

# THE BARNUM MUSEUM

820 MAIN STREET

BRIDGEPORT, C.T. 06604

## PHASE I- STABILIZATION

## PROJECT SPECIFICATIONS

### ARCHITECT

SWANKE HAYDEN CONNELL ARCHITECTS  
100 BROADWAY  
NEW YORK, N.Y. 10005

### STRUCTURAL ENGINEER

GNCB CONSULTING ENGINEERS, P.C.  
130 ELM STREET  
OLD SAYBROOK, C.T. 06475

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## SECTION 001000 – INVITATION TO BID

The Barnum Museum, 820 Main Street, Bridgeport, Ct, will receive sealed bids from invited bidders at or before **4:00 pm on Wednesday, October 22, 2014** for the following work:

### 1.1 PROJECT DESCRIPTION

- A. In general, the work of this project involves providing all labor, equipment and materials required to perform structural repairs at the third floor and attic, as well as isolated roofing repairs at east gable and selected masonry repairs at the east elevation at the Barnum Museum, 820 Main Street, Bridgeport, Ct., as indicated on the Drawings and as described in the Specifications.
1. Partial funding for this project is provided by Connecticut's Historic Restoration Fund.
  2. This property has been determined to possess historic and (e.g. architectural, engineering, artistic) significance and is listed in the National Register of Historic Places. The contractor shall recognize that all aspects of the property may potentially contribute to this significance, and the contractor shall not judge the relative significance of any features nor the impact of any or all proposed work. This responsibility shall rest solely with the architect. Consequently no deviations from the contract documents shall be performed, and no features or materials shall be altered, removed, reused, or taken from the premises, without the written approval of the architect as being consistent with the requirements of the contract documents. All work must meet the Secretary of the Interior's Standards for the Treatment of Historic Properties and be approved by the Department of Economic and Community Development, State Historic Preservation Office.
  3. The Barnum has been and will continue to be an equal opportunity organization. All qualified Minority and Women-Owned Business Enterprise (MWBE) suppliers, contractors and/or businesses will be afforded equal opportunity without discrimination because of race, religion, national origin, sex, age, disability, sexual preference or Vietnam Era Veterans status.
  4. All Bidders Must Complete, Sign and return the CHRO Contract Compliance Regulations Notifications to Bidders form as part of his or her Bid. Refer to Section 002500 – Contractors Compliance Package for form and instructions.
  5. A mandatory walkthrough/pre-bid meeting will be held on **Thursday, October 2, 2014 at 10:00 a.m.**
  6. Weather permitting, the work of this project is anticipated to begin immediately upon project award.
- B. The extent of the Phase I Stabilization project is illustrated on Plan Sheets DM-101, A-101, S1.1 and S1.2, Elevation Sheet A-201, 601, with details illustrated on Sheets A-501, A-502, S2.1 and S3.1. The work includes, but is not necessarily limited to, the following:
1. Demolition of selected flooring and ceiling areas as identified on the drawings to accomplish structural repairs.

2. Installation of new 6-inch diam. X 14-foot high steel column at third floor.
3. Interior structural stabilization and selected masonry repairs at third floor east elevation. Coordinate cataloging and salvage of wood trim for reuse at a later date.
4. Removal of selected HVAC equipment in attic and new dunnage support for new equipment to be determined and installed at a later date.
5. Replacement of selective individual missing clay tiles at east gable roof, using existing attic stock. Remaining existing roof tiles to be protected.
6. Replacement of deteriorated sealant at east gable between tile roof and terra cotta copping.
7. Lining east elevation copper gutter with liquid-applied waterproofing.
8. Selected brick stitching and repointing at exterior east elevation and interior face of north elevation gable.
9. Structural repairs and stabilization at attic and third floor.

## **1.2 REQUIREMENTS OF SUBMISSION**

- A. Bidders must submit Bids in accordance with Section 002000 – Instructions to Bidders. Bid must include the following. Incomplete Bids shall not be considered:
  1. Bid Form.
  2. CHRO Bidder Contract Compliance Monitoring Report forms.
  3. Bid Bond/Security.
  4. List of Sub-contractors.
  5. Competency of Bidders: General Contractor – Section 009000.
- B. Bidding documents may be obtained from the State of Connecticut Department of Administrative Services Contracting Portal:

[www.biznet.ct.gov](http://www.biznet.ct.gov)

## **1.3 BID OPENING**

- A. The Bids will be open publically and read aloud on **Wednesday, October 22, 2014 at 4:30 pm.**
- B. The Owner reserves the right to waive any irregularities and reject any or all Bids.
- C. The Owner reserves the right to postpone the date and time of receipt of Bids at any time prior to the date and time announced in this Instruction to Bidders or amendments thereto.

## **1.4 MINORITY AND WOMEN-OWNED BUSINESS (M/WBE)**

- A. The Barnum Museum is an Affirmative Action/Equal Opportunity Employer. Minority/Women's Business Enterprises are encouraged to apply.

**END OF SECTION 001000**

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**SECTION 001500 – ADVERTISEMENT FOR BID**

The Advertisement for Bid is on the following page.

# ADVERTISEMENT

## Barnum Museum Notice to All Bidders

### NOTICE OF SOLICITATION OF GENERAL CONTRACTORS FOR PHASE I STABILIZATION AT THE THIRD FLOOR, ATTIC AND EAST ELEVATION OF THE BARNUM MUSEUM, 820 MAIN STREET, BRIDGEPORT, CT

The Barnum Museum, 820 Main Street, Bridgeport, Ct, will receive sealed bids from invited bidders at or before **4:00 pm on Wednesday, October 22, 2014**. The Bids will be open publically and read aloud at the Barnum Museum on **Wednesday, October 22, 2014 at 4:30 pm**. Each bid must be prepared and submitted in accordance with the Bidding and Contract Documents and must be accompanied by references of similar projects and a Bid Security in the form of a Certified Check, Bid Bond or Bank Check in the amount of (10%) ten percent of the bid amount. Bidders must have a minimum of 5 years successful experience in completion of similar projects for State, National or locally registered landmarks.

The successful bidder will be required to furnish a Performance Bond and Labor and Material Bond each for 100% of the amount of the Contract. Work is anticipated to begin October 2014 and last up to 120 CCD.

Partial funding for this project is provided by Connecticut's Historic Restoration Fund.

Effective September 26, 2014, Bid Documents may be examined on the State of Connecticut DAS at [www.biznet.ct.gov](http://www.biznet.ct.gov). A mandatory walkthrough/pre-bid meeting will be held at the Barnum Museum on Thursday, October 2, 2014 at 10 a.m.

It is the policy of the State of Connecticut to encourage the greatest possible participation of minority and woman-owned business enterprises in State-funded projects. The General Contractor, by bidding on the contract, acknowledges his/her understanding and support for this policy and pledges to fully cooperate with the Barnum Museum in meeting requirements as set forth in the Bidding and Contract Documents. The Barnum Museum is an Affirmative Action/Equal Opportunity Employer. Minority/Women's Business Enterprises are encouraged to apply.

## **SECTION 002000 - INSTRUCTIONS TO BIDDERS**

Bids to be entitled to consideration must be made in accordance with the following instructions:

### **PART 1 - GENERAL**

- 1.1 Unless otherwise instructed, the Contractor shall obtain, maintain, and pay for all permits.
- 1.2 The Contractor will provide and pay for dumpsters for construction-related debris.

### **PART 2 - OBTAINING DOCUMENTS**

- 2.1 Selected Prime Bidders will be furnished one (1) set of black & white prints of Contract Drawings and one (1) set of Project Manuals. The Owner will not provide any additional construction documents to the Prime Bidders or Sub Contractors.
- 2.2 Sub-Contractors, Suppliers, manufactures and such secondary parties may obtain sets or partial sets of the Documents from the Prime Bidder.
- 2.3 Bidders when obtaining partial sets of documents, bear the sole responsibility in determining the scope of their interest. The Owner or Architect will not recommend or determine the extent or composure of partial documents requested by such parties.

### **PART 3 - PRE-BID CONFERENCE**

- 3.1 A mandatory walkthrough/pre-bid meeting will be held on **Thursday, October 2, 2014 at 10:a.m.** at the entrance of the **Barnum Museum, 820 Main Street, Bridgeport, Ct.** Contact Architect for any clarifications.

### **PART 4 - BID FORM**

- 4.1 Bids shall be made according to the form provided and all blank spaces in the form which apply shall be fully filled; numbers shall be stated both in writing and in figures; the signature shall be in long hand; and the completed form shall be without interlineations, alteration or erasure. Unauthorized conditions, limitations or provisions attached to the bid may be cause for rejection of the bid.
- 4.2 Should a bidder find discrepancies in, or omissions from, the Drawings or Documents, or should he be in doubt as to their meaning, he should at once notify the Owner who will send a written instruction to all bidders.
- 4.3 Bids shall not contain any recapitulation of the work to be done. No oral, telegraphic, or telephonic bids or modifications will be considered.
- 4.4 Before submitting a bid, bidders shall carefully examine the Drawings and Specifications, visit the site of the work, fully inform themselves as to all existing conditions and

limitations and shall include in the bid submittal a sum to cover the cost of all items included in the Contract.

- 4.5 A list of subcontractors must be submitted with each bid. The competency and responsibility of bidders and of their proposed subcontractors will be considered in making the award.
- 4.6 Any addenda issued during the time of bidding are to be covered and acknowledged in the Bid and in closing a Contract they will become a part thereof.
- 4.7 Bidders are required to bid on Alternates connected with the division of the work they are bidding. Failure to do so can constitute an informality which may result in rejection of the bid.
- 4.8 No bid will be considered unless received and on hand at the specified time, date and address at which bids are to be opened. Bids on route by mail or other means but not so received and on hand will not be considered. Bids will be accepted by email; however, it is Bidder's responsibility to ensure that any emailed Bids have been received by the appointed time and date.

#### **PART 5 - METHOD OF SUBMISSION**

- 5.1 Submit Bids in Duplicate in sealed opaque envelope (indicate title of the Work and the name of the Bidder on the envelope), together with all other documents required to be submitted to the attention of:

Kathleen Maher, Director of the Barnum Museum  
820 Main Street  
Bridgeport, CT 06604  
Tel.: (203) 331-1104

- 5.2 Sealed bids shall be delivered to the above no later than **4:00 pm on Wednesday, October 22, 2014**. It is the sole responsibility of the Bidder to see that the Bid is received by the stated time. Failure of the bidder to deliver the bid on time will result in bid disqualification

#### **PART 6 - BID OPENING**

- 6.1 Bids will be opened publically and read aloud at the Barnum Museum on **Wednesday, October 22, 2014 at 4:30 pm**.
- 6.2 The Owner reserves the right to postpone the date and time for receipt of Bids at any time prior to the date and time announced in this Instructions to Bidders, or Addenda thereto.

#### **PART 7 - MODIFICATION OR WITHDRAWAL OF BIDS**

- 7.1 A Bid may not be modified, withdrawn or canceled by the Bidder for a period of 60 days following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting his/her Bid.

- 7.2 Prior to the time and date designated for the receipt of Bids, any Bid submitted may be modified or withdrawn by notice to the party receiving Bids, at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder and must be delivered at the time of such of modification or withdrawal.

#### **PART 8 - AWARD OF CONTRACT**

- 8.1 The Owner reserves the right to reject any or all bids and to waive any informalities or defects in such bids whether before or after opening.
- 8.2 The Bidder to whom the award is made will be notified at the earliest possible date.
- 8.3 Acceptance of a bid submittal will be a notice in writing signed by a duly authorized representative of the Owner.
- 8.4 The award will be made on the basis of the Contractor Qualifications, Base Bid plus or minus such Alternates as the Owner may select after bids are opened.

#### **PART 9 - BONDS**

- 9.1 Prior to signing the Contract, the selected Contractor shall be required to secure and post a Bid Bond (5% minimum), Labor and Materials Payment Bond and a Performance Bond. All such bonds shall be issued to comply with Connecticut General Statute (CGS) 49-41. If a construction manager is employed, each subcontractor exceeding \$100,000 shall be bonded or a certified check required. Include the cost of the bonds in the Bid Amount as an Alternate.

#### **PART 10 - EXAMINATION**

- 10.1 Prior to submitting a Bid, each Bidder shall visit the Site of the proposed Work, become fully familiar with existing conditions and the character of the operations to be performed under the proposed Contract, and make such investigations as found necessary, so as to fully understand the facilities, physical conditions and restrictions relating to the Work under the Contract. All site visits shall be arranged through:

Barnum Museum Director – Kathleen Maher  
820 Main Street  
Bridgeport, Ct.  
Telephone: (203) 331-1104

- 10.2 Each Bidder shall thoroughly examine and become familiar with the proposed Contract Documents.

- 10.3 By submitting a Bid, the Bidder affirms that:
- A. The Bidder has carefully examined the work site, Drawings, Specifications, associated Bid Documents, and any Addenda or Bulletins.
  - B. The Bidder is thoroughly satisfied and aware of the location and the nature of the Work, the general conditions, and all matters which may affect the Work or its performance.
  - C. As a result of such examination by the Bidder, the Bidder fully understands the conditions of bidding and will not make any claim for, and waives any right to, damages, because of misinterpretation or misunderstanding of the Bid Documents and the conditions of Bidding.

#### **PART 11 - SCHEDULE**

- 11.1 Bidders shall submit with their Bids, a Preliminary Project Schedule for completing the Project. The estimated time period for construction is 3 months. Selected Bidder must coordinate and ensure that any exterior masonry work be performed prior to freezing temperatures.
- 11.2 Work must be started as soon as possible following award of Bid. The Contractor shall be prepared to have all permits in place and start work within one month of Bid Award. The Contractor must diligently continue his work without unnecessary delays and with sufficient manpower to complete the work in the shortest possible time.

