered as an informality, or irregularity, by the Owner when in his opinion the omitted information does not alter the amount contained in the submitted bid proposal, or place other Bidders at a disadvantage.

4.3 ERRORS

- A. Any claim of error and request for release from bid must be delivered in writing to the Owner within twenty-four (24) hours after the bid opening. The Bidder shall provide sufficient documentation with the written request clearly proving an error was made and the Bidder's intended bid.

4.4 AWARD OF CONTRACT

- A. The Owner reserves the right to reject any, or all bids and to waive any and all irregularities. If awarded, a contract will be awarded to a responsible Bidder whose responsive bid proposal is the lowest and best bid.

4.5 SECURITY FOR FAITHFUL PERFORMANCE

- A. Simultaneously with delivery of the executed Contract, the Contractor will furnish Performance and Payment Bonds, as security for faithful performance, the payment of all persons performing labor on the project, and furnishing materials in connection with this Contract. The Surety on such Bonds will be a duly authorized surety company licensed to do business in Mississippi and satisfactory to the Owner and meeting all of the following requirements:
 1. Licensed at the time of award by the State of Mississippi's Commissioner of Insurance for the purpose of providing surety.
 2. Listed at the time of award in the Department of the Treasury's Federal Register as a company holding certificates of authority as acceptable sureties on Federal Bonds, commonly referred to as the Treasury List.
 3. All Bonds shall be countersigned by a Mississippi resident agent with the name and address typed, or lettered legibly.
 4. All Bonds must be accompanied by an appropriate Power of Attorney.

PART 5 BIDDER'S CHECKLIST

5.1 THE FOLLOWING CHECKLIST IS FOR THE BIDDER'S ASSISTANCE ONLY. IT IS NOT INCLUSIVE AND IS NOT A PART OF THE BID DOCUMENTS. THEREFORE, THIS CHECKLIST SHOULD NOT BE INCLUDED WITH THE PROPOSAL FORM WHEN SUBMITTING A BID PROPOSAL.

5.2 PROPOSAL FORM CHECKLIST

- A. Base Bid: Write in the amount of the base bid in words and numbers.
- B. Addenda: Acknowledge the receipt of each addendum by writing in the number of the addendum and the date received.
- C. Acceptance:
 1. Proposal is signed by authorized person.
 2. Name of Business is as it appears in the current Mississippi State Board of Contractors Roster.
 3. Legal address of the business listed above.

4. Correct Certificate of Responsibility Number(s) as it appears in the current Mississippi State Board of Contractors Roster.
- D. Certificate of Responsibility Number(s):
1. Base Bid is under \$50,000 for public projects and under \$100,000 and no number is required.
 2. Base Bid is under \$50,000 for public projects or \$100,000 for private projects and the statement "bid does not exceed \$50,000 on public projects or \$100,000 on private projects" is on the outside of the bid envelope.
 3. Base Bid is over \$50,000 on public projects or \$100,000 on private projects and number is required.

5.3 DURATION OF OFFER

- A. Bids shall remain open to acceptance and shall be irrevocable for a period of sixty (60) days after the bid closing date.

5.4 ACCEPTANCE OF OFFER

- A. Owner reserves the right to accept or reject any or all offers.
- B. After acceptance by Owner, Architect on behalf of Owner, will issue to the successful bidder, a written letter of Contract Award.

END OF SECTION

SECTION 00 41 00

BID FORM

THE PROJECT AND THE PARTIES

1.1 TO

- A. Owner:
Jackson Redevelopment Authority
218 S President Street
Jackson, MS 39201

1.2 JACKSON PLANETARIUM IMPROVEMENTS

- A. Project: Jackson Planetarium Improvements
Bid File 25-002

1.3 LOCATION

- A. Jackson Planetarium
201 E Pascagoula Street
Jackson, MS 39201

1.4 OFFER

- A. Having examined all conditions of the Contract and all Amendments, Supplements and Addenda thereto, having visited the site and being familiar with the conditions thereof, I or We propose to furnish all labor, materials and equipment to complete all work required by the Contract Documents entitled Jackson Planetarium Improvements for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum of:

BASE BID:

_____ Dollars (\$ _____)

BID ALTERNATES:

The following Alternates which modify the Scope of the Work per Section 01 23 00 may be selected by the Owner as it determines to be in its best interest.

- A. Alternate No. 1: White Light Cove Lighting System
Add/Deduct to the "Base Bid" the sum of:
_____ Dollars (\$ _____)

- B. Alternate No. 2: Theatrical Lighting System
Add/Deduct to the "Base Bid" the sum of:
_____ Dollars (\$ _____)

- C. Alternate No. 3: LASER Graphics Projection System
Add/Deduct to the "Base Bid" the sum of:
_____ Dollars (\$ _____)

1.5 ACCEPTANCE

- A. This offer shall be open to acceptance and is irrevocable for sixty days from the bid closing date.
- B. If this bid is accepted by Owner within the time period stated above, we will:
 - 1. Furnish the required bonds and certificate of insurance within ten days of receipt of Notice of Award.
- C. If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required Bond(s), the security deposit shall be forfeited as damages to Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this bid and the bid upon which a Contract is signed.

1.6 TIME OF COMPLETION

- A. If this Bid is accepted, we will:
- B. Complete the Work in 270 calendar days from Notice to Proceed.

1.7 LIQUIDATED DAMAGES

- A. The stipulated liquidated damages described in Paragraph 9.11 of the Supplementary Conditions are in the amount of **\$250.00** for each calendar day.

1.8 UNIT PRICES

- A. The following are Unit Prices for specific portions of the Work as listed. The following is the list of Unit Prices:

1.9 ADDENDA

- A. The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.
 - 1. Addendum # _____ Dated _____.
 - 2. Addendum # _____ Dated _____.
 - 3. Addendum # _____ Dated _____.
 - 4. Addendum # _____ Dated _____.
 - 5. Addendum # _____ Dated _____.

1.10 GUARANTEE OF WORK

- A. Upon completion of work and prior to final payment, the Contractor shall provide **Jackson Redevelopment Authority** with a written guarantee warranting that all workmanship and materials are free from defects and that he shall promptly repair or replace without additional cost to the Owner any defects which evidence themselves within one (1) year after date of completion and acceptance of work.

I am authorized to enter my firm into a binding contract if this proposal is accepted.

Respectfully submitted,

Contractor / Firm: _____

Name & Title: _____

By: _____ Date: _____

Certificate of
Responsibility No. _____

I, or We, agree to hold our bid open for acceptance for sixty (60) calendar days from the date of opening bids.

Enclosed herewith is Bid Bond or Certified Check in an amount equal to five percent (5%) of the Base Bid, guaranteeing the Owner the execution of the Performance and Payment Bonds and the Contract.

1.11 BID FORM SIGNATURE(S)

TO BE FILLED IN IF A CORPORATION

Date: _____

Company Name: _____

Our Corporation is chartered under the laws of the State of _____,
and the names, titles and business addresses of the executives are as follows:

President: _____

Address: _____

Secretary: _____

Address: _____

Treasurer: _____

Address: _____

TO BE FILLED IN IF A PARTNERSHIP

Date: _____

Company Name: _____

Our Corporation is chartered under the laws of the State of _____,
and the names, titles and business addresses of the executives are as follows:

Name: _____

Address: _____

Name: _____

Address: _____

Name: _____

Address: _____

TO BE FILLED IN IF A SOLE PROPRIETORSHIP

Date: _____

Company Name: _____

Name: _____

Address: _____

Bidder certifies that he is a:

_____ Resident Contractor

_____ Non-Resident Contractor

Bids should be received prior to **2:00 pm on Tuesday, March 11, 2025** through Central Bidding website, www.centralbidding.com. Bids may also be sent or delivered to Jackson Redevelopment Authority, Attention: Christopher Pike, 218 South President Street, Jackson, MS 39201.

Provide Certificate of Responsibility on outside of envelope.

Bid Proposal for:

**Jackson Planetarium Improvements
Bid File 25-002
Jackson Redevelopment Authority**

END OF SECTION

CITY OF JACKSON, MISSISSIPPI

Chokwe Antar Lumumba

Mayor

**EQUAL BUSINESS OPPORTUNITY (EBO)
PLAN**

**Department of Planning and Development
Division of Equal Business Opportunity**

**200 South President Street
Jackson, Mississippi 39205-0017
(601) 960-1856**

CITY OF JACKSON, MISSISSIPPI
EQUAL BUSINESS OPPORTUNITY EXECUTIVE
ORDER

LEGAL NOTICE

The City of Jackson is committed to the principle of non-discrimination in public contracting. It is the policy of the City of Jackson to promote full and equal business opportunity for all persons doing business with the City. As a pre-condition to selection, every contractor, bidder or offeror shall submit a *completed and signed* Equal Business Opportunity (EBO) Plan with the bid submission, in accordance with the provisions of the City of Jackson's Equal Business Opportunity (EBO) Executive Order. Failure to comply with the City's Executive Order shall disqualify a contractor, bidder or offeror from being awarded an eligible contract.

For more information on the City of Jackson's Equal Business Opportunity Program, please contact the Division of Equal Business Opportunity at 960-1856. Copies of the EBO Executive Order EBO Plan Application, EBO Program, the MBE/FBE Directory and the MBE/FBE Certification Affidavit are available at 200 South President Street, Suite 223, Jackson, Mississippi.



(EBO FORM 7-1-2013)

EQUAL BUSINESS OPPORTUNITY SPECIAL NOTICE TO BIDDERS

POLICY

The City of Jackson is committed to the principle of non-discrimination in public contracting. Therefore, the City of Jackson requests that prospective vendors and contractors carefully examine their method of selecting subcontractors and suppliers, to ensure that they are not either actively, or passively, discriminating against MBEs and FBEs. As a bidder seeking to do business with the City of Jackson, you are expected to adhere to a policy of non-discrimination, and to make the maximum practicable effort to ensure that historically underutilized firms are given an opportunity to participate in the performance of contracts financed in whole, or in part, with City funds.

DEFINITIONS

For purposes of this policy, the following definitions will apply:

- (1) **“African American Business Enterprise (AABE)”** shall mean a business that is an independent and continuing enterprise for profit, performing a commercially useful function and is owned and controlled by one or more African Americans and certified as such by the Division of Business Development.
- (2) **“Asian American Business Enterprise (ABE)”** shall mean a business that is an independent and continuing enterprise for profit, performing a commercially useful function and is owned and controlled by one or more Asian Americans, and certified as such by the Division of Business Development.
- (3) **“Hispanic Business Enterprise (HBE)”** shall mean a business that is an independent and continuing enterprise for profit performing a commercially useful function and is owned and controlled by one or more Hispanics, and certified as such by the Division of Business Development.
- (4) **“Minority Business Enterprise (MBE)”** shall mean a business which is an independent and continuing operation for profit, performing a commercially useful function as is owned and controlled by one or more non-White persons regardless of gender.
- (5) **“Female Business Enterprise (FBE)”** shall mean a business which is an independent and continuing enterprise for profit, performing a commercially useful function and is owned and controlled by one or more females regardless of any race and certified as such by the City of Jackson’s Division of Business Development.

OBLIGATION

The Contractor and any Subcontractor shall take all necessary and reasonable steps to ensure that MBEs and FBEs have a maximum opportunity to compete for and participate in the performance of any portion of the work included in this contract and shall not discriminate on the basis of race, color, national origin or sex. If it is determined that there is a significant underutilization of MBEs and FBEs, the Equal Business Opportunity Officer is empowered, pursuant to section 127-8 of the Equal Business Opportunity Executive Order, to conduct an investigation to determine the reasons for the underutilization.

GOALS

The goals for participation by MBEs and FBEs are established by the Equal Business Opportunity Executive Order of the City of Jackson. The Contractor shall exercise all necessary and reasonable steps to ensure that participation meets or exceeds the contract goals. The goals may be attained by subcontracting to, procuring materials from, and renting equipment from MBEs and FBEs. *(See Subcontractor/Supplier Participation guidelines below.)*

The Equal Business Opportunity participation goals are as follows:

PROCUREMENT CATEGORY	Asian (ABE)	African- American (AABE)	Hispanic (HBE)	Native American (NABE)	Female (FBE)
A/E & Professional Services	0.16	8.67	0.00	0.00	1.96
Construction	0.00	12.41	0.37	0.00	4.89
Goods & Non-Professional Services	0.04	6.78	0.02	0.00	3.03

Those portions of the contract that are proposed for MBEs and FBEs in the response to this bid shall be listed on the attached Equal Business Opportunity Plan.

For specific information about the Equal Business Opportunity Plan, please contact the Office Equal Business Opportunity at (601) 960-1856.

*Non-white female firms cannot be utilized twice on the EBO Plan even though those firms can be certified as either ABE, AABE, HBE, NABE, FBE or both. The firm can only be utilized in one category to fulfill the minority participation goals on the EBO Plan.

Contractors may employ AABEs, HBES, ABEs or FBEs to meet the applicable project goals through various methods, as follows:

A. Subcontractor Participation

- (i) Where a prime contractor utilizes one or more subcontractors to satisfy its equal business opportunity commitment, the prime contractor may count toward its EBO Plan only expenditures to MBE (AABE, HBE, or ABE) or FBE contractors that perform a commercially useful function in the work of the contract.
- (ii) An MBE or FBE subcontractor is considered to perform a commercially useful function when it is responsible for execution of a distinct element of the work of a contract and carries out its responsibilities by actually performing, managing and supervising the work involved. In determining whether an MBE or FBE subcontractor, is performing a commercially useful function, factors, including but not limited to the following, will be considered:
 - (a) the amount of work subcontracted;
 - (b) the type of prime contract;
 - (c) whether the business has the skill and expertise to perform work for which it is being/has been certified;
 - (d) whether the business actually performs, manages and supervises the work for which it is being/has been certified; and
 - (e) whether the business purchases goods and/or services from a non-minority/women

business enterprise and simply resells goods to the city, city contractor, or other person doing business with the city for the purpose of allowing those goods to be counted towards fulfillment of the minority/women business enterprise utilization goals.

- (f) standard industry practices.
- (iii) Consistent with standard industry practices, an MBE or FBE subcontractor may enter into second tier subcontracts. If an MBE or FBE subcontractor subcontracts a significantly greater portion of the work of its subcontract to a non-minority, non-female owned firm than would be expected on the basis of standard industry practices, it shall be presumed that the MBE or FBE subcontractor is not performing a commercially useful function.

B. Suppliers Participation

Where a prime contractor utilizes one or more suppliers to satisfy its EBO commitment, in whole or in part, the MBE or FBE supplier participation may be credited towards the applicable goal as follows:

- (i) 100 percent of the contract amount for MBE or FBE suppliers who manufacture the goods supplied.
- (ii) 100 percent of the contract amount for MBE and FBE suppliers who are wholesalers warehousing the goods supplied or who are manufacturers' representatives, provided that only 25 percent of the applicable MBE or FBE goal may be attained by non-manufacturing supplier contracts to MBEs or FBEs.
- (iii) For those contracts where an extraordinarily large proportion of the contract price is for equipment or supplies, a lower project goal may be set than otherwise would be required, or the 25 percent limit for suppliers may be increased, or a combination of these two methods may be utilized.

C. Joint Ventures and Mentor-Protégé Programs

- (i) The Division of Equal Business Opportunity shall encourage, where economically feasible, the establishment of joint ventures and mentor protégé programs to ensure prime contracting opportunities for African American, Hispanic, Asian American, Native American and Female Business Enterprises on all eligible projects over \$3,000,000.00. Even if the prime itself is a MBE, a joint venture between prime contractors and MBEs is strongly encouraged on all projects exceeding three million dollars (\$3,000,000.00).
- (ii) Where a contractor engages in a joint venture to satisfy its Equal Business Opportunity Commitment, the Equal Business Opportunity Officer shall review and approve all contractual agreements regarding:
 - (a) The initial capital investment of each venture partner;
 - (b) The proportional allocation of profits and losses to each venture partner;
 - (c) The sharing of the right to control the ownership and management of the joint venture;
 - (d) Actual participation of the venture partners in the performance of the contract;
 - (e) The method of and responsibility for accounting;
 - (f) The methods by which disputes are resolved; and

- (g) Other pertinent factors of the joint venture.

On the basis of these factors, the Equal Business Opportunity Officer shall determine the degree of AABE, HBE, ABE, or FBE participation resulting from the joint venture that may be credited towards the applicable EBO goals of the project.

The bidder or offeror shall provide the Equal Business Opportunity Officer access to review all records pertaining to joint venture agreements before and after the award of a contract reasonably necessary to assess compliance with this policy.

The Equal Business Opportunity Program also encourages Mentor-Protégé programs to assist African American, Hispanic, Asian American, and Female business enterprises in financing, bonding, construction management and technical assistance. Mentor-Protégé agreements will be reviewed by the Equal Business Opportunity Officer for final approval of the following terms of each agreement:

- (a) type of technical assistance to be provided by mentor;
- (b) rights and responsibilities of each mentor and protégé contracting activity;
- (c) the specific duration of the agreement;
- (d) the amount of participation by the protégé that may be credited toward the applicable EBO goal.

EQUAL BUSINESS OPPORTUNITY PLAN

In accordance with Section IV of the City of Jackson's Equal Opportunity Executive Order No. 2015 – 3, each contractor, bidder or offeror shall submit a completed and signed Equal Business Opportunity Plan with bid submission. Such plan should be titled "Equal Business Opportunity Plan (EBO Plan)" and should include the following:

- A. Names, addresses and contact persons of each African American Business Enterprise, Asian Business Enterprise, Hispanic Business Enterprise, and Female Business Enterprise to be used in the contract.
- B. The type of work or service each African American Business Enterprise, Asian Business Enterprise, Hispanic Business Enterprise, and Female Business Enterprise will perform.
- C. The dollar value of the work or service to be performed by each African American Business Enterprise, Asian Business Enterprise, Hispanic Business Enterprise, and Female Business Enterprise.
- D. Scope of the work to be performed by each African American Business Enterprise, Asian Business Enterprise, Hispanic Business Enterprise, and Female Business Enterprise.

Waiver

If the EBO Plan does not meet the project goals, the bidder or offeror must seek a partial or total waiver of the project goals. The application for waiver of all or part of the project goals must include full documentary evidence of the bidder's or offeror's good faith efforts (*see EBO Plan Application*) to meet the project goals and why the request for waiver should be granted. The application shall be in writing and submitted as a part of the bid or offer. It should include a narrative, affidavits and/or exhibits which verify the actions taken by the bidder or offeror to meet the goals.

Replacement

If a MBE/FBE Subcontractor cannot perform satisfactorily, the Contractor shall take all necessary reasonable steps to replace the Subcontractor with another MBE/FBE Contractor. All MBE/FBE replacements must be approved by the EBO Review Committee and the Department. (See *EBO Plan Application*)

To demonstrate necessary reasonable efforts to replace any Subcontractor that is unable to perform successfully, the Contractor must document steps taken to subcontract with another MBE/FBE Contractor.

CITY OF JACKSON, MISSISSIPPI
EQUAL BUSINESS OPPORTUNITY PLAN

I. **Company Name:** _____
Address: _____
City: _____ **State:** _____ **ZIP Code:** _____
Telephone: (_____) _____
E-mail: _____

II. **Bid Name and Number:** _____

III. **PROPOSED MINORITY AND/OR FEMALE SUBCONTRACTORS:** *(SEE ATTACHMENTS)*

If a prime contractor utilizes one or more suppliers to satisfy its EBO commitment, all MBE or FBE supplier participation will be credited in accordance to Section VI(C)(I) of the EBO Executive Order No. 2014-3

IV. **Total Bid Amount:** \$ _____

V. **WAIVER REQUESTED ...** *(If you fail to meet either or all of the EBO Participation Goals, check this box and follow the directions below to provide the required ***WAIVER STATEMENT***. The "Waiver Statement" should be submitted on company letterhead to the EBO Officer.)*

*** The bidder/offeror shall provide the following as evidence of its good faith efforts and will be evaluated on the same:**

- (a) **Copies of written notification to MBEs and FBEs soliciting their participation as a subcontractor.**
- (b) **Evidence of efforts made to divide the work into economically feasible units in order to increase the likelihood of meeting the EBO participation goals.**
- (c) **Evidence of efforts made to negotiate with MBEs and/or FBEs, including, at a minimum:**
 - 1. **The names, addresses, and telephone numbers of the MBE and FBEs who were contacted.**
 - 2. **A description of the information provided to MBEs and FBEs regarding the plans and specifications for portions of the work to be performed.**
 - 3. **A statement of reasons why additional agreements with MBEs and FBEs, if needed to meet the stated goals, were not reached.**
 - 4. **Evidence of efforts made to assist the MBEs and FBEs contacted who need assistance in obtaining bonding and insurance which the bidder or offeror requires.**

5. For each MBE and FBE contacted which the bidder or offeror considered to be not qualified, include a written statement of the reasons for the bidder's or offeror's conclusion.
6. Written quotes solicited from all MBEs and FBEs seeking subcontract work with Prime Contractors at the time of the bidding.
7. A statement with supporting documentation and affidavits indicating whether the offeror has used MBEs and/or FBEs as joint venture partners or subcontractors in past or present private sector contracts in Jackson.

**If you are unable to locate an MBE/FBE, please contact the Business Development Division at (601) 960-1055 or (601) 960-1856.*

VI. Minority and Female Business Enterprise Actual Participation for this Bid/Offer/Proposal:

(Please list your MBE and FBE Project Participation percentages (%) in the Table below.)*

PROCUREMENT CATEGORY	Asian (ABE)	African-American (AABE)	Hispanic (HBE)	Native American (NABE)	Female (FBE)
A/E & Professional Services					
Construction					
Goods & Non-Professional Services					

VII. REPLACEMENT OF MBE/FBE

If an MBE or FBE is not performing satisfactorily, it is the responsibility of the Prime Contractor to notify the EBO Office immediately both in writing and by phone. All MBE/FBE replacements must be approved by the Equal Business Opportunity Review Committee (EBORC). If these steps are not taken this will result in penalties as outlined in Section XI of the EBO Executive Order No. 2015-3

VIII. CERTIFICATION

I certify, under penalties of perjury, that the information contained in this Equal Business Opportunity Plan Application is true and accurate to the best of my knowledge, and that my company fully intends to utilize all MBEs and FBEs listed if awarded the proposed project and/or service and abide by all EBO guidelines.

Authorized Signature and Title

Date

PRINT "AUTHORIZED" NAME HERE: _____

EQUAL BUSINESS OPPORTUNITY PLAN APPLICATION -- ATTACHMENT

Proposed Minority/Female Business Enterprise Firms

Company Name: _____ Type Trade/Business: _____

Address: _____

Type Minority Business (MBE/FBE):

City, State, ZIP: _____

_____ Female (FBE)

_____ African-American (AABE)

Contact Person: _____

_____ Asian (ABE)

_____ Hispanic (HBE)

Telephone Number: _____

_____ Native American (NABE)

Type Minority Business (MBE/FBE) Involvement:

_____ Subcontractor

_____ Supplier

_____ Joint Venture

_____ Mentor-Protégé

Type Work or Service to be Performed: _____

Scope of Work to be Performed: _____

Dollar Value of the Work to Be Performed by the Minority Business (MBE and/or FBE): \$ _____

Percentage of MBE and/or FBE Participation: _____ %

Company Name: _____ Type Trade/Business: _____

Address: _____

Type Minority Business (MBE/FBE):

City, State, ZIP: _____

_____ Female (FBE)

_____ African-American (AABE)

Contact Person: _____

_____ Asian (ABE)

_____ Hispanic (HBE)

Telephone Number: _____

_____ Native American (NABE)

Type Minority Business (MBE/FBE) Involvement:

_____ Subcontractor

_____ Supplier

_____ Joint Venture

_____ Mentor-Protégé

Type Work or Service to be Performed: _____

Scope of Work to be Performed: _____

Dollar Value of the Work to Be Performed by the Minority Business (MBE and/or FBE): \$ _____

Percentage of MBE and/or FBE Participation: _____ %

Company Name: _____ Type Trade/Business: _____

Address: _____

Type Minority Business (MBE/FBE):

City, State, ZIP: _____

- _____ Female (FBE)
- _____ African-American (AABE)
- _____ Asian (ABE)
- _____ Hispanic (HBE)
- _____ Native American (NABE)

Contact Person: _____

Telephone Number: _____

Type Minority Business (MBE/FBE) Involvement:

_____ Subcontractor _____ Supplier
_____ Joint Venture _____ Mentor-Protégé

Type Work or Service to be Performed: _____

Scope of Work to be Performed: _____

Dollar Value of the Work to Be Performed by the Minority Business (MBE and/or FBE): \$ _____

Percentage of MBE and/or FBE Participation: _____ %

Company Name: _____ Type Trade/Business: _____

Address: _____

Type Minority Business (MBE/FBE):

City, State, ZIP: _____

- _____ Female (FBE)
- _____ African-American (AABE)
- _____ Asian (ABE)
- _____ Hispanic (HBE)
- _____ Native American (NABE)

Contact Person: _____

Telephone Number: _____

Type Minority Business (MBE/FBE) Involvement:

_____ Subcontractor _____ Supplier
_____ Joint Venture _____ Mentor-Protégé

Type Work or Service to be Performed: _____

Scope of Work to be Performed: _____

Dollar Value of the Work to Be Performed by the Minority Business (MBE and/or FBE): \$ _____

Percentage of MBE and/or FBE Participation: _____ %

SECTION 00 50 00

CONTRACTING FORMS AND SUPPLEMENTS

PART 1 GENERAL

1.1 CONTRACTOR IS RESPONSIBLE FOR OBTAINING A VALID LICENSE TO USE ALL COPYRIGHTED DOCUMENTS SPECIFIED BUT NOT INCLUDED IN THE PROJECT MANUAL.

1.2 AGREEMENT AND CONDITIONS OF THE CONTRACT

- A. See Section 00 52 00 - Agreement Form for the Agreement form to be executed.
- B. See Section 00 72 00 - General Conditions for the General Conditions.
- C. See Section 00 73 00 - Supplementary Conditions for the Supplementary Conditions.
- D. The Agreement is based on AIA A101.
- E. The General Conditions are based on AIA A201.

1.3 FORMS

- A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in Contract Documents.
- B. Bond Forms:
 - 1. Performance and Payment Bond Form: AIA A312.
- C. Post-Award Certificates and Other Forms:
 - 1. Certificate of Insurance Form: Included in Project Manual.
 - 2. Application for Payment Forms: AIA G702 with AIA G703 (for Contractors).
- D. Clarification and Modification Forms:
 - 1. Architect's Supplemental Instructions Form: AIA G710.
 - 2. Construction Change Directive Form: AIA G714.
 - 3. Change Order Form: AIA G701.
- E. Closeout Forms:
 - 1. Certificate of Substantial Completion Form: AIA G704.
 - 2. Affidavit of Payment of Debts and Claims Form: AIA G706.
 - 3. Consent of Surety to Final Payment Form: AIA G707.

1.4 REFERENCE STANDARDS

- A. AIA A101 - Standard Form of Agreement Between Owner and Contractor where the basis of Payment is a Stipulated Sum; 2007.
- B. AIA A201 - General Conditions of the Contract for Construction; 2007.
- C. AIA A312 - Performance Bond and Payment Bond; 2010.
- D. AIA G701 - Change Order; 2001.
- E. AIA G702 - Application and Certificate for Payment; 1992.

- F. AIA G703 - Continuation Sheet; 1992.
- G. AIA G704 - Certificate of Substantial Completion; 2000.
- H. AIA G710 - Architect's Supplemental Instructions; 1992.
- I. AIA G714 - Construction Change Directive; 2007.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 00 52 00
AGREEMENT FORM

PART 1 GENERAL

1.1 DESCRIPTION

- A. DOCUMENT: The Owner will use the Standard Form of Agreement Between the Owner and Contractor where the basis of payment is a Stipulated Sum, AIA Document A101, 2017 as a part of the Contract Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

**ADDITIONAL CONTRACT PROVISIONS
FOR THE JACKSON PLANETARIUM IMPROVEMENTS
AS REQUIRED BYARPA**

This contract is funded in whole or in part by federal award funds from the CDBG and must fully comply with the Uniform Guidance for Federal Awards. Accordingly, the following provisions will be incorporated into the Contract Documents.

1. The Contractor must comply with the Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). All prime construction contracts in excess of \$2,000 that will rely on federal award funds for construction, alteration, repair, painting, or decorating involving public buildings or public works must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”).¹
 - A. In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor.
 - B. In addition, contractors must be required to pay wages not less than once a week.
 - C. The City must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination.
 - D. The Contractor must report all suspected or reported violations to the Federal awarding agency, U.S. Treasury.
 - E. The prevailing wage rates and fringe benefit requirements for this project are as set forth in the DOL Wage Determination Number [MS20250051], which is attached hereto and incorporated herein by reference.

¹ 2 CFR § 200, Appendix II

² 2 CFR § 200, Appendix II.

- F. The Contractor shall submit weekly certified payroll records, including the name, classification, hourly rate, number of hours worked, and fringe benefits paid to each worker, to CDFL Architects + Engineers PA with each monthly pay application. Certified payroll records must be signed and dated by the Contractor or their authorized representative, certifying compliance with the Davis-Bacon Act requirements.
 - G. The Contractor shall ensure that all subcontractors performing work under this contract comply with the Davis-Bacon Act requirements and incorporate this addendum into all subcontracts. The Contractor shall monitor subcontractor compliance with prevailing wage requirements and report any violations to the awarding agency.
 - H. The City of Jackson shall have the right to conduct inspections of the project site to verify compliance with the Davis-Bacon Act requirements. Any violations of the Davis-Bacon Act may result in contract penalties, including liquidated damages, withholding of payments, or termination of the contract.
-
- 2. The Contractor must comply with the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Act provides that each Contractor or Subcontractor must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The Contractor must report all suspected or reported violations to the Federal awarding agency, U.S. Treasury.
 - 3. The Contractor must comply with the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). All contracts awarded by the City in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5).² Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours.

Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

4. The Contractor must comply with the Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended. Contracts of amounts in excess of \$150,000 require the Contractor to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the City who will in turn report to the Department of Treasury and the Regional Office of the Environmental Protection Agency (EPA).
5. The Contractor must comply with the Solid Waste Disposal Act. The Contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.
6. Prohibition on Certain Telecommunication and Video Surveillance Services or Equipment. Federal award funds may not be spent to:
 - (1) Procure or obtain;
 - (2) Extend or renew a contract to procure or obtain; or
 - (3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

7. Domestic Preference for Procurements. As appropriate and to the extent consistent with law, Contractor should, to the greatest extent practicable under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all contracts and purchase orders for work or products under this award.

For purposes of this section:

- (1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
- (2) "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

8. The Contractor must evaluate and disclose promptly in writing any apparent or actual conflict of interest with the City of Jackson or any of its personnel, officers, or agents.

9. The City must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible.

Affirmative steps must include:

- a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- b) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
- c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
- d) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
- e) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and
- f) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in (a) – (e).

10. The Terms and Conditions of the American Rescue Plan Act award require that the Contractor complies with:
 - A. Title VI of the Civil Rights Act of 1964 (42 U.S.C. §§ 2000d *et seq.*) and Treasury's implementing regulations at 31 C.F.R. Part 22, which prohibit discrimination on the basis of race, color, or national origin under programs or activities receiving federal financial assistance;
 - B. The Fair Housing Act, Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§ 3601 *et seq.*), which prohibits discrimination in housing on the basis of race, color, religion, national origin, sex, familial status, or disability;
 - C. Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794), which prohibits discrimination on the basis of disability under any program or activity receiving federal financial assistance;
 - D. The Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101 *et seq.*) and Treasury's implementing regulations at 31 CFR Part 23, which prohibit discrimination on the basis of age in programs or activities receiving federal financial assistance; and
 - E. Title II of the Americans with Disabilities Act of 1990, as amended (42 USC §§ 12101 *et seq.*), which prohibits discrimination on the basis of disability under programs, activities, and services provided or made available by state and local governments or instrumentalities or agencies thereto.
11. Any publications produced with funds from the American Rescue Plan Act must display the following language: "This project is/was supported, in whole or in part, by an award to Jackson, Mississippi, by the U.S. Department of the Treasury."
12. Pursuant to Executive Order 13043, 62 FR 19217 (Apr. 18, 1997), Contractor should encourage its contractors to adopt and enforce on-the-job seat belt policies and programs for their employees when operating company-owned, rented or personally owned vehicles.
13. Pursuant to Executive Order 13513, 74 FR 51225 (Oct 6, 2009), Contractor should encourage its employees and subcontractors to adopt and enforce policies that ban text messaging while driving, and Contractor should establish workplace safety policies to decrease accidents caused by distracted drivers.
14. Contractor is responsible for ensuring that all contracts it awards and/or executes associated with this project have all the applicable contract provisions and certifications required by 2 CFR Part 200.

15. The Contractor shall maintain all records related to this project for three years after the closeout of this contract and shall allow the City or its representative access to said records promptly upon request.

16. Requests for payment under this contract must include a certification, signed by an official who is authorized to legally bind the Contractor, which reads as follows: “By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and objectives set forth in the terms and conditions of the Federal award. I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (U.S. Code Title 18, Section 1001 and Title 31, Sections 3729-3730 and 3801-3812).”

17. Contractor is responsible for contract administration in accordance with the 2 CFR Part 200 for all subcontracts issued by Contractor.

18. The cost plus a percentage of cost and percentage of construction cost methods of contracting must not be used in any aspect of this contract or associated contracts entered into by the Contractor that will be paid by federal award funds.

19. Contractor must complete all required attached certifications.

CERTIFICATION REGARDING DEBARMENT AND SUSPENSION

The undersigned certifies, to the best of his or her knowledge and belief, that neither it nor its principals:

1. Are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency;
2. Have been convicted or had a civil judgment rendered against them within a three-year period preceding this application for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; or
4. Have within a three-year period preceding this application had one or more public transactions (Federal, State, or local) terminated for cause or default.

The undersigned shall require that the language of this certification be included in all subcontracts and other contracts associated with this project and that all subcontractors and vendors shall certify and disclose accordingly.

I declare that the foregoing is true and correct.

Contractor Representative

Signature

Name of Official

Title

Date of Execution

BYRD ANTI-LOBBYING CERTIFICATION

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal Loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of and Federal contract, grant, loan, or cooperative agreement.
2. If any funds have been paid, or will be paid, to any person for making lobbying contacts to an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form—LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions [as amended by “Government wide Guidance for New Restrictions on Lobbying,” 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, et.seq.)
3. The undersigned shall require that the language of this certification be included in contracts associated with this project and that all subcontractors and vendors shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.]

The Contractor certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. A 3801, et seq., apply to this certification and disclosure, if any.

[signature page follows]

I declare that the foregoing is true and correct.

Contractor Representative

Signature

Name of Official

Title

Date of Execution

NOTE: THE ABOVE CERTIFICATION IS A REQUIREMENT OF 2 CFR 200 AND MUST BE SIGNED ON BEHALF OF THE CONTRACTOR BY AN INDIVIDUAL WITH FULL KNOWLEDGE OF THE CONTRACTOR'S FINANCES, INCLUDING EXPENDITURES.

CERTIFICATION OF EEO STATEMENT IN FEDERALLY ASSISTED CONTRACTS

The Contractor hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following X clause:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The Contractor further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided*, that if the Contractor so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The Contractor agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The Contractor further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the Contractor agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the Contractor under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such Contractor; and refer the case to the Department of Justice for appropriate legal proceedings.

I declare that Contractor will act as agreed herein.

Contractor Representative

Signature

Name of Official

Title

Date of Execution

NOTE: THE ABOVE CERTIFICATION MUST BE SIGNED ON BEHALF OF THE CONTRACTOR BY AN INDIVIDUAL WITH OVERSIGHT OF CONSTRUCTION CONTRACTS.

"General Decision Number: MS20250051 01/03/2025

Superseded General Decision Number: MS20240051

State: Mississippi

Construction Type: Building

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

County: Hinds County in Mississippi.

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number Publication Date
 0 01/03/2025

ENGI0624-007 01/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Crane.....	\$ 35.50	14.55
Forklift.....	\$ 35.50	14.55

IRON0798-009 07/01/2024

	Rates	Fringes
IRONWORKER, REINFORCING.....	\$ 28.50	17.02
29.00.....	\$ 31.00	17.17

PLUM0568-008 11/01/2024

	Rates	Fringes
PIPEFITTER.....	\$ 30.41	11.47

SUMS2015-012 04/03/2017

	Rates	Fringes
BRICKLAYER.....	\$ 20.29	0.00
CARPENTER, Includes Drywall Hanging, and Form Work.....	\$ 15.33 **	4.42
CEMENT MASON/CONCRETE FINISHER...	\$ 16.92 **	0.00
ELECTRICIAN.....	\$ 23.40	8.02
IRONWORKER, STRUCTURAL.....	\$ 17.39 **	0.00
LABORER: Common or General.....	\$ 12.95 **	0.00
LABORER: Mason Tender - Cement/Concrete.....	\$ 16.00 **	1.28
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 31.50	4.25
OPERATOR: Bulldozer.....	\$ 15.14 **	1.03
PAINTER (Brush and Roller).....	\$ 16.00 **	0.00
PLUMBER.....	\$ 19.78	2.14
ROOFER.....	\$ 16.93 **	0.00
SHEET METAL WORKER, Includes HVAC Duct Installation.....	\$ 18.00	0.35
TILE SETTER.....	\$ 18.00	0.00
TRUCK DRIVER: Dump Truck.....	\$ 14.47 **	0.41

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.75) or 13658 (\$13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE:

UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The "SU" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The "SA" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification)

and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

=====

END OF GENERAL DECISION"

SECTION 00 60 00

PROJECT FORMS

PART 1 GENERAL

1.1 PERFORMANCE BONDS

- A. The Contractor shall provide an executed AIA Document A312 2010 Performance Bond as part of the Contract Documents.

1.2 PERFORMANCE BOND SUPPLEMENTS

- A. The following supplements modify, change, delete from or add to the Performance Bond AIA Document A 312, 2010 and must be included in the executed document
- B. Paragraph 2: Add the phrases "all of its obligations of" after the word "performs" and "in accordance with the terms thereof" after the words "the Construction Contract".

1.3 PAYMENT BOND

- A. The Contractor shall provide an executed AIA Document A312 2010 Payment Bond as part of the Contract Document. No modifications, changes or deletions are required for the Payment Bond.

1.4 STATE LAW

- A. The above mentioned documents are construction industry standards but whenever a conflict arises between the documents and State of Mississippi Law, the State law governs.

1.5 POWER OF ATTORNEY

- A. Each Bond must be accompanied by an appropriate Power of Attorney.

END OF SECTION

SECTION 00 65 00

CERTIFICATE OF INSURANCE INSTRUCTIONS

PART 1 GENERAL

- 1.1 THE CERTIFICATE OF INSURANCE IS A TABULATION OF INSURANCE REQUIRED FOR THIS PROJECT AS SPECIFIED IN ARTICLE 11 ENTITLED INSURANCE AND BONDS IN THE GENERAL CONDITIONS (AIA DOCUMENT A201, 2017 EDITION).
- A. The Certificate of Insurance must be completed, certified by the original signature of a Mississippi Resident Insurance Agency and bound in each set of the Contract Documents.
 - B. Indicate Insured, Project, Companies providing coverage, policy numbers and policy periods in the blanks as applicable.
 - C. If the "OWNERS / CONTRACTORS PROTECTIVE LIABILITY" insurance is part of the Commercial General Liability Insurance Policy, or included by endorsement, indicate the policy number and period of the CGL policy in the "OWNERS / CONTRACTORS PROTECTIVE LIABILITY" blank spaces.
 - D. Automobile Liability Insurance may be provided which covers Bodily Injury and Property Damage in one (1) Combined Single Limit, or may be provided with separate minimum limits as shown on the Certificate of Insurance and specified in Article 11 of the Supplementary Conditions. The person signing the Certificate of Insurance should show which option the Contractor has selected by marking out the coverage that is not provided under the policies indicated.
 - E. OTHER INSURANCE (if required) will be indicated by typing in the "OTHER" block and detailed in Article 11 of the Supplementary Conditions.
 - F. CERTIFICATION wording may not be changed without specific written approval from the Owner.
 - G. "Riders" or other unsolicited attachments are not allowed as part of the Certificate of Insurance unless specifically requested in writing by the Owner, or specified as part of the requirements for this Project.
 - H. CAUTION: The Certificate of Insurance is intended to be used for all Projects. The Contractor must provide all insurance specified in the Contract Documents for this Project, whether indicated on this form, or not. The Contractor must verify all insurance has been provided as required.
 - I. The Owner and Architect and all of their agents and employees are included as additional insureds on the Contractor's insurance.

END OF SECTION

STANDARD CONSTRUCTION CONTRACT CERTIFICATE OF INSURANCE

This certificate of insurance neither affirmatively nor negatively amends, extends, or alters the coverage afforded in the policies below.

INSURED: (Contractor's Name & Address)				COMPANIES PROVIDING COVERAGE		
ADDITIONAL INSURED: (check to indicate coverage) Design Professional Cooke Douglass Farr Lemons PA X Owner				A		
				B		
PROJECT: Jackson Planetarium Improvements				C		
				D		
OWNER: Jackson Redevelopment Authority				E		
Type Insurance	Co	Policy Number	Policy Period	Coverage and Minimum Amount		
General Liability Commercial General Liability				General Aggregate	\$ 1,000,000	
				Products Comp/Ops (Aggregate)	\$ 1,000,000	
				Personal Injury (Per Occurrence)	\$ 500,000	
				BI & PD (Per Occurrence)	\$ 500,000	
				Fire Damage (Per Fire)	\$ 50,000	
				Medical Expense (Per Person)	\$ 5,000	
Owner's / Contractor's Protective Liability				General Aggregate	\$ 1,000,000	
				Per Occurrence	\$ 500,000	
Automobile Liability				Bodily Injury / Property Damage Combined Single Limit (Per Occurrence)	\$ 500,000	
				OR	Bodily Injury (Per Person)	\$ 250,000
					Bodily Injury (Per Accident)	\$ 500,000
					Property Damage (Per Occurrence)	\$ 100,000
Excess Liability (Umbrella on projects over \$500,000)				Aggregate	\$ 1,000,000	
				Per Occurrence	\$ 1,000,000	
Workers' Compensation (As required by Statute) Employers' Liability				Accident (Per Occurrence)	\$ 100,000	
				Disease-Policy Limit	\$ 500,000	
				Disease-Per Employee	\$ 100,000	
Property Insurance				Builders' Risk	Must be equal to Value of Work	
Other						
<p>Certification: I certify that these policies (subject to their terms, conditions and exclusions) have been (1) issued to the Insured for the coverages and at least the amounts as indicated by companies licensed in Mississippi; (2) countersigned by a Mississippi Resident Agent; (3) endorsed to require the company to give thirty (30) days written notice to the Owner prior to cancellation of non-renewal of above.</p>						
Producing Agent: (Name, Address and Telephone)				(Signature & Date)		
				(Name and Title of Authorized Representative)		

SECTION 00 72 14
GENERAL CONDITIONS

PART 1 GENERAL

- 1.1 THE GENERAL CONDITIONS FOR THIS PROJECT SHALL BE AIA DOCUMENT A201, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, 2017 EDITION.
- A. This document shall be made a part of the Contract Documents as if fully stated herein.
 - B. Contractors are presumed to be familiar with this document; however, a copy may be examined in the Architect's office.

END OF SECTION

SECTION 00 73 13

SUPPLEMENTARY CONDITIONS

PART 1 GENERAL

1.1 DESCRIPTION

- A. The following Supplementary Conditions modify the "General Conditions of the Contract for Construction," AIA Document A201, 2017. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect. In the event of a conflict between the General Conditions of the Contract for Construction and Section 00 73 13, Section 00 73 13 shall control even if the conflicting provision in the General Conditions of the Contract for Construction is not expressly revised or deleted by reference in Section 00 73 13.
- B. The General Conditions may also be supplemented or amplified elsewhere in the Contract Documents by provisions located in, but not necessarily limited to, Division 1 of the Specifications.

1.2 SUPPLEMENTS

ARTICLE 1 - GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS:

Delete the last sentence in Article 1.1.1 and insert the following:

The Contract Documents shall include the Instructions to Bidders, the plans, the specifications, including Divisions 0 through 48, all Addenda and modifications to the plans and/or specifications, the Agreement between Owner and Contractor, the performance and payment bonds, the notice to proceed and any executed change orders. Information and documentation pertaining to soil investigation data, laboratory investigations, soil borings and related information included herein are not part of the Contract Documents. In the event of a conflict between the provisions of Division 0 and any other section of the Contract Documents, such other sections(s) shall govern.

1.1.2 THE CONTRACT

Add the following to the end of Article 1.1.2:

Large scale drawings shall govern over small scale drawings where there are differences or conflicts between such drawings. Where the word "similar" appears on the plans, it shall not be interpreted to mean "identical" and shall require the Contractor to coordinate the actual conditions and dimensions of the location where the "similar" conditions are shown to occur.

1.1.9 MISCELLANEOUS DEFINITIONS

Add the following:

The term "products" as used in these Supplementary Conditions includes materials, systems and equipment.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

1.2.4 Add the following Article 1.2.4:

It is the intent of the Contract Documents that the Contractor shall properly execute and complete the Work described by the Contract Documents, and unless otherwise provided in the Contract, the Contractor shall provide all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services, whether temporary or permanent and whether or not incorporated in the Work, in full accordance with the Contract Documents and reasonably inferable from them as necessary to produce the intended results.

1.2.5 Add the following Article 1.2.5:

The Contract Documents shall be interpreted collectively, each part complementing the others and consistent with the intent of the Contract Documents. Unless an item shown or described in the Contract Documents is specifically identified to be furnished or installed by the Owner or others or is identified as "Not In Contract" ("N.I.C."), the Contractor's obligation relative to that item shall be interpreted to include furnishing, assembling, installing, finishing, and/or connecting the item at the Contractor's expense to produce a product or system that is complete, appropriately tested, and in operable condition ready for use or subsequent construction or operation by the Owner or separate contractors. The omission of words or phrases for brevity of the Contract Documents, the inadvertent omission of words or phrases, or obvious typographical or written errors shall not defeat such interpretation as long as it is reasonably inferable from the Contract Documents as a whole.

Words or phrases used in the Contract Documents which have well-known technical or construction industry meanings are to be interpreted consistent with such recognized meanings unless otherwise indicated.

Except as noted otherwise, references to standard specifications or publications of associations, bureaus, or organizations shall mean the latest edition of the referenced standard specification or publication as of the date of the Advertisement of Bids.

In the case of inconsistency between Drawings and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.

Generally, portions of the Contract Documents written in longhand take precedence over typed portions, and typed portions take precedence over printed portions.

Any doubt as to the meaning of the Contract Documents or any obscurity as to the wording of them, shall be promptly submitted in writing to the Architect for written interpretation, explanation, or clarification.

1.7 DIGITAL DATA USE AND TRANSMISSION

The agreed upon protocols shall be the same as or similar to the AIA Document G202-2013 Project Building Information Modeling Protocol Form.

ARTICLE 2 - OWNER

2.2 EVIDENCE OF THE OWNER'S FINANCIAL ARRANGEMENTS

2.2.1 Add the following to the beginning of Article 2.2.1:

"If the Project is a private project, not funded by public funds, then . . ."

2.2.2 Delete Article 2.2.2 in its entirety.

2.3 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.3.1 Delete Article 2.3.1 in its entirety.

2.3.2 Add the following at the end of Article 2.3.2:

The term "Architect", "Engineer" or "Design Professional" as used in the Contract Documents refers to Cooke Douglass Farr Lemons Architects + Engineers PA.

2.3.4 Delete Article 2.3.4 in its entirety.

2.3.6 Delete Article 2.3.6 in its entirety and insert the following:

2.3.6 The Contractor will be furnished free of charge 10 copies of the plans and specifications, including all Addenda. Additional sets will be furnished at the cost of reproduction, postage and handling.

2.4 OWNER'S RIGHT TO STOP THE WORK

2.4 Delete Article 2.4 in its entirety and insert the following:

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

The rights and remedies under this Article 2.4 are in addition to and do not in any respect limit any other rights of the Owner, including its termination rights under Article 14.

ARTICLE 3 - CONTRACTOR

3.1 GENERAL

3.1.1 Add the following at the end of Article 3.1.1:

The relationship of Contractor to Owner shall be that of independent contractor, and nothing in the Contract Documents is intended to nor should it be

construed as creating any other relationship, expressed or implied, between Owner and Contractor.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.5 Add the following to Article 3.2.5:

The Owner is entitled to deduct from the Contractor's pay applications for amounts paid to the Architect for evaluating and responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

3.4 LABOR AND MATERIALS

3.4.2 Add the following to the end of Article 3.4.2:

Some Sections of the Specifications may not allow substitution of materials, products or equipment. Where substitution is allowed the request for substitution will only be considered if made in strict accordance with the requirements of Article 3.4.4 below and Section 01 63 00.

3.4.4 Add the following Article 3.4.4:

After the Contract has been executed, the Owner and the Architect may consider a request for the substitution of products in place of those specified only under the conditions set forth in Section 01 63 00 of the specifications.

By making requests for substitutions, the Contractor:

- .1 Represents that the Contractor has personally investigated the proposed substitute product and determined that it is equal or superior in all respect to that specified;
- .2 Represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;
- .3 Certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitution which subsequently becomes apparent; and
- .4 Shall coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects at its costs.

All substitutions shall be submitted within 30 days of the Notice to Proceed, as per Section 01 63 00.

3.4.5 Add the following Article 3.4.5:

Contractor represents that it has independently investigated, considered and understands the labor conditions in the area surrounding the Project and acknowledges that such conditions may impact the Contractor's cost and/or

time of performance of the Contract. Therefore, Contractor further represents that the Contract Price is based upon Contractor's independent investigations into such labor conditions and that the Contract time is reasonable and the date of Substantial Completion is obtainable. As a result, Contractor assumes the risk of increased costs, if any, incurred by it arising out of or related to such labor conditions and acknowledges that Contractor and its surety will reimburse Owner for any additional costs Owner incurs arising out of or related to such labor conditions.

3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

3.7.1 Delete Article 3.7.1 in its entirety and insert the following:

The Contractor shall secure and pay for the building permit and all other permits, fees, licenses, inspections and all other approvals and charges necessary for proper execution and completion of the Work.

3.7.3 Delete the words "knowing it to be" from Article 3.7.3.

3.8.2.3 Add the following to the end of Article 3.8.2.3:

. . . except when installation is specified to be included as part of the allowance in the General Requirements (Division 1 of the Specifications).

3.9 SUPERINTENDENT

Add the following to the end of Article 3.9.1:

The Contractor shall also employ a competent project manager who shall be primarily responsible for the Contractor's home office activities in connection with the Contract.

The Owner shall have the right, which shall be exercised in a reasonable fashion, to approve the project manager and/or superintendent employed by the Contractor, either before or during the progress of construction.

The superintendent and project manager for the project shall be designated by the Contractor at the pre-construction conference. After Owner's approval of such project manager and superintendent, they shall not be replaced by the Contractor without the Owner's prior written consent, which consent is required unless the Contractor submits proof satisfactory to the Owner that the superintendent and/or the project manager should be terminated by the Contractor for cause.

3.10 CONTRACTOR'S CONSTRUCTION AND SUBMITTAL SCHEDULES

3.10.1 Add "but, in any event, no less than submission of a revised schedule with each monthly application for payment pursuant to Section 9.3" between "intervals" and "as" in the fourth sentence.

3.10.3 Delete Article 3.10.3 in its entirety and insert the following:

Time being of the essence, the Contractor shall perform the Work in accordance with the most recent schedule submitted to and approved by the Owner and Architect.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.6 Add the following to the end of Article 3.12.6:

In reviewing Shop Drawings, Product Data, Samples and similar submittals the Architect shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.

3.12.8 Add the following to the end of Article 3.12.8:

Unless such written notice has been given, the Architect's approval of a Shop Drawing, Product Data, Sample or similar submittal shall not constitute approval of any changes not requested on the prior submittal.

3.12.9 Add the following to the end of Article 3.12.9:

The Architect's review of the Contractor's submittals will be limited to examination of an initial submittal and one (1) resubmittal. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the Contract Sum amounts paid to the Architect for evaluation of such additional resubmittals.

3.12.10.1 Delete the second sentence entirely and replace with: "The performance and design criteria specified by the Architect in the Contract Documents shall be prepared in accordance with the applicable standard of care."

3.18 INDEMNIFICATION

3.18.1 Add the word "defend" before the word "indemnify" in the first line, add the words "or nonperformance" after the word "performance" in the third line and delete the phrase which begins "provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself)," to the end of the sentence.

ARTICLE 4 - ARCHITECT

4.2 ADMINISTRATION OF THE CONTRACT

4.2.4 Delete the last sentence entirely.

4.2.10 Delete Article 4.2.10 in its entirety.

ARTICLE 5 - SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Delete the phrase "Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract" from the first sentence of Article 5.2.1 and insert the following in lieu thereof:

The Contractor, with its first Application for Payment and as a condition to the Owner's obligation to make payments to Contractor under Article 9 of the General Conditions as supplemented herein,"

5.2.5 Add the following:

The Contractor's unauthorized substitution of any subcontractor, supplier, person or entity previously identified by Contractor in accordance with Article 5.2.1 shall entitle the Owner to reject the work, materials or product furnished and require removal and replacement at no additional cost to the Owner.

ARTICLE 6 - CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

Delete Articles 6.1.1, 6.1.2, 6.1.3, 6.1.4 in their entirety and insert the following:

6.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces and to award separate contracts either in connection with other portions of the Project or other construction or operation on the site. In such event, the Contractor shall coordinate its activities with those of the Owner and of Separate Contractors so as to facilitate the general progress of all work being performed by all parties. Cooperation will be required in the arrangement for the storage of materials, and in the detailed execution of the Work.

The Contractor, including his subcontractors, shall keep informed of the progress and the detailed work of the Owner or Separate Contractors and shall immediately notify the Architect of lack of progress or delays by Separate Contractors which are affecting Contractor's Work. Failure of Contractor to keep informed of the progress of the work of the Owner or Separate Contractors and/or failure of Contractor to give notice of lack of progress or delays by the Owner or Separate Contractors shall be deemed to be acceptance by Contractor of the status of progress by Separate Contractors for the proper coordination and completion of Contractor's Work. If, through acts or neglect on the part of the Contractor, the Owner or any Separate Contractors shall suffer loss or damage or assert any claims of whatever nature against the Owner, the Contractor shall defend, indemnify and hold harmless the Owner from any such claims or alleged damages, and the Contractor shall resolve such alleged damages or claims directly with the Separate Contractors.

6.2 MUTUAL RESPONSIBILITY

6.2.3 Delete Article 6.2.3 in its entirety.

ARTICLE 7 - CHANGES IN THE WORK

7.1 GENERAL

7.1.3 Add the following to the end of Article 7.1.3:

Except as permitted in Article 7.3, a change in the Contract Sum or the Contract Time shall only be accomplished by written change order. Therefore, the Contractor acknowledges that it is not entitled to a change in the Contract Sum

or the Contract Time in the absence of a written change order on the basis of the course of conduct or dealings between the parties and/or the Owner's express or implied acceptance of alterations or additions to the Work and/or the Owner has been unjustly enriched by the Contractor's Work or any other basis otherwise allowed by law or the facts and Contractor agrees that any such extra or changed work was performed by it as a volunteer.

7.2 CHANGE ORDERS

7.2.2 Add the following Article 7.2.2:

Contractor's execution of a change order constitutes a final settlement to the Contract Sum and construction schedule and the Contract Time for all matters relating to or arising out of the change in the Work that is the subject of the change order including, but not limited to, all direct and indirect costs associated with such change, all extended direct job site and home office overhead expenses and any and all delay and impact cost for the change, whether alone or in combination with other changes, including any impact, ripple or cumulative effect resulting therefrom, if any.

7.2.3 Add the following Article 7.2.3:

Adjustments to the Contract Sum by change order shall be based upon one of the methods set forth in Article 7.3.3.1, 7.3.3.2, 7.3.3.3 or 7.3.3.4, as appropriate. A reasonable allowance for the combined overhead and profit included in the change order shall be based upon the schedule set forth in Article 7.3.11, as supplemented.

7.2.4 Add the following Article 7.2.4:

In order to facilitate consideration of change order requests, all such requests, except those involving an amount less than \$500 must be accompanied by a complete itemization of costs, including labor, materials and subcontractor costs which shall likewise be itemized. Changes for more than \$500 will not be approved without such itemization.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.8 Delete the first sentence and insert the following:

The amount of credit to be given by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be the actual net cost plus reasonable allowance for overhead on net cost and profit thereon as approved by the Architect and Owner.

7.3.11 Add the following Article 7.3.11:

The allowance for overhead and profit combined, including extended direct job and home office overhead and any and all delay, impact, inefficiency, disruption and ripple effect to be included in the total cost to the Owner, shall be based on the following schedule.

- .1 For the Contractor, for work performed by the Contractor's own forces, 15 percent of the cost.

- .2 For the Contractor, for work performed by the Contractor's subcontractor, 10 percent of the amount due the subcontractor.
- .3 For each subcontractor or sub-subcontractor involved, for work performed by that subcontractor or sub-subcontractor's own forces, 15 percent of the cost.
- .4 For each subcontractor, for work performed by the subcontractor's sub-subcontractor's, 10 percent of the amount due the sub-subcontractor.
- .5 Costs to which overhead and profit is to be applied shall be determined in accordance with Article. 7.3.4.

ARTICLE 8 – TIME

8.2 PROGRESS AND COMPLETION

- 8.2.1 Add the following to the end of the second sentence:

and that the Contractor is fully capable of properly completing the Work within the Contract Time.

8.3 DELAYS AND EXTENSIONS OF TIME

- 8.3.3 Add the following to the end of Article 8.3.3:

No delay, interference, hindrance or disruption, from whatever source or cause, in the progress of the Contractor's Work shall be a basis for an extension of time and/or additional compensation, unless the delay, interference, hindrance or disruption (1) is without the fault and not the responsibility of the Contractor, its subcontractors and/or suppliers and (2) directly affects the overall completion of the Work as reflected on the critical path of the Contractor's updated and accepted construction schedules. The Contractor expressly agrees that the Owner shall have the benefit of any float in the construction schedule and that delays to construction activities, which do not affect the overall completion of the Work, do not entitle the Contractor to any extension in the Contract Time and/or increase in Contract Sum.

- 8.3.4 Add the following Article 8.3.4:

All claims by the Contractor for an increase in the Contract Time must follow the procedures set forth in Articles 15.1.2, 15.1.3, 15.1.5 and 15.1.6, including the requirement that the Contractor give written notice of any claim within twenty-one (21) days after occurrence of the event giving rise to such claim or within twenty-one (21) days after the Contractor first recognizes the condition giving rise to the claim, whichever is earlier.

- 8.3.5 Add the following Article 8.3.5:

If the Contractor submits a schedule indicating or otherwise expressing an intent to complete the Work prior to the date of substantial completion, the Owner shall have no liability to the Contractor for any failure by the Contractor to complete the Work prior to the expiration of the Contract Time.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.3 APPLICATION FOR PAYMENTS

9.3.1 Add the following sentence to the end of Article 9.3.1:

The form of Application for Payment will be the current edition of the AIA Document G702, Application and Certification for Payment, supported with AIA Document G703, Continuation Sheet.

9.3.1.3 Add the following Article 9.3.1.3:

In any contract awarded by the state of Mississippi or any agency, unit or department of the State of Mississippi or by any political subdivision thereof, the amount of retainage that may be withheld is governed by Mississippi law.

In all other contracts, the Owner will retain, until the Work is one hundred percent (100%) complete, five percent (5%) of the amount due the Contractor on account of progress payments. No reduction in retainage will be made until final payment is made except that when the original Contract amount is in an amount equal to or greater than \$250,000, then whenever such Work is fifty percent (50%) complete and on schedule and satisfactory, in the opinion of the Architect and the Owner, fifty percent (50%) of the retainage may be returned to the Contractor and two point five percent (2.5%) will be retained on all subsequent progress payments. The Owner may subsequently increase the retainage if the Contractor's manner of completion of the Work and/or its progress does not remain satisfactory to the Architect and/or Owner or if the Surety withholds its consent to payment for other good and sufficient reasons.

9.3.2.1 Add the following Article 9.3.2.1:

Payment for materials stored at some location other than the Project site, may be approved by the Architect and the Owner after the Contractor has submitted the following items:

- .1 An acceptable Lease Agreement between the Contractor or one of its subcontractors or suppliers and the owner of the land, or building, where the materials are stored covering the specific area where the materials are located.
- .2 Consent of Surety or other acceptable bond to cover the materials stored off-site.
- .3 All Perils Insurance coverage for the full value of the materials stored off-site.
- .4 A Bill of Sale from the Manufacturer to the Contractor for the stored materials.
- .5 A complete list and inventory of materials manufactured, stored and delivered to the storage site and of materials removed from the storage site and delivered to the Project.

- .6 A review by the Architect of the materials stored off-site prior to release of payment.
- .7 Proof of payment of stored materials verified by the supplier must be submitted to the Architect within thirty (30) days of the Application for Payment on which payment for said materials was made. If proof of payment is not submitted within thirty (30) days, then payment for said materials will be deducted from the next application for payment and withheld until proof of payment is received.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1.7 Delete the word "repeated".

9.5.1.8 Add the following Article 9.5.1.8:

The letter from the Contractor which is required by Article 15.1.6.2 has not been received.

9.6 PROGRESS PAYMENTS

9.6.1 Delete Article 9.6.1 in its entirety and insert the following:

Subject to the conditions of the Contract, the Owner shall make payment to the Contractor in the amount certified within thirty (30) days after receipt of the Certificate for Payment from the Architect. Payment shall not be considered late until thirty (30) days after Owner's receipt of the approved Certificate for Payment from the Architect.

9.6.1.1 Contractor's Applications for Payment shall be submitted on or before the 25th day of each month. Any application not submitted on or before this date may not be processed or approved until the following month.

9.6.7 Delete the word "Unless" from the first sentence and insert the phrase "Whether or not."

Add the following to the end of Article 9.6.7:

The amount retained by the Contractor from each payment to each Subcontractor and material supplier shall not exceed the percentage retained by the Owner from the Contractor for the Subcontractor's Work.

9.7 FAILURE OF PAYMENT

9.7 In the first sentence, delete the words "or awarded by binding dispute resolution".

9.8 SUBSTANTIAL COMPLETION

9.8.1 Delete Article 9.8.1 in its entirety and insert the following:

Substantial completion for purposes of this Contract occurs upon Contractor's compliance with the following conditions precedent: (a) the Contractor furnishes to the Architect all close-out documents required by the Contract Documents in a form satisfactory to the Architect and the Owner, (b) the Contractor furnishes the manufacturers' certifications and/or warranties required by the Contract Documents; (c) the Contractor furnishes the Guarantee of Work set forth herein below; and (d) the Architect certifies that the Work is sufficiently

complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended purpose.

The Guarantee of Work shall be submitted as a separate document signed by Contractor and Contractor's Surety and shall state the following:

Contractor and Contractor's Surety hereby guarantee that all Work performed on the Project is free from defective and/or nonconforming materials and workmanship and that for a period of one year from the date of final completion or such longer period of time as may be called for in the Contract Documents for such portions of the Work, Contractor or its Surety will repair and/or replace any defective and/or nonconforming materials and workmanship in accordance with the requirements of the Contract Documents.

9.8.2.1 Add the following Article 9.8.2.1:

The Contractor shall be responsible for the costs of inspections made by the Architect including any and all other related expenses incurred by the Architect for providing services for the Project required by failure of the Contractor to achieve final acceptance / completion of the Project within 30 days after the first occurrence of the below described events:

- .1 Specified date of Substantial Completion; or
- .2 Actual date of Substantial Completion.

The costs of the Architect's additional services shall be deducted by the Owner from the Contractor's final application for payment to pay the Architect for additional services required by the Contractor's failure to achieve final completion of the project within the 30 day period described above.

9.8.4 Delete the last sentence of Article 9.8.4 and insert the following:

Warranties required by the Contract Documents shall commence and continue for one (1) year from the date of Substantial Completion except that the roof system shall be warranted for a period of three (3) years from the date of Substantial Completion.

9.8.5 Add the following to the end of Article 9.8.5:

Contractor's execution of the Certificate of Substantial Completion constitutes Contractor's representation that the items on the list accompanying the Certificate can and will be completed by Contractor and his subcontractors within thirty (30) days of Contractor's execution of the Certificate. Based upon this representation by Contractor and upon the acknowledgment of the Architect that the listed items remaining can be completed within thirty (30) days, the Owner agrees to execute the Certificate of Substantial Completion. If Contractor fails to complete the items on the list within thirty (30) days of Contractor's execution of the Certificate, then the Owner, at its option and without prejudice to any other rights or remedies it may have under this Contract or otherwise and without notice to Contractor or Surety, may proceed to have same completed and to deduct the reasonable costs thereof from the amounts then due or thereafter to become due to Contractor.