#### **PART 12 - GENERAL**

- 12.1 Work shall comply with the City of Bridgeport and the State of Connecticut Codes and Ordinances, and shall be done to the highest standards of craftsmanship by workers of the respective trades.
- 12.2 Prevailing wages apply for municipal projects with new construction cost over \$400K and total cost for remodeling, refurbishing, rehabilitation and repair is \$100K or more (DGS 31-53(g)). Where federal funds are involved, Davis-Bacon rates may apply.
- 12.3 The Contractor shall maintain the job clear of trash and debris. Waste material shall be periodically (but not less than weekly) removed from the site and shall be completely removed prior to substantial completion and prior to final acceptance. The Contractor shall present the project area to the Owner for acceptance, clean and ready for use. Surfaces shall be swept broom clean, and free of trash and debris.
- 12.4 The Contractor is required to carry Builder's Risk "All Risk" insurance to cover the cost of this work and all coverage as defined. The Owner and Connecticut Department of Economic and Community Development (DECD) shall be presented with certificates of

the Contractor's insurance and Owner's fire and extended coverage at the time of signing of the Contract. Both the Barnum Museum and the State of Connecticut shall be listed as additional insured A.T.I.M.A. The "Hold Harmless" endorsement of the insurance shall include the interest of the Barnum Museum and the State of Connecticut. The Contractor and any subcontractors and all other interests shall be so named. The policy shall insure against all risks of physical damages except as modified by the contract documents and subject to the normal all risk exclusions.

- 12.5 These documents do not include the necessary components for construction safety. Compliance with State and Federal regulations regarding safety, and compliance with Article 10 of the General Conditions, is, and shall be, the Contractor's responsibility.
- 12.6 Defects in materials or workmanship that develop within one year of the date of completion shall be repaired by the Contractor without expense to the Owner. This includes the repair of damage done as a result of the defect, as well as the correction of the defect itself. The Contractor shall assume responsibility for structural faults, leaks, etc., unless he has objected in writing to the Engineer's detail or specification and the Owner has agreed to assume the risk. Approval of a shop drawing does not relieve the Contractor from this guarantee if a defect develops in the work indicated.
- 12.7 Extra charges will be permitted only when previously authorized in writing by the Owner before the charge is incurred.
- 12.8 Manufactured items shall be installed strictly in accordance with the manufacturer's specifications.
- 12.9 Subcontractors must register complaints regarding work prepared as a base for their contract before starting work. Commencement of work shall constitute acceptance of responsibility for such base.
- 12.10 If an item is not specified, the Contractor should submit to the Owner in advance, cut sheets, samples or specifications for items intended for use or installation by the Contractor.
- 12.11 The Owner reserves the right to reject, for like cause, items or systems not submitted for prior approval, it deems incompatible at no additional cost to the Owner.
- 12.12 As-built drawings shall be provided by the Contractor and Sub-Contractors for work performed.
- 12.13 Demolition, when not specifically directed in the specification or plans, but required for the orderly progression of the project or installation of systems or construction associated with the project, shall be the responsibility of the Contractor or his authorized sub-contractor.

### **PART 13 - AFFIRMATIVE ACTION**

- 13.1 The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes (CGS) and Sections 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies.
- 13.2 All Bidders must complete, sign, and return the Commission on Human Rights and Opportunities (CHRO) Contract Compliance Regulations Notification to Bidders. Failure to include it could lead to removal from the bidding list.
- 13.3 Bidder Contract Compliance Monitoring Report forms are included with the specifications. (Section 002500 – Contractor Compliance Package).

### **PART 14 - ADDENDA AND INTERPRETATIONS**

- 14.1 Bidders shall promptly notify the Architect in writing of any ambiguity, inconsistency, or error which they may discover upon examination of the Bidding Documents or of the site and local conditions.
- 14.2 Interpretation of the meaning of the specifications and other contract documents, existing conditions and scope of the work will be made to bidders written Addenda. Interpretations will not be given after three (3) days prior to the date fixed for the opening of bids. Interpretations and supplemental instructions will be in the form of written addenda, faxed and mailed to each prospective bidder of record at the address furnished by each, no later than four (4) days prior to the date fixed for the opening of bids. Failure of bidders to receive any such addendum shall not relieve him from any obligation under his bid. And addenda so issued shall become part of the contract documents.

### **PART 15 - FORM OF CONTRACT**

- 15.1 The form of contract is AIA Form A201 of agreement between Owner and Contractor, as administered by the Owner.

### **PART 16 - LAWS AND REGULATIONS**

- 16.1 The Bidder's attention is directed to the fact that applicable state, municipal and federal laws, and order, rules and regulations of authorities have jurisdiction over construction work in the locality of the project shall apply to the contract throughout, and they will be deemed to be included in the Contract the same as though written out in full.
  - A. Notwithstanding reference to said laws, order, rules and regulations, the Owner will not assume any responsibilities to provide supervision of construction methods or processes, or protection of persons or property.

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**PART 17 - TAXES, PERMITS, ETC.**

- 17.1 The Owner represents it is exempt from payment of Federal, State, and Local Taxes pursuant to the conditions of this contract, and will supply a tax exemption certificate to the successful bidder.
- 17.2 All other taxes, specifically including Social Security, Unemployment Insurance, and like taxes, shall be included in the amount of the Bid submittal.

**PART 18 - PAYMENT**

- 18.1 AIA Document G 702 “Application and Certificate for Payment”, and G 703 “Continuation Sheet”, shall be used as the form for Application for Payment. Submittals shall be made in triplicate.

**END OF SECTION 002000**

**COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES**  
**CONTRACT COMPLIANCE REGULATIONS**  
**NOTIFICATION TO BIDDERS**

(Revised 09/17/07)

The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes; and, when the awarding agency is the State, Sections 46a-71(d) and 46a-81i(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies, which establish a procedure for awarding all contracts covered by Sections 4a-60 and 46a-71(d) of the Connecticut General Statutes.

According to Section 46a-68j-30(9) of the Contract Compliance Regulations, every agency awarding a contract subject to the contract compliance requirements has an obligation to “aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials.” “Minority business enterprise” is defined in Section 4a-60 of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: “(1) Who are active in daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (a) of Section 32-9n.” “Minority” groups are defined in Section 32-9n of the Connecticut General Statutes as “(1) Black Americans . . . (2) Hispanic Americans . . . (3) persons who have origins in the Iberian Peninsula . . . (4) Women . . . (5) Asian Pacific Americans and Pacific Islanders; (6) American Indians . . .” An individual with a disability is also a minority business enterprise as provided by Section 4a-60g of the Connecticut General Statutes. The above definitions apply to the contract compliance requirements by virtue of Section 46a-68j-21(11) of the Contract Compliance Regulations.

The awarding agency will consider the following factors when reviewing the bidder’s qualifications under the contract compliance requirements:

- (a) the bidder’s success in implementing an affirmative action plan;
- (b) the bidder’s success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the Administrative Regulations of Connecticut State Agencies, inclusive;
- (c) the bidder’s promise to develop and implement a successful affirmative action plan;
- (d) the bidder’s submission of employment statistics contained in the “Employment Information Form”, indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and
- (e) the bidder’s promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 46a-68j-30(10)(E) of the Contract Compliance Regulations.

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**INSTRUCTIONS AND OTHER INFORMATION**

The following BIDDER CONTRACT COMPLIANCE MONITORING REPORT must be completed in full, signed, and submitted with the bid for this contract. The contract awarding agency and the Commission on Human Rights and Opportunities will use the information contained thereon to determine the bidders compliance to Sections 4a-60 and 4a-60a CONN. GEN. STAT., and Sections 46a-68j-23 of the Regulations of Connecticut State Agencies regarding equal employment opportunity, and the bidder’s □□good faith efforts to include minority business enterprises as subcontractors and suppliers for the work of the contract.

1) **Definition of Small Contractor**

Section 4a-60g CONN. GEN. STAT. defines a small contractor as a company that has been doing business under the same management and control and has maintained its principal place of business in Connecticut for a one year period immediately prior to its application for certification under this section, had gross revenues not exceeding ten million dollars in the most recently completed fiscal year, and at least fifty-one percent of the ownership of which is held by a person or persons who are active in the daily affairs of the company, and have the power to direct the management and policies of the company, except that a nonprofit corporation shall be construed to be a small contractor if such nonprofit corporation meets the requirements of subparagraphs (A) and (B) of subdivision 4a-60g CONN. GEN. STAT.

**MANAGEMENT:** Managers plan, organize, direct, and control the major functions of an organization through subordinates who are at the managerial or supervisory level. They make policy decisions and set objectives for the company or departments. They are not usually directly involved in production or providing services. Examples include top executives, public relations managers, managers of operations specialties (such as financial, human resources, or purchasing managers), and construction and engineering managers.

**BUSINESS AND FINANCIAL OPERATIONS:** These occupations include managers and professionals who work with the financial aspects of the business. These occupations include accountants and auditors, purchasing agents, management analysts, labor relations specialists, and budget, credit, and financial analysts.

**MARKETING AND SALES:** Occupations related to the act or process of buying and selling products and/or services such as sales engineer, retail sales workers and sales representatives including wholesale.

**LEGAL OCCUPATIONS:** In-House Counsel who is charged with providing legal advice and services in regards to legal issues that may arise during the course of standard business practices. This category also includes assistive legal occupations such as paralegals, legal assistants.

**COMPUTER SPECIALISTS:** Professionals responsible for the computer operations within a company are grouped in this category. Examples of job titles in this category include computer programmers, software engineers, database administrators, computer scientists, systems analysts, and computer support specialists

**ARCHITECTURE AND ENGINEERING:** Occupations related to architecture, surveying, engineering, and drafting are included in this category. Some of the job titles in this category include electrical and electronic engineers, surveyors, architects, drafters, mechanical engineers, materials engineers, mapping technicians, and civil engineers.

**OFFICE AND ADMINISTRATIVE SUPPORT:** All clerical-type work is included in this category. These jobs involve the preparing, transcribing, and preserving of written communications and records; collecting accounts; gathering and distributing information; operating office machines and electronic data processing equipment; and distributing mail. Job titles listed in this category include telephone operators, bill and account collectors, customer service representatives, dispatchers, secretaries and administrative assistants, computer operators and clerks (such as payroll, shipping, stock, mail and file).

**BUILDING AND GROUNDS CLEANING AND MAINTENANCE:** This category includes occupations involving landscaping, housekeeping, and janitorial services. Job titles found in this category include supervisors of landscaping or housekeeping, janitors, maids, grounds maintenance workers, and pest control workers.

**CONSTRUCTION AND EXTRACTION:** This category includes construction trades and related occupations. Job titles found in this category include boilermakers, masons (all types), carpenters, construction laborers, electricians, plumbers (and related trades), roofers, sheet metal workers, elevator installers, hazardous materials removal workers, paperhangers, and painters. Paving, surfacing, and tamping equipment operators; drywall and ceiling tile installers; and carpet, floor and tile installers and finishers are also included in this category. First line supervisors, foremen, and helpers in these trades are also grouped in this category..

**INSTALLATION, MAINTENANCE AND REPAIR:** Occupations involving the installation, maintenance, and repair of equipment are included in this group. Examples of job titles found here are heating, ac, and refrigeration mechanics and installers; telecommunication line installers and repairers; heavy vehicle and mobile equipment service technicians and mechanics; small engine mechanics; security and fire alarm systems installers; electric/electronic repair, industrial, utility and transportation equipment; millwrights; riggers; and manufactured building and mobile home installers. First line supervisors, foremen, and helpers for these jobs are also included in the category.

**MATERIAL MOVING WORKERS:** The job titles included in this group are Crane and tower operators; dredge, excavating, and lading machine operators; hoist and winch operators; industrial truck and tractor operators; cleaners of vehicles and equipment; laborers and freight, stock, and material movers, hand; machine feeders and offbearers; packers and packagers, hand; pumping station operators; refuse and recyclable material collectors; and miscellaneous material moving workers.

**PRODUCTION WORKERS:** The job titles included in this category are chemical production machine setters, operators and tenders; crushing/grinding workers; cutting workers; inspectors, testers sorters, samplers, weighers; precious stone/metal workers; painting workers; cementing/gluing machine operators and tenders; etchers/engravers; molders, shapers and casters except for metal and plastic; and production workers.

<p><u>White</u> (not of Hispanic Origin)- All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.</p> <p><u>Black</u>(not of Hispanic Origin)- All persons having origins in any of the Black racial groups of Africa.</p> <p><u>Hispanic</u>- All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.</p>	<p><u>Asian or Pacific Islander</u>- All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippine Islands, and Samoa.</p> <p><u>American Indian or Alaskan Native</u>- All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.</p>
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**BIDDER CONTRACT COMPLIANCE MONITORING REPORT**

**PART I - Bidder Information**

Company Name Street Address City & State Chief Executive	Bidder Federal Employer Identification Number _____ Or Social Security Number _____
Major Business Activity (brief description)	Bidder Identification (response optional/definitions on page 1)  -Bidder is a small contractor. Yes__ No__ -Bidder is a minority business enterprise Yes__ No__ (If yes, check ownership category) Black__ Hispanic__ Asian American__ American Indian/Alaskan Native__ Iberian Peninsula__ Individual(s) with a Physical Disability__ Female__
Bidder Parent Company (If any)	- Bidder is certified as above by State of CT Yes__ No__
Other Locations in Ct. (If any)	

**PART II - Bidder Nondiscrimination Policies and Procedures**

1. Does your company have a written Affirmative Action/Equal Employment Opportunity statement posted on company bulletin boards? Yes__ No__	7. Do all of your company contracts and purchase orders contain non-discrimination statements as required by Sections 4a-60 & 4a-60a Conn. Gen. Stat.? Yes__ No__
2. Does your company have the state-mandated sexual harassment prevention in the workplace policy posted on company bulletin boards? Yes__ No__	8. Do you, upon request, provide reasonable accommodation to employees, or applicants for employment, who have physical or mental disability? Yes__ No__
3. Do you notify all recruitment sources in writing of your company's Affirmative Action/Equal Employment Opportunity employment policy? Yes__ No__	9. Does your company have a mandatory retirement age for all employees? Yes__ No__
4. Do your company advertisements contain a written statement that you are an Affirmative Action/Equal Opportunity Employer? Yes__ No__	10. If your company has 50 or more employees, have you provided at least two (2) hours of sexual harassment training to all of your supervisors? Yes__ No__ NA__
5. Do you notify the Ct. State Employment Service of all employment openings with your company? Yes__ No__	11. If your company has apprenticeship programs, do they meet the Affirmative Action/Equal Employment Opportunity requirements of the apprenticeship standards of the Ct. Dept. of Labor? Yes__ No__ NA__
6. Does your company have a collective bargaining agreement with workers? Yes__ No__ 6a. If yes, do the collective bargaining agreements contain non-discrimination clauses covering all workers? Yes__ No__ 6b. Have you notified each union in writing of your commitments under the nondiscrimination requirements of contracts with the state of Ct? Yes__ No__	12. Does your company have a written affirmative action Plan? Yes__ No__ If no, please explain.  13. Is there a person in your company who is responsible for equal employment opportunity? Yes__ No__ If yes, give name and phone number. _____ _____

1. Will the work of this contract include subcontractors or suppliers? Yes\_\_ No\_\_

1a. If yes, please list all subcontractors and suppliers and report if they are a small contractor and/or a minority business enterprise. (defined on page 1 / use additional sheet if necessary)

1b. Will the work of this contract require additional subcontractors or suppliers other than those identified in 1a. above?