9.8.6 Add the following Article 9.8.6:

The costs of inspections made by Architect which are not required by Articles 4, 9.8 or 9.10 of the General Conditions and any other inspection required by Article 12 other than the year-end inspection itself, will be the responsibility of the contractor and will be deducted by the Owner from the Application for Payment submitted after the Owner's receipt of the Architect's statement for its costs of additional inspections. These costs are not the result of Contractor's failure to timely complete the Contract within the specified time and, therefore, such costs are in addition to and not a part of any liquidated damages calculation, if any.

9.8.7 Add the following Article 9.8.7:

Upon the Owner's acceptance of the Work as substantially complete and upon Contractor's compliance with all conditions precedent to substantial completion as stated in Section 00 73 13, Article 9.8.1 and upon application by the Contractor, the Owner will pay to the contractor all retainage held by the Owner less an amount equal to the greater of (a) two percent (2%) of the Contract Sum, or (b) two hundred percent (200%) of the estimated cost of the Work remaining to be performed by the Contractor in accordance with the Architect's determination. Final payment, including all retainage, shall be made at the time and in the manner provided for final payment in accordance with the provisions of Article 9.10 and the additional conditions precedent to final acceptance / payment set forth in Section 00 73 13, Article 9.8.5.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1.2 ADD THE FOLLOWING ARTICLE 9.9.1.2:

The Owner's occupancy or use of any completed or partially completed portions of the Work shall not affect Contractor's obligation to complete incomplete items on the list attached to the Certificate of Substantial Completion within the time fixed in the Certificate and does not waive Owner's right to obtain completion of incomplete items at Contractor's expense upon Contractor's failure to timely complete same.

9.11 LIQUIDATED DAMAGES

Liquidated Damages. Time being of the essence of this Contract and a matter of material consideration thereof, a reasonable estimate in advance is established to cover losses incurred by the Owner if the Project is not substantially complete on the date set forth in the Contract Documents. The Contractor and his Surety will be liable for and will pay the Owner the sums hereinafter stipulated as fixed and agreed as liquidated damages for each calendar day for delay until the Work is substantially complete. The Contractor and his Surety acknowledge that the Owner's losses caused by the Contractor's delay are not readily ascertainable and that the amount estimated per day for liquidated damages is reasonable and is not a penalty.

The amount established per day for liquidated damages is two hundred fifty dollars (\$250.00).

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

Add the following to the end of Article 10.1:

The Architect shall not administer the Contractor's performance of its duties and responsibilities under Article 10 (including Articles 10.1 through 10.6) because the initiation, maintenance and supervision of safety precautions and programs is the sole responsibility of the Contractor as means, methods, techniques, sequences and procedures of construction and, therefore, is not part of the Contractor's scope of Work which is to be administered by the Architect.

ARTICLE 11 - INSURANCE AND BONDS

11.1 CONTRACTOR'S INSURANCE AND BONDS

11.1.2 Delete Article 11.1.2 in its entirety and insert the following:

The insurance required by Article 11.1.1 will be written for not less than the following, or greater amounts if required by law or if deemed necessary by the Contractor to protect its interests.

.1 GENERAL LIABILITY:

Commercial General Liability
(Including XCU)

General Aggregate	\$1,000,000.00	Aggregate
Products & Completed Operations	\$1,000,000.00	Aggregate
Personal & Advertising Injury	\$ 500,000.00	Per Occurrence
BI & PD (Per Occurrence)	\$ 500,000.00	Per Occurrence
Fire Damage Liability	\$ 50,000.00	Per Occurrence
Medical Expense	\$ 5,000.00	Per Person

.2 OWNERS & CONTRACTORS PROTECTIVE LIABILITY:

Bodily Injury & Property Damage	\$1,000,000.00	Aggregate
Bodily Injury & Property Damage	\$ 500,000.00	Per Occurrence

.3 AUTOMOBILE LIABILITY:

(Owned, non-owned & hired vehicles)

Contractor Insurance Option Number 1:

Bodily Injury & Property Damage (Combined Single Limit)	\$ 500,000.00	Per Occurrence
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Contractor Insurance Option Number 2:

Bodily Injury	\$ 250,000.00	Per Occurrence
Bodily Injury	\$ 500,000.00	Per Accident
Property Damage	\$ 100,000.00	Per Occurrence

.4 EXCESS LIABILITY:

(Umbrella on projects over \$500,000)

Bodily Injury & Property Damage (Combined Single Limit)	\$1,000,000.00	Aggregate
	\$1,000,000.00	Per Occurrence

.5 WORKERS' COMPENSATION:

(As required by Statute)

EMPLOYERS' LIABILITY

Accident	\$ 100,000.00	Per Occurrence
Disease	\$ 500,000.00	Policy Limit
Disease	\$ 100,000.00	Per Employee

.6 PROPERTY INSURANCE:

Builder's Risk Or Installation Floater	\$ Must be equal to value of work	
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The Owner and Architect will be named as additional insureds on the Contractor's CGL policy and the Contractor's certificate of insurance must state that the Owner and Architect are

additional insureds under the referenced CGL policy and that all of Contractor's contractual liabilities, including but not limited to its indemnity obligations, are covered by such CGL policy.

Any language contained on the certificate of insurance form or elsewhere to the contrary is deemed stricken.

The certificate of insurance must also state that all of Contractor's contractual liabilities, including but not limited to its indemnity obligations, are covered. Any terms and conditions contained in the certificate of insurance which are contrary to the Contractor's contractual obligations are hereby stricken from the certificate.

11.1.5 Add the following Article 11.1.5:
Furnish one copy of the certificate herein required for each copy of the Agreement, specifically setting forth evidence of all coverage required by Article 11. The form of the certificate will be AIA Document G715 or a similar form acceptable to Owner. Furnish to the Owner and Architect, copies of any endorsements that are subsequently issued amending coverage or limits. If the coverages are provided on a claims-made basis, the policy date or retroactive date shall predate the Contract and the termination date of the policy, or the applicable extended reporting period shall be no earlier than the termination date of coverages required to be maintained after final payment.

11.4 LOSS OF USE, BUSINESS INTERRUPTION, AND DELAY IN COMPLETION INSURANCE

11.4 Delete Article 11.4 in its entirety.

ARTICLE 12 - UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.2 Delete the second sentence of Article 12.1.2 entirely and replace with:

If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense.

12.2 CORRECTION OF WORK

12.2.2 AFTER SUBSTANTIAL COMPLETION

12.2.2.1 Add the following to the end of Article 12.2.2.1:

Prior to the end of the one-year period (three years for roof systems), the Architect may schedule a warranty inspection which shall be attended by the Architect, the Owner, the Contractor and all major subcontractors. During this inspection, the parties shall identify all defective and/or nonconforming items and fix a time within which all defective and/or nonconforming items shall be repaired and/or replaced.

12.2.2.1.1 Add the following Article 12.2.2.1.1:

Within the one-year period (three years for roof systems), provided for in the Guarantee of Work required by Article 9.8.1, if repairs or replacement are requested by Owner in connection with the Work which, in the opinion of the Owner, are rendered necessary as a result of the use of materials, equipment

or workmanship which are inferior, defective or not in accordance with the Contract Documents, the Contractor and/or its Surety shall promptly, upon receipt of notice from and without expense to the Owner, place in satisfactory condition in every particular, all such Work, correct all defects therein and make good all damages to the building, site, equipment or contents thereof; and make good any work or materials or the equipment and contents of said buildings or site disturbed in fulfilling any such guarantee. If, after notice or within the time agreed upon by the parties at the warranty inspection, the Contractor and/or its Surety fail to proceed promptly to comply with the terms of the guarantee, the Owner may have the defects corrected in accordance with Article 2.5 and the Contractor and his Surety shall be liable for all expenses incurred. All special guarantees applicable to definite parts of the Work stipulated in the Contract Documents shall be subject to the terms of this paragraph during the first year of the life of such special guarantee.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

13.5 INTEREST

13.5 Delete Article 13.5 in its entirety and insert the following:

Payments due and unpaid under the Contract Documents shall bear interest as provided by applicable Mississippi law.

13.6 ATTORNEYS' FEES AND EXPENSES

Add the following Article 13.6 to private projects not funded in whole or in part by public monies.

The prevailing party in any dispute between the parties arising out of or related to this Agreement or the breach thereof, shall be entitled to reasonable attorneys' and expert witness(es) fees and expenses incurred in pursuing or defending any claim.

ARTICLE 14 - TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1.4 Delete Article 14.1.1.4 in its entirety.

14.1.3 Delete ", as well as reasonable overhead and profit on Work not executed," between "executed" and "and" in the third line.

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1.1 Delete the word "repeatedly" from Article 14.2.1.1.

14.2.1.3 Delete the word "repeatedly" from Article 14.2.1.3.

14.2.1.5 Add the following Articles 14.2.1.5 and 14.2.1.6:

.5 fails to achieve Substantial Completion of the Project as described in Section 00 73 13, Article 9.8.5, within the time stated therein;

- .6 fails to meet any deadline required by the Contract. Contractor acknowledges that time is of the essence of this Contract and that all deadlines required by the Contract are critical to timely completion of the Contract. Therefore, Contractor agrees that its failure to meet any deadline constitutes a substantial and material breach of this Contract, entitling the Owner to terminate the Contract.
- 14.2.2 Delete the word "certification" in the first sentence and insert the word "advice".
- 14.2.4 Delete the phrase "Initial Decision Maker" and insert the word "Architect".
- 14.2.5 Add the following Article 14.2.5:

If the Owner terminates the Contract for cause, and it is determined for any reason that the Contractor was not actually in default under the Contract at the time of termination, the Contractor shall be entitled to recover from the Owner the same amount as the Contractor would be entitled to receive under a termination for convenience as provided by Article 14.4. The foregoing shall constitute the Contractor's sole and exclusive remedy for termination of the Contract. In no event shall the Contractor be entitled to special, consequential, or exemplary damages, nor shall the Contractor be entitled to anticipated profits resulting from termination of this Contract.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

- 14.4.3 Add after the end of that sentence: "The Contractor shall not be entitled to receive any payment for either overhead or profit on work not performed."

ARTICLE 15 - CLAIMS AND DISPUTES

15.1 CLAIMS

- 15.1.2 Delete the phrase "in accordance with the requirements of the final dispute resolution method selected within the Agreement".

15.1.6 CLAIMS FOR ADDITIONAL TIME

- 15.1.6.2 Add the following to the end of Article 15.1.6.2:

The Contractor must submit each month with his Application for Payment a separate letter stating that he is requesting an extension of time for abnormal adverse weather or that he has no claim for an extension for that period of time. Payment is not due on the Application for Payment until the letter is received. Complete justification, as per Article 8.3.6., including weather reports, daily reports, correspondence and any other supporting data must be provided for each day for which a request for time extension is made in compliance with Article 8.3.6. A letter or statement that the Contractor was delayed is not as adequate justification. The receipt of this request and data by the Architect will not be considered as Owner or Architect approval of a time extension in any way.

- 15.1.6.3 Add the following Article 15.1.6.3:
 - A. This Article governs the procedure for determination of time extensions for abnormally adverse or unusually severe weather. In order for the Owner and Architect to award a time extension under this Article, the following conditions must be satisfied:

- (1) The weather experienced at the Project site during the Contract period must be found to be abnormally adverse or unusually severe, that is, more severe than the adverse weather anticipated for the Project location during any given month.
- (2) The abnormally adverse or unusually severe weather must actually cause a delay to the completion of the Project. The delay must be beyond the control and without the fault or negligence of the Contractor.
- B. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the Project location and will constitute the base line for monthly weather time evaluations. The Contractor's activity durations in the progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DAYS BASED ON FIVE (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(6)	(6)	(5)	(5)	(5)	(5)	(5)	(7)	(4)	(4)	(4)	(7)

- C. Upon acknowledgment of the Notice of Proceed (NTP) and continuing throughout the Contract, the Contractor shall record on the daily report, the occurrence of adverse weather and resultant impact to normally scheduled Work. Actual adverse weather delay days must prevent work on the Project's critical activities for 50 percent or more of the Contractor's scheduled work day. The number of actual adverse weather days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph B, above, the Owner and the Architect will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract.

15.1.6.4 Add the following Article 15.1.6.4:

Claims for increase in the Contract Time shall set forth in detail the facts and circumstances which support such Claim, including but not limited to, the cause of such delay, the date such delay began to affect the critical path, the date such delay ceased to affect the critical path and the number of days of additional time requested. The Contractor shall not be entitled to an increase in the Contract Time for delays which did not affect the critical path or to the extent there were concurrent non-excusable delays. The Contractor may be requested to provide additional documentation to substantiate its Claim, including but not limited to, schedules that indicate all activities affected by such delay.

15.1.8 Add the following Article 15.1.8:

The Contractor expressly agrees that the Article 15 Claims and Disputes process is the only dispute resolution mechanism that will be recognized by the parties for any claims put forward by the Contractor, notwithstanding any other claimed theory of entitlement on the part of the Contractor or its subcontractors

or suppliers against the Owner and/or the Architect or any of their design consultants, including, but not limited to, all claims of breach of contract, breach of warranty, misrepresentation, negligence, professional negligence, and/or any other tort.

15.2 INITIAL DECISION

- 15.2.4 Add “within thirty (30) days” to the end of Article 15.2.4.

15.3 MEDIATION

- 15.3.1 Delete the phrase “shall be subject to mediation as a condition precedent to binding dispute resolution” and insert the phrase “may be subject to mediation upon mutual agreement of the Owner and Contractor”.
- 15.3.2 Delete the word “shall” in the first sentence wherever it appears and insert the word “may”.
- 15.3.3 Delete Article 15.3.3 in its entirety.

15.4 ARBITRATION

- 15.4.1 Delete the words “parties have” in the first sentence and insert the words “Owner has” and delete the phrase “unless the parties mutually agree” in the first sentence and insert the phrase “unless the Owner chooses”.
- 15.4.4 CONSOLIDATION OR JOINDER
- 15.4.4 Delete Article 15.4.4, including subparts .1-.3, in its entirety and insert the following:
- 15.4.4.1 The Owner, at its sole discretion, may consolidate any arbitration, if any, conducted under this Agreement with any other arbitration to which it is a party where the Owner determines that the arbitrations to be consolidated substantially involve common questions of law or fact and the Owner, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration.

END OF SECTION

E-VERIFICATION Good Faith Compliance

SENATE BILL NO. 2988 (As Passed by the Senate) This act shall take effect and be in force from and after July 1, 2008 for Purchased Service Contracts.

AN ACT TO CREATE THE MISSISSIPPI EMPLOYMENT PROTECTION ACT; TO PROVIDE PROCEDURES FOR NEWLY HIRED EMPLOYEES AND THEIR EMPLOYERS; TO ENACT DEFINITIONS; TO REQUIRE EMPLOYEE VERIFICATION; TO PROVIDE EMPLOYER LIABILITY; TO SET UP EMPLOYER-EMPLOYEE PROGRAMS; TO MAKE PROVISIONS FOR THIRD-PARTY EMPLOYERS; TO DEFER TO FEDERAL LAW IN STATE LAW; TO ENACT EXEMPTIONS; TO DESIGNATE ENFORCEMENT DUTIES UNDER THE ACT; TO PROVIDE PENALTIES FOR VIOLATIONS OF THIS ACT; AND FOR RELATED PURPOSES.

E-Verify Home Page: www.uscis.gov/portal/site/uscis
Click on E-Verify to Get Started

E-Verify Contact Information:

E-Verify Help Desk: 1-888-464-4218

Bob Fagan - Office of the Attorney General, State Personnel Board: 601-359-2704

E-Verification

Contractor represents and warrants that it will ensure its compliance with the Mississippi Employment Protection Act (Senate Bill 2988 from the 2008 Regular Legislative Session) and will register and participate in the status verification system for all newly hired employees. The term "employee" as used herein means any person that is hired to perform work within the State of Mississippi. As used herein, "status verification system" means the Illegal Immigration Reform and Immigration Responsibility Act of 1996 that is operated by the United States Department of Homeland Security, also known as the E-Verify Program, or any other successor electronic verification system replacing the E-Verify Program. Contractor agrees to maintain records of such compliance and, upon request of the State, to provide a copy of each such verification to the State. Contractor further represents and warrants that any person assigned to perform services hereunder meets the employment eligibility requirements of all immigration laws of the State of Mississippi. Contractor understands and agrees that any breach of these warranties may subject Contractor to the following: (a) termination of this Agreement and ineligibility for any state or public contract in Mississippi for up to three (3) years with notice of such cancellation/termination being made public, or (b) the loss of any license, permit, certification or other document granted to Contractor by an agency, department or governmental entity for the right to do business in Mississippi for up to one (1) year, or (c) both. In the event of such termination/cancellation, Contractor would also be liable for any additional costs incurred by the State due to contract cancellation or loss of license or permit.

I, the undersigned, certify, as an authorized representative, that my company is in compliance with the Mississippi Employment Protection Act (Senate Bill 2988) and will register and participate in the status verification system.

Company Name

Company Address

Company Tax Identification Number

Company Phone Number

Authorized Representative

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 PROJECT

- A. Project Name: Jackson Planetarium Improvements - JRA.
- B. Owner's Name: Jackson Redevelopment Authority.
- C. Architect's Name: CDFL Architects + Engineers PA.
- D. The Project consists of the construction of planetarium dome screen, projector, A/V equipment, sound, lighting, seating, control panel, and associated accessories .

1.2 CONTRACT DESCRIPTION

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work covered by the Contract Documents is as shown in Drawings and described in the Project Manual.
- B. Start of Work: Work shall be started immediately upon issuance of a *Notice to Proceed*. Prior to this, all Contracts and beginning documents will have been executed and insurance in force.
- C. Time of Completion: 270 days from written Notice to Proceed.
- D. Contractor's Duties
 - 1. Except as specifically noted, provide and pay for:
 - a. Labor, materials, and equipment.
 - b. Tools, construction equipment, and machinery.
 - c. Water, heat, and utilities required for construction as specified in 01 50 00 - Temporary Facilities and Controls.
 - d. Other facilities and services necessary for proper execution and completion of the Work.
 - 2. Pay legally required sales, consumer, use, payroll, privilege and other taxes.
 - 3. Secure and pay for, as necessary for proper execution and completion of the Work, and as applicable at the time of receipt of the bids:
 - a. Permits
 - b. Government fees.
 - c. Licenses.
 - 4. Give required notices.
 - 5. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of Work.
 - 6. Promptly submit written notice to Architect of observes variance of Contract Documents from legal requirements. Assume responsibility for work known to be contrary to such requirements, without notice.
 - 7. Enforce strict discipline and good order among employees. Do not employ or work unfit persons, or persons not skilled in assigned tasks, or any person to which the Architect and/or the Owner has an objection.
 - 8. Provide a written safety plan.
- E. Coordination: The Contractor is responsible for coordination of his total project. All Contractors and Subcontractors will cooperate with the Architect.

1.4 OWNER-FURNISHED PRODUCTS

- A. Products furnished by Owner: Products furnished by Owner will be described in each appropriate Project Manual Section and noted on the Drawings.
- B. Owner will supply and install the following:
 - 1. N/A.
- C. Owner will supply the following items and equipment for installation by Contractor:
 - 1. N/A.
- D. Owner's Duties:
 - 1. Schedule delivery date with Supplier in accordance with Construction Schedule.
 - 2. Obtain installation drawings and instructions.
 - 3. Submit claims for transportation damages.
 - 4. Arrange Guarantees, Warranties, etc.
- E. Contractor's Duties:
 - 1. Designate required delivery date for each product in Construction Schedule.
 - 2. Promptly inspect delivered products; report missing, damaged, or defective items.
 - 3. Handle at site, including uncrating and storage.
 - 4. Protect from exposure to elements, from damage, vandalism, and theft after delivery to site.
 - 5. Repair or replace items damaged as a result of Contractor's operations.
 - 6. Install and make final connections.

1.5 GENERAL CONTRACTOR OCCUPANCY

- A. Building is currently under construction.
- B. Contractor for this project must coordinate with Fountain Construction.

1.6 OWNER OCCUPANCY

- A. Owner intends to occupy the Project upon Substantial Completion.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

1.7 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Confine operations at site to areas permitted by:
 - 1. Law.
 - 2. Ordinances.
 - 3. Permits.
 - 4. Contract Documents.
 - 5. Owner.
- B. Do not unreasonably encumber site with materials or equipment.
- C. Do not load structure with weight that will endanger structure.
- D. Assume full responsibility for protection and safekeeping of products stored on premises.
 - 1. Provide security for work in place and stored material.

- E. Move any stored products which interfere with operations of Owner or other Contractors.
- F. Obtain and pay for use of additional storage or work areas needed for Operations.
- G. Use of Site for Construction Operations and Storage: Limited to areas noted on Drawings.
- H. Provide access to and from site as required by law and by Owner:
 - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
 - 2. Do not obstruct roadways, sidewalks, or other public ways without permit.

1.8 SUBCONTRACTOR'S LIST

- A. Within seven (7) days following written notice of Award of Contract, Contractor shall submit to Owner and Architect a list of all Subcontractors to be used on the Project.
 - 1. Any Subcontractor listed must be acceptable to the Owner and Architect.
 - 2. The Contractor shall, without any additional cost to the Owner, replace any Subcontractor or Vendor against which Owner or Architect has a reasonable objection.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Change procedures.

1.2 RELATED REQUIREMENTS

- A. Section 01 21 00 - Allowances: Payment procedures relating to allowances.
- B. Section 01 22 00 - Unit Prices: Monetary values of unit prices; Payment and modification procedures relating to unit prices.

1.3 SCHEDULE OF VALUES

- A. Form to be used: AIA G703.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section.
 - 1. Itemize separate line item cost for each of the following cost items:
 - a. Performance and Payment Bonds
 - b. Field Supervision
 - c. Layout
 - d. Temporary Facilities and Controls
 - 2. Itemize separate line item cost for work required by each Section for these Specifications.
 - 3. For each line item which has an installed value of more than \$20,000, break down costs to list major products for operations under each item, rounding figures to nearest dollar.
- F. Include in each line item, the amount of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- G. Include within each line item, a direct proportional amount of Contractor's overhead and profit.
- H. Make sum of total costs of all items listed in Schedule equal to total Contract Sum.
- I. Review and Resubmittal: After Architect's review, if requested, revise and resubmit Schedule of Values in same manner.
- J. Revise schedule to list approved Change Orders, with each Application For Payment.

1.4 APPLICATIONS FOR PROGRESS PAYMENTS

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Execute certification by signature of authorized officer.
- E. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
- F. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
- G. Submit one electronic and three hard-copies of each Application for Payment.
- H. Include the following with the application:
 - 1. Transmittal letter as specified for submittals in Section 01 30 00.
 - 2. Partial release of liens from major subcontractors and vendors.
 - 3. Affidavit Certifying Payment to all Subcontractors: Submit to Owner Affidavit Certifying Payment to All Contractors with each Application for Payment following the submittal, approval, and payment of Application for Payment No. 1.
 - 4. Affidavits attesting to off-site stored products.
 - 5. Submit with each Application for Payment a weather delay letter.
- I. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.5 MODIFICATION PROCEDURES

- A. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.
- B. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
 - 1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
 - 2. Promptly execute the change.
- C. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within ten (10) days.
- D. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors.

- E. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
- F. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.
- G. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- H. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

1.6 APPLICATION FOR FINAL PAYMENT

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
 - 1. All closeout procedures specified in Section 01 70 00.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

**AFFIDAVIT CERTIFYING
PAYMENT TO ALL SUBCONTRACTORS**

JACKSON REDEVELOPMENT AUTHORITY

I acknowledge that, pursuant to Miss. Code Ann. §31-5-25 and H.B. 1562, Laws of 2002, that I am required to submit monthly certification indicating payments to subcontractors on prior payment requests. I, the undersigned Contractor, do hereby certify that I have paid the following amounts to subcontractors for Work which has been performed and incorporated into previous Applications for Payment which were issued and payment received from the Owner on the project listed below. I understand that this document must be submitted on a monthly basis after the submittal, approval and payment of Application for Payment #1. I understand that Jackson Redevelopment Authority reserves the right to require me, the undersigned, to provide verification of payment and/or additional information.

PROJECT NAME: JACKSON PLANETARIUM IMPROVEMENTS - JRA

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

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Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

(Attach additional list of subcontractors and amounts, if necessary)

Contractor Name and Title: _____

Contractor Certificate of Responsibility Number: _____

Contractor Signature: _____ Date: _____

STATE OF MISSISSIPPI

COUNTY OF _____

SWORN TO AND SUBSCRIBED BEFORE ME, the undersigned notary public, this the
_____ day of _____, 20____.

NOTARY PUBLIC

My Commission Expires:

SECTION 01 21 00

ALLOWANCES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cash allowances.
- B. Contingency allowance.

1.2 RELATED REQUIREMENTS

- A. Section 01 20 00 - Price and Payment Procedures: Additional payment and modification procedures.

1.3 CONTINGENCY ALLOWANCE

- A. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Contingency Allowance.
- B. Funds will be drawn from the Contingency Allowance only by Change Order.
- C. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.4 ALLOWANCES SCHEDULE

- A. Contingency Allowance: Include the stipulated sum/price of \$20,000 for use upon Owner's instructions.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 23 00

ALTERNATES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Description of Alternates.

1.2 RELATED REQUIREMENTS

- A. Document 00 21 13 - Instructions to Bidders: Instructions for preparation of pricing for Alternates.

1.3 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.4 SCHEDULE OF ALTERNATES

- A. Alternate No. 1 - White Light Cove Lighting System (Section 11000-5-2):
- B. Alternate No. 2 - Theatrical Lighting System (Section 11000-6):
- C. Alternate No. 3 - LASER Graphics Projection System (Section 11000-7):

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Field Samples and Mock-ups.
- D. Submittal procedures.

1.2 RELATED REQUIREMENTS

- A. Section 00 72 00 - General Conditions: Dates for applications for payment.
- B. Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.
- C. Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PRECONSTRUCTION MEETING

- A. Schedule meeting after Notice of Award.
- B. Attendance Required:
 - 1. Owner.
 - 2. Architect.
 - 3. Contractor.
 - 4. Major Subcontractors.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Designation of personnel representing the parties to Contract and Architect.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.2 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the work at maximum bi-monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required:
 - 1. Contractor.
 - 2. Owner.
 - 3. Architect.
 - 4. Contractor's superintendent.
 - 5. Major subcontractors.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems that impede, or will impede, planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Maintenance of quality and work standards.
 - 11. Effect of proposed changes on progress schedule and coordination.
 - 12. Other business relating to work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.3 FIELD SAMPLES AND MOCK-UPS

- A. Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.
- B. Erect on project site at location acceptable to Architect and Owner. Construct each sample or mock-up completely, including work of all trades required in finished work.
- C. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- D. Accepted Mock-ups establish the standard of quality that Architect will judge the Work, and will be used as a comparison standard for the remaining Work.
- E. Accepted Field Samples and Mock-ups may remain as part of the finished Work.

END OF SECTION

SECTION 01 32 00

CUTTING AND PATCHING

PART 1 GENERAL DESCRIPTION

- 1.1 SCOPE: TO SET FORTH BROAD, GENERAL CONDITIONS COVERING CUTTING AND PATCHING THAT APPLIES TO EVERYONE AND EVERYTHING ON THE JOB.
- A. Execute cutting including excavating, fitting, or patching of work required to:
 - 1. Make several parts fit properly.
 - 2. Uncover work to provide for installation of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to Contract requirements.
 - 5. Install specified work in existing construction.
 - B. In addition to Contract requirements, upon Professional's written instructions:
 - 1. Uncover work for observation of covered work.
 - 2. Remove samples of installed materials for testing.
 - 3. Remove work to provide alteration of existing work.
 - C. Do not cut or alter work of another Contractor without permission.
 - D. Payment of Costs: Costs caused by ill-timed, or defective work, or work not conforming to Contract Documents will be borne by party responsible for ill-timed, defective work, or non-conforming work.

PART 2 MATERIALS/PRODUCTS

2.1 MATERIALS FOR REPLACEMENT OR WORK REMOVED

- A. Comply with specifications for type of work to be accomplished.

PART 3 EXECUTION

3.1 INSPECTION

- A. Inspect existing conditions of work, including elements subject to movement or damage during cutting and patching.

3.2 PREPARATION PRIOR TO CUTTING

- A. Provide shoring, bracing and support, as required, to maintain structural integrity of the building. Provide protection for other portions of work and protection from the elements.

3.3 PERFORMANCE

- A. Execute cutting and demolition by methods that prevent damage to other work and will provide surfaces to receive installation of repairs and new work.
- B. Execute excavating and backfilling by methods which prevent damage to other work and prevent settlement.
- C. Restore work, which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.

- D. Refinish entire surfaces, as necessary, to provide an even finish. Refinish continuous surfaces to the nearest intersection and assemblies entirely.

END OF SECTION

SECTION 01 32 16

CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preliminary schedule.
- B. Construction progress schedule, bar chart type.

1.2 RELATED SECTIONS

- A. Section 01 10 00 - Summary: Work sequence.

1.3 REFERENCE STANDARDS

- A. AGC (CPSM) - Construction Planning and Scheduling Manual; 2004.
- B. M-H (CPM) - CPM in Construction Management - Project Management with CPM; O'Brien; 2006.

1.4 SUBMITTALS

- A. Within 10 days after date of Agreement, submit preliminary schedule.
- B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.
- C. Submit updated schedule with each Application for Payment.

1.5 SCHEDULE FORMAT

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PRELIMINARY SCHEDULE

- A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.2 BAR CHARTS

- A. Include a separate bar for each major portion of Work or operation.
- B. Identify the first work day of each week.

3.3 DISTRIBUTION OF SCHEDULE

- A. Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Architect, Owner, and other concerned parties.

- B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.

END OF SECTION

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. Testing and inspection agencies and services.
- D. Control of installation.
- E. Manufacturers' field services.
- F. Defect Assessment.

1.2 RELATED REQUIREMENTS

- A. Document 00 72 00 - General Conditions: Inspections and approvals required by public authorities.
- B. Section 01 30 00 - Administrative Requirements: Submittal procedures.
- C. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.3 REFERENCE STANDARDS

- A. ASTM C1021 - Standard Practice for Laboratories Engaged in Testing of Building Sealants; 2008 (Reapproved 2014).
- B. ASTM C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; 2014.
- C. ASTM C1093 - Standard Practice for Accreditation of Testing Agencies for Masonry; 2013.
- D. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2012a.
- E. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing; 2014a.
- F. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2013.
- G. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2010.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

- B. Test Reports: After each test/inspection, promptly submit two copies of report to Architect, Owner and to Contractor. If pertinent, distribute one copy of report to Consulting Engineer and Subcontractor.
 - 1. Include:
 - a. Date issued.
 - b. Project title and number.
 - c. Name of inspector.
 - d. Date and time of sampling or inspection.
 - e. Identification of product and specifications section.
 - f. Location in the Project.
 - g. Type of test/inspection.
 - h. Date of test/inspection.
 - i. Results of test/inspection.
 - j. Compliance with Contract Documents.
 - k. When requested by Architect, provide interpretation of results.
 - 2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications:
 - 1. Prior to start of work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
 - 2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
 - 3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.

1.6 TESTING AND INSPECTION AGENCIES AND SERVICES

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.2 TESTING AND INSPECTION

A. Testing Agency Duties:

1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
2. Perform specified sampling and testing of products in accordance with specified standards.
3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
4. Promptly notify Architect and Contractor of observed irregularities or non-compliance of Work or products.
5. Perform additional tests and inspections required by Architect.
6. Submit reports of all tests/inspections specified.

B. Limits on Testing/Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the Work.

C. Contractor Responsibilities:

1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
3. Provide incidental labor and facilities:
 - a. To provide access to Work to be tested/inspected.
 - b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
 - c. To facilitate tests/inspections.
 - d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

- D. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

- E. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.3 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance equipment as applicable, and to initiate instructions when necessary.

- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.4 DEFECT ASSESSMENT

- A. Replace Work or portions of the Work not complying with specified requirements.
- B. If, in the opinion of Architect, it is not practical to remove and replace the work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary sanitary facilities.
- B. Vehicular access and parking.
- C. Waste removal facilities and services.
- D. Storage.

1.2 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.

1.3 VEHICULAR ACCESS AND PARKING

- A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.
- B. Coordinate access and haul routes with governing authorities and Owner.
- C. Provide and maintain access to fire hydrants, free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering streets.
- E. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.4 WASTE REMOVAL

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.
- D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.5 STORAGE

- A. Contractor shall coordinate the allocation of storage areas.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. General product requirements.
- B. Transportation, handling, storage and protection.
- C. Product option requirements.
- D. Substitution limitations.
- E. Maintenance materials, including extra materials, spare parts, tools, and software.