Yes\_\_ No\_\_

**PART IV - Bidder Employment Information**

Date:

JOB CATEGORY *	OVERALL TOTALS	WHITE (not of Hispanic origin)		BLACK (not of Hispanic origin)		HISPANIC		ASIAN or PACIFIC ISLANDER		AMERICAN INDIAN or ALASKAN NATIVE	
		Male	Female	Male	Female	Male	Female	Male	Female	male	female
Management											
Business & Financial Ops											
Marketing & Sales											
Legal Occupations											
Computer Specialists											
Architecture/Engineering											
Office & Admin Support											
Bldg/ Grounds Cleaning/Maintenance											
Construction & Extraction											
Installation , Maintenance & Repair											
Material Moving Workers											
Production Occupations											
TOTALS ABOVE											
Total One Year Ago											
FORMAL ON THE JOB TRAINEES (ENTER FIGURES FOR THE SAME CATEGORIES AS ARE SHOWN ABOVE)											
Apprentices											
Trainees											

\*NOTE: JOB CATEGORIES CAN BE CHANGED OR ADDED TO (EX. SALES CAN BE ADDED OR REPLACE A CATEGORY NOT USED IN YOUR COMPANY)

1. Which of the following recruitment sources are used by you? (Check yes or no, and report percent used)				2. Check (X) any of the below listed requirements that you use as a hiring qualification  (X)		3. Describe below any other practices or actions that you take which show that you hire, train, and promote employees without discrimination
SOURCE	YES	NO	% of applicants provided by source			
State Employment Service					Work Experience	
Private Employment Agencies					Ability to Speak or Write English	
Schools and Colleges					Written Tests	
Newspaper Advertisement					High School Diploma	
Walk Ins					College Degree	
Present Employees					Union Membership	
Labor Organizations					Personal Recommendation	
Minority/Community Organizations					Height or Weight	
Others (please identify)					Car Ownership	
					Arrest Record	
					Wage Garnishments	

Certification (Read this form and check your statements on it CAREFULLY before signing). I certify that the statements made by me on this BIDDER CONTRACT COMPLIANCE MONITORING REPORT are complete and true to the best of my knowledge and belief, and are made in good faith. I understand that if I knowingly make any misstatements of facts, I am subject to be declared in non-compliance with Section 4a-60, 4a-60a, and related sections of the CONN. GEN. STAT.

(Signature)	(Title)	(Date Signed)	(Telephone)
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BARNUM MUSEUM: PHASE 1 STABILIZATION  
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**SECTION 002500 – CONTRACTOR COMPLIANCE PACKAGE**

COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES (CHRO) CONTRACT COMPLIANCE  
REGULATIONS NOTIFICATION TO BIDDERS (See following five pages)

(All Bidders Must Complete, Sign and return the Bidder Contract Compliance Monitoring Report as part  
of his or her Bid)

**END OF SECTION 002500**

BARNUM MUSEUM: PHASE I STABILIZATION  
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**SECTION 003000 – BID FORM**

PROJECT: BARNUM MUSEUM: PHASE I STABILIZATION  
820 MAIN STREET  
BRIDGEPORT, CT 06604

BID TO: KATHLEEN MAHER, BARNUM MUSEUM DIRECTOR  
820 MAIN STREET  
BRIDGEPORT, CT 06604  
TELEPHONE: (203) 331-1104

BID FOR: \_\_\_\_\_  
(Bidder's Name)

\_\_\_\_\_  
(Bidder's Address)

\_\_\_\_\_  
(Date)

**INSTRUCTION TO BIDDERS:**

**SEALED BIDS MUST BE SUBMITTED NO LATER THAN 4:00 pm on Wednesday, October 22, 2014.**

Submit Bids upon the forms provided. No oral, faxed, or telephone Bids will be considered; late Bids will be returned to the sender unopened. Bids will be accepted by email; however, it is Bidder's responsibility to ensure that any emailed Bids have been received by the appointed time and date.

Submit three (3) copies of Bids, together with all other documents required, to:

KATHLEEN MAHER, BARNUM MUSEUM DIRECTOR  
820 MAIN STREET  
BRIDGEPORT, CT 06604  
TELEPHONE: (203) 331-1104

Indicate title of the Work and the name of the Bidder on the envelope. Bids will be opened publically and read aloud at the Barnum Museum on **Wednesday, October 22, 2014 at 4:30 pm**. The Owner reserves the right to reject any and all or waive any informality or irregularity in Bids received.

**THE UNDERSIGNED:**

1. Acknowledges Receipt of:
  - A. Project Manual for: "THE BARNUM MUSEUM: PHASE I STABILIZATION, 820 MAIN STREET, BRIDGEPORT, CONNECTICUT" dated August 11, 2014.

BARNUM MUSEUM: PHASE I STABILIZATION  
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- B. Project Drawings: "THE BARNUM MUSEUM: PHASE I STABILIZATION, 820 MAIN STREET, BRIDGEPORT, CONNECTICUT" dated August 11, 2014, Sheets G-001 through S3.1.
  - C. Addenda: No. ; Dated  
Addenda: No. ; Dated
2. Has examined the Site and all Bidding Documents.
3. Agrees:
- A. To hold the Bid open until forty-five (45) calendar days after the Bid Opening.
  - B. To execute a satisfactory Agreement, Performance Bond, Labor and Material Payment Bond (if required), and provide proof of insurance coverage to the Owner for the entire work in accordance with the Contract Documents and General Conditions of the Contract within seven (7) calendar days after notice of award.
4. Bids:

A. **BASE BID**

All labor, materials, services and equipment necessary for completion of the Phase I Stabilization repairs at the Barnum Museum. The Base Bid shall include access to the building's east façade for 100% inspection by the Architect.

\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_ )

B. **BONDS AND CERTIFICATES**

Add the following amount to the base bid for performance and labor and material payment bond. (Note: Performance bond shall be for the full amount of contract and, the surety shall be a surety company satisfactory to the owner):

\_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_ )

5. UNIT PRICES

The unit prices included in the following schedule will be used for adjustments to the scope of work indicated on the drawings.

**UNIT PRICE SCHEDULE**

<b>WORK ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>ADD/DEDUCT UNIT PRICE</b>
A	Rigging/Mobilization	LS	
B	Brick Removal and Replacement (BR 03a)	SF	
D	Brick Removal and Replacement at arched opening (BR 03b)	SF	
E	Liquid applied gutter liner over copper gutter (FL 01)	LF	
F	Brick Repointing (PO 01)	SF	
G	Reattach isolated loose or missing roof tiles with attic stock	EA	
H	New Sealant between terra cotta coping and roof	LF	
I	Plywood protection at exterior of east elevation window, 3 <sup>rd</sup> floor	EA	
J	Removal of HVAC equipment in attic	LS	
K	Structural work at attic Roof	LS	
L	Structural work at attic floor	LS	
M	Structural repairs at interior east elevation	LS	
N	Structural repairs at third floor	LS	

6. Agrees to the Following

- A. To work at least five (5) full working days per week, when weather permits.
- B. To work at times approved by Owner, Monday through Friday, except legal holidays as approved by the Owner.

7. Time of Commencement and Completion:

Time of completion of this project is of extreme importance to the Owner and will be considered in the award of a contract. If awarded this Contract, the Bidder agrees to commence the Work within fourteen (14) calendar days after receiving notice to proceed. Furthermore, the Bidder agrees to be substantially complete with the Work within 120 calendar days after the contract date, subject to authorized adjustments. Failure to substantially complete the project in the number of calendar days indicated, plus any adjustments authorized by the Owner, in writing, will be considered a substantial violation of the Contract.

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In submitting this Bid, it is understood that the right is reserved by the Owner to reject any and all bids, and it is agreed that this Bid may not be withdrawn for a period of forty-five (45) calendar days from the opening thereof.

Respectfully submitted,

Firm Name:

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Address:

---

Signature:

---

Name:

---

Title:

---

Telephone:

---

Fax:

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CORPORATE SEAL

**END OF SECTION 003000**

BARNUM MUSEUM: PHASE 1 STABILIZATION  
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**SECTION 004000 - CONTRACT FORM**

**PART 1 – GENERAL**

**1.1 AGREEMENT**

- A. AIA Document A201-2007 General Conditions of the Contract for Construction.

**PART 2 – NOT USED**

**PART 3 – NOT USED**

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## **SECTION 006000 – LIST OF DRAWINGS**

### ARCHITECTURAL

	TITLE PAGE
G-001	DRAWING LIST AND ABBREVIATIONS
DM-101	THIRD FLOOR & ATTIC DEMOLITION PLANS, RCP AND PARTIAL INT. ELEV
A-101	THIRD FLOOR, ATTIC AND ROOF CONSTRUCTION PLANS
A-201	ELEVATIONS
A-501	EXTERIOR DETAILS
A-502	EXTERIOR DETAILS

### STRUCTURAL

S1.1	PARTIAL ATTIC FRAMING PLAN
S1.2	PARTIAL ROOF FRAMING PLAN
S2.1	SECTIONS AND DETAILS
S3.1	SECTIONS AND DETAILS

**END OF SECTION 006000**

**SECTION 009000 - COMPETENCY OF BIDDER CLAUSE: GENERAL CONTRACTOR**

**PART 1 - GENERAL**

**1.1 DESCRIPTION OF REQUIREMENTS**

- A. The type of requirement specified in this section relates to the determination by Owner of the competency of the Bidder to perform this contract.
- B. The Bidder will be deemed competent and technically qualified when the bidder provides the information requested on the Technical Qualifications Data Forms included in this section in sufficient form and quantity so a determination can be made that the bidder has fulfilled the minimum requirements as stated in the forms.
- C. This information shall be provided to the Owner within seven days of his/her request.
- D. Failure on the part of the Bidder to provide thoroughly completed Technical Qualifications Data Forms and the necessary photographic documentation requested herein will result in the Bidder being found non-responsible and may be grounds for rejection of the bid.

**1.2 INSTRUCTIONS FOR COMPLETING THE TECHNICAL QUALIFICATIONS DATA FORMS A-C.**

- A. The Bidder is to complete all information requested on the forms. For those areas where the bidder or contractor must meet a minimum requirement in order to be considered technically qualified and competent, provide sufficient detail to substantiate your qualifications. It is important to follow the format provided.
- B. Specific guidelines for each form follow:

Remember: Provide original signature and Notary's seal on Form C.

**FORM A: BIDDER'S BACKGROUND**

- 1. Fill out firm name, address, telephone number, date, authorized official, title and corresponding telephone number. Authorized official must have authority to negotiate and contractually bind your company.
- 2. Provide information regarding your plant/facilities and equipment.
- 3. Describe your firm's project management skills. Minimum requirement: The Contractor's Project manager must be assigned to this project on a full-time basis, (or indicate % of time available/required). He or she must be empowered to make day-to-day decisions concerning the contract so that the work will be completed within the stipulated time. The Project Manager shall be reasonably available to the Owner during normal working hours to provide, or arrange for the provision of, any requirements under the contract. A resume of the Contractor's Project Manager shall be provided. It should contain, but is not limited to, the following:

- a. Full name and title.
  - b. Office address and telephone number.
  - c. Previous and current work experience covering the last three years, including titles, duties, dates and employing organizations. A longer period of time may be included if the Contractor feels this is relevant.
  - d. Emergency after hours telephone number and responsible person.
4. The Contractor's quality control plan should discuss in detail the methodology which will be employed by him to monitor performance of the on-site work and shop work. For example, the plan should address at minimum:
- a. Systems for determining periodic inspections.
  - b. Quality control records for inspections, tests, corrective action.
  - c. Control of changes to the specification.

#### FORM B: EXAMPLES OF BIDDER'S COMPLETED PROJECTS

See Form B for project-specific requirements.

1. Minimum Requirements: Provide complete information for all projects. Projects must meet the required time frames stated on Form B. Projects must have included restoration of historic properties of the size and complexity of the proposed project. Project descriptions must show successful experience involving copper sheet roofing as stated on Form B. Describe the nature of this work and indicate how your special skills were relevant to each project in sufficient detail to allow a determination to be made that the selected project is within the same scope of work as the proposed project.
2. Fill out project name, completed date, and location. Give a thorough description of the work performed, explaining the materials and methods used to perform the work in sufficient detail for Owner to determine that the project is similar in complexity to the proposed project. Provide color photographs of each project listed as examples of the General Contractor's work. Use good judgment regarding proper distances to demonstrate the required skills/craftsmanship. Provide numbered labels, applied to the back of each photograph. Provide the name of the project, the work's completion date, and a thorough description of the work shown in the photo. Mark the surface of the photo to show the precise location and extent of your work. Coordinate the written data with the photographs. Use corresponding numbers for citations in the project description and the photograph label numbers.
3. Fill out the Client's name for each project represented, including address, contact person for the client, his/her title, telephone number and address. Minimum requirement: Client's contact person must provide a satisfactory rating as to quality, schedule and price for each project.

#### FORM C: CERTIFICATION OF BIDDER'S QUALIFICATIONS

1. Provide all of the information and the original signature. Notarize the signature.  
Minimum Requirement: This form must be completed in its entirety.

**1.3 METHOD OF EVALUATION OF TECHNICAL QUALIFICATIONS DATA FORMS**

- A. Purpose: To determine that the low bidder is technically qualified to perform work which will best serve the interests of the Barnum Museum, Bridgeport, CT.
- B. An evaluation panel, including design professionals, will be convened after bid opening to review all technical data requested of the bidders.
  - 1. The bid will be considered only if that firm is found to be technically qualified.

FORM A: BIDDER'S BACKGROUND (Page 1 of 2)

TECHNICAL QUALIFICATION DATA

1. FIRM NAME: \_\_\_\_\_  
FIRM ADDRESS: \_\_\_\_\_  
FIRM TELEPHONE NUMBER: \_\_\_\_\_  
AUTHORIZED OFFICIAL: \_\_\_\_\_  
(Note: Authorized official must have authority to negotiate and contractually bind the company)  
TELEPHONE NUMBER: \_\_\_\_\_
2. Provide a short narrative describing the firm's location and facilities.  
Minimum requirement: Must have scaffolding or capability to provide it as well as a scaffolding plan that meets OSHA requirements to perform this contract. Cite proposed source for scaffolding plan.
3. Describe your firm's project management skills that are relevant to this project.  
Minimum requirement: Must have at least one individual assigned to the proposed project who has had five years of project management experience on renovation/restoration projects on Historic Landmark Buildings. Provide his/her name with a list of three projects for which he/she performed the project management. For each project provide the project name, address, date, and the name and telephone number of the Client contact most familiar with your project manager's performance on the project.

FORM A: BIDDER'S BACKGROUND (page 2 of 2)

4. Describe in your own words how you will proceed through the contract requirements to complete the project.  
Minimum requirement: Must have a plan that addresses the project schedule. In addition, the proposed procedures must be able to be accomplished without damaging surrounding materials.

<b>FORM A REVIEW (DO NOT WRITE IN THIS SPACE)</b>		
Bldg. _____	Project _____	Review No. _____
Facilities: <input type="checkbox"/> Adequate <input type="checkbox"/> Not adequate Submit: _____		
Project Mgmt: <input type="checkbox"/> Adequate <input type="checkbox"/> Not adequate Submit: _____		
Proposed Approach: <input type="checkbox"/> Accepted <input type="checkbox"/> Not accepted because _____		

BARNUM MUSEUM: PHASE 1 STABILIZATION  
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FORM B: EXAMPLES OF BIDDER'S COMPLETED PROJECTS (Page 1 of 2)  
TECHNICAL QUALIFICATIONS DATA

DUPLICATE ALL PAGES OF THIS BLANK FORM B. SUBMIT A SEPARATE FORM B FOR EACH COMPLETED PROJECT.

Minimum requirements:

1. Select 3 projects that your firm has completed commendably in past 6 years, which have included restoration/rehabilitation of historic properties of the size and complexity of the proposed project.
2. Complete each area of this form in sufficient detail to allow a determination that the projects submitted are comparable in size and complexity to the proposed project.
3. The Client's contact person must provide a satisfactory rating with regard to quality, schedule and cost of project.

FIRM NAME: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

PROJECT ADDRESS: \_\_\_\_\_

DATE COMPLETED: \_\_\_\_\_

WHAT RESTORATION/REHABILITATION ISSUES WERE INVOLVED WITH THIS PROJECT?

EXPLAIN:

DESCRIPTION OF MATERIALS AND METHODS USED TO PERFORM THE RESTORATION/REHABILITATION WORK:

FORM B: EXAMPLES OF BIDDER'S COMPLETED PROJECTS (Page 2 of 2)

DESCRIPTION OF PHOTO VIEW #1 \_\_\_\_\_  
\_\_\_\_\_

DESCRIPTION OF PHOTO VIEW #2: \_\_\_\_\_  
\_\_\_\_\_

DESCRIPTION OF PHOTO VIEW #3: \_\_\_\_\_  
\_\_\_\_\_

DESCRIPTION OF PHOTO VIEW #4: \_\_\_\_\_  
\_\_\_\_\_

CLIENT NAME: \_\_\_\_\_

CLIENT ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

CONTACT PERSON and TITLE: \_\_\_\_\_

TELEPHONE NUMBER: \_\_\_\_\_

**FORM B REVIEW (DO NOT WRITE IN THIS SPACE)**

Bldg. \_\_\_\_\_ Project Review \_\_\_\_\_ No \_\_\_\_\_

Project: \_\_\_\_\_ Accepted \_\_\_\_\_ Not accepted Completion date met? \_\_\_\_\_ Yes \_\_\_\_\_ No

Comparable work? \_\_\_\_\_ Yes \_\_\_\_\_ No, because \_\_\_\_\_

Successful? \_\_\_\_\_ Yes \_\_\_\_\_ No, because \_\_\_\_\_

Photos provided? \_\_\_\_\_ Yes \_\_\_\_\_ No Illustrative? \_\_\_\_\_ Yes \_\_\_\_\_ No

Submit \_\_\_\_\_

FORM C: CERTIFICATION OF BIDDER'S QUALIFICATIONS  
TECHNICAL QUALIFICATIONS DATA

Minimum Requirement: This form must be completed in its entirety. Original signatures and notary's seal must be provided.

I hereby certify that this firm has performed the work acknowledged on all the Forms B included herewith for the following projects:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

I hereby certify that the contractors who would perform work on this contract are the same as listed herein. I further certify that only the restoration contractors and their respective staffs (as indicated on the Technical Qualifications Data Forms) will perform the restoration work required by this contract.

\_\_\_\_\_  
BIDDER/FIRM

\_\_\_\_\_  
SIGNATURE OF AUTHORIZED OFFICIAL FOR BIDDER DATE

\_\_\_\_\_  
NOTARY'S SIGNATURE DATE

SEAL \_\_\_\_\_

SUMMARY EVALUATION (DO NOT WRITE IN THIS SPACE)			
Bldg.	Project	Contract	
SUBMISSION NO.	COMPLETE:	Yes, Bidder Accepted Date	
RESUBMIT:	Bidder Forms		
FORM A: Firm info complete?	Yes	No	Submit
FORM B: Project info complete?	Project 1	Project 2	Project 3
Photos OK?	Project 1	Project 2	Project 3
FORM C: Original signatures?	Yes	No	Notary's seal? Yes No
Other information required:			

## SECTION 010100 – SUMMARY AND SPECIFIC REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Work covered by the Contract Documents.
  - 2. Type of the Contract.
  - 3. Work phases.
  - 4. Work under other contracts.
  - 5. Use of premises.
  - 6. Owner's occupancy requirements.
  - 7. Work restrictions.
  - 8. Specification formats and conventions.
  - 9. State of Connecticut DEC Project Sign Requirements.

#### 1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Interior Renovations include, but are not limited to the following:
  - a. Demolition of portions of existing ceiling, floor and wall assemblies as indicated on Demolition Drawings.
  - b. New structural elements, plywood protection at existing window at east wall, miscellaneous replacement of terra cotta tile at roof with attic stock, and masonry repointing at east and north wall as indicated on the Drawings,
- B. Project Location: The Barnum Museum, 820 Main Street, Bridgeport CT.
- C. Architect: Contract Documents have been prepared by Swanke Hayden Connell, Architects, and within the construction regulations of the Building Code of the City of New York, its Life Safety/Egress requirements and those of the National Fire Prevention Association NFPA A-101.

#### 1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.

#### 1.5 WORK PHASES

- A. The Work shall be conducted in a single continuous phase.

1.6 WORK UNDER OTHER CONTRACTS

1. There is no Work under other Contracts.

1.7 USE OF PREMISES

- A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.
- B. Use of Site: Limit use of premises to work in areas indicated. The adjacent areas will remain operational during the entire construction period. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  1. Limits: Confine constructions operations to the Contract Limit Lines.
  2. Owner Occupancy: Allow for Owner occupancy of adjacent areas and use by the public.
  3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances.
    - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Use of Existing Building: Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.8 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will occupy the adjacent areas during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with building's operations. Maintain existing exits unless otherwise indicated.
  1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
  2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
  1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
  2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.

3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

#### 1.9 WORK RESTRICTIONS

- A. On-Site Work Hours: 8:30 am to 5:00 pm.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  1. Notify Owner not less than two days in advance of proposed utility interruptions.
  2. Do not proceed with utility interruptions without Owner's written permission.
- C. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor air intakes.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
  1. Notify Owner not less than two days in advance of proposed disruptive operations.
  2. Obtain Owner's written permission before proceeding with disruptive operations.

#### 1.10 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "MasterFormat" numbering system.
  1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
  2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words

shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
  - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

#### 1.11 UTILITIES AND TEMPORARY FACILITIES

- A. The Museum will not supply electricity or water to the Contractor for use on this Project. The supply and maintenance of all supplemental electrical service, including associated fees, is the responsibility of the Contractor
- B. Field Office:
  1. There shall be no designated field office at the work site. In the event that a space, equipped with a plan table, is required to review drawings, the Owner shall coordinate a time and place within the building. The Contractor shall request the use of such space at a minimum of 72 hours notice. Granting of the use of such space is subject to availability.
  2. The Contractor's key personnel shall be accessible via mobile telephone throughout the duration of the Project. The Contractor shall provide the Owner and Architect the mobile telephone numbers of all key personnel working on the Project.
    - a) Telephone service shall continue for a period of ninety (90) days following substantial completion.
- C. Staging Area and Storage:
  1. Limited storage shall be provide by the Owner and is subject to availability.
- D. Temporary Toilet Facilities:
  1. The Contractor shall provide temporary toilet facilities in the Owner-designated staging area. The Contractor shall not be permitted to use the Museum's toilets.

#### 1.12 STATE OF CONNECTICUT DEC PROJECT SIGN

- A. The Contractor is required to install and maintain a project sign complying with guidelines set forth by and as approved by the State of Connecticut Department of Economic Development (DECD).
  1. The Contractor awarded the project shall be provided with the DECD logo and State Sign Template.

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2. The minimum overall project sign shall be no less than 2-feet high and 4-feet wide.
3. Project signs must be prominently displayed throughout the duration of the project in a location which is clearly visible from the principle street adjacent to the project site.
  - a) Do not attach the sign to the building.

PART 2 - PRODUCTS (Not Used)

PART 3 - PRODUCTS (Not Used)

PART 4 - EXECUTION (Not Used)

END OF SECTION

## SECTION 010450 - CUTTING AND PATCHING

### PART 1 – GENERAL

#### 1.1 RELATED DOCUMENTS

- A. This project consists of all labor, equipment, materials and services required to perform the exterior repairs at the Barnum Museum, Bridgeport, CT as indicated on the Drawings and specified herein.

#### 1.2 SUMMARY

- A. Definition: “Cutting and Patching” includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition.
1. Cutting and patching is performed for coordination of the work, to uncover work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes
  2. Cutting and patching performed during the manufacture of products, or during the initial fabrication, erection or installation processes is not considered to be “cutting and patching” under this definition. Drilling of holes to install fasteners and similar operations are also not considered to be “cutting and patching.”
  3. “Demolition” and “Selective Demolition” are recognized as related but separate categories of work, which may or may not require cutting and patching as defined in this section.
- A. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work
- C. Related Sections include the following:
1. Section 013300 – Submittal Procedures.
  2. Section 024119 – Selective Demolition.

#### 1.3 DESCRIPTION

- A. In addition to Contract requirements, upon written instructions of Architect.
1. Uncover work to provide for Architect’s observation of covered work.
  2. Remove samples of installed materials for testing.
- B. Do not endanger any work by cutting or altering work or any part of it.
- C. Do not cut or alter work of another contractor without written consent of Architect.
- D. If materials suspected of containing asbestos are uncovered during cutting or removal of existing construction, notify the Owner in writing. An Industrial Hygenist on behalf of the Owner will be responsible to determine the extent of the affected area, and arrange for it to be sealed off until investigation, and asbestos removal if necessary, has been completed in compliance with EPA requirements. Work in other areas, determined by

the Industrial Hygenist to be asbestos-free, shall continue while this is being done. Investigation and abatement of asbestos will be done under a separate contract by the Owner, and is not included in work of this contract.

#### 1.4 SUBMITTALS

- B. Cutting and Patching Proposal: Where acceptance of procedures for cutting and patching is required before proceeding, submit a proposal describing procedures well in advance of the time cutting and patching will be performed and request permission to proceed. Include the following information, as applicable, in the proposal:
1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
  2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
  3. List products to be used and firms or entities that will perform work.
  4. Indicate dates when cutting and patching is to be performed.
  5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service.
  6. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations to show how reinforcement is integrated with the original structure.
  7. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement or a part of the work found to be unsatisfactory.
- C. Prior to start of work provide a Protection Plan that describes the protection of existing construction, during cutting and patching to prevent damage. Describe the materials and methods that will be used for protection. In particular, the Protection plan should address the protection of adjacent existing material to remain, including but not limited to the following:
1. Protection from adverse weather conditions for portions of the project that might be exposed during cutting and patching operations.
  2. This Protection Plan must be presented prior to the beginning of work and must be reviewed and approved before Contractor begins work.

#### 1.5 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity.
1. Obtain acceptance by the Architect and Engineer of the cutting and patching proposal before cutting and patching structural elements.
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety-related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety-related systems:

- a. Shoring, bracing, and sheeting.
  - b. Primary operational systems and equipment.
  - c. Air or smoke barriers.
  - d. Water, moisture, or vapor barriers.
  - e. Fire protection systems.
  - f. Noise and vibration control elements and systems.
  - g. Control systems.
  - h. Communication systems.
  - i. Conveying systems.
  - j. Electrical wiring systems.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace work cut and patched in a visually unsatisfactory manner.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

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

## PART 3 - EXECUTION

### 3.1 INSPECTION

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.
- 1. Before proceeding, meet at the site with parties involved in cutting and patching. Coordinate procedures and resolve potential conflicts before proceeding.

### 3.2 PREPARATION PRIOR TO CUTTING

- A. Temporary Support: Provide temporary support of work to be cut.
- B. Protection: Protect existing construction, during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the project that might be exposed during cutting and patching operations.

### 3.3 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible, review proposed procedures with the original installer; comply with the original installer's recommendations.
1. In general, where cutting is required, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
  3. Cut through concrete and masonry using a cutting machine, such as a carborundum saw or diamond core drill.
  4. Bypass utility services, such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
  2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

### 3.4 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely mortar, putty and items of similar nature.

END OF SECTION 010450

## SECTION 010900 - DEFINITIONS AND STANDARDS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. This project consists of all labor, equipment, materials and services required to perform the exterior repairs at the Barnum Museum, Bridgeport, CT as indicated on the Drawings and specified herein.

#### 1.2 WORK INCLUDED

- A. This section generally includes, but is not necessarily limited to, definitions and standards and their application and use.

#### 1.3 DEFINITIONS

- A. General: Basic Contract definitions are included in the General Conditions.
- B. Indicated refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.
- C. Directed: Terms such as "directed", "requested", "authorized", "selected", "accepted", "required", and "permitted" mean "directed by the Architect", "requested by the Architect", and similar phrases. However, no implied meaning shall be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.
- D. Approve: The term "accepted," where used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the duties and responsibilities of the Architect as stated in General and Supplementary Conditions. Such approval shall not release the Contractor from responsibility to fulfill Contract requirements unless otherwise provided in the Contract Documents.
- E. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.
- F. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
- G. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."