1.2 RELATED REQUIREMENTS

- A. Section 01 10 00 - Summary: Lists of products to be removed from existing building.
- B. Section 01 25 00 - Substitution Procedures: Substitutions made during procurement and/or construction phases.
- C. Section 01 30 00 - Administrative Requirements: Submittal Procedures.
- D. Section 01 40 00 - Quality Requirements: Product quality monitoring.
- E. Section 01 74 19 - Construction Waste Management and Disposal: Waste disposal requirements potentially affecting product selection, packaging and substitutions.

1.3 DEFINITIONS

- A. "Products": Defined as "The materials, machinery, equipment, components and systems, in whole or in part, incorporated into The Work". "Products" does not include materials, tools, devices, machinery, equipment and systems used for the preparation, manufacture, fabrication, conveying and installation of The Work.
- B. "Level of Excellence": Defined as "The degree of quality for the Products and Workmanship of this Project". The required "degree of quality" shall be established on the basis of one or more of the following, which shall become the minimum acceptable "degree of quality" ("level of excellence") for the work of this Project.
 - 1. Architect's Product Selections.
 - 2. Regulatory Agencies.
 - 3. Reference Standards.
 - 4. Manufacturer's Instructions.
 - 5. Industry Standards.
- C. "Standard of Quality": Defined as "The manufactured Product(s) of a particular manufacturer selected by the Architect as amply suitable to meet the Project requirements in one or more of the following criterion: appearance, physical attributes, performance characteristics, appropriateness for intended use or cost".
- D. In the absence of the designation "Standard of Quality", such as for a generic product, material or system, then the specified item (product, material or system) shall be the reference standard

and shall become the "Standard of Quality". "Equivalent": Defined as "Having a level of excellence which, in the Architect's judgment, is equal to or greater than that established by the Architect's 'Standard of Quality'".

- E. "Manufacturer": An entity whose principal business is the manufacturing, fabricating, assembling, and/or supplying of products/systems from off site for incorporation (in whole, or in part, such as components of a system) into the construction at the Project Site.
 - 1. The Architect's selection of a particular manufacturer usually is on the basis of the manufacturer's reputation within the Construction Industry, and/or "track record" with the Architect, for producing quality products on time, and providing responsive follow-up and reliable warranties.
 - 2. The terms "Fabricator" and "Supplier" used in these Specifications shall be synonymous with "manufacturer".

- F. "Other Acceptable Manufacturers": Defined as "Manufacturers who have similar qualifications to the "Standard of Quality" Manufacturer (see above) selected by Architect and are therefore 'acceptable' to offer 'equivalent' products".
 - 1. To the best of the Architect's knowledge, information and belief, the manufacturers listed as "Other Acceptable Manufacturers" presently have available products, which are considered to be "equivalent" to the specified product (or selection) by the "Standard of Quality" Manufacturer. Where no "Standard of Quality" is indicated then any of the "Acceptable Manufacturers" listed may offer products complying with the specified requirements.
 - 2. The inclusion of particular manufacturers as "Other Acceptable Manufacturers" does not signify that other (that is, unlisted) manufacturers are not acceptable or that they do not have equivalent products nor does the omission of any manufacturer's name indicate unacceptability for any reason. Manufacturers who are not listed, and who desire consideration may request that Contractor submit their product as a Substitution under provisions of this Section.

1.4 SUBMITTALS

- A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
 - 1. Submit within 15 days after date of Agreement.
 - 2. For products specified only by reference standards, list applicable reference standards.

1.5 QUALITY ASSURANCE

- A. General:
 - 1. The quality of all products and workmanship shall be in accordance with the provisions of this Section and the requirements of the individual Specifications Sections.
 - 2. Whenever a "level of excellence" higher than the minimum industry standard is expected for products and workmanship, then more rigid standards and more precise requirements will be indicated within individual Specifications Sections.
 - a. Example: For whatever reason, the Architect may, as a performance requirement, specify a "dry film thickness DFT)" for a coating that is more than the manufacturer's recommendation or than is normally available in a three coat system. It shall be Contractor's responsibility to achieve the required DFT with one or more additional coats, none of which shall be more than the manufacturer's recommendation for wet film thickness, for a single coat, when applied.
 - 3. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

- B. Products:

1. All products incorporated into (that is, which remain within) The Work shall be new except otherwise provided by the Contract Documents and shall comply with the requirements of the individual Specifications Sections and as supplemented herein.
 2. Matching/Mating of Products:
 - a. Products required to be supplied in quantity within a Specifications Section shall be the same, and shall be interchangeable.
 - b. Manufactured products exposed to view, especially those considered as "Finishes" (including, but not limited to, items such as floor materials, wall coverings, glass, paint and ceiling tile, which are installed or applied directly from manufacturer's containers) shall be of the same factory "run".
 - c. The Contractor is expected to secure a sufficient quantity with initial purchase to avoid running short. Materials within an area, which do not match, as a result of such failure, will be cause to reject all materials and will not be grounds for additional compensation.
 3. Extra Materials: When required by individual Specifications Sections, provide products, spare parts, and maintenance material in condition and quantities required. All "extra materials" shall be of the same factory "run" as installed materials. Deliver to Project Site, properly store in appropriate locations, and obtain receipt from authorized person prior to Final Payment.
- C. Workmanship:
1. Comply with the "level of excellence" required by individual Specifications Sections. In the absence of specific requirements, comply with product(s) manufacturer's instructions and industry standards.
 2. Use only suitably qualified craftsmen to produce work of the specified quality. Craftsmen shall be of excellent ability, thoroughly trained and experienced in types of work required, completely familiar with the quality standards, procedures and materials required.
 - a. In the acceptance or rejection of manufactured and/or installed work, the Architect will make no allowance for the lack of skill on the part of workmen.
 3. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
 4. Provide finishes to match approved samples.

PART 2 PRODUCTS

2.1 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by Contract Documents.
- B. Use of products having any of the following characteristics is not permitted:
 1. Made using or containing CFC's or HCFC's.
 2. Containing lead, cadmium, or asbestos.
- C. Where other criteria are met, Contractor shall give preference to products that:
 1. If used on interior, have lower emissions, as defined in Section 01 61 16.
 2. If wet-applied, have lower VOC content, as defined in Section 01 61 16.

2.2 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.3 MAINTENANCE MATERIALS

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.1 SUBSTITUTION LIMITATIONS

- A. See Section 01 25 00 - Substitution Procedures.
- B. Architect will consider requests for substitutions only within 15 days after date of Agreement. Architect will not consider requests for substitutions prior to Bid Date.
- C. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- D. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents, including:
 - 1. Manufacturer's name and address, product, trade name, model or catalog number, performance and test data, and reference standards.
 - 2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance, and other pertinent characteristics.
 - 3. Reference to Article and Paragraph numbers in Specification Section.
 - 4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.
 - 5. Changes required in other Work.
 - 6. Availability of maintenance service and source of replacement parts as applicable.
 - 7. Certified test data to show compliance with performance characteristics specified.
 - 8. Samples when applicable or requested.
 - 9. Other information as necessary to assist Architect's evaluation.
- E. Substitution Submittal Procedure (after contract award):
 - 1. Submit substitution requests by completing the form attached to the end of this Section.

3.2 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.3 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 74 19.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 63 00

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 GENERAL

1.1 DESCRIPTION

- A. Scope: To set forth the procedure and conditions for substitutions and to give the product options available to the Contractor.

1.2 PRODUCTS LIST

- A. Within thirty (30) days after the Contract has been signed, the Contractor will submit to the Professional five (5) copies of a complete list of all products proposed for installation.
- B. Tabulate the list by Specification sections.
- C. For products specified under reference standards, include with listing of each product:
 - 1. Name and address of Manufacturer.
 - 2. Trade name.
 - 3. Model, or catalog designation.
 - 4. Manufacturer's data.
 - 5. Performance and test data.
 - 6. Reference standards.

1.3 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standards, select any product meeting product standards by any Manufacturer.
- B. For products specified by naming a minimum of three (3) products or Manufacturers, select any product and Manufacturer named.
- C. For product specified by naming one (1) or more products, but indicating the option of selecting equivalent products by stating "or equal" after specified product, Contractor must submit request, as required for substitution, for any product not specifically named.
- D. For products specified by naming only one (1) product and Manufacturer, an equivalent product will always be accepted if it is equal in all respects. The Contractor must submit a request for substitution as set forth in this Section.
- E. For products specified by naming only one (1) product and Manufacturer and stating no substitutions will be accepted, there is no option and no substitutions will be allowed. This option must have written approval by the Owner before bidding.

1.4 SUBSTITUTIONS

- A. Professional will not consider requests for substitutions during bidding.
- B. Within thirty (30) days after the Contract has been signed, the Professional will consider formal requests from the Contractor for substitution of products in place of those specified. Submit five (5) copies of the request for substitutions. Include in the request:
 - 1. Complete data substantiating compliance of proposed substitutions with Contract Documents.
 - 2. For products:

- a. Product identification including Manufacturer's name and address.
 - b. Manufacturer's literature: Product description, performance and test data and reference standards.
 - c. Samples.
 - d. Name and address of similar products on which product was used and date of installation.
3. For construction methods:
 - a. Detailed description of proposed method.
 - b. Drawings illustrating methods.
 4. Itemized comparison of proposed substitutions with product or method specified.
 5. Data relating to changes in construction schedule.
 6. Accurate cost data on proposed substitution in comparison with product or method specified.
- C. In making request for substitution, Contractor represents:
1. Proposed product, or method, has been investigated and determined that it is equal or superior in all respects to that specified.
 2. The same guarantee will be provided for substitutions as for product or method specified.
 3. Installation of accepted substitutions will be coordinated into the Work, making such changes required of work to be complete in all respects.
 4. All claims for additional costs related to substitution that consequently become apparent will be waived.
 5. Cost data is complete and includes all related costs under the Contract.
- D. Substitutions will not be considered if:
1. Indicated, or implied, on shop drawings or product data submittals without formal request submitted in accordance with this Section.
 2. Acceptance will require substantial revision of Contract Documents.
 3. In the Professional's judgment, the product, or material, is not equal.

PART 2 (NOT APPLICABLE)

PART 3 (NOT APPLICABLE)

END OF SECTION



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SUBSTITUTION REQUEST FORM

Project Name:

Product / Method Comparison

Product: _____ Specification / Dwg. No. _____

Specified Item

Proposed Item

Manufacturer:	_____	Manufacturer:	_____
Product Name:	_____	Product Name:	_____
Model/Catalog:	_____	Model/Catalog:	_____

Provide a detailed description of both the similarities and differences between the specified and proposed items:

Credit to Owner for Accepting Substitution:

_____ (\$ _____)

Does substitution change Contract time? ___ No ___ Yes (add) (deduct) _____ Days

CONTRACTOR REVIEW STATEMENT

This request for substitution constitutes a representation that the submitter:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
2. Will provide the same warranty for the substitution as for the specified product.

3. Will coordinate installation and make changes to other Work which may be required for the Work to be completed with no additional cost to Owner.
4. Waives claims for additional costs or time extensions which may subsequently become apparent.
5. Will reimburse Owner and Architect for review or redesign services associated with reapproval by authorities.

Signature: _____ Date: _____

Name & Title: _____

Company Name: _____

Attach shop drawings, product data and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.

The Architect will notify Contractor in writing of decision to accept or reject request.

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures.
- B. Cutting and patching.
- C. Cleaning and protection.
- D. Starting of systems and equipment.
- E. Demonstration and instruction of Owner personnel.
- F. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

1.2 RELATED REQUIREMENTS

- A. Section 07 84 00 - Firestopping.

1.3 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
 - 1. Structural integrity of any element of Project.
 - 2. Integrity of weather exposed or moisture resistant element.
 - 3. Efficiency, maintenance, or safety of any operational element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of Owner or separate Contractor.

1.4 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- F. Coordinate completion and clean-up of work of separate sections.

- G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.1 PATCHING MATERIALS

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.3 GENERAL INSTALLATION REQUIREMENTS

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.4 CUTTING AND PATCHING

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. Perform whatever cutting and patching is necessary to:
 1. Complete the work.
 2. Fit products together to integrate with other work.
 3. Provide openings for penetration of mechanical, electrical, and other services.
 4. Match work that has been cut to adjacent work.
 5. Repair areas adjacent to cuts to required condition.
 6. Repair new work damaged by subsequent work.
 7. Remove samples of installed work for testing when requested.
 8. Remove and replace defective and non-complying work.
- C. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
- D. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- E. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
- F. Restore work with new products in accordance with requirements of Contract Documents.
- G. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of the penetrated element.
- I. Patching:
 1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
 2. Match color, texture, and appearance.
 3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.5 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.6 PROTECTION OF INSTALLED WORK

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- G. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.7 SYSTEM STARTUP

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

3.8 DEMONSTRATION AND INSTRUCTION

- A. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

- C. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of Owner's personnel.
- D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.9 ADJUSTING

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.10 FINAL CLEANING

- A. Use cleaning materials that are nonhazardous.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- E. Clean filters of operating equipment.
- F. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains, and drainage systems.
- G. Clean site; sweep paved areas, rake clean landscaped surfaces.
- H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.11 CLOSEOUT PROCEDURES

- A. Make submittals that are required by governing or other authorities.
- B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.
- C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.
- D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.
- E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.
- F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

- G. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.
- H. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

END OF SECTION

SECTION 01 75 00
WARRANTIES AND BONDS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preparation and submittal of warranties.
- B. Time and schedule of submittals.

1.2 RELATED SECTIONS

- A. Document 00 72 14 - General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.
- B. Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.
- C. Individual Specifications Sections: Warranties required for specific Products or Work.

1.3 FORM OF SUBMITTALS

- A. Bind in commercial quality 8-1/2 x 11 inch three D side ring binders with durable plastic cloth covers.
- B. Cover: Identify each binder with typed or printed title WARRANTIES & BONDS with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of Product or work item.
- D. Separate each warranty with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

1.4 PREPARATION OF SUBMITTALS

- A. Obtain warranties and bonds executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties until time specified for submittal.

1.5 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.

- B. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
- C. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS

2.1 NOT USED.

PART 3 EXECUTION

3.1 NOT USED.

END OF SECTION

SECTION 01 78 00
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Project record documents.
- B. Operation and maintenance data.
- C. Warranties and bonds.

1.2 RELATED REQUIREMENTS

- A. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- B. Individual Product Sections: Specific requirements for operation and maintenance data.
- C. Individual Product Sections: Warranties required for specific products or Work.

1.3 SUBMITTALS

- A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 2. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
 - 3. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.

- 4. Change Orders and other modifications to the Contract.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Changes made by Addenda and modifications.
- F. Record Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish first floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract drawings.

3.2 OPERATION AND MAINTENANCE DATA

- A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.3 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.4 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 - 1. Description of unit or system, and component parts.
 - 2. Identify function, normal operating characteristics, and limiting conditions.
 - 3. Include performance curves, with engineering data and tests.
 - 4. Complete nomenclature and model number of replaceable parts.

- B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
- C. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- E. Provide servicing and lubrication schedule, and list of lubricants required.
- F. Include manufacturer's printed operation and maintenance instructions.
- G. Include sequence of operation by controls manufacturer.
- H. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- I. Include test and balancing reports.
- J. Additional Requirements: As specified in individual product specification sections.

3.5 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

- A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.
- B. Where systems involve more than one specification section, provide separate tabbed divider for each system.
- C. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
- D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
- E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.
- F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.
- G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
- H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
- I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

3.6 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

END OF SECTION

SECTION 09 91 23
INTERIOR PAINTING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints.
- C. Scope: Finish interior surfaces exposed to view underneath dome roof, unless fully factory-finished and unless otherwise indicated.
 - 1. Exposed elements inside the existing dome structure.
 - 2. Mechanical and Electrical:
 - a. Inside of the planetarium theater, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
 - b. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
 - 5. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, and lead items.
 - 6. Floors, unless specifically indicated.
 - 7. Ceramic and other tiles.
 - 8. Brick, architectural concrete, cast stone, integrally colored plaster, and stucco.
 - 9. Glass.
 - 10. Acoustical materials, unless specifically indicated.
 - 11. Concealed pipes, ducts, and conduits.

1.2 RELATED REQUIREMENTS

1.3 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2016.
- C. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2005 (Reapproved 2017).
- D. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials; 2016.
- E. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.

- F. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).
- G. SSPC-SP 2 - Hand Tool Cleaning; 2018.
- H. SSPC-SP 6/NACE No.3 - Commercial Blast Cleaning; 2006.
- I. SSPC-SP 13/NACE No.6 - Surface Preparation of Concrete; 2018.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
 - 2. MPI product number (e.g., MPI #47).
 - 3. Cross-reference to specified paint system products to be used in project; include description of each system.
 - 4. Manufacturer's installation instructions.
 - 5. If proposal of substitutions is allowed under submittal procedures, explanation of substitutions proposed.
- C. Certification: By manufacturer that paints and finishes comply with VOC limits specified.
- D. Manufacturer's Instructions: Indicate special surface preparation procedures.
- E. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Material and Equipment, for additional provisions.
 - 2. Extra Paint and Finish Materials: 1 gal of each color; from the same product run, store where directed.
 - 3. Label each container with color in addition to the manufacturer's label.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.7 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply materials when relative humidity exceeds 85 percent, at temperatures less than 5 degrees F above the dew point, or to damp or wet surfaces.
- D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.
- E. Provide a uniform lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
 - 1. If a single manufacturer cannot provide specified products; minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.
- B. Paints:
 - 1. Base Manufacturer: Benjamin Moore.
 - 2. PPG Paints: www.ppgpaints.com/#sle.
 - 3. Sherwin-Williams Company: www.sherwin-williams.com/#sle.
 - 4. Or equal.
- C. Primer Sealers: Same manufacturer as top coats.
- D. Substitutions: See Section 01 63 00 - Substitutions and Product Options..

2.2 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
 - 1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - b. Architectural coatings VOC limits of the State in which the Project is located.
 - 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

- C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- D. Colors: Black.
 - 1. Selection to be made by Architect after award of contract.

2.3 PAINT SYSTEMS - INTERIOR

- A. Paint I-OP-DF - Dry Fall: Metals; exposed structure and overhead-mounted services, including steel deck, structural steel, metal fabrications, galvanized ducts, galvanized conduit, galvanized piping, and other exposed elements.
 - 1. Shop primer by others.
 - 2. One top coat.
 - 3. Top Coat: Latex Dry Fall; MPI #118, 155, or 226.
 - 4. Top Coat Sheen:
 - a. Flat: MPI gloss level 1; use this sheen at all locations.

2.4 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
 - 1. Alkali Resistant Water Based Primer; MPI #3.

2.5 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been adequately prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. Test shop-applied primer for compatibility with subsequent cover materials.

3.2 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Galvanized Surfaces:
 - 1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
 - 2. Prepare surface according to SSPC-SP 2.
- H. Ferrous Metal:
 - 1. Solvent clean according to SSPC-SP 1.
 - 2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
 - 3. Remove rust, loose mill scale, and other foreign substances using methods recommended in writing by paint manufacturer and blast cleaning in accordance with SSPC-SP 6/NACE No.3. Protect from corrosion until coated.

3.3 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. Apply each coat to uniform appearance in thicknesses specified by manufacturer.
- F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- G. Sand wood and metal surfaces lightly between coats to achieve required finish.
- H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

3.4 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

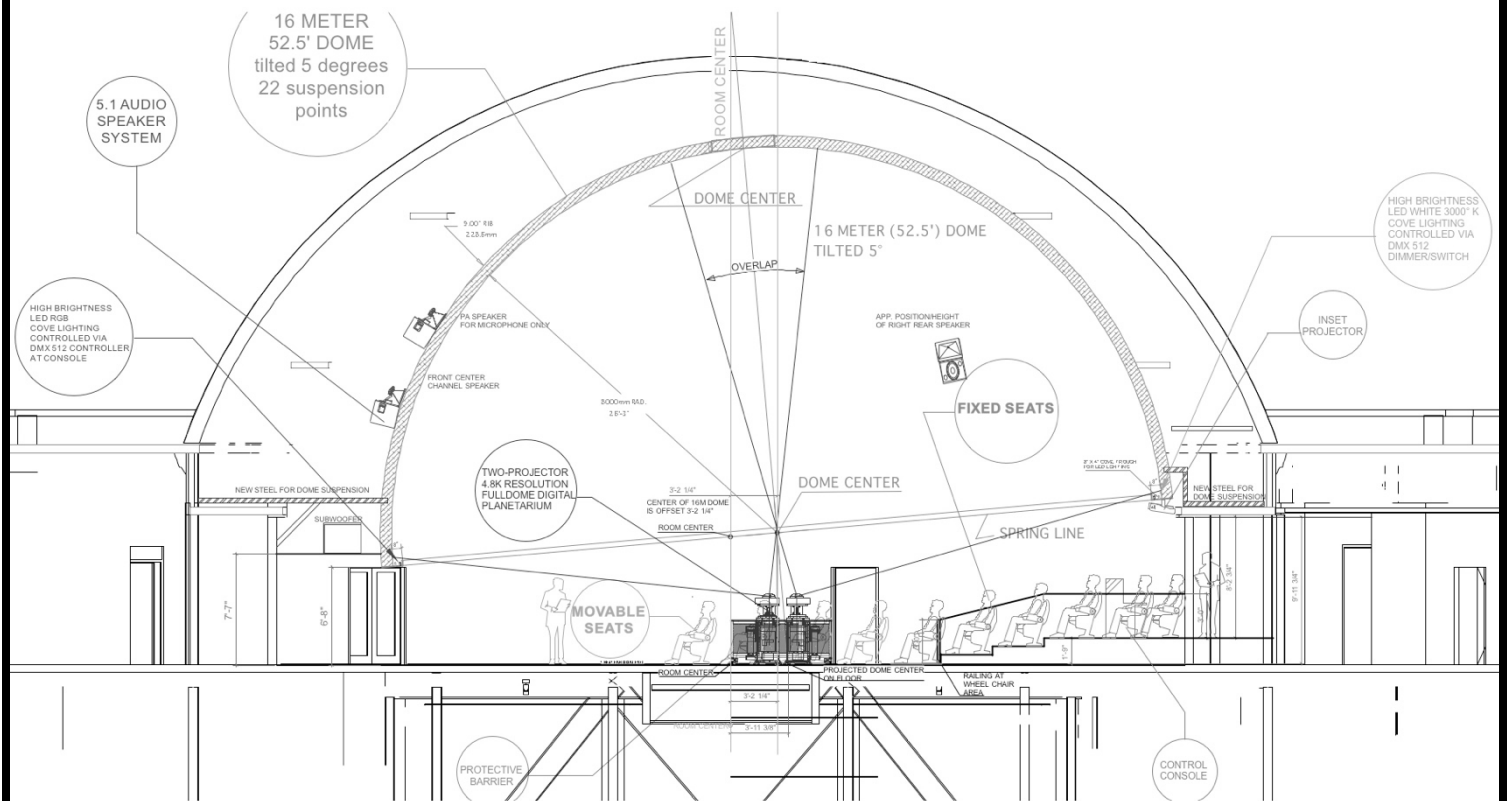
3.5 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

Jackson Planetarium Improvements

201 E. Pascagoula Street
Jackson, MS



Planetarium Specifications

November 1, 2024

Prepared for

CDFL ARCHITECTS + ENGINEERS PA

by Philip R. Groce

Helping Planetariums Succeed, LLC

619 Orange Street, Macon, Georgia 31201

478-750-7870

August 1, 2024

Jackson Planetarium Improvements

Planetarium Equipment Specifications

Equipment Narrative

The Planetarium

When the original planetarium was built in 1979, it was a state-of-the-art facility which included a high-resolution film projection system that immersed audiences in live-action motion pictures that included the first high-resolution images taken aboard the Space Shuttle. Nearly half-a-century later, these innovative mechanical/analog technologies have been replaced with digital projection. Advances in LED lighting and cinema sound now make it possible for the Russell C. Davis Planetarium to proudly proclaim itself, once again, a state-of-the-art immersive planetarium designed to serve the students and families of Mississippi. To achieve this goal, the following equipment technologies have been identified:

16 meter (52.5') diameter Dome Projection Screen

Designed to appear seamless under projection, the 52.5' diameter dome is the last optical element seen by the audience. Therefore, the need for its quality cannot be underestimated. It will produce a circular image over 4,328 sq. ft in size, making it the largest projection screen in the state. The dome will be slightly tilted, no more than 5 degrees to improve sightlines to the Fulldome images and reduce the need for steeply inclined seats near at the front the theater.

Two-Projector Fulldome Digital Space Simulator/Planetarium Projection System

This will be computer-driven planetarium projection system. Literally, any image that can be produced on a computer can be projected over the entire dome with this planetarium system. Two centrally-located projectors produce an edge-blended image 4096 pixels across or more than 13 million individual pixels sharply projected over the entire dome. The system will not only show the night sky from any location on Earth, but will also immerse audiences in the latest imagery from astronomy, astrophysics, cosmology, space science, and human space exploration. With this space simulator, presenters can take their audiences anywhere, to any planet, and far beyond, even to the edge of the known universe.

Inset Instructional Projector

This "inset" projection system that will project up to a 26' wide x 16' tall high-resolution rectangular image onto the dome screen. This projector will be capable of showing lecture and guest speaker visuals from laptops, the internet, remote computers and cameras, and from remote observatories on Earth and in space. It

will serve as the primary AV resource for theater rentals and meeting presentations. It can also be used for screening movies from Hollywood or live-streaming entertainment and sporting events.

5.1 Sound System with ADA-compliant Assistive Hearing

This 5.1 sound system (Center, Left and Right Front speakers, Left and Right rear speakers, and a Subwoofer speaker) will meet Digital Cinema Standards for motion pictures and will create a dynamic audio experience from recorded and live entertainment artists. Whether it is a tour of the night sky or a guest speaker, the sound system will create a clear and pleasant audio experience. It will be powerful enough to simulate the powerful rumble of a rocket launch. Even with all of this sonic power, it will use the design criteria: "that a good sound system can reproduce the power of a thunderstorm, but a great one also allows you to hear and locate that lone chirping cricket."

LED RGB & W Cove Lighting System

There will be a brilliant, but dimmable RGB (red, green, & blue) LED cove lighting system that will be capable of turning the dome into a dramatic shell of light of any one of several million colors at any brightness level. A separate white-light LED cove lighting system will make the theater as bright as any school classroom. This "white-light" adds a utilitarian capability to the planetarium making it attractive for teacher workshops, business meetings, and luncheons and dinners "under the stars".

LED Theatrical Lighting System

This feature adds theatrical lighting to the planetarium, allowing the planetarium to dramatically light lecturers, musical performances, rental events such as weddings and product promotions. It will make the planetarium a very desirable small venue option for events associated with Convention Center activities.

LASER Graphics Projection System

When combined with the powerful planetarium sound system, this LASER projection system will create awe-inspiring entertainment experiences that feature the latest musical performances running the gamut from the Classical, to Country and Western, to Rock & Roll, to Hip-Hop and Rap. These are purely entertainment experiences that provide a relatively inexpensive safe and clean environment for young and old to enjoy popular musical performers. This same Laser system can be used to augment live local performances.

A Planetarium Control Console to house Computer System

A Central Barrier designed to protect Planetarium Projection System

ADA-compliant Seating - designed for comfort and versatility

Table of Contents

Section11900-1: 16 meter (52.5') diameter Dome Projection Screen	Pages 1-6
Section11900-2: Two-Projector Fulldome Digital Space Simulator/Planetarium Projector	Pages 7-20
Section11000-3: One Inset Instructional Projector	Pages 21-28
Section11000-4: 5.1 sound system with ADA compliant assistive hearing	Pages 29-37
Section11000-5-1: Basic LED RGB & Cove Lighting system	Pages 38-45
Section11000-5-2: Add Alternate- White Light Cove Lighting System	Pages 46-47
Section 6000-1 Planetarium Control Console	Pages 48-49
Section 6000-2 Central Barrier for Planetarium	Pages 50-51
Section 12000-1 ADA-compliant Fixed Seating	Pages 52-58
Section 12000-2 Movable/Portable Storable Seating	Pages 59-65
Section11000-6: Add Alternate Theatrical Lighting system	Pages 66-72
Section11000-7 Add Alternate LASER Graphics Projection System	Pages 73-78

SECTION 11900-1

NEW 16 METER (52' 6") PROJECTION DOME SCREEN (PDS) SPECIFICATIONS

PROJECT DESCRIPTION:

Provide a 16-meter diameter projection dome screen (**PDS**) to be suspended from 22 points equidistant from dome center. Horizontal restraints are also required. The weight of the dome with cove trough, attached audio speakers and cove-lighting shall not exceed 12,100 pounds. Dome shall be tilted no more than 5 degrees from horizontal position.

See **PL 102 – NEW DOME SUSPENSION.**

ACCEPTABLE PROJECTION DOME SCREEN SUPPLIERS

The following are acceptable **PDS** suppliers:

Astro-Tec Manufacturing Co.

Contact: Dale Lewis - dlewis@astro-tec.com

Astro-Tec Manufacturing, In

550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio 44614-0608

Phone: (330) 854-2209 | Fax: (330) 854-5376

Seiler Instrument

Contact: Ken Yager - kyager@seilerinst.com

Seiler Instrument Co.

3433 Tree Court Industrial Blvd . St. Louis, MO 63122

office: 828-649-1018

Mobile: 828-380-9539

SCOPE OF WORK:

The work covered by the specifications consists of furnishing materials, plant labor, equipment necessary to the fabrication, manufacture, delivery, and complete installation of a **16 meter (52' 6")** 180 degree hemispherical planetarium projection dome. Target reflectivity: 44%

Projection surface: Perforated overlapping aluminum sheets with factory prime coat, followed by a final coat of paint on-site after panel installation.

WORK INCLUDED

Supply of all materials and labor required for the design and manufacture of a hemispherical projection dome with a perforated projection surface of painted aluminum.

Preparation of complete shop, assembly and erection drawings, which shall be subject to approval by the owner with respect to general design.

Preparation of a list of installation requirements, such as storage of materials, installation conditions (heat, light, power, ventilation, etc.) as well as an estimate of erection time.

Attendance of at one job-site co-ordination and scheduling meeting at time of dome delivery or prior to dome installation.

Manufacturer's personnel shall install the dome screen.

Prior to any manufacturing, provide all samples, procedures and demonstrations as specified for approval by owner.

Design and supply of the base tension ring of the dome, including the interface with the structural support ring and anchor bolts/eye bolts provided in the building by the owner.

Delivery of all materials, special tools and accessories for the dome projection screen to the site in manufacturer's protective packaging.

Provisions of a skilled painter, experienced in on-site painting of dome screens, for the final painting of the dome projection surface.

STRUCTURAL INTEGRITY

The manufacturer shall provide the owner with a certified drawing or statement of the total weight of the dome and its distribution around the dome base ring by eyebolts provided by the owner.

The manufacturer shall be responsible for the structural design of the complete dome screen systems including the structural frame and panels, sizing of all members and detailing of connections to support structure or eyebolts as supplied by owner.

Prior to commencing fabrication, the manufacturer shall provide to the owner design drawings for approval.

DESIGN AND MANUFACTURE

The **PDS** shall be self-supporting and capable of maintaining its hemispherical characteristics when supported by its tension ring as required by the design of the theater.

The hemispheric shell consists, in part, of an aluminum structural rib network system of forty-four (44) evenly spaced ribs, with a depth of not less than 9" and sufficient number of cross-members to maintain its correct shape. The inside diameter of the dome screen shall be 52.5 feet or 16,000 mm, or a radius of 8,000 mm departing not more than plus or minus 12.7mm from the nominal radius.

The ribs shall be accurately formed and reinforced in accordance with the manufacturer's drawings. The ribs shall be fabricated from aluminum alloy 6061-T6 and 6063-T5, or other suitable material.

A girt system shall be incorporated to maintain proper rib spacing. Sizing and spacing shall be as indicated on manufacturer's drawings as approved by the owner.

The structural gauge of the dome shall be sufficiently stiff so that deflection and settlement of the structure will not lead to deformation of the screen panels, based on the stiffness of the support system provided by the owner.

A circular compression ring shall be provided and located at the zenith or apex of the dome, to accommodate the terminal points for the main ribs and the perforated top circle. The compression ring shall be fabricated from aluminum alloy 6061-T6, or other suitable material acceptable to the owner.

An aluminum base tension ring shall be provided at the base of the hemisphere, which shall be so constructed that the ring will support the dome and provide the necessary connection points around its periphery. The base tension ring shall be aluminum alloy 6061-T6 or other suitable material, sized and reinforced in accordance with the manufacturer's drawings.

The projection surface shall consist of not more than 155 perforated panels which shall be 0.040 (1mm) gauge aluminum alloy type 5052-H32 containing 0.062 in. (1.6mm) diameter holes on 0.125 in. (3.2mm) staggered centers, to provide approximately 22% void area with a minimum of a 20% void after final painting.

The perforated panels shall be formed or stretch-formed over a compound die to correspond to the required section of a 8 meter radius sphere. Trimming of the panels to their final configuration shall be accomplished in compound fixtures at manufacturer's factory.

SEAMS AND JOINTS

Seams between adjacent panels will be overlapped jointed.

The seams, where the panels join, shall be overlapped by no more than 29mm and shall have an opaque flat black material of minimum thickness between the layers to ensure that the reflectivity of the seams matches the rest of the dome screen surface. The panels shall be secured to the ribs using low profile aluminum rivets. Vertical and horizontal seams shall not be located where there are no structural elements available for support. After final painting the dome shall appear nearly seamless under projection from the center of the dome.

QUALITY ASSURANCE

Uniformity of the color and the reflectivity of the dome surface over the entire area of the dome screen are of vital importance. Variation of reflectivity or color from panel to panel shall not be accepted. To this end the dome manufacturer shall include a quality assurance program as an integral part of his proposal. This program shall clearly address the points which follow, as well as any others which the manufacturer considers pertinent.

The dome manufacturer shall provide a description of the methodology and equipment to be used to ensure uniformity of color and reflectivity of surface.

If any corrective measures are needed, due to color variation or reflectivity they will be made in the final painting of the screen. Any other corrective work needed shall be performed prior to any finish work in the dome room.

If for any reasons, satisfactory repairs or touch-up cannot be made to bring the dome screen within the required uniformity, repainting will be performed by the dome manufacturer.

PREPARATION AND FINISH OF DOME STRUCTURE

The structural rib network, girts and pipe-members shall be thoroughly degreased to provide a clean, adhesive surface prior to painting. All structural elements shall be given a factory-applied coat of flat black paint.

Any damaged paint on surfaces (caused by shipping) shall be touched up with matching flat black paint before panel installation is started.

PROJECTION SURFACE OF THE COMPLETED DOME

The inside surface of the dome screen is to be painted with the overall reflectivity as the seams are to be virtually unnoticeable and the panel-to-panel differences invisible during projection.

The screen surface shall diffuse incident light with no spectral component while retaining the specified reflectance, with absence of gloss at all incident angles under projection from the center of the dome.

The seam backing material between the panels supplied by the manufacturer must be such that reflectance of the seam areas does not change over a period of at least five (5) years from acceptance.

The projection surface is to be factory primed then painted-in-place, by a factory technician with a non-bridging flat coating, with the target reflectivity of 44%.

COVE LIGHT TROUGH

Dome manufacturer shall provide a self-supporting cove trough app. 8” deep with a 4” high façade. This trough shall be of sufficient strength to support with no distortion an LED cove light system. This trough shall be bolted to or supported by the dome tension ring.

WORK NOT INCLUDED BY DOME MANUFACTURER/INSTALLER

Installing the 22 **PDS** suspension eyebolts as required per drawing **PL 104**.

Providing **PDS** lateral building attachment points as determined by the dome manufacturer and the architect.

If the planned planetarium stadium seating platforms are in place before the dome is installed, the general contractor will provide a temporary flat floor over the stadium seating area. The PDS provider shall provide the architect and general contractor the structural/load requirements of this temporary floor. If construction and dome manufacturing schedule permits, the **PDS** provider is coordinate the dome installation with the general contractor before the planetarium stadium seating platforms are built to avoid the added expense of construction of this temporary flat floor.

ACCEPTANCE OF WORK BY OTHERS

The owner or architect will provide the dome screen manufacturer complete design information concerning the architectural vertical and horizontal support for the base tension ring of the dome.

The dome manufacturer shall provide a list of site conditions required for installation and conduct a pre-installation site inspection before scheduling the installation.

END OF SECTION 119000-1
NEW 16 METER (52' 6") PROJECTION DOME SCREEN (PDS)

SECTION 119000-2

TWO-PROJECTOR FULLDOME DIGITAL PLANETARIUM & SPACE SIMULATOR (TPFDPSS)

PART 1 – GENERAL

PROJECT DESCRIPTION/WORK INCLUDED

The project shall provide, install, train for and support a **TWO-PROJECTOR FULLDOME DIGITAL PLANETARIUM & SPACE SIMULATOR (TPFDPSS)** for the Russel C. Davis Planetarium, Planetarium as shown in schematic and diagrammatic drawings **PL 101, through PL 113.**

The Planetarium takes the form of multi-use domed theater and, in addition to astronomy and space science, is also used for entertainment and musical performance as well as for meeting rentals/dinners and social gatherings such as weddings. The following are acceptable **TPFDPSS** suppliers.

Astro-Tec Manufacturing Co.

Contact: Dale Lewis - dlewis@astro-tec.com

550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio 44614-0608

Phone: (330) 854-2209 | Fax: (330) 854-5376

Seiler Instrument Co.

Contact: Ken Yager - kyager@seilerinst.com

3433 Tree Court Industrial Blvd . St. Louis, MO 63122

office: 828-649-1018

Mobile: 828-380-9539

BASIC REQUIREMENTS

TWO-Lenses/TWO projector system – central projection

Minimum dome meridian resolution of 4096 pixels.

Minimum native (on/off) contrast: 10,000 to 1

Provide a separate large hi-res dome view monitor for “off-dome” – “off-line” programming.

Minimum acceptable dome brightness of 1 Foot-lambert white light on 52.5’ dome at 44% reflectivity

Provide wireless tablet touch control (IPAD Pro or Surface Pro – latest/largest versions)

Projectors are centrally located and mounted with minimum separation. The two projectors are overlapped and soft-edged mask so that they simulate a seamless single-projected image with equal-azimuthal geometry.

Unless otherwise noted, a substituted component or supplier may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.

WORK INCLUDED

The intent of the drawings and Specifications is to provide a complete and operable planetarium system that includes all documents that are a part of the Contract.

Work Included. Furnish labor, material, services and skilled supervision necessary for the construction, erection, installation, connections, testing, and adjustment of all TPFDPSS equipment specified herein, or shown or noted on drawings, and its delivery to the Owner complete in all respects ready for use. The TPFDPSS work includes installation or connection of certain materials and equipment furnished by others such as audio and intranet system. Verify installation details, installation and locations from the actual equipment or from the equipment shop drawings.

The associated system drawings are diagrammatic and are intended to convey the scope of work, indicating intended general arrangement of equipment. Follow drawings in laying out work and verify spaces for installation of materials and equipment based on actual dimensions of equipment furnished.

RELATED DOCUMENTS AND SECTIONS

Please refer to drawings **PL 101 through PL 113**.

GENERAL REQUIREMENTS

Warranty: Furnish a written guarantee for a period of two years from date of acceptance.

Documents that your firm is a factory-authorized installer and warrantee station for the brand of equipment offered and maintain a fully-equipped service organization capable of furnishing adequate repair service to the equipment.

All of the equipment in this specification shall be furnished and installed by the Authorized Factory Installer of the equipment.

All of the equipment in this specification shall be furnished and installed by the Authorized Factory Installer of the equipment with the most current software and firmware package available at the time of installation. At the time of Owner Acceptance of the installation, all equipment shall include any and all updated software or hardware revisions. In addition, when the software is available in disk format, a backup copy of the most up to date revision, in micro-drive format, shall be handed to Owner at the completion of the project.

Verifying Drawings and Job Conditions:

Examine all project drawings and specifications to ensure full awareness of all work required under this Section.

Visit the site and verify existing conditions. Where existing conditions differ from drawings, make adjustments and allowances for all necessary equipment to

complete all parts of the work. Verify actual dimensions of construction contiguous with Planetarium equipment by field measurements before fabrication.

Pre-installation Conferences: Conduct a minimum of one conference at the project site prior to the start of installation work. Where existing conditions differ from drawings, make adjustment and allowances for all necessary equipment to complete all parts of the work.

WORK IN COOPERATION WITH OTHER TRADES

Examine the drawings and specifications and determine the work to be performed by the electrical and other trades. Provide the type and amount of TPFDPSS systems materials and equipment necessary to place this work in proper operation, completely wired, tested and ready for use.

Confirm Low voltage conduit, boxes and 120VAC power have been provided by the General Contractor.

TESTING AND ADJUSTMENT

Upon completion of all TPFDPSS systems work, provide testing and demonstrating in the presence of the owner's inspector that the audio, digital video and control parameters are as stated in the factory data sheets.

Promptly repair or replace all equipment and parts discovered to be in need of correction. Then retest that part of the system and all associated components to correct the error. Perform all such replacement or repair at no additional cost to the Owner.

FINAL INSPECTION AND ACCEPTANCE

After all requirements of the specifications and/or the drawings have been fully completed, representatives of the Owner will inspect the work. Provide competent personnel to demonstrate the operation of any item or system to the full satisfaction of each representative.

Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from each representative.

RECORD DRAWINGS

Drawings of Record: Provide and keep up-to-date, a complete record set of drawings. Keep these corrected daily and show every change from the original drawings. Keep this set of prints on the job site for use only as a record set. This shall not be construed as authorization for your firm to make changes in the layout without Owner approval in each case.

Upon completion of the work, obtain a set of Contract Drawings from the General Contractor and create a record set professionally using a PDF editor. Deliver this set in PDF format as indicated in Submittals – Close-Out, below.

Upon completion of the work, obtain a set of Contract Drawings from the General Contractor and create a record set professionally using a PDF editor. Deliver this set in PDF format as indicated in Submittals – Close-Out, below.

APPROVALS, EQUALS, SUBSTITUTIONS, NO KNOWN EQUAL

Approvals: Where the words (or similar terms) “approved”, “approval”, “acceptable”, and “acceptance” are used, these refer to the requirement that acceptance by the Owner, Architect, Planetarium Design Consultant, and Engineer is required.

Equal: Where the words (or similar terms) “equal”, “approved equal”, “equal to”, “or equal by”, “or equal” and “equivalent” are used, it shall be understood that these words are followed by the expression “in the opinion of the Owner, Architect, and Engineer.” For the purposes of specifying products, the above words shall indicate the same size, made of the same construction materials, manufactured with equivalent life expectancy, having the same aesthetic appearance/style (includes craftsmanship, physical attributes, color and finish), and the same performance.

Substitution: For the purposes of specifying products “substitution” shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.

Substitutions of specified equipment shall be submitted and received by the Architect ten days prior to the bid date for review and written approval. Regulatory Agency approval for all substitutions will be the sole responsibility of the Contractor. To receive consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letterform and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples, if requested, must be included in the submittal.

SUBSTITUTIONS MUST BE PRE-APPROVED BY THE ARCHITECT AND THE PLANETARIUM DESIGN CONSULTANT. ALL BIDS SHALL BE BASED ON THE PRODUCTS EXACTLY AS SPECIFIED. PRICING FOR EACH APPROVED SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.

The Contractor warrants that substitutions proposed for specified items will fully perform the functions as specified herein.

Alternates/Alternatives: For the purposes of specifying products, “alternatives/alternates” may be established to enable the Owner/Architect/Engineer to compare costs where alternative materials or methods might be used. An alternate price shall be submitted in addition to the base bid for consideration. If the alternate is deemed acceptable, written authorization will be issued.

SUBMITTALS – PRE-INSTALLATION

Submit the shop drawing submittal as PDF files accompanied by Letter of Transmittal, which shall give a list of the number and dates of the drawings submitted.

Provide consecutively numbered drawings featuring the name of the project that indicate the name of the specific Staff that checked and approved each drawing. Any drawings submitted without this approval will be rejected.

If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, make specific mention of such variations in the Contractor's letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment that may be caused by the substitution. Submit samples upon request.

Only products listed as "Equal" within the contract documents, along with formally approved "Substitutions" will be reviewed. Products not conforming to these items will be rejected.

Shop drawings shall be submitted on the following but not limited to:

- System functional diagrams, including control system wiring and audio signal diagrams

- Equipment rack elevations (supplied by TPFDPSS and others)

- Console layout, equipment placement, etc. (CONSOLE PROVIDED BY OTHERS)

- All other products called out on drawings that call for shop drawing submittal

SUBMITTALS – CLOSE-OUT

Subsequent to completing preliminary testing, provide to the Owner, and Planetarium consultant, a letter/report documenting the results of the preliminary tests and the documentation detailed below. The receipt of this documentation will constitute the acknowledgment that the installation is complete, that it conforms to this specification, and that it is ready to be reviewed and tested.

Operation and Maintenance Manuals: Provide all manuals as PDF files on three duplicate CD-ROM disks or USB drives, named consistently with the manufacturer's name and the model number in separate folders for the planetarium and exhibit hall. Copy the same file and folder organization to the Owner.

Provide step-by-step operating instructions for the day-to-day use of the system including power activation, connection of source devices,

adjustment of volume levels, selection of sources, etc. Include illustrations and references to individual equipment manuals as necessary.

Equipment List: Include an Excel or other spreadsheet file listing all equipment including connectors and specialty hardware. Include columns for manufacturer, model, physical location, MAC address, IP address, if fixed or DHCP, VLAN, serial number, and cable label identification.

As-built drawings: Provide all as-built documentation as PDF files on the disks and online service mentioned above. In addition, provide a single copy each of the functional drawings, floor plans, and ceiling plans as laminated full-size drawing sets.

PART 2 - DETAILED SYSTEM EQUIPMENT PERFORMANCE SPECIFICATIONS TWO-PROJECTOR FULLDOME DIGITAL PLANETARIUM & SPACE SIMULATOR

General Characteristics:

The system shall be a single projector/single lens digital planetarium projector, located along the optical axis of the projection dome as shown in drawing **PL 101**.

There shall be no apparent image seams or blending artifacts, variation in color, and variation in brightness across the dome over the entire life of the Planetarium projector system. Minimum White-light Dome Image brightness on an 16 meter (52.5') diameter dome with reflectivity of 44% is not less than one (1) Foot Lambert (F.L.). Brighter is desirable.

The projector system shall be capable of playing all formats of fulldome movies.

The system shall have an extensive set of astronomical databases.

The system shall have both manual and wireless controls. The manual controls shall be located at a fixed console (see PL 101 & PL 111). The wireless touch-screen remote control shall operate anywhere in the planetarium theater.

The proposed System shall allow for maintenance/repair by planetarium Staff with no projector/pixel alignments (electronic or mechanical) required during life of system.

The Minimum Effective Dome Master Resolution or Meridian resolution of the projector image shall be: 4096 pixels (higher desirable) or a minimum total dome pixels of 13,176,800 equally spaced pixels (higher is desirable).

The projection system shall use an azimuthal equidistant projection (circular fisheye) method to insure the accuracy of the fulldome master. Combined Projection angle of two-projector system shall be $158^{\circ} \pm 2^{\circ}$.

REQUIRED PROJECTOR FEATURES

Main Configuration: Centrally located per PL 101 is a Two-projector system inclusive of lenses/chassis/outer covers.

Projection technology: LCOS.

Minimum projector characteristics

Minimum native chipset resolution for each projector: 4096 x 2400 pixels x 3 chip (can be higher)

Minimum number of colors: 16,770,000 colors (10 bit color depth)

Minimum rated light output as measured on 16 meter dome, not less than 1 Foot-Lambert at 70% full brightness - if using Laser Phosphor light sources, Minimum native on/off contrast ratio: 10,000:1

Be capable of displaying 60 fps movies.

Projection Lenses: have a combined 160 degree $\pm 2^\circ$ projection angle. All lens elements shall be fully multi-coated

Electrical Power: Each Projector shall be able to operate with AC100~240V at 50/60Hz and electrical load less than 15 amps per projector.

NOTE: PROPOSER MAY OFFER ALTERNATIVE DUAL PROJECTOR SYSTEMS AND ALTERNATES AS LONG AS THE BRIGHTNESS, AND RESOLUTION SPECIFICATIONS ARE MET.

REQUIRED COMPUTER FEATURES

Graphics Card outputs shall be capable of 24 fps, 30 fps, and 60 fps (frames per second) at the required projected resolution with enough built-in buffer memory to provide smooth display of both real-time generated planetarium imagery and pre-rendered content. The card shall be capable of displaying imagery at 10-bit color depth.

The server for each projector shall meet the following minimum specifications: CPUs: 6 core Xeon 3.5GHz or faster, OS: Windows 11 - 64bit or later, Memory per CPU: 8GB or more, Solid State OS Drive (256GB or larger), HDD for Program/Content: 1TB or larger. This specification is offered as a required minimum and subject to change. The vendor shall supply the latest computer model available of hardware and software version at time of installation. The vendor shall provide cut sheets and shop drawings of the computer system for approval by the planetarium consultant, prior to installation.

Audio output: The system shall be capable of two-channel, and 5.1-channel source content and shall provide audio over digital output or balanced analog output or by Dante®.

Power: AC100~240V, 50/60Hz, Maximum load per computer/server – 1000 Watts or 8.5 amps.

All computer components, switchers, and image/audio processors are to be rack mounted in the equipment rack provided by the vendor and shown in **PL 101**. The vendor may also use the Control Console to house computer components.

Signal Distribution:

The vendor shall supply of all signal switching and cabling systems associated with the Fulldome Planetarium System from all image sources.

Please refer to **PL 110**.

Vendor is to include all control and switching equipment, cabling, etc. in the system, capable of displaying signals from both vendor supplied systems and alternate owner furnished full-dome systems as well as presentation PC, laptop presentations and remote telescope cameras. Digital video signals shall be utilized throughout the system to achieve a truly digital system throughout. Signal distribution equipment shall include, but is not limited to, boosters, transmitters and receivers shall be all digital in terms of signal path and provided as required to ensure all signal distribution runs are within the specification of the maximum run for the signal type. All digital picture continuous signal runs of more than 15 meters shall be done via optical fiber.

DIGITAL PLANETARIUM FUNCTIONS

At the planetarium control console, the planetarium system shall provide a simple-to-use GUI that allows the operator to display the following functions in real-time or through pre-recorded macro functions:

Fixed Stars:

Stellar Data Base shall include the Hipparcos Catalogue and the Bright Star Catalogue down to 13.1 magnitude (more than 110,000 fixed stars).

The system shall be able to adjust brightness of stars (0-100%).

The Limiting Magnitude shall be adjustable in 0.1 magnitude increments.

Display of the datasets shall be adjustable by distance from Earth in light-year increments.

Display of the datasets shall be adjustable by spectral class and luminosity class.

The system shall be able to change the texture/artwork/color of stars.

The system shall be able to simulate scintillation/twinkling of stars (with the characteristics of scintillation adjustable by the user)

The System shall be able to simulate major supernovae and the light curves of variable stars with apparent magnitude 6.5 or brighter.

The system shall be able to display telescopic photos of Supernova. The user shall be able to add images, as needed.

The system shall be able to simulate representation of proper motion over a period $\pm 1,000,000$ years.

System shall be able to trace the path of stellar objects.

User shall have the ability to customize the visual size (angular size or diameter) of fixed stars according to their magnitude.

The User shall have the ability to customize the visual color of fixed stars according to their interpretation of the color index/spectral class.

The user shall have the ability to turn ON/OFF the aureole of Sun.

The user shall have the ability to turn ON/OFF daylight, moonlight, and light pollution.

Galaxies, Nebulae and Star Clusters

The system shall show the Milky Way with individual selection for Visible/Infrared/X-ray/Gamma-ray/Radio Continuum, Hydrogen Alpha, Atomic Hydrogen, and Molecular Hydrogen. Brightness adjustment shall be from 0-100%, independent of fixed stars, using a slide bar control.

The system shall show all Messier objects including selectable display of location marker, label (English), and display of enlarged telescopic image (picture). Images

should be mapped to celestial sphere in the proper orientation and shall participate in Earth motions.

The system shall allow the ability to add close-up photos of main Galaxies, cluster of galaxies, nebulae, planetary nebulae, dark nebulae, globular clusters, open clusters, etc. The system shall Display galaxies, nebulae, star clusters from any location in known universe.

The system shall display Asteroid belt objects, Kuiper belt objects, Oort cloud, globular clusters, Local Group, regional galaxies, SDSS, quasar survey, WMAP and Planck Map of early universe. The system shall display labels of objects.

Solar System

The system shall display:

The Sun: Enlarged display and shall display Total, Annular, and Partial Solar Eclipses, including the Diamond Ring effect and the Solar Corona.

The Moon: Enlarged display including representation of Moon phases and Earthshine and shall display Total and Partial Lunar Eclipses, including the reddening of the Moon during eclipse.

Be able to scale up or down the Sun, the Moon, planets and etc. and their labors. individually or in synchronization.

All planets and Pluto: Enlarged display, display of label, display of orbit.

All named dwarf planets: Enlarged display, display of label, display of orbit.

Major Trans-Neptunian objects: Display of label, display of orbit.

Major Planetary Satellites: Enlarged display, display of label display of orbit.

Minor objects (minor planets, asteroids and comets) : Display as a dot, display of label, display of orbit. Ability to add artwork, close-up photos of Asteroids, Comets.

Spacecraft: Display of Pioneer 10 and 11, Voyager 1 and 2, Cassini, New Horizons, Webb Space Telescope, ISS, etc. and their orbits.

Project the paths of seasonal Suns and trace the Analemma.

Simulation Range, Time, and Viewpoints

Time:

Display proper motion of fixed stars over $\pm 1,000,000$ years.

Display all Solar System Objects motion over $\pm 100,000$ years.

Space: to distant objects formed in early universe.

Time Setting:

Any time within the simulation range

System shall have the ability to be customize time settings at startup by the user

View point (in the solar system):

On any object at any latitude, longitude and planet-centric distance.

Able to select and move solar system objects.

Ability to move forward to/backward from/around solar system objects. (moving speed can be selected or automatically preset.)

View point (outer space):

Able to display the day or night sky viewed from a given target or location. Ability to automate, record, and store space travel from take-off to arrival point by setting up objects to be seen en route, final target object, duration time of travel, etc.

Meteors and Meteor Showers

Sporadic Meteors: Real time simulation. Meteors can be displayed out of synchronization with time.

Meteor Streams: Real time simulation with accurate peak/radiant points. User can set the meteor rate.

Coordinate Systems

Display of horizontal coordinates, equator, right ascension and declination, ecliptic, ecliptic latitude and longitude, galactic coordinates, super galactic coordinates, galactic longitude and latitude, meridian, azimuth, precession circle, poles, ecliptic pole, and zenith point.

Able to Display distance circles or spheres from the sun (scale) in off-Earth simulations.

Constellations

Display Artworks: Display of 88 constellation artworks individually or in any combination.

Display Lines: Display of 88 constellation lines individually or in any combination. The lines shall display in 3-dimensional location when viewed off of Earth's surface and shall be able to participate in all motions, including proper motion.

Display Boundaries: Display of boundaries of 88 constellations individually or in any combination.

Display Labels: Display of labels for 88 constellations individually or in any combination.

Display Constellation Artworks. Operator will have the ability to add alternate constellation artwork, including alternate cultural interpretations.

Lines, Boundaries, Labels shall be adjustable by color/line width/ size, font etc.

Asterisms

Major Asterisms: Great Spring Triangle, Great Spring Arc, the Big Dipper, Finding Polaris by using the Big Dipper, , Summer Triangle, Northern Cross, Tea Pot, The Milk Dipper, Great Square of Pegasus, Finding Polaris by using Cassiopeia, Winter Triangle, Great Diamond or Hexagon of Winter, Winter circle, the False Cross. All asterisms shall be able to participate in all motions, including proper motion.

Pointers, lines, circles, etc.

Able to display multiple pointers at a time including arrow, circle, cross and others anyplace on the dome. Display lines or letters connecting given points on the screen. Able to display lines that follows mouse/pointer movement.

Natural Sky Phenomena

Morning/evening twilight - real time simulation (automatic brightness control based on the location of the Sun)

Sunset/Sunrise clouds

Representation of natural phenomena including lighting, clouds, rain, snow, aurorae, fireball, zodiacal light, gegenschein and etc.

Daylight and Blue Light: The brightness is automatically adjusted in relation to the location of the Sun.

Panorama (Landscapes)

Able to display day/night landscapes (panoramas). Easily change to other layers or landscapes. Vendor shall supply a minimum of 10 daytime and matching nighttime panoramas in the database as well as one local photographic panorama of a Jackson cityscape as seen from the planetarium or a famous local landmark to be determined by Davis Planetarium Staff. Display automatically synchronizes brightness based on the altitude of the Sun and automatically transitions from day to night scenes..

Able to display scenes (day view and night views) created by Davis Planetarium Staff.

High Resolution Surface Mapping

Able to display high-resolution surface map images for Mercury, Venus, Earth, Moon and Mars in real-time simulation. Still images can be pasted at a specified longitude and latitude, in proper orientation, and displayed on the surface.

Multimedia Functions

The system shall provide the following functions:

Fulldome Projection

Fulldome projection of stills or movies.

Fulldome projection can be performed with the planetarium functions or other multimedia functions.

Still Images

Multiple still images can be projected simultaneously and can be switched automatically in specified intervals. Operator can move, zoom, fade and special effects (rotation, wiping, etc.) still images.

Able to display these file formats: BMP, JPEG, PNG, TIFF, TGA, GIF and PICT.

Movies

Multiple movies can be projected simultaneously. Operator can Play / Stop / Pause / Repeat / Move / Zoom / Fade any or all movies as well as Search and Load new movies in real time.

Able to display these formats: MPEG, AVI, WMV, MP4, MOV, FLV

Sounds

Multiple sound files can be played simultaneously. Operator can Play / Stop / Pause / Repeat / Fade any or all sounds as well as Search and Load new sounds in real time. Able to play these formats: WAV (2 ch. to 5.1), MP3, AC3, WMA, and OGG.

3D Object

Multiple 3D objects can be projected simultaneously.

Able to display these formats: Lightwave Object (.lwo), 3D Studio Max (.3ds)

Text and Others

Letters can be projected as text data. 2-dimensional objects such as dots, lines, circles, arrows and freely drawn lines and can be projected in real-time.

Slide show

Place audio, still images, and/or video on a timeline, and play/record automatically.

Live Capture

Project the HDMI output image of an external device. Automatic distortion correction of live action or real-time images on any part of the dome. This allows

the operator to directly images and data content from remote observatories, NASA, JPL, and ESO.

Cursor

Display a dome-view cursor, size/type/artwork of cursor can be customized by users.

Macro Function

Operator can record, reproduce, and edit the contents of all manually operated planetarium and multimedia functions to create programs.

Recorded macros can be edited along a time-line or converted to a script program for even more precise editing and show production.

REQUIREMENTS AND CONSIDERATIONS

Additional Spare Parts:

Bidder should provide a list of spare parts provided to maintain continued operation of the system. As a minimum, the following items shall be supplied:

Spare hard drives for all computers in system. These hard drives shall be true backups of all provided software at the time of acceptance.

The RFP response should provide service spare parts location and the location of service technicians.

Selected vendor is to provide drive cloning device(s) as part of the provided technology. As part of the training, vendor and owner's representative will jointly develop a schedule/procedure for updating and cycling of back-up and master hard drives. Automatic drive cloning on a weekly basis is desirable.

Coordination with GC and other Trades:

The selected vendor shall be flexible in the approach to the installation; there will be coordination with other specialists working on site in the same areas.

Agreements will be established for allowing sufficient 'dark time' to enable proper projection alignment; this may involve working outside normal daytime working hours.

Cabling Considerations:

All cabling within the rack housings will be identified, secured and correctly terminated in accordance with manufactures recommendations.

No cable will be stressed and will be installed in such a way that any piece of hardware can be removed from the rack without removing any cable fixings.

All site cables will be neatly installed and secured and enclosed in the containment provided unless stated otherwise.

Any cable splicing or joining will not be accepted. All cable runs to be a single length of cable.

All cables will be identified/labeled at both ends

Operational and Maintenance (O&M) Manuals"

All audio cables will be of professional audio quality and where applicable will be Oxygen Free Cables (OFC). If video cable run distance exceeds 20 meters, then fiber optic cables will be substituted for copper conductor cables.

The system will be complete and any items needed to ensure the required operation of the system will be included on the Bid Pricing. Items required that are not included in the specification should be included in the design and price submitted. Davis Planetarium/City of Jackson will not accept responsibility for omissions in the systems proposed, once a contract is awarded.

Warranty:

All provided technology and systems shall be warranted to comply with this specification and shall be free of defects in materials and workmanship for a period of two years from the date of acceptance.

Services:

In addition to the complete engineering design, all labor and materials required for, or reasonably incident to, the manufacture, delivery, on-site supervision, and installation of all the systems and technology detailed in this RFP shall be included.

Vendor's proposal shall include a fixed price, including all travel and all expenses.

Vendor will be responsible for providing all tools, equipment and materials required to complete the delivery of this specified product.

For the purposes of this proposal, assume that you will be responsible for all off-loading and handling the components and equipment that you deliver to site.

Installation supervision by vendor shall be included if a sub-contractor is used for installation.

Training:

After completion of the installation, the contracted vendor will carry out full training on the system(s), including; fault finding, critical parts replacement, maintenance and daily checks and tests. This training

will be conducted on site with up to four persons from the Davis Planetarium Staff.

The contracted vendor shall provide an additional 3 days operational training on the Fulldome Planetarium system for up to four persons from Davis Planetarium Staff. The selected Vendor is to submit a training syllabus to Davis Planetarium Staff for input/approval. Training will include, but is not limited to, production and installation of Content and Lesson Production as determined by the Planetarium Director or Manager.

A training schedule will be developed with Davis Planetarium Staff to allow for training on the full dome system of the planetarium technology package that will allow for appropriate groups of personnel to be scheduled for training on the various subsystems. Training shall be of sufficient duration and depth and the schedule shall allow adequate time for personnel to absorb the training.

Pre-installed Content and Lesson Production:

Fulldome Vendor will install “free” and open source material content FROM European Southern Observatory:

Fulldome clips and shows from ESO and the community. The technical specifications are described here.

ESO Fulldome stills

ESO 360 degree panoramas incl. 360 x 180-degree panoramas

Fulldome clips at ESA/Hubble

Music archive

Complete Fulldome shows including but not limited to “*Two Small Pieces of Glass*” (National Science Foundation), ESO productions (“*Mayan Archaeoastronomy: Observers of the Universe*”, “*Out There - The Quest for Extrasolar Worlds*”, “*Seeing*”, “*Phantom of the Universe*”, “*The Dark Matter Mystery: Exploring a Cosmic Secret*”, “*The Hot and Energetic Universe*”, “*From Earth to the Universe*”, “*Aurora Storm*”, “*New Horizons for A Distant Planet*”, “*The Sun, Our Living Star*”, “*Distant Worlds, Alien Life?*”, “*The Dark Matter Mystery*”), and short films from NASA, JPL and Space Telescope Science Institute (<http://www.spacetelescope.org/videos/archive/category/fulldome/>).

Davis Planetarium/City of Jackson recognizes that it must obtain free licenses for performance before these installed programs can be shown.

END OF SECTION 119000-2

TWO-PROJECTOR FULLDOME DIGITAL PLANETARIUM & SPACE SIMULATOR

SECTION 119000-3

INSET INSTRUCTIONAL PROJECTOR (IIP) SPECIFICATIONS

The work covered by the specifications consists of furnishing materials, plant labor, equipment necessary to the fabrication, manufacture, delivery, and complete installation of one (1) inset projector located at the rear of the theater and a signal switcher for displaying up to 4 different inputs.

PROJECT DESCRIPTION/WORK INCLUDED

Please refer to schematic level drawings **PL 101 & PL 110**. The selected vendor/contractor shall provide, install, train for, and support the following instructional media system:

One (1) INSET DOME PROJECTOR. WUXGA projector producing a partial dome projection in front of theater, app. 16' high x 26' wide.

Specified Models: [Panasonic PT-MZ880BU](#) with standard ET-ELS20 lens

or equivalent: WUXGA (native) LCD, 8000 Lumens, have a Zoom lens throw ratio of 1.61 to 2.38 (producing a maximum image size of 26' wide x 16' high images). Light source shall be lampless and guaranteed for 20,000 hours (Laser Diode or Laser Phosphor light source). Noise level shall be 34dBA or less during normal full brightness operation.

A substituted projector may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.

One (1) - 4IN/2 OUT MEDIA MATRIX/ROUTING HDMI SWITCHER with separate audio outputs - for distributing four video/data sources with two outputs – sending duplicate video signals Inset Projector and a preview monitor at the console.

Note: Switcher will also be used to multitask console monitors used for displays of Planetarium Systems Controls, Lighting and Audio Control Systems, thus reducing the number of required monitors at console. Maximum VESA resolution shall be 4096 x 2160 pixels.

Specified Model: [AVPro edge AC-MX-42](#) or equivalent.

One (1) Projector mount designed to be attached to the bottom of the planetarium cove trough/tension ring at rear of theater.