- H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."
- I. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
  - 1. The term "experienced," when used with the term "Installer" means having a minimum of 5 previous Projects similar in size and scope to this Project, being familiar with the precautions required, and having complied with requirements of the authority having jurisdiction.
- J. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other construction activities as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.
- K. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.
- L. Basis of Design Criteria: Products selected as the "basis of design" are listed as a standard of performance, design, overall quality, and generic type. Equal products may be submitted for approval provided they meet or exceed all performance criteria of the product selected, are submitted in accordance with Division 1 requirements, and conform to the design concept as judged by the Architect.

#### 1.4 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute and MASTERFORMAT numbering system.
- B. Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
  - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the full context of the Contract Documents so indicates.

2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
  - a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.
- C. Assignment of Specialists: The Specification requires that certain specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.
  1. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.
  2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

## 1.5 DRAWING SYMBOLS

- A. Graphic symbols: Where not otherwise noted, symbols are defined by "Architectural Graphic Standards," published by John Wiley & Sons, Inc., eighth edition.
- B. Mechanical/Electrical Drawings: Graphic symbols used on mechanical and electrical Drawings are generally aligned with symbols recommended by ASHRAE. Where appropriate, they are supplemented by more specific symbols recommended by technical associations including ASME, ASPE, IEEE, and similar organizations. Refer instances of uncertainty to the Architect for clarification before proceeding.

## 1.6 INDUSTRY STANDARDS

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference. Individual Sections indicate which codes and standards the Contractor must keep available at the Project Site for reference.
- B. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.
- C. Updated Standards: At the request of the Architect, Contractor, or authority having jurisdiction, submit a Change Order proposal where an applicable code or standard has

been revised and reissued after the date of the Contract Documents and before performance of Work affected. The Architect will decide whether to issue a Change Order to proceed with the updated standard.

- D. **Conflicting Requirements:** Where compliance with two or more standards is specified, and they establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced, unless the Contract Documents indicate otherwise. Refer requirements that are different, but apparently equal, and uncertainties as to which quality level is more stringent to the Architect for a decision before proceeding.
- E. **Minimum Quantity or Quality Levels:** In every instance the quantity or quality level shown or specified shall be the minimum to be provided or performed. The actual installation may comply exactly, within specified tolerances, with the minimum quantity or quality specified, or it may exceed that minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum values, as noted, or appropriate for the context of the requirements. Refer instances of uncertainty to the Architect for a decision before proceeding.
- F. **Conflicting Product Information:** Where catalogue "cuts" are included or appended to the Specification and contain requirements which conflict with specified requirements, the specified requirements shall govern.
- G. **Copies of Standards:** Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
  2. Although copies of standards needed for enforcement of requirements also may, be included as part of required submittals, the Architect reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.
- H. **Abbreviations and Names:** Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.
- I. **Federal Government Agencies:** Names and titles of federal government standard or Specification producing agencies are frequently abbreviated. The following acronyms or abbreviations referenced in the Contract Documents indicate names of standard or Specification producing agencies of the federal government. Names and addresses are subject to change but are believed to be, but are not assured to be, accurate and up to date as of the date of the Contract Documents.

CPSC Consumer Product Safety Commission  
5401 Westbard Ave.  
Bethesda, MD 20816 (800) 638-2772

OSHA Occupational Safety and Health Administration  
(U.S. Department of Labor)  
Government Printing Office  
Washington, DC 20402 (202) 523-6091

#### 1.7 GOVERNING REGULATIONS/AUTHORITIES

- A. The Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for the preparation of Contract Documents; that information may or may not be of significance to the Contractor. Contact The West Virginia Department of Health and the Department of Buildings directly for information and decisions having a bearing on the Work.
- B. Copies of Regulations: Obtain copies of the following regulations and retain at the Project Site, available for reference by parties who have a reasonable need for such reference:
  - 1. Applicable Building Codes and Reference Standards.

#### 1.8 SUBMITTALS

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

PART 2 - PRODUCTS (Not Applicable.)

PART 3 - EXECUTION (Not Applicable.)

**END OF SECTION 010900**

## SECTION 011700 – RESTORATION PROJECT PROCEDURES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes, but is not limited to, the following:
  - 1. Definitions.
  - 2. Historic Significance.
  - 3. Restoration procedures.
  - 4. Historic artifacts.
  - 5. Salvaged materials.

#### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions and Division 1 Specifications Sections, apply to this Section, except as modified herein.

#### 1.3 DEFINITIONS

- A. Match Existing: Provide new materials to match existing, in place material in all aspects such as type, appearance, color and texture as closely as possible.
- B. Match Original: Provide new materials to match the original material in all aspects such as type, appearance, color and texture as closely as possible. Original materials are those which were originally installed in the building at the time of its completion, prior to previous alterations, and which may predate existing materials.
- C. Preservation: The process of applying measures to sustain the existing form, integrity and material of the building and the site.
- D. Repair: The act of restoring the operation, function or appearance of an element or assembly through the reversal or correction of damage and /or replacement of damaged, missing or non-working components in part or entirety.
- E. Rehabilitation: The process of returning a building or structure to a useful state through repairs or alterations, which make possible an efficient contemporary use while preserving those portions and features which are significant to its historic and cultural values.
- F. Restoration: The process of accurately recovering the form and details of a property as it appeared originally or at a time of historic significance.

#### 1.4 HISTORIC SIGNIFICANCE

- A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference. Individual Sections indicate which codes and standards the Contractor must keep available at the Project Site for reference.
- B. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.

## 1.5 RESTORATION PROCEDURES

- A. General:
  - 1. Existing materials, finishes, profiles, details, etc. are to be protected and restored in accordance with material specifications included in the Contract Documents.
  - 2. Blend new and existing work to provide smooth transitions and uniform appearance.
  - 3. Cease work, notify the Architect, and await instructions if materials or conditions encountered at the site are not as indicated by the Contract Documents or if the structure is in danger of movement or collapse.
  - 4. Restoration Programs: Where indicated in the Contract Documents, the Contractor shall submit for approval written restoration programs for all phases of restoration work. Such programs shall comprehensively address all issues concerning schedules of work, materials, methods, procedures, protection and equipment to be used in each phase of restoration work. The preparations and submission of restoration programs shall be incorporated in the schedule of the project
- B. Salvaged Materials:
  - 1. Where removal is required for installation of architectural work, at the Architect's option, materials to be removed are to be tagged for identification and salvaged for reinstallation, in lieu of replacement in kind.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. New Materials:
  - 1. Provide new materials to match existing adjacent materials or original materials for closing of openings, repairs and reconstructions where suitable salvaged materials do not exist, are insufficient in quantity, or where reuse is not permitted.
  - 2. Retain samples of existing and original materials on site for comparison purposes.
  - 3. Match existing materials in type, size, quality, color, finish, and other attributes.
  - 4. Reused Materials: Clean and prepared salvaged materials for reuse.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Cut, move or remove items to provide access for alterations and restoration work. Re-install or replicate upon completion of work requiring cutting of selective removals
- B. Protect existing materials and surfaces from damage by construction operations.
- C. Where specific materials are to be cleaned, protect adjoining finishes to prevent damage from cleaning materials, tools and equipment and operations.

#### 3.2 ALTERATIONS

- A. Coordinate alterations and renovations to expedite completion.
- B. Minimize damage to existing materials and surfaces; provide means for restoring products and finishes to their original or specified new condition.
- C. Remove debris and abandoned items from area of work and from concealed spaces.
- D. Refinish visible surfaces to specified condition, with neat transition to adjacent surfaces.
- E. Install products and finish surfaces as specified in individual section, or where no specification section exists, to match existing.
- F. Finish patches to provide uniform color and texture over entire surface, with repairs not discernable. If finish cannot be matched, refinish entire surface to nearest intersections
  - 1. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing

END OF SECTION 01170

## SECTION 012000 - PROJECT MEETINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. This project consists of all labor, equipment, materials and services required to perform the exterior repairs at the Barnum Museum, Bridgeport, CT as indicated on the Drawings and specified herein.

#### 1.2 WORK INCLUDED

- A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:
  - 1. Preconstruction conferences.
  - 2. Preinstallation conferences.
  - 3. Progress meetings.
  - 4. Coordination meetings.

#### 1.3 RELATED SECTIONS

- A. Section 010100 - Summary of Work.
- B. Section 013300 – Submittal Procedures.

#### 1.4 PRECONSTRUCTION CONFERENCE

- A. Schedule a preconstruction conference before starting construction, at a time convenient to the Owner and the Architect, but no later than 15 days after execution of the Agreement. Hold the conference at the Project Site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: Authorized representatives of the Owner, Architect, and their consultants; the Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress, including the following:
  - 1. Maintenance of life safety requirements.
  - 2. Notification of building occupants of future work.
  - 3. Tentative construction schedule.
  - 4. Critical work sequencing.
  - 5. Designation of responsible personnel.
  - 6. Procedures for processing field decisions and Change Orders.
  - 7. Procedures for processing Applications for Payment.

8. Distribution of Contract Documents.
9. Submittal of Shop Drawings, Product Data, and Samples.
10. Preparation of record documents.
11. Use of the premises.
12. Parking availability.
13. Office, work, and storage areas.
14. Equipment deliveries and priorities.
15. Safety procedures.
16. First aid.
17. Security.
18. Housekeeping.
19. Working hours.

#### 1.5 PREINSTALLATION CONFERENCES

- A. Conduct a preinstallation conference at the Project Site before each construction activity that requires coordination with other construction.
- B. Attendees: The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect of scheduled meeting dates.
  1. Review the progress of other construction activities and preparations for the particular activity under consideration at each preinstallation conference, including requirements for the following:
    - a. Maintenance of life safety requirements.
    - b. Contract Documents.
    - c. Options.
    - d. Related Change Orders.
    - e. Purchases.
    - f. Deliveries.
    - g. Shop Drawings, Product Data, and quality control samples.
    - h. Review of mockups.
    - i. Possible conflicts.
    - j. Compatibility problems.
    - k. Time schedules.
    - l. Weather limitations.
    - m. Manufacturer's recommendations.
    - n. Warranty requirements.
    - o. Compatibility of materials.
    - p. Acceptability of substrates.
    - q. Temporary facilities.
    - r. Space and access limitations.
    - s. Governing regulations.
    - t. Safety.
    - u. Inspecting and testing requirements.

- v. Required performance results.
  - w. Recording requirements.
  - x. Protection.
- 2. Record significant discussions and agreements and disagreements of each conference, and the approved schedule. Promptly distribute the record of the meeting to everyone concerned, including the Owner and the Architect.
  - 3. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

## 1.6 PROGRESS MEETINGS

- A. Conduct progress meetings at the Project Site at regular intervals. Notify the Owner and the Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner and the Architect, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. Participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.
  - 1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.
  - 2. Review the present and future needs of each entity present, including the following:
    - a. Interface requirements.
    - b. Time.
    - c. Sequences.
    - d. Status of submittals.
    - e. Deliveries.
    - f. Off-site fabrication problems.
    - g. Access.
    - h. Site utilization.
    - i. Temporary facilities and services.
    - j. Hours of work.
    - k. Hazards and risks.
    - l. Housekeeping.

- m. Quality and work standards.
  - n. Change Orders.
  - o. Documentation of information for payment requests.
- D. Reporting: No later than 3 days after each meeting, distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
  - 1. Schedule Updating: Revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

#### 1.7 COORDINATION MEETINGS

- A. Conduct project coordination meetings at regular intervals convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special preinstallation meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
- C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Applicable.)

PART 3 - EXECUTION (Not Applicable.)

END OF SECTION 012000

## SECTION 012300 - ALTERNATES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. This Section includes administrative and procedural requirements governing Alternates.

#### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specifications Sections, apply to this Section, except as modified herein.

#### 1.3 DEFINITIONS

- A. Definition: An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

- 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.

#### 1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the Project.

- 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

- B. Notification: Immediately following the award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

- C. Execute accepted alternates under the same conditions as other Work of this Contract.

- D. Costs: Costs listed for each alternate include costs of related coordination, modification or adjustment.

- E. Schedule: A "Schedule of Alternates" is included in Part 3 of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each alternate.

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PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 012300

## SECTION 013300 – SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specifications Sections, apply to this Section, except as modified herein.

#### 1.2 WORK INCLUDED

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:

1. Contractor's construction schedule.
2. Submittal schedule.
3. Coordination Drawings.
4. Shop Drawings.
5. Product Data.
6. Samples.
7. Quality assurance submittals.

- B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:

1. Permits.
2. Applications for Payment.
3. Insurance certificates.
4. List of subcontractors.

#### 1.3 RELATED SECTIONS

- A. Section 012500 – Substitution Procedures.
- B. Divisions 2-11 - Architectural.
- C. Divisions 21-33 – MEP/FP and Site

#### 1.4 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
- B. Preparation of Coordination Drawings is specified in Division 1 Section "Coordination" and

may include components previously shown in detail on Shop Drawings or Product Data.

- C. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.
- D. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

## 1.5 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  - 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
  - 3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
    - a. Allow 2 weeks for initial review. Allow additional time if the Architect must delay processing to permit coordination with subsequent submittals.
    - b. If an intermediate submittal is necessary, process the same as the initial submittal.
    - c. Allow 2 weeks for reprocessing each submittal.
    - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
  - 1. Provide a space approximately 4 by 5 inches on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
  - 2. Include the following information on the label for processing and recording action taken.

- a. Project name.
  - b. Date.
  - c. Name and address of the Architect.
  - d. Name and address of the Contractor.
  - e. Name and address of the subcontractor.
  - f. Name and address of the supplier.
  - g. Name of the manufacturer.
  - h. Number and title of appropriate Specification Section.
  - i. Drawing number and detail references, as appropriate.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect using a transmittal form. The Architect will not accept submittals received from sources other than the Contractor.
1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
  2. Transmittal Form: Use AIA Document G810.

#### 1.6 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type, Contractor's construction schedule. Submit within 30 days after the date established for "Commencement of the Work."
1. Provide a separate time bar for each significant construction activity with weekly divisions indicated.
  2. Within each time bar, indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
  3. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
  4. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
  5. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
- B. Phasing: On the schedule, show how requirements for phased completion to permit Work by separate Contractors and partial occupancy by the Owner affect the sequence of Work.
- C. Work Stages: Indicate important stages of construction for each major portion of the Work, including submittal review, testing, and installation.