One (1) All Associated/required signal cables and connectors that run from projector to control console.

The following are acceptable Inset Instructional Projectors (**IIP**) specifications.

Astro-Tec Manufacturing Co.

Contact: Dale Lewis - dlewis@astro-tec.com

Astro-Tec Manufacturing, In

550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio 44614-0608

Phone: (330) 854-2209 | Fax: (330) 854-5376

Seiler Instrument

Contact: Ken Yager - kyager@seilerinst.com

Seiler Instrument Co.

3433 Tree Court Industrial Blvd . St. Louis, MO 63122

office: 828-649-1018

Mobile: 828-380-9539

OVERVIEW: The Planetarium takes the form of multi-use domed theater and, in addition to astronomy and space science, is also used for entertainment and musical performance as well as for meeting rentals/dinners and social gatherings such as weddings. This INSET projector facilitates projections of PowerPoints, movies, internet sources, and other instructional and entertainment content.

Unless otherwise noted, a substituted component may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.

This specification shall apply to all phases of Work hereinafter specified, shown on drawing, or as required to provide a complete installation. The intent of the drawings and Specifications is to provide a complete and operable planetarium system that includes all documents that are a part of the provider's contract.

1. Work Included. Furnish labor, material, services and skilled supervision necessary for the construction, erection, installation, connections, testing, and adjustment of all equipment specified herein, or shown or noted on drawings, and its delivery to the Owner complete in all respects ready for use.

2. The work includes installation or connection of certain materials and equipment furnished by others. Verify installation details, installation and rough-in locations from the actual equipment or from the equipment shop drawings.

The associated system drawings are diagrammatic and are intended to convey the scope of work, indicating intended general arrangement of equipment. Follow drawings in laying out work and verify spaces for installation of materials and equipment based on actual dimensions of equipment furnished.

Media design and control at Control Console and front of theater as shown in **PL 101 and PL 110**.

GENERAL REQUIREMENTS

A. Guarantee: Furnish a written guarantee for a period of two years from date of acceptance.

B. All of the equipment in this specification shall be furnished and installed by the Authorized Factory Installer of the equipment with the most current software and firmware package available at the time of installation. At the time of Owner Acceptance of the installation, all equipment shall include any and all updated software or hardware revisions. In addition, when the software is available in disk format, a backup copy of the most up to date revision, in disk format, shall be handed to Owner at the completion of the project.

C. Verifying Drawings and Job Conditions:

1. Examine all project drawings and specifications to ensure full awareness of all work required under this Section.
2. Visit the site and verify existing conditions. Where existing conditions differ from drawings, make adjustments and allowances for all necessary equipment to complete all parts of the work. Verify actual dimensions of construction contiguous with Planetarium equipment by field measurements before fabrication.
3. Pre-installation Conferences: Conduct a minimum of one conference at the project site prior to the start of installation work. Where existing conditions differ from drawings, make adjustment and allowances for all necessary equipment to complete all parts of the work.

WORK IN COOPERATION WITH OTHER TRADES

Examine the drawings and specifications and determine the work to be performed by the electrical and other trades. Provide the type and amount of audiovisual systems materials and equipment necessary to place this work in proper operation, completely wired, tested and ready for use.

Confirm Low voltage pathways/conduit, boxes and AC power have been provided.

TESTING AND ADJUSTMENT

A. Upon completion of all audiovisual systems work, provide testing and demonstrating in the presence of the owner's inspector that the all audio, digital video and control parameters are as stated in the factory data sheets.

B. Promptly repair or replace all equipment and parts discovered to be in need of correction. Then retest that part of the system and all associated components to correct the error. Perform all such replacement or repair at no additional cost to the Owner.

FINAL INSPECTION AND ACCEPTANCE

A. After all requirements of the specifications and/or the drawings have been fully completed, representatives of the Owner will inspect the work. Provide competent personnel to demonstrate the operation of any item or system to the full satisfaction of each representative.

B. Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance by the planetarium consultant.

RECORD DRAWINGS

Drawings of Record: Provide and keep up-to-date, a complete record set of drawings. Keep these corrected daily and show every change from the original drawings. Keep this set of prints on the job site for use only as a record set. This shall not be construed as authorization for your firm to make changes in the layout without Owner approval in each case.

Upon completion of the work, obtain a set of Contract Drawings from the General Contractor and create a record set professionally using a PDF editor. Deliver this set in PDF format as indicated in Submittals – Close-Out, below.

APPROVALS, EQUALS, SUBSTITUTIONS, NO KNOWN EQUAL

A. Approvals: Where the words (or similar terms) “approved”, “approval”, “acceptable”, and “acceptance” are used, these refer to the requirement that acceptance by the Owner, Architect and Engineer is required.

B. Equal: Where the words (or similar terms) “equal”, “approved equal”, “equal to”, “or equal by”, “or equal” and “equivalent” are used, it shall be understood that these words are followed by the expression “in the opinion of the Owner.” For the purposes of specifying products, the above words shall indicate the same size, made of the same construction materials, manufactured with equivalent life expectancy, having the same aesthetic appearance/style (includes craftsmanship, physical attributes, color and finish), and the same performance.

Substitution: For the purposes of specifying products “substitution” shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.

Substitutions of specified equipment shall be submitted and received by the Engineer ten days prior to the bid date for review and written approval. Regulatory Agency approval for all substitutions will be the sole responsibility of the Vendor/Contractor. To receive consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letterform and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples, if requested, must be included in the submittal.

ONLY PRE-BID APPROVED PRODUCTS, ISSUED VIA A FORMAL BID ADDENDUM TO ALL BIDDERS, WILL BE ALLOWED ON THE PROJECT. REGARDLESS OF THE APPROVAL ON ANY SUBSTITUTION, ALL BIDS

SHALL BE BASED ON THE PRODUCTS EXACTLY AS SPECIFIED. PRICING FOR EACH APPROVED SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.

The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.

Alternates/Alternatives: For the purposes of specifying products, “alternatives/alternates” may be established to enable the Owner to compare costs where alternative materials or methods might be used. An alternate price shall be submitted in addition to the base bid for consideration. If the alternate is deemed acceptable, written authorization will be issued.

No Known Equal: For the purposes of specifying products, “No Known Equal” shall mean that the Owner/Architect/Engineer is not aware of an equivalent product. The Contractor will need to submit a “Substitution” item, per the requirements listed above, if a different product is proposed to be utilized.

SUBMITTALS – PRE-INSTALLATION

Submit the shop drawing submittal as PDF files accompanied by Letter of Transmittal, which shall give a list of the number and dates of the drawings submitted.

Provide consecutively numbered drawings featuring the name of the project that indicate the name of the specific Staff that checked and approved each drawing. Any drawings submitted without this approval will be rejected.

If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, make specific mention of such variations in the Contractor’s letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment that may be caused by the substitution. Submit samples upon request.

Only products listed as “Equal” within the contract documents, along with formally approved “Substitutions” will be reviewed. Products not conforming to these items will be rejected.

Shop drawings shall be submitted on the following but not limited to:

System functional diagrams, including signal system wiring

Equipment locations and methods for mounting

Console layout, equipment placement, etc.

All other products called out on drawings that call for shop drawing submittal

SUBMITTALS – CLOSE-OUT

Subsequent to completing preliminary testing, provide to the Owner and Planetarium consultant, a letter/report documenting the results of the preliminary

tests and the documentation detailed below. The receipt of this documentation will constitute the acknowledgment that the installation is complete, that it conforms to this specification, and that it is ready to be reviewed and tested.

B. Operation and Maintenance Manuals: Provide all manuals as PDF files on three USB drives, named consistently with the manufacturer's name and the model number in separate folders for the planetarium and exhibit hall. Copy the same file and folder organization to the Owner.

Provide step-by-step operating instructions for the day-to-day use of the system including power activation, connection of source devices, adjustment of volume levels, selection of sources, etc. Include illustrations and references to individual equipment manuals as necessary.

Organize the manual PDF files into folders by subsystem: audio, video, control, etc.

Equipment List: Include an Excel or other spreadsheet file listing all equipment including connectors and specialty hardware. Include columns for manufacturer, model, physical location, MAC address, IP address, if fixed or DHCP, VLAN, serial number, and cable label identification.

As-built drawings: Provide all as-built documentation as PDF files on the disks and online service mentioned above. In addition, provide a single copy each of the functional drawings, floor plans, and ceiling plans as laminated full-size drawing sets.

PART 2 - DETAILED SYSTEM EQUIPMENT PERFORMANCE SPECIFICATIONS FOR INSET INSTRUCTIONAL PROJECTORS (IIP)

Specified Model: [Panasonic PT-MZ880BU](#) with standard ET-ELS20 lens or equivalent: WUXGA (1920x1200 pixels native) LCD, 8000 Lumens, have a Zoom lens throw ratio of 1.61 to 2,38 (producing image up to 26' wide x 16' high). **MUST BE ABLE TO FOCUS AT A PROJECTION DISTANCE OF 16 METERS OR 52. 5'.** Light source shall be lampless and guaranteed for a minimum of 20,000 hours (Laser Diode or Laser Phosphor light source). Noise level shall 34 dBA or less during normal full brightness operation.

The projectors shall be mounted or supported from the Projection Dome's bottom tension ring at the rear of the theater, near the control console. The location of the center of the lens shall align with the theater axis.

Technical Specifications:

Projection Technology - 3LCD Technology
Native Resolution - 1920 x 1200 (WUXGA)
Aspect Ratio - 16:10
Native Contrast Ratio – Greater than 2000 to:1
Brightness - 8,000 ANSI Lumen
Laser Light Source – Estimated Life: 20,000 hours
Lens Throw Ratio - 1.61–2.2.38

Lens shift- H:67%°, V35%

Connectivity

Audio In: Mini Jack
Audio Out: Mini Jack
HDBaseT: RJ-45
HDMI 2.3 (HDCP) x 3 (three inputs)
Network: RJ-45
RS232: DB-9pin
USB
VGA In: Dsub-15pin
VGA Out: Dsub-15pin

IF Remote Control

Aspect Ratio; Auto Adjust; Eco Mode Control; Freeze-function; Help-function; ID set;
Keystone Correction; Magnify-function; Picture Adjust; Power (On-OFF); Source
Select

Power Consumption – 490 Watts (Normal)

Weight - 41 pounds

Fan Noise - 34 dBA

Color: Black

One (1) - 4IN/2 OUT MEDIA MATRIX/ROUTING HDMI SWITCHER with separate audio outputs - for distributing four video/data sources with four outputs – sending duplicate video signals to the two Inset Projectors. This unit will be located at the planetarium control console. Switcher can also be used to multitask console monitors used for displays of Planetarium Systems, Lighting and Audio Control Systems, thus reducing the number of required monitors at console.

Specified Model: AVPro edge AC-MX-42 or equivalent.

Technical Specifications:

Video:

Video Resolutions Up to 4k 60HZ 4:4:4
VESA Resolutions Up to DCI 4k (4096x2160)

HDR Formats/Resolutions 420, 422, 444 (10 and 12 Deep Color)
HDR10, HDR10+, Dolby Vision, HLG

Color Space YUV (Component), RGB (CSC: Rec. 601, Rec. 709,
BT2020, DCI, P3 D6500)

Chroma Subsampling 4:4:4, 4:2:2, 4:2:0 Supported

Deep Color Up to 16 bit (1080), up to 12 BIT (4k)

Audio:

Audio Formats Supported in HDMI
PCM 2.0 Ch, LPCM 5.1 & 7.1, Dolby Digital, DTS 5.1, Dolby Digital Plus, Dolby TrueHD, DTS-HD Master Audio, DTS-X, Dolby Atmos

Audio Formats Supported Extracted (TOSLINK)
PCM 2.0 Ch, LPCM 6 CH, LPCM 7 CH, Dolby Digital, Dolby Digital Plus, DTS- Master Audio

Audio Formats Supported Extracted (2CH Port) PCM 2Ch

Audio Extraction Location:
Follows OUTPUT

Ports:

HDMI Type A (4IN/2OUT)
LAN RJ45 w/ Web Interface/ Control
Audio (Extracted Digital) Toslink
Audio (Extracted Analog) L/R Audio
RS232 3 Pin Terminals

END OF SECTION 119000-4
INSET INSTRUCTIONAL PROJECTORS (IIP) SPECIFICATIONS

SECTION 119000-4

DAVIS PLANETARIUM – CITY OF JACKSON PLANETARIUM SOUND SYSTEM (PSS)

PART 1 – GENERAL

PROJECT DESCRIPTION/WORK INCLUDED

The selected contractor shall provide, install, train for and support a Planetarium 5.1 Sound System, A single channel PA system, and ADA Assistive Hearing (referred to as PSS) for the DAVIS Planetarium as shown in schematic and drawings **PL 101, PL 108 & PL109**.

The Planetarium takes the form of multi-use domed theater and, in addition to astronomy and space science, is also used for entertainment and musical performance as well as for meeting rentals/dinners and social gatherings such as weddings. The design is based on the following components:

Audio Speakers:

SIX (6) QSC-SC-412C (bi-amped) SPEAKERS ATTACHED TO DOME FRAME
ONE (1) QSC-SB-2180 (SUBWOOFER)

Electronics:

SIX (6) QSC-DCA 1622 AMPLIFIERS
ONE (1) QSC DCA 3022 AMPLIFIER
ONE (1) QSC-DCM-300 CINEMA CROSSOVER/MONITOR
ONE (1) RACK MOUNTED MIXER/PROCESSOR: YAMAHA TF RACK/DANTE CARD
ONE (1) IPAD FOR WIRELESS CONTROL
ONE (1) ADA COMPLIANT ASSISTIVE HEARING SYSTEM
THREE (3) WIRELESS MICROPHONES – TWO HANDHELD AND ONE LAVALIER

Unless otherwise noted, a substituted component may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.

This specification shall apply to all phases of Work hereinafter specified, shown on drawing, or as required to provide a complete installation. Work

required under this specification, includes the 5.1 Sound System, the Public Address system and the Assistive Hearing system referred to in Architectural, Electrical, Structural, and Raceway drawings, as well as all other drawing applicable to this project, which designate the scope of work to be accomplished. The intent of the drawings and Specifications is to provide a complete and operable planetarium system that includes all documents that are a part of the Contract.

Work Included. Furnish labor, material, services and skilled supervision necessary for the construction, erection, installation, connections, testing, and adjustment of all equipment specified herein, or shown or noted on drawings, and its delivery to the Owner complete in all respects ready for use.

The PSS work may include installation or connection of certain materials and equipment furnished by others. Verify installation details, installation and rough-in locations from the actual equipment or from the equipment shop drawings.

The associated system drawings of **PL 101, PL 108 & PL109** are diagrammatic and are intended to convey the scope of work, indicating intended general arrangement of equipment. Follow drawings in laying out work and verify spaces for installation of materials and equipment based on actual dimensions of equipment furnished.

Sound System design and control at Electronics Rack and Control Console are shown in **PL 101**. Audio Speakers, Amplifiers, Audio Processors, Equipment Rack. and other associated equipment are provided by either of the following approved specified suppliers:

Astro-Tec Manufacturing Co.

Contact: Dale Lewis - dlewis@astro-tec.com

Astro-tec Manufacturing, Co.

550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio
44614-0608

Phone: (330) 854-2209 | Fax: (330) 854-5376

MAGNA-TECH ELECTRONIC CO., INC.

Continental Film & Digital Labs, Inc.

Contact: Vicki Amorosi - Vicki@myiceco.com

6114 NW 74th Avenue, Miami, FL 33166

MTE Tel: (305) 573-7339

CFDL Tel: (305) 949-4252

www.magna-tech.com | www.mteworld.com

1.2. RELATED DOCUMENTS AND SECTIONS

- A. Drawings **PL 103, PI 104, PL 108 & PL109**. In particular, placements of Electrical Outlets and Raceways.
- B. Construction of a custom planetarium control console, electronic racks, cabling, wiring, devices, controls, adapters, etc. and other material and equipment required to complete the PSS.
- C. Connections to fire-alarm systems, wiring, disconnect switches, and other electrical materials required to complete the PSS.

GENERAL REQUIREMENTS

Guarantee: Furnish a written guarantee for a period of two years from date of acceptance.

Wherever a discrepancy in quantity or size of conduit, wire, equipment, devices, circuit breakers, etc., (all materials), arises on the Drawing and/or Specifications, provide and install all material and services required by the strictest condition noted on drawings and/or in specifications to ensure complete and operable systems as required by the Engineer of record.

Documents that your firm is a factory-authorized installer and warrantee station for the brand of equipment offered and maintain a fully-equipped service organization capable of furnishing adequate repair service to the equipment. Maintain a spare set of all major parts for the system at all times. All circuit boards, amplifiers and control sub systems shall be 100% backed up with stock at your firm's shop.

D. All of the equipment in this specification shall be furnished and installed by the Authorized Installer of the equipment.

E. All of the equipment in this specification shall be furnished and installed by the Authorized Installer of the equipment with the most current software and firmware package available at the time of installation. At the time of Owner Acceptance of the installation, all equipment shall include any and all updated software or hardware revisions. In addition, when the software is available in disk format, a backup copy of the most up to date revision, in disk format, shall be handed to Owner at the completion of the project.

F. Verifying Drawings and Job Conditions:

Examine all project drawings and specifications to ensure full awareness of all work required under this Section.

G. Visit the site and verify existing conditions. Where existing conditions differ from drawings, make adjustments and allowances for all necessary equipment to complete all parts of the work. Verify actual dimensions of construction contiguous with Planetarium equipment by field measurements before fabrication.

H. Pre-installation Conferences: Conduct a minimum of one conference at the project site prior to the start of installation work. Where existing conditions differ from drawings, make adjustment and allowances for all necessary equipment to complete all parts of the work.

WORK IN COOPERATION WITH OTHER TRADES

Examine the drawings and specifications and determine the work to be performed by the electrical and other trades. Provide the type and amount of audiovisual systems materials and equipment necessary to place this work in proper operation, completely wired, tested and ready for u

Confirm Low voltage conduit, boxes and power have been provided by the electrical contractor.

TESTING AND ADJUSTMENT

Upon completion of all audiovisual systems work, provide testing and demonstrating in the presence of the owner's inspector that audio, digital video and control parameters are as stated in the factory data sheets.

Promptly repair or replace all equipment and parts discovered to be in need of correction. Then retest that part of the system and all associated components to correct the error. Perform all such replacement or repair at no additional cost to the Owner.

FINAL INSPECTION AND ACCEPTANCE

After all requirements of the specifications and/or the drawings have been fully completed, representatives of the Owner will inspect the work. Provide competent personnel to demonstrate the operation of any item or system to the full satisfaction of each representative.

Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from the planetarium consultant.

RECORD DRAWINGS

Drawings of Record: Provide and keep up-to-date, a complete record set of drawings. Keep these corrected daily and show every change from the original drawings. Keep this set of prints on the job site for use only as a record set. This shall not be construed as authorization for your firm to make changes in the layout without Owner approval in each case.

Upon completion of the work, obtain a set of Contract Drawings from the General Contractor and create a record set professionally using a PDF editor. Deliver this set in PDF format as indicated in Submittals – Close-Out, below.

APPROVALS, EQUALS, SUBSTITUTIONS, NO KNOWN EQUAL

Approvals: Where the words (or similar terms) “approved”, “approval”, “acceptable”, and “acceptance” are used, these refer to the requirement that acceptance by the Owner, Architect and Engineer is required.

Equal: Where the words (or similar terms) “equal”, “approved equal”, “equal to”, “or equal by”, “or equal” and “equivalent” are used, it shall be understood that these words are followed by the expression “in the opinion of the Owner, Architect, and Engineer.” For the purposes of specifying products, the above words shall indicate the same size, made of the same construction materials, manufactured with equivalent life expectancy, having the same aesthetic appearance/style (includes craftsmanship, physical attributes, color and finish), and the same performance.

Substitution: For the purposes of specifying products “substitution” shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.

Substitutions of specified equipment shall be submitted and received by the Engineer ten days prior to the bid date for review and written approval. Regulatory Agency approval for all substitutions will be the sole responsibility of the Contractor. To receive consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letterform and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples, if requested, must be included in the submittal.

ONLY PRE-BID APPROVED PRODUCTS, ISSUED VIA A FORMAL BID ADDENDUM TO ALL BIDDERS, WILL BE ALLOWED ON THE PROJECT. REGARDLESS OF THE APPROVAL ON ANY SUBSTITUTION, ALL BIDS SHALL BE BASED ON THE PRODUCTS EXACTLY AS SPECIFIED. PRICING FOR EACH APPROVED SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.

The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.

Alternates/Alternatives: For the purposes of specifying products, “alternatives/alternates” may be established to enable the Owner/Architect/Engineer to compare costs where alternative materials or methods might be used. An alternate price shall be submitted in addition to the base bid for consideration. If the alternate is deemed acceptable, written authorization will be issued.

No Known Equal: For the purposes of specifying products, “No Known Equal” shall mean that the Owner/Architect/Engineer is not aware of an equivalent product. The Contractor will need to submit a “Substitution” item, per the requirements listed above, if a different product is proposed.

SUBMITTALS – PRE-INSTALLATION

Submit the shop drawing submittal as PDF files accompanied by Letter of Transmittal, which shall give a list of the number and dates of the drawings submitted.

Provide consecutively numbered drawings featuring the name of the project that indicate the name of the specific staff that checked and approved each drawing. Any drawings submitted without this approval will be rejected.

If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, make specific mention of such variations in the Contractor's letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment that may be caused by the substitution. Submit samples upon request.

Only products listed as "Equal" within the contract documents, along with formally approved "Substitutions" will be reviewed. Products not conforming to these items will be rejected.

Shop drawings shall be submitted on the following but not limited to:

- System functional diagrams, including control system wiring and audio DSP processing chain

- Speaker locations and mounting details.

- Single Line schematic drawings showing connections between all audio components.

- All other products called out on drawings that call for shop drawing submittal

SUBMITTALS – CLOSE-OUT

Subsequent to completing preliminary testing, provide to the Construction Manager, Owner, and Planetarium consultant, a letter/report documenting the results of the preliminary tests and the documentation detailed below. The receipt of this documentation will constitute the acknowledgment that the installation is complete, that it conforms to this specification, and that it is ready to be reviewed and tested.

Operation and Maintenance Manuals: Provide all manuals as PDF files on three duplicate USB drives, named consistently with the manufacturer's name and the model number in separate folders for the planetarium and exhibit hall. Copy the same file and folder organization to the Owner.

Provide step-by-step operating instructions for the day-to-day use of the system including power activation, connection of source devices, adjustment of volume levels, selection of sources, etc. Include illustrations and references to individual equipment manuals as necessary. Hyperlink the references to the individual operation manual files included in this submission.

Organize the manual PDF files into folders by subsystem: audio, mixer control, etc.

Equipment List: Include an Excel or other spreadsheet file listing all equipment including connectors and specialty hardware. Include columns for manufacturer, model, physical location, speaker cable assignment, and sound source cable label identification.

As-built drawings: Provide all as-built documentation as PDF files on the disks and online service mentioned above. In addition, provide a single copy each of the functional drawings, floor plans, and section plans.

PART 2 - PLANETARIUM SOUND SYSTEM (PSS)

2.01 5.1 AUDIO SYSTEM

Objective: To provide a spatial sound system with programmable configurations that supports programming inclusive of stereo, AND 5.1 surround, spatial sound formats and a dedicated voice channel assignment for in-room reinforcement over a digital audio network per **PL 109-1** Block Drawing.

The sound system should provide a minimum of 7 channels (5.1) of digital audio plus public address (PA) speaker through a DSP Sound Processor or Mixer.

Per drawing **PL 108**, the six (6) upper speakers (five for 5.1 system and one for dedicated PA system) attached to dome frame 90° x 50° nominal coverage pattern and one subwoofer mounted above dome springline on roof of theater exit or on catwalk floor.

The combined 5.1 speaker systems shall provide a combined 105 dB \pm 3dB continuous sound level for nominal maximum loudness (measured with pink noise at the center of the theater 3-0' AFF), from 100Hz-12KHz and a sound pressure level minimum of 105 dB \pm 10dB from 41Hz to 18KHz.

PSS audio sources include (A-Chain), but are not limited to the following:

a) **TWO-PROJECTOR FULLDOME DIGITAL PLANETARIUM & SPACE SIMULATOR (TPFDPSS)** – stereo and 5.1 channel source. PSS provider is to coordinate audio/video playback with **TPFDPSS** provider.

b) Digital mixing/processor system – Yamaha FT Rack. The mixer shall be installed in the Planetarium 19" rack with speaker amplifiers. This rack-mounted mixer will have Wireless IPAD control allowing it to be controlled at the console or anywhere in the theater.

Three Wireless Microphones for Public Address System - two are hand-held mics and one is a lavalier mic are the standard inputs to single (PA) speaker with volume level controlled via “b)” above.

Six (6) Speaker System(B-Chain). Comprised of 5 (five) two-way self-powered speakers with 15 inch LF driver with 4” voice coil and 1.5-inch (38 mm) exit, 3-inch titanium diaphragm compression HF driver with maximum dispersion of 90° x 50°. HF vertical direction is adjustable. Speakers are attached to projection dome as shown in drawing **PL 108**.

The upper center Public Address speaker is identical to the 15” speakers above and is dedicated for microphones and announcements. Maximum weight each unmounted speaker: 123 pounds. **Added weight to dome with mounts is less than 800 pounds.** Mounts are to be either obtained from the Dome Manufacturer or approved by the Dome Manufacturer with written confirmation that mounts, if properly installed, do not nullify the dome manufacturer’s warranty.

1 (one) dual 18” subwoofer speaker mounted and secured to the catwalk structure behind the dome screen and above dome springline at front of theater per drawing **PL 108**. Maximum weight unmounted: 187pounds.

ASSISTIVE LISTENING SYSTEM

System must meet current ADA specifications. 2010 ADA compliance specs are used here as reference. Specified Models: See below.

Listen Technologies LT-800-072-01 Transmitter with rack mount kit. Mount this feature in audio rack in Operator's Console.

Listen Tech LR-4200-072-P1. Intelligent DSP RF Receiver Package

Five Intelligent DSP RF Receivers (72 MHz).

Five LA-430 Intelligent Ear Phone/Neck Loop Lanyard.

Five LA-401 Intelligent Ear Speaker.

Five LA-365 Rechargeable Li-ion Battery

One LA-381-01 Intelligent 12-Unit Charging Tray

One LA-304 Assistive Listening Notification Signage Kit.

2.03 TRAINING AND FIELD SUPPORT

Training: System Functionality

Provide a minimum of one, eight-hour day of prepared and organized training sessions (separate from full dome training sessions) for the benefit of the Owner's personnel. Demonstrate the location, wiring, operation and capabilities of each system component. Training time is to be non-contiguous, in multiple separate sessions. Develop with DAVIS PLANETARIUM STAFF, a training schedule to allow for training. Training shall be of sufficient duration and depth and the schedule shall allow adequate time for personnel to absorb the training. At minimum, include training on each component of the PSS.

END OF SECTION 119000-4

David Planetarium – City of Jackson PLANETARIUM SOUND SYSTEM (PSS)

SECTION 119000-5-1
DAVIS PLANETARIUM-CITY OF JACKSON
PLANETARIUM DOME RGB LIGHTING TECHNOLOGY SYSTEM (PDRGBLTS)

PART 1 – GENERAL

PROJECT DESCRIPTION/WORK INCLUDED

The selected contractor shall provide, install, train for, and support a PLANETARIUM DOME LIGHTING TECHNOLOGY SYSTEM (PDRGBLTS) for the Davis Planetarium. Please refer to schematic level drawings **PL 101, PL 106** and **PL 107**.

The Planetarium takes the form of multi-use domed theater and, in addition to astronomy and space science, is also used for entertainment and musical performance as well as for meeting rentals/dinners and social gatherings such as weddings.

The lighting design is composed of the following components and functions:

RED, GREEN, BLUE LED COVE LIGHTING to serve as program lighting for planetarium usage. Lighting resides in 8” deep x 4” high cove trough provided by dome manufacturer. Dome diameter is 16 meters or 52.5’ . MINIMUM TOTAL LUMENS/FOOT WITH RGB AT 100% level IS 280 LUMENS/FOOT. Estimated integrated minimum acceptable maximum brightness of all fixtures combined of app. 45,000 lumens. **See PL 106.**

All provided cove lighting is to be dimmable and DMX 512 controllable from a lighting control computer system provided by the LED provider and said control system is located at the Planetarium Control Console . This control system will also be controllable wirelessly from a touch screen device such as an IPAD from anywhere in the theater. **See PL 106 & PL 107.**

The included DMX 512 control system will also control DMX lighting done by others (red ceiling down lights at both planetarium entrance/exit/equipment rooms, and indirect wall panel lighting around the perimeter of the planetarium, central barrier lighting, AS WELL AS ANY DMX CONTROLLABLE THEATRICAL LIGHTING FIXTURE See **PL 105, PL 106, PL 107, and PL 108-1**. The selected lighting contractor is to confirm that GENERAL CONTRACTOR has provided the low-voltage raceways and connections required to achieve this parallel control of lighting done by others.

D. The following are acceptable **PDRGBLTS** suppliers:

1. Astro-Tec Manufacturing Co.

Contact: Dale Lewis - dlewis@astro-tec.com
Astro-Tec Manufacturing, In
550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio 44614-0608
Phone: (330) 854-2209 | Fax: (330) 854-5376

2. ChromaCove, LLC

7777 Wall Street, Ste. A
Cleveland, OH 44125 USA
Phone: +1 844-RGB-COVE (742-2683)
Email: sales@chromacove.com
URL <http://www.chromacove.com>

3. BOWEN TECHNOVATION

7999 East 88th Street
Indianapolis, IN 46256
Contact: John Barry.
johnb@bowentechnovation.com
<http://bowentechnovation.com>

Unless otherwise noted, a substituted component may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.

RELATED DOCUMENTS AND SECTIONS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

Division 06 sections for the construction of a custom audiovisual console for racks, cabling, wiring, devices, controls, adapters, etc. and other material and equipment required to complete the PDRGBLTS).

Division 26 sections for connections to fire-alarm systems, wiring, disconnect switches, and other electrical materials required to complete the PDRGBLTS.

Division 27 sections for communications racks, cabling, wiring, devices, adapters, etc. and other electrical materials required to complete PDRGBLTS.

GENERAL REQUIREMENTS

Guarantee: Furnish a written guarantee for a period of two years from date of acceptance.

All of the equipment in this specification shall be furnished and installed by the Authorized Factory Installer of the equipment with the most current software and firmware package available at the time of installation. At the time of Owner Acceptance of the installation, all equipment shall include any and all updated software or hardware revisions. In addition, when the software is available in disk format, a backup copy of the most up to date revision, in disk format, shall be handed to Owner at the completion of the project.

Verifying Drawings and Job Conditions:

Examine all project drawings and specifications to ensure full awareness of all work required under this Section.

Visit the site and verify existing conditions. Where existing conditions differ from drawings, make adjustments and allowances for all necessary equipment to complete all parts of the work. Verify actual dimensions of construction contiguous with Planetarium equipment by field measurements before fabrication.

Pre-installation Conferences: Conduct a minimum of one conference at the project site prior to the start of installation work. Where existing conditions differ from drawings, make adjustment and allowances for all necessary equipment to complete all parts of the work.

WORK IN COOPERATION WITH OTHER TRADES

Examine the drawings and specifications and determine the work to be performed by the electrical and other trades. Provide the type and amount of audiovisual systems materials and equipment necessary to place this work in proper operation, completely wired, tested and ready for use.

Confirm Low voltage conduit, boxes and power have been provided by the electrical contractor. Please refer to **PL 101, PL103, PL 104, PL 105, PL 106, and PL107.**

TESTING AND ADJUSTMENT

Upon completion of all audiovisual systems work, provide testing and demonstrating in the presence of the owner's inspector that the all audio, digital video and control parameters are as stated in the factory data sheets.

Promptly repair or replace all equipment and parts discovered to be in need of correction. Then retest that part of the system and all associated components to correct the error. Perform all such replacement or repair at no additional cost to the Owner.

FINAL INSPECTION AND ACCEPTANCE

After all requirements of the specifications and/or the drawings have been fully completed, representatives of the Owner will inspect the work. Provide competent personnel to demonstrate the operation of any item or system to the full satisfaction of each representative.

Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from the Planetarium consultant.

RECORD DRAWINGS

Drawings of Record: Provide and keep up-to-date, a complete record set of drawings. Keep these corrected daily and show every change from the original drawings. Keep this set of prints on the job site for use only as a record set. This shall not be construed as authorization for your firm to make changes in the layout without Owner approval in each case.

Upon completion of the work, obtain a set of Contract Drawings from the General Contractor and create a record set professionally using a PDF editor. Deliver this set in PDF format as indicated in Submittals – Close-Out, below.