- D. Area Separations: Provide a separate time bar to identify each major construction area for each major portion of the Work. Indicate where each element in an area must be sequenced or integrated with other activities.
- E. Cost Correlation: At the head of the schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of Work performed as of the dates used for preparation of payment requests.
- F. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
  - 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- G. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

#### 1.7 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's Construction Schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for submittal of the Contractor's Construction Schedule.
  - 1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products as well as the Contractor's Construction Schedule.
  - 2. Prepare the schedule in chronological order. Provide the following information:
    - a. Scheduled date for the first submittal.
    - b. Related Section number.
    - c. Submittal category (Shop Drawings, Product Data, or Samples).
    - d. Name of the subcontractor.
    - e. Description of the part of the Work covered.
    - f. Scheduled date for resubmittal.
    - g. Scheduled date for the Architect's final release or approval.
- B. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
- C. Schedule Updating: Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

#### 1.8 COORDINATION DRAWINGS

- A. General Construction Contractor: Verify the location of elements and accessories. Coordinate the location and elevations of all work with all subcontractors to insure work fits and has no interferences.

#### 1.9 SHOP DRAWINGS

- A. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
- B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings. Include the following information:
  - 1. Dimensions.
  - 2. Identification of products and materials included by sheet and detail number.
  - 3. Compliance with specified standards.
  - 4. Notation of coordination requirements.
  - 5. Notation of dimensions established by field measurement.
  - 6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 36 by 48 inches.
  - 7. Initial Submittal: Submit one correctable, translucent, reproducible print (paper sepia) and one blue- or black-line print for the Architect's review. The Architect will return the reproducible print.
  - 8. Final Submittal: Submit 3 blue- or black-line prints; submit 5 prints where required for maintenance manuals. The Architect will retain 2 prints and return the remainder.
    - a. One of the prints returned shall be marked up and maintained as a "Record Document."
  - 9. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

#### 1.10 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
  - a. Manufacturer's printed recommendations.
  - b. Compliance with trade association standards.
  - c. Compliance with recognized testing agency standards.
  - d. Application of testing agency labels and seals.
  - e. Notation of dimensions verified by field measurement.
  - f. Notation of coordination requirements.
2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
3. Preliminary Submittal: Submit a preliminary single copy of Product Data where selection of options is required.
4. Submittals: Submit five (5) copies of each required submittal; submit six (6) copies where required for maintenance manuals. The Architect will retain three (3) and will return two (2) marked with action taken and corrections or modifications required.
  - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
5. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
  - a. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
  - b. Do not permit use of unmarked copies of Product Data in connection with construction.

#### 1.11 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
  1. Mount or display Samples in the manner to facilitate review of qualities indicated. Prepare Samples to match the Architect's sample. Include the following:

- a. Specification Section number and reference.
  - b. Generic description of the Sample.
  - c. Sample source.
  - d. Product name or name of the manufacturer.
  - e. Compliance with recognized standards.
  - f. Availability and delivery time.
2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
- a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
  - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
  - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
  - d. Samples not incorporated into the Work, or otherwise designated as the Owner's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
3. Preliminary Submittals: Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics from a range of standard choices.
- a. The Architect will review and return preliminary submittals with the Architect's notation, indicating selection and other action.
4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. The Architect will return one set marked with the action taken.
5. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
- a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
  - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

1. Field samples are full-size examples erected on-site to illustrate finishes, coatings, or finish materials and to establish the Project standard.
  - a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

#### 1.12 QUALITY ASSURANCE SUBMITTALS

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
- C. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
- D. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Control."

#### 1.13 ARCHITECT'S ACTION

- A. Except for submittals for the record or information, where action and return is required, the Architect will review each submittal, mark to indicate action taken, and return promptly.
  1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Architect will stamp each submittal with a uniform, action stamp. The Architect will mark the stamp appropriately to indicate the action taken, as follows:
  1. Accepted: When the Architect marks a submittal "Accepted," the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents. Final payment depends on that compliance.
  2. Accepted as Noted: When the Architect marks a submittal "Accepted as Noted," the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents.
  3. Accepted as Noted - Resubmit: Where "Accepted as Noted - Resubmit" is marked, the same shall apply but the modified submitted must be resubmitted. Final payment depends on that compliance.
  4. Not Accepted - Resubmit: When the Architect marks a submittal "Not Accepted - Resubmit," do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal according to the notations; resubmit without delay. Repeat if necessary to obtain different action mark.
  5. Not Accepted: Do not use, or allow others to use, the product or assembly submitted on the Project Site.

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6. Reviewed: Where a submittal is for information or record purposes or special processing or other activity, the Architect will return the submittal marked "Reviewed."
- C. Unsolicited Submittals: The Architect will return unsolicited submittals to the sender without action.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

END OF SECTION 013300

SECTION 014300 – MOCK-UP FOR PRESERVATION WORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section includes, but is not limited to:
  - 1. Provide as required by the Contract Documents a mock-up of repaired/restored items required as part of the preservation work.
- B. Intent: The mock-up installations shall illustrate to the Architect and Owner all methods, materials and products used on each restoration item. Upon acceptance of approval, mock-up installation shall serve as the standard of acceptable technique for all restoration procedures. Mock-up installations shall be protected throughout the duration of the project. If approved, the mock-up installations may remain as part of the finished work.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 Specifications Sections, apply to this Section, except as modified herein:
- A. Related Sections include the following:
  - 1. Section 041100 – Mortar and Repointing
  - 2. Section 079200 – Joint Sealants

1.3 LOCATION

- A. Location and size of mock-up installations to be selected by the Architect and Project Manager if not indicated on drawings. More than one location may be necessary to illustrate all restoration procedures.

1.4 QUALITY ASSURANCE

- A. Contractor Qualifications shall be as required under each individual specification section.

1.5 SUBMITTALS

- A. Submittals for work under this section shall be as required for submittals under each individual specification section.

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PART 2- PRODUCTS

2.1 GENERAL

- A. All products shall be as indicated under each individual specification section.

PART 3- EXECUTION

3.1 GENERAL

- A. All execution shall be as outlined under each individual specification section.

END OF SECTION 014300

## SECTION 017700 – CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. This project consists of all labor, equipment, materials and services required to perform the exterior repairs at the Barnum Museum, Bridgeport, CT as indicated on the Drawings and specified herein.

#### 1.2 WORK INCLUDED

- A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:

- 1. Substantial Completion procedures.
- 2. Final completion procedures.
- 3. Warranties.
- 4. Final cleaning.
- 2. Repair of the Work.

- B. Related Requirements: Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 33.

- 1. Section 012500 – Substitution Procedures.
- 2. Section 013300 – Submittal Procedures.
- 3. Section 014000 - Quality Requirements.
- 4. Section 017839 – Project Record Documents.

#### 1.3 ACTION SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

#### 1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

#### 1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10

days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, and similar final record information.
  2. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  3. Submit maintenance material submittals specified in individual Sections, including spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
    - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section.
  4. Submit test/adjust/balance records.
- C. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of the completed inspection will form the basis of requirements for final acceptance.

## 1.6 FINAL COMPETION PROCEDURES

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
  2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected (punch list), endorsed and dated by the Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect.
  4. Submit consent of surety to final payment.
  5. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  2. Include the following information at the top of each page.
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Page Number.

#### 1.8 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-

- 1/2-by-11-inch (215-by-280-mm) paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## PART 2 - PRODUCTS (Not Applicable).

## PART 3 - EXECUTION

### 3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
  1. Remove tools, construction equipment, machinery, and surplus material from Project site.
  2. Clean exposed hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
  3. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
  4. Remove labels that are not permanent.
  5. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  6. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  7. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
  8. Leave Project clean and ready for occupancy.

- C. As part of instruction for operating equipment, demonstrate the following procedures:
  - 1. Startup.
  - 2. Shutdown.
  - 3. Operations.
  - 4. Noise and vibration adjustments.
  - 5. Safety procedures.
  - 6. Economy and efficiency adjustments.
  - 7. Effective energy utilization.

### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  - 1. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 2. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

## SECTION 017839 - PROJECT RECORD DOCUMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. This project consists of all labor, equipment, materials and services required to perform the exterior repairs at the Barnum Museum, Bridgeport, CT as indicated on the Drawings and specified herein.

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:

- 1. Record Drawings.
- 2. Record Specifications.
- 3. Record Product Data.
- 4. Miscellaneous record submittals.

- B. Related Requirements:

- 1. Section 017700 "Closeout Procedures" for general closeout procedures.

#### 1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:

- 1. Number of Copies: Submit copies of record Drawings as follows:
  - a. Submit PDF electronic files of scanned record prints and three set(s) of prints.

- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

- C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.

- 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

- D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

- E. Reports: Submit written report bi-weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

## PART 2 - PRODUCTS

### 2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an acceptable drawing technique.
    - c. Record data as soon as possible after obtaining it.
    - d. Record and check the markup before enclosing concealed installations.
    - e. Cross-reference record prints to corresponding archive photographic documentation.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Revisions to routing of piping and conduits.
    - d. Revisions to electrical circuitry.
    - e. Actual equipment locations.
    - f. Duct size and routing.
    - g. Locations of concealed internal utilities.
    - h. Changes made by Change Order or Construction Change Directive.
  3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Annotated PDF electronic file.
  2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
  3. Refer instances of uncertainty to Architect for resolution.

4. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
  - a. See Section 013300 "Submittal Procedures" for requirements related to use of Architect's digital data files.
  - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
  1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Format: Annotated PDF electronic file.
  3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
  4. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
  5. Note related Change Orders and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file.

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders and record Drawings where applicable.

B. Format: Submit record Product Data as annotated PDF electronic file.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

#### 2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

### PART 3 - EXECUTION

#### 3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 022220 – PROTECTION, SALVAGE, AND REMOVAL OF HISTORIC ELEMENTS

PART 1 – GENERAL

1.1 SUMMARY

- A. This project consists of all labor, equipment, materials and services required to perform the exterior repairs at the Barnum Museum, Bridgeport, CT as indicated on the Drawings and specified herein.
- B. Section Includes:
  - 1. Temporary protection of all finish surfaces and Historic Elements to remain from damage due to construction activities or as noted on the Drawings.
  - 2. Removal and reinstallation of existing protection if required to access historic elements for restoration activities.
  - 3. Remove, catalog and temporarily relocate to storage all historic elements indicated on the Drawings or as required to restore and rehabilitate off-site prior to reinstallation.
  - 4. Remove, catalog and relocate to storage all historic elements indicated on the Drawings or as required to accommodate new construction.
- C. Intent: The intent of this Section is to provide for interior protection of historic elements to be temporarily removed for subsequent reinstallation, and for protection of remaining existing historic elements from all construction activities including but not limited to damage due to 'path of travel' access required for the transport of tools, materials, and workers.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications sections, apply to work of this section, except as modified herein
- B. Related Sections:
  - 1. Section 014300 – Mock-up for Preservation Work.
  - 2. Section 022220 – Protection, Salvage and Removal of Historic Elements.
  - 3. Section 041100 – Mortar and Repointing.
  - 4. Section 051200 – Structural Steel.
  - 5. Section 079200 – Joint Sealants.

1.3 REFERENCES

- A. Preservation Tech Note. Temporary Protection Number 2. "Specifying Temporary Protection of Historic Interiors During Construction and Repair" National Park Service, Preservation Assistance Division, P.O. Box 37127; Washington D.C. 20013-7127.

- B. NFPA 241: Safeguarding Building Construction and Demolition Operations National Fire Protection Agency (NFPA), Quincy, Mass. (800) 344-3555.

#### 1.4 DEFINITIONS

- A. "Historic Elements" shall be defined as those finishes, components to remain.
  - 1. They include, but are not limited to, all original interior finishes and components such as: Wood floors, bases, wainscot, walls, partitions, and surrounds; fireplaces; Wood casework; Plaster walls and ceilings; Doors, windows, and glazed partitions including glass; Hardware including door hinges, window hardware, door knobs, and door stops.
  - 2. It shall also include any item identified in the field by the Architect and brought to the attention of the Contractor. Contractor shall verify any questionable items with the Architect prior to commencement of protection, demolition, or construction procedures.
- B. "Salvage Elements" shall be defined as any Historic Element to be removed from the existing construction.
- C. "Off-site Facility" shall be defined as the storage facility to be provided by the Contractor for storage of Salvage Elements.
  - 1. Contractor is responsible for providing suitable racks and packing material for storage of all Salvage Elements.
- D. "Path of Travel" shall be defined as those areas that will experience traffic at locations of demolition and construction activities.
- E. "Artifact Log" shall be defined as the inventory log cataloguing the Salvage Elements.

#### 1.5 SUBMITTALS

- A. Procedures: In accordance with Section 013300 – Submittal Procedures.
- B. Work Description: Proposed methods and operations of element removal, protection, and storage procedures to the Architect for review prior to the commencement of work.
- C. Artifact Log:
  - 1. Sample Artifact Log prior to the commencement of work.
  - 2. Current progress Artifact Log of items removed to Architect weekly.
- D. Off-site Facility: Submit detailed description of proposed storage warehouse. Include locations, size, physical attributes, security techniques and procedures, bonding capacity, and other pertinent information relating to the storage of salvage elements. Architect to field review the facility prior to acceptance.

- E. Product Data: Submit manufacturer's specifications for materials specified in paragraph 2.1.
- F. Shop Drawings: Submit complete set of shop drawings recording on elevations or plans the location, configuration, and description of all elements removed for salvage. Include location of elements, joint locations, spacing, surface mounted items, materials, and all dimensions so that wall, floor, or ceiling can be reconstructed in its entirety. Minimum scale 1:50. Existing construction drawings can be used as base sheets for shop drawings.

## 1.6 QUALITY ASSURANCE

- A. Engage an experienced firm that has recently completed Protection, Salvage and Removal of Historic Elements projects similar in scope, cost, material, design, and extent to that indicated by this section and whose work has resulted in construction with a record of successful in-service performance (i.e., performed work in buildings that have been designated as landmarks by local governmental authorities, buildings listed on the National or State Register of Historical Places, or buildings of equivalent historical and architectural significance).
- B. Submit qualifications and experience of all lead personnel scheduled for work on this project. List project manager or foreman's name and experience relative to this project. All work shall be performed by persons whose qualifications have been submitted.
- C. The Contractor is hereby directed to recognize the value and significance of the building, and exercise special care during all phases of the Work to ensure that the existing building, its details, materials and finishes that are to remain or to be salvaged for the intention of reinstallation are not damaged by the work being performed.
- D. The Contractor shall be responsible for protection of all existing materials and elements to remain or to be salvaged. It is the Contractor's responsibility to provide all additional protection required to prevent soiling and damage to existing finishes and elements to remain or to be salvaged, in the event of damage, such items shall be immediately repaired or replaced by the Contractor, at his expense, to the satisfaction of the Architect.
- E. The particular subcontractor responsible for rehabilitation and reinstallation of salvaged elements shall also be responsible for the disassembly, cataloguing, and storage of all elements to be removed.
  - 1. Qualifications shall be as required under each individual competency specification section as listed in Related Sections above.
- F. The building is listed on the National Register of Historic Places. The Work is subject to review by the Connecticut State Historic Preservation Officer (SHPO), and the Architect.

## 1.7 SITE CONDITIONS

- A. Coordinate the performance of work in this Section with related or adjacent work. Removal and protection of items shall be complete prior to commencement of new construction and demolition procedures in each area. At a minimum protection shall be installed in its entirety for a given floor or discreet area prior to commencement of any demolition activities on that given floor or area.
- B. Protection for Historic Elements shall remain in place for the duration of the Project unless determined otherwise by the Architect and Owner's Representative.
- C. Damages: Promptly repair damage caused to adjacent historic elements to remain or to be re-used if through Contractor's negligence. Repair or replace any such damaged item to the satisfaction of and at no expense to the Owner. All repairs shall be approved prior to implementation.

## PART 2 - PRODUCTS

### 2.1 SALVAGE

- A. Carefully remove, transport, and store Salvage Elements at Off-site Facility for future reinstallation or reuse as specified.

### 2.2 PROTECTION MATERIALS

- A. Polyethylene sheets: four (4) mil., complying with FS L-P-370C.
- B. Fiber-reinforced polyethylene sheets.
- C. Lumber: Species to be selected by Contractor, sizes to fit field conditions. All lumber to be fire retardant.
- D. Plywood: 1/2 inch and 3/4 inch fire retardant.
- E. Soft Fiberboard: Homasote Co., West Trenton, NJ, or equal.
  - 1. 1/2- inch NCFR Homasote.
- F. Neoprene: 1/4-inch or 1/2-inch, stock sizes.
- G. Polyurethane foam sheets: two (2) inch thick and four (4) inch thick.
- H. "Preservation" Tape: 3M Scotch brand no. 4811 or approved equal.
- I. Plastic Film Tape: 3M Scotch brand no. 472 or approved equal.
- J. Kraft Paper.

- K. Accessories: Provide necessary and related parts, fasteners, devices and anchors required for complete installation.

## 2.3 WOOD TREATMENTS

### A. General:

1. Fire-retardant wood shall have an Underwriters' Laboratories stamp signifying an FR-S rating certifying a 25 or less flame-spread and smoke-developed value when tested in accordance with ASTM E84.
2. Acceptable Fire-Retardant Treatments: Hoover "Pyro-Guard", Hickson "Dricon", or equal.

## 2.4 OFF-SITE FACILITY REQUIREMENTS

- A. Size: Furnish facility of sufficient size and capacity to store and retrieve all Salvage Elements required for the Project including, but not limited to, items identified for salvage as indicated on Drawings. A contiguous, isolated, centralized area shall be furnished to the greatest extent possible.

### B. Physical Requirements:

1. Adequate floor loading capacity to support all Salvage Elements.
2. Covered loading and unloading area to allow for transport of elements without exposure to inclement weather conditions.
3. Temperature and Humidity: Maintain ambient temperature of a minimum of 40°F to a maximum of 90°F. Maintain a relative humidity between 20% - 80%. Climate control is not required if these conditions can be met. Configuration of space shall allow for adequate ventilation of stored elements: provision of mechanical devices to circulate air will be required if ventilation is inadequate.
4. Artificial Light: Adequate artificial light to allow for proper handling of elements and for potential examination of Salvage Elements at the facility.
5. Sunlight: Adequate protection from degradation due to ultraviolet (direct) sunlight.
6. Water Protection: Protection from all exposure to water is required. No exposure of Salvage Elements and/or packing materials to moisture shall be permitted.
7. Vermin Control: Protection from all vermin and pests is required. Vermin and pests include, but are not limited to, rats, mice, insects, birds, bats, and squirrels.
8. Fire Protection: Functioning smoke alarm, fire detection/notification, and sprinkler system.

### C. Security:

1. Facility must be a bonded facility of sufficient bonding capacity to suitably replicated and replace all stored Salvage Elements.

2. Facility must provide an inventory and receiver control to adequately monitor and document storage activities.

### PART 3 - EXECUTION

#### 3.1 GENERAL

##### A. Historic Elements to remain in-situ:

1. Protection shall be installed in its entirety before commencement of salvage or other work that may harm historic fabric may proceed.
2. Protect all finishes and Historic Elements to remain in place which may be damaged by other construction activities. In the event of damage caused by Contractor, inform the Architect immediately as to the nature and extent of damage and the proposed method of repair. Contractor shall be responsible for repairs and replacement of newly damaged items to the satisfaction of the Architect at no additional expense to the Owner.
3. Do not attach protection materials directly to Historic Elements.
4. Protection shall be secured adequately so as to maintain a safe environment for workers and other individuals using the building throughout the duration of other construction activities.

##### B. Salvage Elements to be removed:

1. Protect, carefully handle, transport, and store Historic Elements which have been identified for removal and salvage. Contractor is responsible for handling, transporting, and storing these items in the Off-site Facility. Contractor is responsible for repairs and replacement of newly damaged items to the satisfaction of the Architect at no additional cost to the Owner.
2. Catalog all Salvage Elements that have been removed on Artifact Log. Document element type, size, quantity, condition, location in storage and original location.
3. Store all Salvage Elements in a neat, orderly fashion to allow for access and retrieval at Off-site Facility. Store like type elements together in groups. Store particularly fragile elements to prevent damage while in storage.
4. All salvage items determined by Architect not to be reinstalled will remain the property of the Owner. At close of job at the Architect's direction, Contractor to load, handle, transport, unload and stack such items at a location to be determined by the Owner.

#### 3.2 PREPARATION

- A. Remove all existing furnishings and debris to allow for full access as required to perform

protection of Historic Elements, and for salvage and construction. Protect all Historic Elements from damage during these removal procedures as specified.

- B. Verify condition of Off-site Facility to ensure that there is adequate capacity and access to store and retrieve Salvage Elements.
- C. Provide all racking for storage of salvage items prior to transport to the Off-site Facility.
- D. Transport items to the Off-site facility at a minimum of one time per day. Do not stockpile items at the job site other than for preparation of transport to the Off-site Facility.

### 3.3 INSTALLATION OF PROTECTION

- A. General:
  - 1. Alternative methods to specified protection may be acceptable if equal or greater protection is provided. Submit alternative methods to the Architect for review as specified. Do not proceed with alternative methods until specified approvals are secured.
  - 2. Protection may be required to remain in place for the duration of the Project. As such, materials shall be installed to provide adequate protection throughout the full extent of construction activities. Repair and reinstall protection as required throughout the duration of construction.
  - 3. Extent of protection shall cover all Historic Elements to remain that are in the vicinity of construction activities whether specifically called out on the Drawings or not. All questionable protection requirements shall be identified for the Architect 's review.
  - 4. All protection assemblies shall be self supporting and self bracing, secured at the base to the floor protection, unless otherwise noted.
  - 5. Intent of interior protection is to protect floors, walls, finishes, wood casework and trim, window assemblies, doors, and door openings and other historic elements from damage due to 'path of travel' access required for the transport of tools, materials, and workers as well as the probe investigation construction activities. Contractor shall exercise extreme care when moving through areas with unprotected Historic Elements.

### 3.4 PROTECTION

- A. General: Intent of interior protection is to protect floors, walls, finishes, wood casework and trim, window assemblies, doors, and door openings from damage due to path of

travel access required for the transport of tools, materials, and workers. Contractor shall exercise extreme care when moving through areas with unprotected Historic Elements.

1. At a minimum finished floors shall be protected by a four (4) foot wide path of soft fiberboard covered by plywood.
2. In the first event any damage occurs to Historic Elements, for subsequent events Contractor shall provide protection in accordance with the Project specifications, at his expense, to the satisfaction of the Architect.
3. Any debris resulting from construction activities shall be immediately cleaned up to the satisfaction of the Architect.

B. Installation and Inspection:

1. Floors: Wood.
  - a. Primary Path of Travel: Vacuum floor surface of all loose dust and debris. Cover entire pathway surface with Kraft paper, then with ½-inch soft fiberboard covered by one (1) sheet of polyethylene and ¾-inch plywood. Fasten edges to prevent slippage. Tape all polyethylene edges to create a watertight seal. Stagger edges of materials with joints below, and provide a uniform flush surface.
  - b. Secondary Path of Travel: Vacuum surface of all loose dust and debris. Cover entire pathway surface with Kraft paper, then with ½-inch soft fiberboard covered by one (1) sheet of polyethylene and ½-inch plywood. Fasten edges to prevent slippage. Tape all polyethylene edges to create a watertight seal. Stagger edges of materials with joints below, and provide a uniform flush surface.
3. Areas Beyond Barricades: Areas beyond protection barricades out of the path of travel shall be protected as described for Path of Travel but may eliminate the top layer of plywood if the Contractor has the ability to monitor and limit construction activities at these locations.
4. Fireplaces and Interior Wood Trim: Verify extent of potential impact to these elements with the Architect. As required, cover entire surface with 1/2 inch Homasote and plywood screwed to 2 X 4 shoring braces set 16 inches to four (4) feet apart. Provide neoprene pads glued to braces where they are in contact with Historic Elements. Locate braces out of the path of travel and out of construction areas if possible.
5. Windows and Doors: Verify extent of potential impact to these elements with the Architect. Carefully protect doors or window sash in place. Cover face, sides and top completely with ½-inch Homasote and ½-inch plywood. Screw all connections and secure to adjacent protection. Do not screw directly to Historic Elements.
6. Miscellaneous Hardware: Verify extent of potential impact to these elements with the Architect. If protection is required, carefully remove these elements for reinstallation and protect frame as specified.
7. Plaster: Verify extent of potential impact from construction activities with the Architect. Cover all potentially impacted elements with ½-inch Homasote and

½-inch plywood screwed to 2 x 4 shoring braces set 16-inches to 4-feet apart. Provide neoprene pads glued to braced where they are in contact with Historic Elements. Do not screw directly to Historic Elements. Cover entire surface with ½-inch Homasote and plywood screwed to 2 x 4 shoring braces set 16-inches to 4-feet apart. Provide neoprene pads glued to braces where they are in contact with Historic Elements.

### 3.5 DISCOVERY OF HIDDEN ARCHITECTURAL FEATURES

- A. In the event that features, materials, or artifacts are discovered during execution of toe work which have not been documented, the Contractor shall immediately notify the Architect. Do not disturb the area until the Architect has had the opportunity to evaluate the found materials. The Architect reserves the right to document, or have documented by a qualified professional, the location, surrounding conditions, and any other circumstances that may be pertinent.
- B. The Owner reserves the right to retain possession and ownership of the objects, artifacts, and historically or archaeologically significant materials, other than normal braiding construction materials, discovered during execution of the work.

### 3.6 REMOVAL OF SALVAGE ELEMENTS

- A. General:
  - 1. Exercise extreme care in removing Salvage Elements, and materials attached to Historic Elements which are to remain.
    - a. Unbolt bolted connections; leave embedded connector undisturbed and in place for later element reinstallation.
    - b. Unscrew screwed connections; leave embedded connector undisturbed and in place for later element reinstallation.
    - c. Do not pry apart members whose finish will thereby be damaged by chipping, crazing or cracking; or whose structural integrity will be impaired.
    - d. Remove all nails from woodwork from the backside. Drive nails through or pull from the back so that head does not splinter the finished face. If nails are historic carefully remove, document where removed from, place in zip lock bag and catalogue with woodwork. Notify architect if there are questions about age of nail.
    - e. Items are to be removed whole wherever possible. Where cuts are required, make cuts cleanly with proper tools and at logical break points. Verify unusual or ambiguous configurations with the City prior to removal of component.
- B. Chair Rails, Baseboards, Fireplace Surrounds, and other miscellaneous millwork designated by the Architect to be removed and salvaged.
  - 1. Carefully document and remove designated elements to Off-Site storage facility.

2. Remove long running pieces of original trim over five-feet in length for reinstallation in a new configuration conforming to the new wall design.
  3. Salvage a representative balance of required baseboard, chair rail and wainscot to be replicated to match original profiles.
- C. Door Assemblies: Remove components in whole sections. Store door in frame, and hardware of individual door assemblies as single complete unit. Do not remove door frame unless required for construction activities. Catalog components and document conditions on Artifact Log as specified to allow for replication and reinstallation at the original or new locations as required.
- D. Hardware: Remove original lockset assemblies from doors. Bag all parts for each door separately. Catalog components and document conditions and missing components on Artifact Log as specified.
- E. Wood Elements: Test removal procedures in presence of Architect. Successful salvage for reuse of materials is desired.
- F. Light Fixtures: Remove light fixtures in presence of Architect. Label all elements as single component. Carefully protect and transport to storage.

### 3.7 CATALOGING OF SALVAGE ELEMENTS

- A. General: Salvage Elements to be removed and reinstalled at the same location shall be labeled to permit reinstallation in the original configuration. Contractor may propose alternative methods for cataloguing Salvage Elements. Submit alternative method to the Architect for review as specified before cataloguing process begins.
- B. Numbering and Cataloguing: Each item to be removed and reinstalled at the same location shall be given a unique catalog number which is to be permanently marked on the element and listed on the Artifact Log. Numbers are to be created in a manner similar to below, as approved by the Architect:

C100N/3.1

C100 = Room, door or window number.

N = Room wall elevation (north, south, east, west).

3 = A number abbreviation for each element type. Element type numbers should be established prior to the start of cataloguing.

.1 = Component number. Number of component within a series of components.

- C. Stamp the item number on all wood elements with a metal punch. Label all other items with a black, permanent marker, unless otherwise noted, in area hidden from view when element is installed.

D. Artifact Log:

1. Record all items on the Artifact Log as they are removed. The Contractor shall list on the log the item number, condition, location in storage, and if applicable the quantity. If required to pinpoint the exact location of an object, the number shall also be placed on the elevation, or plan shop drawings, Reference to the condition of the item being removed, if not sound, should also be documented on the log.
2. Only one master artifact log is to be prepared to avoid duplicate cataloging.

3.8 STORAGE

A. General: The Off-site Facility for storage of items shall be inspected by the Contractor. If any conditions exist that may be detrimental to Historic Elements, or other inadequacies exist notify the Architect immediately. Items shall be kept clean, dry, and well ventilated. Protect items from sunlight, moisture, vermin, abrasion and damage as required. Keep area clean.