APPROVALS, EQUALS, SUBSTITUTIONS, NO KNOWN EQUAL

Approvals: Where the words (or similar terms) “approved”, “approval”, “acceptable”, and “acceptance” are used, these refer to the requirement that acceptance by the Owner, Architect and Engineer is required.

Equal: Where the words (or similar terms) “equal”, “approved equal”, “equal to”, “or equal by”, “or equal” and “equivalent” are used, it shall be understood that these words are followed by the expression “in the opinion of the Owner OR Planetarium Consultant.” For the purposes of specifying products, the above words shall indicate the same size, made of the same construction materials, manufactured with equivalent life expectancy, having the same aesthetic appearance/style (includes craftsmanship, physical attributes, color and finish), and the same performance.

Substitution: For the purposes of specifying products “substitution” shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.

Substitutions of specified equipment shall be submitted and received by the Engineer ten days prior to the bid date for review and written approval. Regulatory Agency approval for all substitutions will be the sole responsibility of the Contractor. To receive consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letterform and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples, if requested, must be included in the submittal.

ONLY PRE-BID APPROVED PRODUCTS, ISSUED VIA A FORMAL BID ADDENDUM TO ALL BIDDERS, WILL BE ALLOWED ON THE PROJECT. REGARDLESS OF THE APPROVAL ON ANY SUBSTITUTION, ALL BIDS SHALL BE BASED ON THE PRODUCTS EXACTLY AS SPECIFIED. PRICING FOR EACH APPROVED SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.

D. The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.

E. Alternates/Alternatives: For the purposes of specifying products, “alternatives/alternates” may be established to enable the Owner to compare costs where alternative materials or methods might be used. An alternate price shall be submitted in addition to the base bid for consideration. If the alternate is deemed acceptable, written authorization will be issued.

No Known Equal: For the purposes of specifying products, “No Known Equal” shall mean that the Owner is not aware of an equivalent product. The Contractor will need

to submit a “Substitution” item, per the requirements listed above, if a different product is proposed to be utilized.

SUBMITTALS – PRE-CONSTRUCTION

Submit the shop drawing submittal as PDF files accompanied by Letter of Transmittal, which shall give a list of the number and dates of the drawings submitted.

Provide consecutively numbered drawings featuring the name of the project that indicate the name of the specific staff that checked and approved each drawing. Any drawings submitted without this approval will be rejected.

If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, make specific mention of such variations in the Contractor’s letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment that may be caused by the substitution. Submit samples upon request.

Only products listed as “Equal” within the contract documents, along with formally approved “Substitutions” will be reviewed. Products not conforming to these items will be rejected.

Shop drawings shall be submitted on the following but not limited to:

- System functional diagrams, including control system wiring

- Equipment locations and methods for mounting

- Console and 19” rack layout, equipment placement, etc.

- All other products called out on drawings that call for shop drawing submittal

SUBMITTALS – CLOSE-OUT

Subsequent to completing preliminary testing, provide to the Construction Manager, Owner, and Planetarium consultant, a letter/report documenting the results of the preliminary tests and the documentation detailed below. The receipt of this documentation will constitute the acknowledgment that the installation is complete, that it conforms to this specification, and that it is ready to be reviewed and tested.

Operation and Maintenance Manuals: Provide all manuals as PDF files on three duplicate USB drives, named consistently with the manufacturer’s name and the model number in separate folders for the planetarium and exhibit hall. Copy the same file and folder organization to the Owner.

- Provide step-by-step operating instructions for the day-to-day use of the system including power activation, connection to control devices, adjustment of light levels, selection of sources, etc. Include illustrations and references to individual equipment manuals as necessary.

- Equipment List: Include an Excel or other spreadsheet file listing all equipment including connectors and specialty hardware. Include columns for manufacturer,

model, physical location, MAC address, IP address, if fixed or DHCP, VLAN, serial number, and cable label identification.

As-built drawings: Provide all as-built documentation as PDF files on the disks and online service mentioned above. In addition, provide a single copy each of the functional drawings, floor plans, and ceiling plans.

PART 2 - SYSTEM EQUIPMENT SPECIFICATION

2.01 PLANETARIUM LIGHTING CONTROL SYSTEM

Objective: Provide an automated computer-based lighting control system to enhance the ease of presenting shows/lessons. System must be capable of controlling all dimmable RGB cove lighting, and any other DMX 512 lighting with smooth transition (no flicker) from 0% to 100% and 100% to 0% levels.

The system should be able to control all DMX512 compatible lighting within the planetarium theater including an additional/bid-alternate white-light LED cove lighting system, and serve as a parallel control system for the DMX systems and fixtures installed by the EC/GC.

Have the ability to create and store for playback lighting cues with programmable fade rates and light levels.

In addition to the controller at the Planetarium Control console, system has a wireless interface touch screen interface to allow all lighting control from anywhere in the theater.

2.02 ACCEPTANCE TESTS

Acceptance Test: Demonstrate each major component to function as specified.

Such tests may be performed on any piece of the system or individual equipment/device. If any test shows the equipment or system is defective or does not comply with the specifications, perform any remedies at your firm's expense and pay the subsequent expenses of any required retesting.

2.03 TRAINING, FIELD SUPPORT AND SYSTEM FUNCTIONALITY

Provide a minimum of four hours of prepared and organized training sessions (separate from full dome training sessions) for the benefit of the Owner's personnel. Demonstrate the location, wiring, operation and capabilities of each system component.

Develop with DAVIS PLANETARIUM-CITY OF JACKSON, a training schedule to allow for training on the planetarium technology package that will allow for appropriate groups of personnel to be scheduled for training on the various subsystems. Training shall be of

sufficient duration and depth and the schedule shall allow adequate time for personnel to absorb the training. At minimum, include training on each component of the system.

2.04 MISCELLANEOUS PROJECT REQUIREMENTS

Single Point of Contact: Provide an English-proficient, single point of contact, i.e., project manager, to speak for the Contractor and to provide the following functions:

Initiate and coordinate tasks with Owner's Project Manager, and others as specified by Owner's Project Manager.

Provide day-to-day direction and on-site supervision of Contractor personnel.

Ensure conformance with all Contract provisions.

Participate in weekly site project meetings as needed.

This individual will remain as Project Manager for the duration of the project. The Contractor may change Project Managers only with the Owner's Project Manager's written approval.

Planning meetings and schedule: Within thirty (30) calendar days after the date of award of the Contract, an initial planning meeting will be held with the successful bidder to clarify all requirements (systems, services, distribution methods, etc.), identify responsibilities, and schedule the events that will transpire during the implementation of the project. Within one week of this initial meeting, the Contractor shall provide a written report and project schedule to clearly document the events and responsibilities associated with the project.

Site Cleaning: Throughout the progress of the plant construction, the Contractor shall keep the working area free from debris of all types and remove from the premises all rubbish resulting from any work done by Contractor. On a daily basis and at the completion of its work, the Contractor shall, to the extent possible, leave the premises in a clean and finished condition.

Safety Requirements: Contractor will utilize appropriate personnel and display warning signs, signals, flags and/or barricades at the work site to ensure adherence to safety regulations and as prudence requires.

Specification/Drawing Status: All specifications and drawings related to this project will be "frozen" after shop drawing approval. The Owner reserves the right to negotiate any future changes with the Contractor at any time.

Upon approval of shop drawings, contractor shall immediately place orders for all required materials, components, and supplies. In addition, contractor shall secure and forward written confirmations (including orders and shipping dates) direct from each manufacturer/vendor to the Owner's Project Manager.

Contractor shall expedite shipment of all materials, components and supplies, as necessary to ensure the successful completion of the Project by the date required. All costs for expediting shall be included within contractor's pricing as provided below.

The system cost herein shall include administration/maintenance training for at least two Owner's representatives with a minimum allotment of four(4) hours. All training shall include written and/or video materials that shall remain the property of Owner. If materials are written, they shall be provided in quantities sufficient for each person trained; if materials are

video, one copy of each will be required. The administration/maintenance training shall include, but not be limited to, the following:

1. Review of as-built documentation, including a site demonstration.
2. All warranty information.

2.05 DAMAGES

The Contractor will be held responsible for any and all damages to portions of the building caused by it, its employees or sub-contractors; including but not limited to:

Damage to any portion of the building caused by the movement of tools, materials or equipment.

Damage to any component of the construction of spaces.

Damage to the electrical distribution system.

Damage to the electrical, mechanical and/or life safety or other systems caused by inappropriate operation or connections made by the Contractor or other actions of Contractor.

Damage to the materials, tools and / or equipment of the Owner, its consultants, agents and tenants.

Damage to the projection dome surface and the attached cove trough.

Damage, interference, or outage to campus wide area or local area networks.

2.06 INSPECTIONS

On-going inspections shall be performed during construction by the Owner's Project Manager. All work shall be performed in a high-quality manner and the overall appearance shall be clean, neat and orderly. The following points will be examined and must be satisfactorily complied with:

Are all cables properly labeled, from end-to-end?

Have all terminated cables been properly tested in accordance with the specifications for the specific category as well as tested for opens, shorts, polarity reversals, transposition and presence of AC and/or DC voltage?

Have the pathway guidelines been followed? Are all cable penetrations installed properly and fire stopped according to code?

Has the Contractor avoided excessive cable bending?

Is Cable fill correct?

Are terminations compatible with applications equipment?

Are connectors properly turned right side up in the Jack Panels or faceplates without cables wrapped or twisted?

Is the jacket maintained right up to the termination?

Are identification markings uniform, permanent and readable?

2.07 COMPLETION OF WORK

At the completion of the System, restore to its former condition, all aspects of the project site. On a daily basis, remove all waste and excess materials, rubbish debris, tools and

equipment resulting from or used in the services provided under this Contract. Provide all clean up, restoration, and removal noted above at no cost to Owner. If the Contractor fails in its duties under this paragraph, the Owner may upon notice to the Contractor perform the necessary clean up and deduct the costs thereof from any amounts due or to become due to the Contractor. Remove trash from work areas and bring it to the Contractor-provided dumpster.

Final Punch Walk: Complete a final inspection to determine if all conditions of the scope of work are completed to the owner's satisfaction.

Contractor shall submit complete Record Documentation as outlined in submittals section prior to project sign-off by owner.

2.08 SYSTEM AND/OR NETWORK TESTING

Upon completion of installation, execute all of the tests listed in this specification. Provide the Owner, written notice when all such tests have been completed to Owner's satisfaction and Manufacturer's specifications, Contractor shall give the Owner written notice thereof.

Assume responsibility of assuring that the system and network interface installed operates properly, including any required coordination with other suppliers.

2.09 FINAL ACCEPTANCE

The Owner or Owner's representative may visit the site during the installation of the system to ensure that correct installation practices are being followed.

Notify the Owner's representative when the systems are ready for a final job review. The review will take place within one week after notification.

If need for additional adjustment becomes evident during final acceptance and/or demonstration and testing, continue adjustment until the system functions fully as designed.

The Owner or Owner's representative will review the installation and certification data prior to the system acceptance.

The Owner or Owner's representative may test some of the system's features to ensure that the certification data is correct. If a substantial discrepancy is found, the Owner reserves the right to have an independent consultant perform a certification of the entire system. If such a procedure is undertaken, the cost of the testing will be billed back to the Contractor.

In the event that repairs or adjustments are necessary, make these repairs at your firm's expense. Complete all repairs within five days from the time they are disclosed to your firm.

END OF SECTION 119000-5-1
PLANETARIUM DOME LIGHTING TECHNOLOGY SYSTEM (PDRGBLTS)

**ADD-TERNATE SECTION 119000-5-2
DAVIS PLANETARIUM-CITY OF JACKSON
PLANETARIUM DOME WHITE-LIGHT LIGHTING TECHNOLOGY SYSTEM (PDWLLTS)**

In addition to all of the equipment specified and the requirements and conditions outlined in SECTION 119000-5-1 - **PLANETARIUM DOME RGB LIGHTING TECHNOLOGY SYSTEM (PDRGBLTS)**, the selected vendor/subcontractor is to provide and price additionally and separately the following:

PLANETARIUM DOME WHITE-LIGHT LIGHTING TECHNOLOGY SYSTEM (PDWLLTS) is to serve as classroom, meeting and work lighting. MINIMUM LUMENS/FOOT WITH WHITE AT 100% IS 2100 LUMENS/FOOT. Lighting resides in 8" deep x 4" high cove trough provided by dome manufacturer. Dome diameter is 16 meters or 52.5'. Unlike the RGB cove lighting, the **PDWLLTS** does not have to be a continuous cove light system. The number and type of fixtures is not specified. Whatever the number of fixtures proposed, they must be evenly distributed around the dome, fixtures must be invisible (below the top edge of the cove fascia) and provide a total estimated integrated minimum brightness of all fixtures combined of app. 150,000 lumens. **See PL 106.**

All lighting units are dimmable and DMX 512 controllable from a lighting control computer system provided by the LED provider selected to provide the RGB LED cove lighting specified in SECTION 119000-5-1. and the Auxiliary DMX panel **S1** shown in **PL 105 and PL 107** located near the Control Console at the rear of the theater. This control system will also be controllable wirelessly from a touch screen device such as an IPAD from anywhere in the theater as specified in SECTION 119000-5-1. **See PL 106 and PL 107.**

WHITE LIGHT LED COVE LIGHTING is divided into two independently controllable sections:

A 90 degree section in the front of the theater as measured from center. This is the section of the dome cove lighting beneath the INSET projector's dome image.

A 270 degree section as measured from center that makes up the remaining perimeter of the cove trough classroom lighting.

This ability to control the lighting in section allows the operator to remove the interfering cove lighting located beneath the INSET projector image while maintaining lighting for note-taking at the audience level.

The following are acceptable **PDWLLTS** suppliers:

1. Astro-Tec Manufacturing Co.

Contact: Dale Lewis - dlewis@astro-tec.com
Astro-Tec Manufacturing, In
550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio 44614-0608
Phone: (330) 854-2209 | Fax: (330) 854-5376

2. ChromaCove, LLC

7777 Wall Street, Ste. A
Cleveland, OH 44125 USA
Phone: +1 844-RGB-COVE (742-2683)
Email: sales@chromacove.com
URL <http://www.chromacove.com>

3. BOWEN TECHNOVATION

7999 East 88th Street
Indianapolis, IN 46256
Contact: John Barry.
johnb@bowentechnovation.com
<http://bowentechnovation.com>

Unless otherwise noted, a substituted component may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.

All other conditions and requirements outlined in SECTION 119000-5-1 apply to SECTION 119000-5-2

**END OF ADD-TERNATE SECTION 119000-5-2
DAVIS PLANETARIUM-CITY OF JACKSON
PLANETARIUM DOME WHITE-LIGHT LIGHTING TECHNOLOGY SYSTEM (PDRGBLTS))**

SECTION 6000-1
PLANETARIUM CONTROL CONSOLE (PCC)

PROJECT DESCRIPTION:

The Planetarium requires a new control console to house control devices, such as monitors and keyboards for the Fulldome Digital Planetarium/Space Simulator, the Inset instructional projector and their image/video sources, the 5.1 Audio system, and the RGB & White light cove lighting systems. See **PL 101** and **PL 111**.

ACCEPTABLE PLANETARIUM CONTROL CONSOLE SUPPLIERS

The following are acceptable PCC suppliers:

1. Astro-Tec Manufacturing Co.
Contact: Dale Lewis - dlewis@astro-tec.com
Astro-Tec Manufacturing, Inc.
550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio 44614-0608
Phone: (330) 854-2209 | Fax: (330) 854-5376

2. KADDAK, LLC
Contact: John Malone, CEO - johnm@kaddakbuilds.com
4225 Phil Niekro Parkway, Suite 104, Norcross, GA 30093
Office: 770 330-0423

SCOPE OF WORK:

Per drawing **PL 111**, console manufacturing includes:

1. Samples, Submittals, Drawings for ARCHITECTIUAL review/approval.
2. Interior Formica Navy Blue #96958 (to be confirmed by Architect covering all exposed surfaces. Matt finish.
3. Exterior Formica Marine Blue #91458 (to be confirmed by Architect covering all exposed surfaces. Matt finish.
4. Fully adjustable leveling feet.
5. Work surface and Partial top front edge with black T-molding.
6. Grommet holes per **PL 111**.
7. Workstation bracket (black)

8. Built-in RGB Red LED lighting Dimmable 24v DMX Decoder, Driver with DMX 512 Chavet 3 Dimmer Board.

9. (1) Mockett WM22- Large J Shape wire mold 48" Length.

10. (1) Tripp-lite- 12 right-angle Outlets

WORK INCLUDED:

Supply of all materials and labor required for the design and manufacture control console desk.

Preparation of complete shop drawings which shall be subject to approval by the owner with respect to general design.

Preparation of a list of installation requirements, such as placement on and securing console to planetarium floor.

Crating for and shipping to DAVIS PLANETARIUM, CITY OF JACKSON, MS.

STRUCTURAL INTEGRITY:

The manufacturer shall be responsible for the structural design of the control console.

Prior to commencing fabrication, the manufacturer shall provide to the ARCHITECT & PLANETARIUM CONSULTANT design drawings for approval.

DESIGN AND MANUFACTURE:

The PCC shall be self-supporting and composed of MDF or plywood components glued and wrapped in laminate. Color/style of laminate is to be confirmed by manufacturer.

DAVIS PLANETARIUM staff will be responsible for the console's final placement on the planetarium site and it shall be secured to the planetarium platform floor via L-brackets supplied by the manufacturer.

WORK NOT INCLUDED BY MANUFACTURER

Connecting the Tripp-lite- 12 right-angle Outlets to floor power duplex supplied by the general contractor.

END OF SECTION 119000-1

DAVIS PLANETARIUM CONTROL CONSOLE (PCC) SPECIFICATIONS

SECTION 6000-2 CENTRAL PLANETARIUM BARRIER (CPB)

PROJECT DESCRIPTION:

Davis Planetarium - City of Jackson requires a protective Central Planetarium Barrier (CPB) to house/protect the new the Two-Projector Fulldome Digital Planetarium/Space Simulator Projection system.

The CPB is set at a 36-5/8" height to prevent audiences and students from walking into the instruments. The CPB is to be easily removable in sections to allow for complete access to the central projection system for maintenance and cleaning. See **PL 101** and **PL 112**.

ACCEPTABLE PLANETARIUM CONTROL CONSOLE SUPPLIERS

The following are acceptable PCC suppliers:

1. Astro-Tec Manufacturing Co.

Contact: Dale Lewis - dlewis@astro-tec.com

550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio 44614-0608

Phone: (330) 854-2209 | Fax: (330) 854-5376

2. KADDAK, LLC

Contact: John Malone, CEO - johnm@kaddakbuilds.com

4225 Phil Niekro Parkway, Suite 104, Norcross, GA 30093

office: 770 330-0423

SCOPE OF WORK:

Per drawing **PL 112**, barrier manufacturing includes:

1. Samples, Submittals, Drawings for Architect and Planetarium Consultant review/approval
2. Formica Navy Blue #96958 covering all exposed surfaces. Matt finish (subject to confirmation by the architect).
3. Black Rubber T-molding on outer radii.
4. Octanorm aluminum posts and curved rails with perforated metal mesh and anodized finish.

5. Removable and assembled with mechanical fasteners.
6. Barrier dismantles in 4 pieces. All parts are to be labeled.
7. RGB LED lighting Dimmable with 60' wire lead to run from CPB to the DMX board/DMX controller located at the Equipment Electronics Rack or at the Control Console (TBD).

WORK INCLUDED:

Supply of all materials and labor required for the design and manufacture CPB.

Preparation of complete shop drawings which shall be subject to approval by the owner with respect to general design.

Preparation of a list of installation requirements, such as placement on and securing base of barrier to planetarium floor.

Crating for and shipping to Davis Planetarium - City of Jackson, MS.

STRUCTURAL INTEGRITY:

The manufacturer shall be responsible for the structural design of the CPB.

Prior to commencing fabrication, the manufacturer shall provide to the Architect and the Planetarium Consultant design drawings for approval.

DESIGN AND MANUFACTURE:

The base of the CPB shall be self-supporting and composed of MDF or plywood components glued and wrapped in laminate. Color/style of laminate is to be confirmed by manufacturer.

The vertical railing shall be composed of Octanorm aluminum components and a railing top composed of MDF or plywood components glued and wrapped in laminate. The base shall be designed to be secured to the planetarium floor via L-brackets supplied by the manufacturer.

WORK NOT INCLUDED BY MANUFACTURER:

Installing/Securing the floor L-brackets to the platform floor.

Connecting the RGB LED lighting Dimmable via the 60' long wire lead to run from CPB to the DMX board located at the Control Console.

END OF SECTION 6000-1
Central Planetarium Barrier (CPB) Specifications

SECTION 12000-1
FIXED PLANETARIUM SEATING (FPS)

PART 1 – GENERAL

PROJECT DESCRIPTION/WORK INCLUDED

Please refer to diagrammatic and schematic level drawings **PL 101 and PL 109**. The selected contractor shall provide, install, and support the following Fixed Planetarium Seating (FPS)

1. Seats are manufactured by:

SEDIASYSTEMS.
www.sediasystems.com
Corporate Office
1820 W. Hubbard Street
Suite 225, Chicago, IL 60622
Telephone: 866.892.6130

2. All seats are Model Mercury Premier- Planetarium style seats with 38.5" backs and vinyl headrests and 100% gravity-return seat bottoms. All seats are fixed to carpet over concrete level slab or wooden platform. as shown in **PL 101 and PL 113**.

- a. Quantity: 82 plus replacement spares of each type of seat, back, and end standards
- b. All seats are to be the same width, 22" center to center.
- c. backs are 38.5" long. pitches vary from 22° and 31.5° from back to front rows as shown per **PL 113** (to be confirmed in company submittals)

3. All seat metal, armrests, and seatbacks are to be satin black or "poly black". Color/style of end standards, as well as color/type of seat & back Fabric upholstery and vinyl headrest to be determined by the architect.

4. Installer: Manufacturer approved installer- to be included in bid proposal

5. Unless otherwise noted, a substituted component may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.

6. This specification shall apply to all phases of Work hereinafter specified, shown on drawing, or as required to provide a complete installation. The intent of the drawings and Specifications is to provide a complete and operable planetarium seating that includes all documents that are a part of the Contract.

- a. Work Included. Furnish labor, material, services and skilled supervision necessary for the construction, erection, installation, connections, testing, and adjustment of all FPS

seats specified herein, or shown or noted on drawings, and its delivery to the Owner complete in all respects ready for use.

b. The associated **PL 113** drawing is diagrammatic and intended to convey the scope of work, indicating intended general arrangement of seating. Follow drawings in laying out work and verify spaces for installation of seats based on actual dimensions of equipment furnished. Seating Arrangement must meet ADA 2010 requirements.

RELATED DOCUMENTS AND SECTIONS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

GENERAL REQUIREMENTS

1. Guarantee: Furnish a written guarantee for a period of two years from date of acceptance.
2. All of the seating in this specification shall be furnished and installed by the Authorized Factory Installer.
3. Verifying Drawings and Job Conditions:
 - a. Examine all project drawings and specifications to ensure full awareness of all work required under this Section.
 - b. Visit the site and verify existing conditions. Where existing conditions differ from drawings, make adjustments and allowances for all necessary equipment to complete all parts of the work. Verify actual dimensions of construction contiguous with Planetarium seating by field measurements before fabrication.
 - c. Pre-installation Conferences: Conduct a minimum of one conference at the project site prior to the start of installation work. Where existing conditions differ from drawings, make adjustment and allowances for all necessary equipment to complete all parts of the work.

WORK IN COOPERATION WITH OTHER TRADES

Examine the drawings and specifications and determine the work to be performed by other trades.

TESTING AND ADJUSTMENT

Promptly repair or replace all seats and parts discovered to be in need of correction. Then retest that part of the seating and all associated components. Perform all such replacement or repair at no additional cost to the Owner.

FINAL INSPECTION AND ACCEPTANCE

1. After all requirements of the specifications and/or the drawings have been fully completed, representatives of the Owner will inspect the work. Provide competent personnel to demonstrate the operation of any item or system to the full satisfaction the Davis Planetarium staff.

2. Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from the Planetarium Consultant.

RECORD DRAWINGS

1. Drawings of Record: Provide and keep up-to-date, a complete record set of drawings. Keep these corrected daily and show every change from the original drawings. Keep this set of prints on the job site for use only as a record set. This shall not be construed as authorization for your firm to make changes in the layout without Owner approval in each case.
2. Upon completion of the work, obtain a set of Contract Drawings from the General Contractor and create a record set professionally using a PDF editor. Deliver this set in PDF format as indicated in Submittals – Close-Out, below.

APPROVALS, EQUALS, SUBSTITUTIONS, NO KNOWN EQUAL

1. Approvals: Where the words (or similar terms) “approved”, “approval”, “acceptable”, and “acceptance” are used, these refer to the requirement that acceptance by the Owner, Architect, Engineer, or Planetarium Consultant is required.
2. Equal: Where the words (or similar terms) “equal”, “approved equal”, “equal to”, “or equal by”, “or equal” and “equivalent” are used, it shall be understood that these words are followed by the expression “in the opinion of the Owner, Architect, Engineer or Planetarium Consultant.” For the purposes of specifying products, the above words shall indicate the same size, made of the same construction materials, manufactured with equivalent life expectancy, having the same aesthetic appearance/style (includes craftsmanship, physical attributes, color and finish), and the same performance.
3. Substitution: For the purposes of specifying products “substitution” shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.

Substitutions of specified equipment shall be submitted and received by the Engineer ten days prior to the bid date for review and written approval. Regulatory Agency approval for all substitutions will be the sole responsibility of the Contractor. To receive consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letterform and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples, if requested, must be included in the submittal.

ONLY PRE-BID APPROVED PRODUCTS, ISSUED VIA A FORMAL BID ADDENDUM TO ALL BIDDERS, WILL BE ALLOWED ON THE PROJECT. REGARDLESS OF THE APPROVAL ON ANY SUBSTITUTION, ALL BIDS SHALL BE BASED ON THE PRODUCTS EXACTLY AS SPECIFIED. PRICING FOR EACH APPROVED SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.

The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.

4. Alternates/Alternatives: For the purposes of specifying products, “alternatives/alternates” may be established to enable the Owner/Architect/Engineer/Planetarium Consultant to compare costs where alternative materials or methods might be used. An alternate price shall be submitted in addition to the base bid for consideration. If the alternate is deemed acceptable, written authorization will be issued.

5. No Known Equal: For the purposes of specifying products, “No Known Equal” shall mean that the Owner/Architect/Engineer/Planetarium Consultant is not aware of an equivalent product. The Contractor will need to submit a “Substitution” item, per the requirements listed above, if a different product is proposed to be utilized.

SUBMITTALS – PRE-CONSTRUCTION

1. Submit the shop drawing submittal as PDF files accompanied by Letter of Transmittal, which shall give a list of the number and dates of the drawings submitted.
2. If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, make specific mention of such variations in the Contractor’s letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment that may be caused by the substitution. Submit samples upon request.
3. Only products listed as “Equal” within the contract documents, along with formally approved “Substitutions” will be reviewed. Products not conforming to these items will be rejected.
4. Shop drawings shall be submitted on the following but not limited to:
 - a. Seat locations and methods for mounting
 - b. Seating layout, seat placement, ADA Compliance, etc.
 - c. All other products called out on drawings that call for shop drawing submittal

SUBMITTALS – CLOSE-OUT

1. Subsequent to completing preliminary testing, provide to the Construction Manager, Owner, and Planetarium consultant, a letter/report documenting the results of the preliminary tests and the documentation detailed below. The receipt of this documentation will constitute the acknowledgment that the installation is complete, that it conforms to this specification, and that it is ready to be reviewed and tested.
2. Operation and Maintenance Manuals: Provide all manuals as PDF files on three duplicate USB drives, named consistently with the manufacturer’s name and the model number in separate folders for the planetarium and exhibit hall. Copy the same file and folder organization to the Owner.

- a. Provide step-by-step operating instructions for the day-to-day use and maintenance of the seating including the process daily, weekly, monthly, and yearly cleaning procedures.
 - b. Provide list of spare parts provided. Storage of spare parts is the responsibility of Davis Planetarium, City of Jackson.
3. As-built drawings: Provide all as-built documentation as PDF files on USB drive and online service mentioned above. In addition, provide a single copy each of the functional drawings and floor plans on the USB drive.

2. INSTALLATION REQUIREMENTS

2.01 ACCEPTANCE TESTS

1. Acceptance Test: Owner's Representative and/or Construction Manager will be present during acceptance testing and require assistance. Demonstrate each major seating component functions as specified.
2. If any test shows the seating is defective or does not comply with the specifications, perform any remedies at your firm's expense and pay the subsequent expenses of any required retesting.

2.02 TRAINING AND FIELD SUPPORT

Training: At minimum, include training on how to replace components of the FPS.

2.03 MISCELLANEOUS PROJECT REQUIREMENTS

1. Single Point of Contact: Provide an English-proficient, single point of contact, i.e., project manager, to speak for the Contractor and to provide the following functions:
 - a. initiate and coordinate tasks with Owner's Project Manager, and others as specified by Owner's Project Manager.
 - b. Provide day-to-day direction and on-site supervision of Contractor personnel.
 - c. Ensure conformance with all Contract provisions.
 - d. Participate in weekly site project meetings as needed.
 - e. This individual will remain as Project Manager for the duration of the project. The Contractor may change Project Managers only with the Owner's Project Manager's written approval.
2. Planning meetings and schedule: Within thirty (30) calendar days after the date of award of the Contract, an initial planning meeting will be held with the successful bidder to clarify all requirements (systems, services, distribution methods, etc.), identify responsibilities, and schedule the events that will transpire during the implementation of the project. Within one week of this initial meeting, the Contractor shall provide a written report and project schedule to clearly document the events and responsibilities associated with the project.
3. Site Cleaning: Throughout the progress of the plant construction, the Contractor shall keep the working area free from debris of all types and remove from the premises

all rubbish resulting from any work done by Contractor. On a daily basis and at the completion of its work, the Contractor shall, to the extent possible, leave the premises in a clean and finished condition.

4. Safety Requirements: Contractor will utilize appropriate personnel and display warning signs, signals, flags and/or barricades at the work site to ensure adherence to safety regulations and as prudence requires.

5. Specification/Drawing Status: All specifications and drawings related to this project will be “frozen” after shop drawing approval. The Owner reserves the right to negotiate any future changes with the Contractor at any time.

6. Upon approval of shop drawings, contractor shall immediately place orders for all required materials, components, and supplies. In addition, contractor shall secure and forward written confirmations (including orders and shipping dates) direct from each manufacturer/vendor to the Owner’s Project Manager.

7. Contractor shall expedite shipment of all materials, components and supplies, as necessary to ensure the successful completion of the Project by the date required. All costs for expediting shall be included within contractor’s pricing as provided below.

8. The system cost herein shall include administration/maintenance training for an Owner’s representatives. It shall include:

- a. Review of as-built documentation, including a site demonstration.
- b. All warranty information.

2.04 DAMAGES

The Contractor will be held responsible for any and all damages to portions of the building caused by it, its employees or sub-contractors; including but not limited to:

1. Damage to any portion of the building and its finishes caused by the movement of tools, materials or equipment.
2. Damage to any component of the construction of spaces.
3. Damage to the projection dome surface.

2.05 INSPECTIONS

On-going inspections shall be performed during construction by the Owner’s Project Manager. All work shall be performed in a high quality manner and the overall appearance shall be clean, neat and orderly.

2.06 COMPLETION OF WORK

1. At the completion of the System, restore to its former condition, all aspects of the project site. On a daily basis, remove all waste and excess materials, rubbish debris, tools and equipment resulting from or used in the services provided under this Contract. Provide all clean up, restoration, and removal noted above at no cost to Owner. If the Contractor fails in its duties under this paragraph, the Owner may upon

notice to the Contractor perform the necessary clean up and deduct the costs thereof from any amounts due or to become due to the Contractor. Remove trash from work areas and bring it to the Contractor-provided dumpster.

2. Final Punch Walk: Complete a final inspection to determine if all conditions of the scope of work are completed to the owner's satisfaction.

2.07 FINAL ACCEPTANCE

1. The Owner or the Planetarium Consultant may visit the site during the installation of the seating to ensure that correct installation practices are being followed.

2. Notify the Owner's representative when the installed seating is ready for a final job review.

3. The Owner or Owner's representative or Planetarium Consultant will review the installation prior to the seating acceptance.

4. In the event that repairs or adjustments are necessary, make these repairs at your firm's expense. Complete all repairs within five days from the time they are disclosed to your firm.

END OF SECTION 12000-1
FIXED PLANETARIUM SEATING (FPS)

SECTION 12000-2
MOVABLE-PORTABLE PLANETARIUM SEATING (MPPS)

PART 1 – GENERAL

1.01 PROJECT DESCRIPTION/WORK INCLUDED

Please refer to diagrammatic and schematic level drawings **PL 101 and PL 113**. The selected contractor shall provide, install, and support the following Portable Planetarium Seating (MPPS)

1. Seats are manufactured by:
 - Spec Seats/Clarín Seating
 - 15151 S. Figueroa St.
 - Gardena, CA 90248
 - JORDAN HERGOTT**, SALES DIRECTOR
 - Sports & Entertainment
 - Tel: 323.954.7100
 - Email: jh@specseats.com

2. All seats are Model PS100W-C or VIP (Clarín) style seats with fabric coverings that match the upholstery of the fixed seats specified in Section 12000-1 Fixed Planetarium Seating. Fabric selection by architect. All seats are movable/portable as shown in **PL 113**.
 - a. Quantity:
 1. 62 with armrests - plus 2 replacement spares for seats, backs & armrests
 2. 52 without armrests - plus 2 replacement spares for seats & backs
 - b. All seats are to be the same width, center to center.
 - c. All seats are to include black rubber or plastic molded foldable armrests.
 - d. Seats include six (6) single-level chair carts for storage of chairs.
 - e. Seat Product details:
 - Wider Version (19.25" width) of PS100 or Clarín VIP with Special Seat/Back Upholstery to match fabric and colors specified in Section 12000-1 Fixed Planetarium Seating by Sedia Systems.
 - Manual Uplift Seat
 - Metal Frame 18ga Galvanized Steel (DTC X-Frame)
 - 3.5" Thick Upholstered Contour Molded Seat Cushion
 - 2.25" Thick Upholstered Contour Molded Back Cushion
 - Front Leg "Full K" Brace w/Cross-Brace
 - Heavy Duty 11ga Metal Linking Brackets
 - Non-Marring Molded Metal Foot Inserts
 - Frame Height – open: 37" - 94cm
 - Frame Height – closed: 45" - 114.3cm
 - Frame Width – includes ganging: 19.25" – 48.9cm - Armrests add 7" (26.25")

Seat Height – floor to top of seat: 19.25” - 48.9cm
Front to Back – depth: 25” – 63.5cm with seat open
Folded Thickness: 7” - 17.8cm
Chair Weight: 29lbs - 13.2kgs

3. All seat metal, armrests, and seatbacks are to be satin black or "poly black". Color/style of seat & back Fabric upholstery and arm rest to be determined by the architect with the intent of matching fabric and colors specified in Section 12000-1 Fixed Planetarium Seating.
4. Seats must be shipped fully assembled.
5. Seats must come with six(6) single-level chair carts that can hold 114 or more seats. Weight per cart is not to exceed 600 pounds.
6. Unless otherwise noted, a substituted component may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.
7. This specification shall apply to all phases of Work hereinafter specified, shown on drawing, or as required to provide a complete installation. The intent of the drawings and Specifications is to provide a complete and operable planetarium seating that includes all documents that are a part of the Contract.

1.02 RELATED DOCUMENTS AND SECTIONS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

1.03 GENERAL REQUIREMENTS

1. Guarantee: Furnish a written guarantee for a period of two years from date of acceptance.
2. Verifying Drawings and Job Conditions:

Examine all project drawings and specifications to ensure full awareness of all work required under this Section.

WORK IN COOPERATION WITH OTHER TRADES

Examine the drawings and specifications and determine the work to be performed by other trades.

1.05 TESTING AND ADJUSTMENT

Promptly repair or replace all seats and parts discovered to be in need of correction. Then retest that part of the seating and all associated components. Perform all such replacement or repair at no additional cost to the Owner.

1.05 FINAL INSPECTION AND ACCEPTANCE

1. After all requirements of the specifications and/or the drawings have been fully completed, representatives of the Owner will inspect the work. Provide competent

personnel to demonstrate the operation of any item or system to the full satisfaction of the Davis Planetarium Staff.

2. Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from the Planetarium Consultant.

1.06 RECORD DRAWINGS

1. Drawings of Record: Provide and keep up-to-date, a complete record set of drawings. Keep these corrected daily and show every change from the original drawings. Keep this set of prints on the job site for use only as a record set. This shall not be construed as authorization for your firm to make changes in the layout without Owner approval in each case.

2. Upon completion of the work, obtain a set of Contract Drawings from the General Contractor and create a record set professionally using a PDF editor. Deliver this set in PDF format as indicated in Submittals – Close-Out, below.

1.07 APPROVALS, EQUALS, SUBSTITUTIONS, NO KNOWN EQUAL

1. Approvals: Where the words (or similar terms) “approved”, “approval”, “acceptable”, and “acceptance” are used, these refer to the requirement that acceptance by the Owner, Architect and Engineer is required.

2. Equal: Where the words (or similar terms) “equal”, “approved equal”, “equal to”, “or equal by”, “or equal” and “equivalent” are used, it shall be understood that these words are followed by the expression “in the opinion of the Owner, Architect, Engineer or Planetarium Consultant.” For the purposes of specifying products, the above words shall indicate the same size, made of the same construction materials, manufactured with equivalent life expectancy, having the same aesthetic appearance/style (includes craftsmanship, physical attributes, color and finish), and the same performance.

3. Substitution: For the purposes of specifying products “substitution” shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.

Substitutions of specified equipment shall be submitted and received by the Engineer ten days prior to the bid date for review and written approval. Regulatory Agency approval for all substitutions will be the sole responsibility of the Contractor. To receive consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letterform and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples, if requested, must be included in the submittal.

ONLY PRE-BID APPROVED PRODUCTS, ISSUED VIA A FORMAL BID ADDENDUM TO ALL BIDDERS, WILL BE ALLOWED ON THE PROJECT. REGARDLESS OF THE APPROVAL ON ANY SUBSTITUTION, ALL BIDS SHALL BE BASED ON THE PRODUCTS EXACTLY AS SPECIFIED. PRICING FOR EACH APPROVED SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.

The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.

4. Alternates/Alternatives: For the purposes of specifying products, “alternatives/alternates” may be established to enable the Owner/Architect/Engineer/Planetarium Consultant to compare costs where alternative materials or methods might be used. An alternate price shall be submitted in addition to the base bid for consideration. If the alternate is deemed acceptable, written authorization will be issued.

5. No Known Equal: For the purposes of specifying products, “No Known Equal” shall mean that the Owner/Architect/Engineer/Planetarium Consultant is not aware of an equivalent product. The Contractor will need to submit a “Substitution” item, per the requirements listed above, if a different product is proposed to be utilized.

1.08 SUBMITTALS – PRE-CONSTRUCTION

1. Submit the shop drawing submittal as PDF files accompanied by Letter of Transmittal, which shall give a list of the number and dates of the drawings submitted.
2. If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, make specific mention of such variations in the Contractor’s letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment that may be caused by the substitution. Submit samples upon request.
3. Only products listed as “Equal” within the contract documents, along with formally approved “Substitutions” will be reviewed. Products not conforming to these items will be rejected.
4. Shop drawings shall be submitted on the following but not limited to:
 - a. Seat locations and methods for mounting
 - b. Seating layout, seat placement, ADA Compliance, etc.
 - c. All other products called out on drawings that call for shop drawing submittal

1.09 SUBMITTALS – CLOSE-OUT

1. Subsequent to completing preliminary testing, provide to the Construction Manager, Owner, and Planetarium consultant, a letter/report documenting the results of the preliminary tests and the documentation detailed below. The receipt of this documentation will constitute the acknowledgment that the installation is complete, that it conforms to this specification, and that it is ready to be reviewed and tested.
2. Operation and Maintenance Manuals: Provide all manuals as PDF files on three duplicate USB drives, named consistently with the manufacturer’s name and the model number in separate folders for the planetarium and exhibit hall. Copy the same file and folder organization to the Owner.

- a. Provide step-by-step operating instructions for the day-to-day use and maintenance of the seating including the process daily, weekly, monthly, and yearly cleaning procedures.
 - b. Provide list of spare parts provided. Storage of spare parts is the responsibility of Davis Planetarium, City of Jackson.
3. As-built drawings: Provide all as-built documentation as PDF files on USB drive and online service mentioned above. In addition, provide a single copy each of the functional drawings and floor plans on the USB drive.

PART 2 – RECEIPT OF PRODUCT

2.01 ACCEPTANCE TESTS

1. Acceptance Test: Owner's Representative and/or Construction Manager will be present during acceptance testing and require assistance. Demonstrate each major seating component functions as specified.
2. If any test shows the seating is defective or does not comply with the specifications, perform any remedies at your firm's expense and pay the subsequent expenses of any required retesting.

2.02 TRAINING AND FIELD SUPPORT

Training: At minimum, include training on how to replace components of the PPS.

2.03 MISCELLANEOUS PROJECT REQUIREMENTS

1. Single Point of Contact: Provide an English-proficient, single point of contact, i.e., project manager, to speak for the Contractor and to provide the following functions:
 - a. initiate and coordinate tasks with Owner's Project Manager, and others as specified by Owner's Project Manager.
 - b. Provide day-to-day direction and on-site supervision of Contractor personnel.
 - c. Ensure conformance with all Contract provisions.
 - d. Participate in weekly site project meetings as needed.
 - e. This individual will remain as Project Manager for the duration of the project. The Contractor may change Project Managers only with the Owner's Project Manager's written approval.
2. Planning meetings and schedule: Within thirty (30) calendar days after the date of award of the Contract, an initial planning meeting will be held with the successful bidder to clarify all requirements (systems, services, distribution methods, etc.), identify responsibilities, and schedule the events that will transpire during the implementation of the project. Within one week of this initial meeting, the Contractor shall provide a written report and project schedule to clearly document the events and responsibilities associated with the project.

3. Site Cleaning: Throughout the progress of the plant construction, the Contractor shall keep the working area free from debris of all types and remove from the premises all rubbish resulting from any work done by Contractor. On a daily basis and at the completion of its work, the Contractor shall, to the extent possible, leave the premises in a clean and finished condition.

4. Safety Requirements: Contractor will utilize appropriate personnel and display warning signs, signals, flags and/or barricades at the work site to ensure adherence to safety regulations and as prudence requires.

5. Specification/Drawing Status: All specifications and drawings related to this project will be "frozen" after shop drawing approval. The Owner reserves the right to negotiate any future changes with the Contractor at any time.

6. Upon approval of shop drawings/submittals, contractor shall immediately place orders for all required materials, components, and supplies. In addition, contractor shall secure and forward written confirmations (including orders and shipping dates) direct from each manufacturer/vendor to the Owner's Project Manager.

7. Contractor shall expedite shipment of all materials, components and supplies, as necessary to ensure the successful completion of the Project by the date required. All costs for expediting shall be included within contractor's pricing as provided below.

8. The system cost herein shall include administration/maintenance training for an Owner's representatives. It shall include:

- a. Review of as-built documentation, including a site demonstration seating and chair cart operation.
- b. All warranty information.

2.04 DAMAGES

The Contractor will be held responsible for any and all damages to portions of the building caused by it, its employees or sub-contractors; including but not limited to:

1. Damage to any portion of the building and its finishes caused by the movement of tools, materials or equipment.
2. Damage to any component of the construction of spaces.
3. Damage to the projection dome surface.

2.05 COMPLETION OF WORK

1. At the completion of the seating delivery and unpacking, restore to its former condition, all aspects of the project site. On a daily basis, remove all waste and excess materials, rubbish debris, tools and equipment resulting from or used in the services provided under this Contract. Provide all clean up, restoration, and removal noted above at no cost to Owner. If the Contractor fails in its duties under this paragraph, the Owner may upon notice to the Contractor perform the necessary clean up and deduct the costs thereof from any amounts due or to become due to the Contractor. Remove trash from work areas and bring it to the Contractor-provided dumpster.

2. Final Punch Walk: Complete a final inspection to determine if all conditions of the scope of work are completed to the owner's satisfaction.

2.06 FINAL ACCEPTANCE

1. The Owner or the Planetarium Consultant may visit the site during the installation of the seating to ensure that correct installation practices are being followed.
2. Notify the Owner's representative when the seating is ready for a final job review.
3. The Owner or Owner's representative or Planetarium Consultant will review the seating prior to the seating acceptance.
4. In the event that repairs or adjustments are necessary, make these repairs at your firm's expense. Complete all repairs within five days from the time they are disclosed to your firm.

END OF SECTION 12000-2
PORTABLE PLANETARIUM SEATING (MPPS)

Section 11000-6:
DAVIS PLANETARIUM-CITY OF JACKSON

Add Alternate
THEATRICAL LIGHTING SYSTEM (TLS)

PROJECT DESCRIPTION/WORK INCLUDED

The selected contractor shall provide, install, train for, and support a THEATRICAL LIGHTING SYSTEM (TLS) for the Davis Planetarium. Please refer to schematic level drawings **PL 106** and **PL 107**.

The Planetarium takes the form of multi-use domed theater and, in addition to astronomy and space science, is also used for entertainment, musical and theatrical performances as well as for meeting rentals/dinners and social gatherings such as weddings.

THEATRICAL LIGHTING SYSTEM (TLS) is composed of the following components and functions (See **PL 106**):

Quantity: Four

ETC Source Four LED Series 3 Light Engine Ellipsoidal with Daylight HDR 15-to-30-Degree Lens (Black in color)

Composed of:

A. ETC S4LEDS3DS-0 Source Four LED Series 3, Light Engine with XDLT Shutter Barrel, Daylight HDR, Black

Specifications:

1. Source: LED details: 90 Lumileds LUXEON C and CZ
Max lumens: 10,889 Lumens per watt: 35 L70 rating (hours to 70% output): greater than 54,000 hours

Colors used: Deep Red, Red, Amber, Lime, Green, Cyan, Blue, Indigo

Color temperature range: 1900–10450 K

2. Optical:

Beam angle range: Swappable lens tubes between 5°–90°

Gate size: 80 mm

Aperture size: 6.25-17.5 in (depending on lens tube)

Pattern projection: Yes

Pattern size: A or B

Camera flicker control/Hz range: Yes: 5 kHz, 25 kHz

3. Control:

Input method: 5-Pin XLR, Multiverse wireless and NFC
Protocols: DMX-512, RDM, City Theatrical Multiverse, NFC

4. Electrical:

Voltage range: 100–240 VAC 50/60 Hz
Input method: AC via Neutrik powerCON TRUE1 TOP
Wattage typical: 307 W at 120 V
Current draw: 2.6 A at 120 V

4. Thermal:

Fan- controllable)
Fan noise dB range: 34 dBA average at 1 m
Heat output: BTUs/hour: 1,047

5. Physical:

Materials: Die-cast, all metal housing
Color: Black
Mounting option: Yoke
Weight (With barrel): 8.87 kg (19.55 lb)
Weight (Without barrel): 6.76 kg (14.90 lb)

B. ETC 41530LT 15-to-30-Degree Zoom Lens Tube, Black

The 41530LT is a 15 to 30 degree zoom lens assembly for ETC's Source Four Zoom.

C. ETC T1PA-A Edison Plug To True1 Receptacle, UI 1573, 6-Foot/2-Meter Power Cable, Black

All provided Source Four Ellipsoidals are to be suspended from bottom of projection dome's tension ring as shown in PL 106 via supplied yoke mount and are to be DMX 512 controllable from the lighting control computer system provided by the LED RGB Cove lighting provider. Control system is to located at the Planetarium Control Console . This control system will also be controllable wirelessly from a touch screen device such as an IPAD from anywhere in the theater. **See PL 107.**

D. The following are acceptable dome cove lighting suppliers:

1. Astro-Tec Manufacturing Co.

Contact: Dale Lewis - dlewis@astro-tec.com
Astro-Tec Manufacturing, In
550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio 44614-0608
Phone: (330) 854-2209 | Fax: (330) 854-5376

2. ChromaCove, LLC

7777 Wall Street, Ste. A Cleveland, OH 44125 USA

Phone: +1 844-RGB-COVE (742-2683)

Email: sales@chromacove.com

URL <http://www.chromacove.com>

3. BOWEN TECHNOVATION

7999 East 88th Street

Indianapolis, IN 46256

Contact: John Barry.

Johnb@bowentechnovation.com

<http://bowentechnovation.com>

Unless otherwise noted, a substituted component may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.

GENERAL REQUIREMENTS

Guarantee: Furnish a written guarantee for a period of two years from date of acceptance.

All of the equipment in this specification shall be furnished and installed by the Authorized Factory Installer of the equipment with the most current software and firmware package available at the time of installation. At the time of Owner Acceptance of the installation, all equipment shall include any and all updated software or hardware revisions. In addition, when the software is available in disk format, a backup copy of the most up to date revision, in disk format, shall be handed to Owner at the completion of the project.

Verifying Drawings and Job Conditions:

Examine all project drawings and specifications to ensure full awareness of all work required under this Section.

Visit the site and verify existing conditions. Where existing conditions differ from drawings, make adjustments and allowances for all necessary equipment to complete all parts of the work. Verify actual dimensions of construction contiguous with Planetarium equipment by field measurements before fabrication.

WORK IN COOPERATION WITH OTHER TRADES

Examine the drawings and specifications and determine the work to be performed by the electrical and other trades.

Confirm Low voltage conduit, boxes and power have been provided by the electrical contractor. Please refer to **PL 101, PL103, PL 104, PL 105, PL 106, and PL 107.**

TESTING AND ADJUSTMENT

Upon completion of the installation work, provide testing and demonstrating in the presence of the owner's inspector that the all performance characteristics are as stated in the factory data sheets are met.

Promptly repair or replace all equipment and parts discovered to be in need of correction. Then retest that part of the system and all associated components to correct the error. Perform all such replacement or repair at no additional cost to the Owner.

FINAL INSPECTION AND ACCEPTANCE

After all requirements of the specifications and/or the drawings have been fully completed, representatives of the Owner will inspect the work. Provide competent personnel to demonstrate the operation of any item or system to the full satisfaction of each representative.

Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from the Planetarium consultant.

RECORD DRAWINGS

Drawings of Record: Provide and keep up-to-date, a complete record set of drawings. Keep these corrected daily and show every change from the original drawings. Keep this set of prints on the job site for use only as a record set. This shall not be construed as authorization for your firm to make changes in the layout without Owner approval in each case.

Upon completion of the work, obtain a set of Contract Drawings from the General Contractor and create a record set professionally using a PDF editor. Deliver this set in PDF format as indicated in Submittals – Close-Out, below.

APPROVALS, EQUALS, SUBSTITUTIONS, NO KNOWN EQUAL

Approvals: Where the words (or similar terms) “approved”, “approval”, “acceptable”, and “acceptance” are used, these refer to the requirement that acceptance by the Owner, Architect and Engineer is required.

Equal: Where the words (or similar terms) “equal”, “approved equal”, “equal to”, “or equal by”, “or equal” and “equivalent” are used, it shall be understood that these words are followed by the expression “in the opinion of the Owner OR Planetarium Consultant.” For the purposes of specifying products, the above words shall indicate the same size, made of the same construction materials, manufactured with equivalent life expectancy, having the same aesthetic appearance/style (includes craftsmanship, physical attributes, color and finish), and the same performance.

Substitution: For the purposes of specifying products “substitution” shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.

Substitutions of specified equipment shall be submitted and received by the Engineer ten days prior to the bid date for review and written approval. Regulatory Agency approval for all substitutions will be the sole responsibility of the Contractor. To receive

consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letterform and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples, if requested, must be included in the submittal.

ONLY PRE-BID APPROVED PRODUCTS, ISSUED VIA A FORMAL BID ADDENDUM TO ALL BIDDERS, WILL BE ALLOWED ON THE PROJECT. REGARDLESS OF THE APPROVAL ON ANY SUBSTITUTION, ALL BIDS SHALL BE BASED ON THE PRODUCTS EXACTLY AS SPECIFIED. PRICING FOR EACH APPROVED SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.

D. The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.

E. Alternates/Alternatives: For the purposes of specifying products, “alternatives/alternates” may be established to enable the Owner to compare costs where alternative materials or methods might be used. An alternate price shall be submitted in addition to the base bid for consideration. If the alternate is deemed acceptable, written authorization will be issued.

No Known Equal: For the purposes of specifying products, “No Known Equal” shall mean that the Owner is not aware of an equivalent product. The Contractor will need to submit a “Substitution” item, per the requirements listed above, if a different product is proposed to be utilized.

SUBMITTALS – PRE-CONSTRUCTION

Submit the shop drawing submittal as PDF files accompanied by Letter of Transmittal, which shall give a list of the number and dates of the drawings submitted.

Provide consecutively numbered drawings featuring the name of the project that indicate the name of the specific staff that checked and approved each drawing. Any drawings submitted without this approval will be rejected.

If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, make specific mention of such variations in the Contractor’s letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment that may be caused by the substitution. Submit samples upon request.

Only products listed as “Equal” within the contract documents, along with formally approved “Substitutions” will be reviewed. Products not conforming to these items will be rejected.

Shop drawings shall be submitted on the following but not limited to:

- System functional diagrams, including control system wiring
- Equipment locations and methods for mounting

SUBMITTALS – CLOSE-OUT

Operation and Maintenance Manuals: Provide all manuals as PDF files on three duplicate USB drives, named consistently with the manufacturer's name and the model number in separate folders for the planetarium and exhibit hall. Copy the same file and folder organization to the Owner.

Provide step-by-step operating instructions for the day-to-day use of the system including power activation, connection to control devices, adjustment of light levels, selection of sources, etc. Include illustrations and references to individual equipment manuals as necessary.

DAMAGES

The Contractor will be held responsible for any and all damages to portions of the building caused by it, its employees or sub-contractors; including but not limited to:

Damage to any portion of the building caused by the movement of tools, materials or equipment.

Damage to the electrical, mechanical and/or life safety or other systems caused by inappropriate operation or connections made by the Contractor or other actions of Contractor.

Damage to the projection dome surface and the attached cove trough.

Damage, interference, or outage to campus wide area or local area networks.

COMPLETION OF WORK

At the completion of the System, restore to its former condition, all aspects of the project site. On a daily basis, remove all waste and excess materials, rubbish debris, tools and equipment resulting from or used in the services provided under this Contract. Provide all clean up, restoration, and removal noted above at no cost to Owner. -provided dumpster.

SYSTEM AND/OR NETWORK TESTING

Upon completion of installation, execute all of the testing of LASER equipment proving that it functions per Manufacturer's specifications,

Assume responsibility of assuring that the system and network interface installed operates properly, including DMX 512 control interface.

FINAL ACCEPTANCE

The Owner or Owner's representative may visit the site during the installation of the system to ensure that correct installation practices are being followed.

Notify the Owner's representative when the systems are ready for a final job review. The review will take place within one week after notification.

If need for additional adjustment becomes evident during final acceptance and/or demonstration and testing, continue adjustment until the system functions fully as designed.

The Owner or Owner's representative will review the installation and certification data prior to the system acceptance.

The Owner or Owner's representative may test some of the system's features to ensure that the certification data is correct. If a substantial discrepancy is found, the Owner reserves the right to have an independent consultant perform a certification of the entire system. If such a procedure is undertaken, the cost of the testing will be billed back to the Contractor.

In the event that repairs or adjustments are necessary, make these repairs at your firm's expense. Complete all repairs within five days from the time they are disclosed to your firm.

END OF SECTION Section11000-6:

**ADD ALTERNATE
THEATRICAL LIGHTING SYSTEM (TLS)**

Section 11000-7:

**Add Alternate:
LASER Graphics Projection System (LGPS)**

PROJECT DESCRIPTION/WORK INCLUDED

The selected contractor shall provide, install, train for, and support a **LASER Graphics Projection System (LGPS)** for the Davis Planetarium. Please refer to schematic level drawings **PL 101** and **PL 109**.

The Planetarium takes the form of multi-use domed theater and, in addition to astronomy and space science, is also used for entertainment, musical and theatrical performances as well as for meeting rentals/dinners and social gatherings such as weddings. The LGPS is to provide an entertainment element to these alternative uses of the planetarium.

LASER Graphics Projection System (LGPS) is composed of the following components and functions (See **PL 101**):

A. One (1) Dome-mounted Graphics LASER Projector with filter wheels, capable of 30K to 90k scan rates. Optical effects: lumina, star, fuzz, diffraction grating,

Power: 2 watts – CIE-Standard D65 white balanced - 3 watts – At full power with alternate white balance

Beam diameter: 3mm

Beam divergence: <0.7 mRad

Modulation speed: 100kHz analog

Digital diode drivers for superior colors and fades

Standard scan rate: ILDA 30kpps at 60 degrees optical

Maximum scan rate: ILDA 90kpps at reduced scan angles

All-glass optics with custom front-surface dielectric coatings

Projector to be suspended from bottom of projection dome's tension ring as shown in PL 101 via supplied yoke mount.

B. Two (2) separate dome-mounted Beam LASER Projectors. RGBW projectors with a minimum white light power rating of 3 watts. Projectors to be suspended from bottom of projection dome's tension ring as shown in PL 101 via supplied yoke mount.

C. Two (2) 2 Hazers (remote controlled fog machines) - one for each Beam Projector. Hazer's to be suspended from bottom of projection dome's tension ring as shown in PL 101 via supplied yoke mount.

D. One (1) LASER Control System with Pangolin compatible show storage and playback. To be mounted in separate dedicated rack in **Room 310**. Remote control of playback unit is required at control console.

E. Live LASER show controller for real-time generation and control of LASER graphics.

F. Cables and mounting included. To be mounted in separate dedicated rack in **Room 310**.

G. Installation and Training. Includes assistance is obtaining FDA Variances for licensing laser show performances at a permanent location.

All components must meet ILDA standards.

Show licensing is the responsibility of Davis Planetarium/City of Jackson, MS.

LOCATIONS OF PROJECTORS:

All Three (3) Laser Projectors located as shown in **PL101**. LASER Graphics Projector mounted at rear of theater near main entrance. The two Beam LASER Projectors are mounted on left and right front areas as shown in **PL 101**.

The following are acceptable **LASER Graphics Projection System (LGPS)** suppliers:

1. Astro-Tec Manufacturing Co.

Contact: Dale Lewis - dlewis@astro-tec.com

Astro-Tec Manufacturing, In

550 Elm Ridge Avenue, P.O. Box 608, Canal Fulton, Ohio 44614-0608

Phone: (330) 854-2209 | Fax: (330) 854-5376

2. Laser Fantasy, Inc.

Tel: +1 425.214.0777

Email: info@laserfantasy.com

3. Audio Visual Imagineering

Contact: Joanne Young - joanne@av-imagineering.com

931 S. Semoran Blvd. Suite 204C

Winter Park, Florida 32792
Phone: 407-859-8166

Unless otherwise noted, a substituted component may be proposed and included, but only if approved in advance by the Planetarium Design Consultant.

GENERAL REQUIREMENTS

Guarantee: Furnish a written guarantee for a period of two years from date of acceptance.

All of the equipment in this specification shall be furnished and installed by the Authorized Factory Installer of the equipment with the most current software and firmware package available at the time of installation. At the time of Owner Acceptance of the installation, all equipment shall include any and all updated software or hardware revisions. In addition, when the software is available in disk format, a backup copy of the most up to date revision, in disk format, shall be handed to Owner at the completion of the project.

Verifying Drawings and Job Conditions:

Examine all project drawings and specifications to ensure full awareness of all work required under this Section.

Visit the site and verify existing conditions. Where existing conditions differ from drawings, make adjustments and allowances for all necessary equipment to complete all parts of the work. Verify actual dimensions of construction contiguous with Planetarium equipment by field measurements before fabrication.

WORK IN COOPERATION WITH OTHER TRADES

Examine the drawings and specifications and determine the work to be performed by the electrical and other trades.

Confirm Low voltage conduit, boxes and power have been provided by the electrical contractor. Please refer to **PL 101, PL103, PL 104, PL 105, PL 106, and PL 107.**

TESTING AND ADJUSTMENT

Upon completion of the installation work, provide testing and demonstrating in the presence of the owner's inspector that the all performance characteristics are as stated in the factory data sheets are met.

Promptly repair or replace all equipment and parts discovered to be in need of correction. Then retest that part of the system and all associated components to correct the error. Perform all such replacement or repair at no additional cost to the Owner.

FINAL INSPECTION AND ACCEPTANCE

After all requirements of the specifications and/or the drawings have been fully completed, representatives of the Owner will inspect the work. Provide competent personnel to demonstrate the operation of any item or system to the full satisfaction of each representative.

Final acceptance of the work will be made by the Owner after receipt of approval and recommendation of acceptance from the Planetarium consultant.

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Substitution: For the purposes of specifying products “substitution” shall refer to the submittal of a product not explicitly approved by the construction documents/specifications.

Substitutions of specified equipment shall be submitted and received by the Engineer ten days prior to the bid date for review and written approval. Regulatory Agency approval for all substitutions will be the sole responsibility of the Contractor. To receive consideration, requests for substitutions must be accompanied by documentary proof of its equality with the specified material. Documentary proof shall be in letterform and identify the specified values/materials alongside proposed equal values/materials. In addition, catalog brochures and samples, if requested, must be included in the submittal.

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SUBSTITUTION SHALL BE INCLUDED IN THE BID SUBMITTAL AS A SEPARATE LINE ITEM.

D. The Contractor warrants that substitutions proposed for specified items will fully perform the functions required.

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No Known Equal: For the purposes of specifying products, “No Known Equal” shall mean that the Owner is not aware of an equivalent product. The Contractor will need to submit a “Substitution” item, per the requirements listed above, if a different product is proposed to be utilized.

SUBMITTALS – PRE-CONSTRUCTION

Submit the shop drawing submittal as PDF files accompanied by Letter of Transmittal, which shall give a list of the number and dates of the drawings submitted.

Provide consecutively numbered drawings featuring the name of the project that indicate the name of the specific staff that checked and approved each drawing. Any drawings submitted without this approval will be rejected.

If the shop drawings show variations from the requirements of the Contract because of standard shop practice or other reasons, make specific mention of such variations in the Contractor’s letter of transmittal. If the substitution is accepted, the Contractor shall be responsible for proper adjustment that may be caused by the substitution. Submit samples upon request.

Only products listed as “Equal” within the contract documents, along with formally approved “Substitutions” will be reviewed. Products not conforming to these items will be rejected.

Shop drawings shall be submitted on the following but not limited to:

- System functional diagrams, including control system wiring
- Equipment locations and methods for mounting

SUBMITTALS – CLOSE-OUT

Operation and Maintenance Manuals: Provide all manuals as PDF files on three duplicate USB drives, named consistently with the manufacturer’s name and the model number in separate folders for the planetarium and exhibit hall. Copy the same file and folder organization to the Owner.

Provide step-by-step operating instructions for the day-to-day use of the system including power activation, connection to control devices, adjustment of light

levels, selection of sources, etc. Include illustrations and references to individual equipment manuals as necessary.

DAMAGES

The Contractor will be held responsible for any and all damages to portions of the building caused by it, its employees or sub-contractors; including but not limited to:

Damage to any portion of the building caused by the movement of tools, materials or equipment.

Damage to the electrical, mechanical and/or life safety or other systems caused by inappropriate operation or connections made by the Contractor or other actions of Contractor.

Damage to the projection dome surface and the attached cove trough.

Damage, interference, or outage to campus wide area or local area networks.

COMPLETION OF WORK

At the completion of the System, restore to its former condition, all aspects of the project site. On a daily basis, remove all waste and excess materials, rubbish debris, tools and equipment resulting from or used in the services provided under this Contract. Provide all clean up, restoration, and removal noted above at no additional cost to Owner-provided dumpster.

SYSTEM AND/OR NETWORK TESTING

Upon completion of installation, execute all of the testing of lighting equipment proving that it functions per Manufacturer's specifications,

Assume responsibility of assuring that the system and network interface installed operates properly.

FINAL ACCEPTANCE

The Owner or Owner's representative may visit the site during the installation of the system to ensure that correct installation practices are being followed.

Notify the Owner's representative when the systems are ready for a final job review. The review will take place within one week after notification.

If need for additional adjustment becomes evident during final acceptance and/or demonstration and testing, continue adjustment until the system functions fully as designed.

The Owner or Owner's representative will review the installation and certification data prior to the system acceptance.

The Owner or Owner's representative may test some of the system's features to ensure that the certification data is correct. If a substantial discrepancy is found, the Owner reserves the right to have an independent consultant perform a certification of the entire system. If such a procedure is undertaken, the cost of the testing will be billed back to the Contractor.

In the event that repairs or adjustments are necessary, make these repairs at your firm's expense. Complete all repairs within five days from the time they are disclosed to your firm.

END OF SECTION Section11000-7:

**Add Alternate:
LASER Graphics Projection System (LGPS)**