B. Organization:

1. Elements shall be organized in such a manner as to be readily accessible and retrievable for reuse or reference.
2. Complex components which will require re-assembly shall be stored together.

C. Protection: Protect items in storage from abrasion or damage as required.

1. Lighting Fixtures: Wrap each item individually with bubble wrap to prevent damage. Label wrapping with catalog number as it appears on the item.
2. Hardware: Wrap items individually with bubble wrap to prevent abrasion. Label wrapping with catalog number as it appears on the item.
3. Wood Elements: Wrap each item individually with bubble wrap to prevent damage. Label wrapping with catalog number as it appears on the item.

3.9 REINSTALLATION

A. Salvage Elements shall be returned to their original locations whenever possible. Where items cannot be returned to original because of architectural modifications, they may be reused in other locations of the project as determined by the Architect. All Salvage Elements, determined by the Architect not to be reinstalled, will remain the property of the Owner. Contractor is responsible to load, handle, transport, unload and stack such items at a location to be determined by the Owner.

B. Contractor shall be held responsible for proper inventorying and distribution to appropriate subcontractors of salvaged material for reinstallation. A cost will be assessed for any lost, misplaced or damaged items unable to be replaced in kind, for which the Contractor will be back-charged.

3.10 CLEAN-UP

BARNUM MUSEUM  
PHASE 1 STABILIZATION  
BRIDGEPORT, C.T.  
PROJECT 6954.D

- A. All residue and debris from protection and removal work shall be removed from existing construction leaving the premises clean and neat.
- B. Return remaining Salvage Items to Owner which are not required for new construction and which are identified for return by the Architect.
- C. All remaining debris from storage activities and Salvage Items shall be removed upon completion of reinstallation activities.

END OF SECTION 022220

## SECTION 024119 - SELECTIVE DEMOLITION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Demolition and removal of selected portions of building or structure, as indicated on the demolition plans.
- 2. Salvage of existing items to be reused.

- B. Related Requirements:

- 1. Section 011000 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.

#### 1.3 DEFINITIONS

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

#### 1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

## 1.5 INFORMATIONAL SUBMITTALS

- A. Schedule of Selective Demolition Activities.
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Use of elevator and stairs.
  - 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- B. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.
- C. Predemolition Photographs or Video: Submit before Work begins.
- D. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for dust control and for noise control. Indicate proposed locations and construction of barriers.
- E. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

## 1.6 FIELD CONDITIONS

- A. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- B. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- C. Storage or sale of removed items or materials on-site is not permitted.
- D. Historic Areas: Demolition and hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inches or more.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

## 1.7 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding. Existing warranties include the membrane roofing system.
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
  - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- D. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.

1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

### 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
  1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
  2. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
- C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  - 4. Maintain adequate ventilation when using cutting torches.
  - 5. Dispose of demolished items and materials promptly.

#### Removed and Salvaged Items:

- 6. Clean salvaged items.
- 7. Pack or crate items after cleaning. Identify contents of containers.
- 8. Store items in a secure area until delivery to Owner.
- 9. Transport items to Owner's storage area as designated by Owner.
- 10. Protect items from damage during transport and storage.

- B. Removed and Salvaged Items:
  - 1. Clean salvaged items.
  - 2. Pack or crate items after cleaning. Identify contents of containers.
  - 3. Store items in a secure area until delivery to Owner or for reinstallation as indicated.
  - 4. If to be delivered to Owner: transport items to Owner's storage area.
  - 5. If to be reinstalled: reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
  - 6. Protect items from damage during transport and storage.
  
- C. Removed and Reinstalled Items:
  - 1. Clean and repair items to functional condition adequate for intended reuse.
  - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  - 3. Protect items from damage during transport and storage.
  - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
  
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
  
- B. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Section 07322 "Clay Roofing Tile" for new roofing requirements.
  - 1. Remove existing roof membrane, flashings, copings, and roof accessories.
  
- C. Remove existing roofing system down to substrate.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them.
  - 1. Do not allow demolished materials to accumulate on-site.

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2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

## SECTION 041100 - MORTAR AND REPOINTING

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This project consists of all labor, equipment, materials and services required to perform the remediation of tornado-related damage at the Barnum Museum, as indicated on the Drawings and specified herein.
- B. Work of this Section includes, but is not limited to, the following:
  - 1. Preparation of exterior mortar joints for repointing. This includes removing all deteriorated backup mortar to reach sound material.
  - 2. Repointing of damaged exterior mortar joints at masonry in areas identified on Architectural and Structural construction drawings. This includes any grouting of backup mortar to ensure sound backup material free of voids prior to repointing.
- C. Intent: It is the specific intent of this Section to provide for restoration of deteriorated mortar joints by retaining all sound original natural cement mortar and replacing missing or damaged material in a manner in keeping with the building's historic character without damaging or deteriorating original material. All work required to achieve this intent shall be included.

#### 1.2 REFERENCES AND STANDARDS

- A. American Society for Testing and Materials International (ASTM):
  - 1. ASTM C 136-96a – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 1996.
  - 2. EN459/BS459 – European Norm and British Standards for Specifications for Building Limes; 2001.
  - 3. ASTM C 144 – Standard Specification for Aggregate for Masonry Mortar; 1997.
  - 4. ASTM E-11 – Specification for Wire-cloth and Sieves for Testing Purposes; Book of Standards Volume 14.02.
  - 5. ASTM C 1324 – Standard Test Method for Examination and Analysis of Hardened Masonry Mortar; 2004.
  - 6. Technical Advice Note 1, Preparation and Use of Lime Mortars, Historic Scotland, ISBN 1903570, Revised Edition 2003.
- B. National Park Service Technical Preservation Services Division Preservation Brief #2, "Repointing Mortar Joints in Historic Masonry Buildings," October 1998.

#### 1.3 QUALIFICATIONS

- A. Qualifications: Engage an experienced masonry repointing contractor, with a satisfactory record of performance who has worked on a similarly significant historic building and

completed lime mortar and repointing applications similar in material, extent to those indicated for the Project that have resulted in a construction record of successful in service performance. Workers shall be carefully supervised to ensure that the work is accomplished to meet or exceed the highest standards of the trade. In acceptance or rejection of pointing by the Owner, no allowance will be made for lack of skill on the part of the mechanics.

- B. Unless otherwise directed or approved in writing by the Architect, do not change sources or manufactures of mortar supplies during the course of the Project.

#### 1.4 SUBMITTALS

- A. Submit a mortar characterization report from an architectural conservator identifying components of the mortar of the east elevation brick. The report shall include suitable recommended replacement mixtures.
- B. Restoration Plan: Submit written program for each phase of restoration process including protection of surrounding materials, plants, pedestrians, cars, buildings, and site during operations.

Submit description of joint preparation, pointing method, and proposed mortar composition based on mortar characterization.

- 1. If alternative methods and materials to those indicated are proposed for any phase of restoration work, provide written description, including evidence of successful use on other, comparable projects, and program of testing to demonstrate effectiveness for use on this project.
- C. Product Data (Pending results of mortar characterization report and acceptance of field mock-up):
  - 1. Virginia Lime Works Mix & GO 2/1 Mortar:
    - a. Product data sheets for all mix ingredients.
    - b. Mix design.
    - c. Aggregate sieve analysis.
    - d. Manufacturer's storage and shipping requirements information.
    - e. Manufacturer's climate requirements for installation and curing.
  - 2. Aggregate
    - a. Historic Sand
      - 1) Sieve analysis.
      - 2) Aggregate void ratio.
      - 3) Gradation pictogram.
  - 3. Virginia Lime Works Natural Hydraulic Lime 5.

4. Virginia Lime Works Natural Hydraulic Lime 3.5 G.
  5. Virginia Lime Works Natural Hydraulic Lime Grout for filling deep voids behind joints.
  6. Type 1 Portland Cement.
  7. Written Procedure for:
    - 1) Obtaining water supply.
    - 2) Diagram of water distribution system.
- E. Samples (Pending results of mortar characterization report and acceptance of field mock-up):
1. Virginia Lime Works Mix&GO 2/1 Mortar:
    - a. 1 1/2" x 1 1/2" x 1/2" cured mortar sample.
    - b. 1 cup sample of dry mix.
- F. Installer qualifications:
1. Name of Lead Restoration Stone Mason.
  2. Affidavit of orientation to historic lime mortars for Restoration Stone Masons or evidence of past completed projects using the specified products.
  3. Evidence, including photographs and relevant contact information, of prior successful experience in comparable restoration projects. Obtain access to completed projects for the Architect so that they may review the completed work.
- G. Tools and Accessories to be reviewed on site:
1. Garden spray assembly.
  2. Very-low pressure spray assembly.
  3. Shims.
  4. Pneumatic hammer.
  5. Chisels: Sway, clean-up, very thin, extended length.
  6. Pointing irons.
  7. Bench grinder.
  8. Angle grinder.
  9. Masonry jointers.
  10. Brushes.
  11. Hand held water misting bottles.
  12. Paddle mixer.
  13. Soft plastic and wood scrapers.
  14. Burlap.
  15. Cotton canvas.
  16. Shade cloths.
  17. General masonry tools as required by project conditions.

## 1.5 DEFINITIONS

- A. Restoration Stone Masons: Individual workers who have demonstrable experience in historic masonry restoration and have been approved by the Architect to perform the

Work. The approval shall not be transferable either to their company of employ or to other individuals.

- B. Lead Restoration Stone Mason: an Individual Restoration Stone Mason with exemplary skills in historic masonry restoration who has been approved by the Architect to serve as crew leader, shall be present at all times during masonry restoration, and shall personally direct the work.

## 1.6 QUALITY ASSURANCE

- A. It is required that the work of this Section be the responsibility of a single Trade Contractor.
- B. Installer: Work must be performed by a firm having successful experience in comparable masonry restoration projects and employing personnel skilled in the restoration process and operations indicated.
- C. Restoration Stone Masons:
  - 1. Deteriorated material removal, material salvage, absorption control, mixing, re-pointing, curing, and finishing operations shall be performed by approved Restoration Stone Masons.
  - 2. Before project start-up, every Restoration Stone Mason shall perform mock-ups.
  - 3. All members of the Masonry Crew shall be trained in procedures for handling historic and salvaged materials. During the progress of the project if additional Masonry Crew Members are required due to personnel rotation and attrition or changes in the project schedule or the need to increase rate of production, the Subcontractor will be permitted to arrange for training of replacement or additional Masonry Crew Members providing, however, that at no time shall the number of approved Masonry Crew Members fall below seventy five percent, nor two thirds on any given crew of three, nor one half of any given crew of two.
  - 4. Replacement Crew Members must be approved by the Architect via the submittal process and shall perform mock-ups.
- D. Mock-ups:
  - 1. Every Restoration Stone Mason shall construct a mock-up for each activity that they will perform. Only Restoration Stone Masons who have demonstrated proficiency in a task per the approval of the Architect shall be permitted to perform that particular task.
  - 2. Mock-ups of the following shall be constructed:
    - a. Shallow (up to one and one half inches deep) re-pointing.
    - b. Deep (exceeding one and one half inches deep or multiple lifts) re-pointing, may include grouting.
    - c. Filling small holes with mortar.
    - d. Demonstration of procedures including:

- 1) Joint removal including a demonstration of removal of unsound or friable mortar and rinsing of debris from joints.
  - 2) Removal of old cement mortar from masonry.
  - 3) Removal of old lime mortar from masonry.
  - 4) Proper handling and storage of salvaged materials.
  - 5) Scoring joints with angle grinder.
- 3 Samples of the mortar mixtures to be used for mockups are available from the Architect.
  4. Mock-ups of the following shall be constructed: Mock-ups shall be witnessed by the Architect.
  5. Obtain Architect's approval of mockups before starting the remainder of the work.
  6. Retain approved mock-ups in undisturbed condition, suitably identified, during restoration as a standard for judging completed work.
- E. The building is listed on the National Register of Historic Places. The Work is subject to review by the Connecticut State Historic Preservation Officer (SHPO), and the Architect.
- F. Approvals:
1. Approved samples and mock-ups shall remain as a part of permanent work.
  2. Obtain approval of raking out and surfaces preparation before finishing joints.
  3. Final viewing of finished joints for approval will occur approximately fourteen days after finishing when using NHL mortars, and twenty eight days after finishing for non-hydraulic mortars.
  4. For approval of finished appearance, joints will be viewed from a distance of eight feet, except in areas naturally seen from close proximity, or as the scaffold configuration allows.
  5. Approval of technical considerations in joint construction is not limited by viewing distance.

#### 1.7 DELIVERY AND STORAGE

- A. Deliver materials to Project site in manufacturer's original and unopened containers, labeled with type and name of products and manufacturers.
- B. Protect restoration materials during storage and construction from wetting by rain, snow or ground water, and from staining or intermixture with earth or other types of materials.
- C. Obtain affidavit from delivery service stating that materials were stored and shipped per manufacturer's requirements.

#### 1.8 PROJECT CONDITIONS

- A. Do not repoint mortar joints unless air and surface temperature is between 40 and 95 degrees F and will remain so for at least 48 hours after completion of Work.

- B. Cold weather protection: Do not point when air or masonry temperature is less than 40 degrees Fahrenheit or when it is expected to drop below 40 degrees Fahrenheit within 72 hours of the application of the mortar. Any new mortar damaged by freezing conditions shall be removed and replaced by the Contractor in accordance with these specifications.
- C. Hot weather protection: When ambient air temperature exceeds 95 degrees F or 90 degrees F with a wind velocity greater than 8 miles per hour, suitable shading devices shall be erected to keep the fresh work in the shade. Pointing shall be carried out in small areas at a time. Mortar shall be mixed in small batches and used quickly to avoid premature drying. Take extra care to keep joints moist (but not wet) prior to pointing.
- D. Protection from rain: Protect newly pointed joints from direct attack by rain with waterproof sheeting, well secured in place, for at least 24 hours after mortar has been applied.
- E. Repair any damage to adjacent materials caused by the execution of Work at no expense to the Owner.
- F. Protect all projections (sills, ledges, etc.), base of walls, and ground from mortar droppings and splattering. Immediately remove mortar that has come in contact with all surfaces other than interior faces of joints.
- G. Provide sun, wind, frost, and rain protection for work in progress, and curing the mortar.

## PART 2 – PRODUCTS

### 2.1 PRODUCT HANDLING

- A. Deliver all materials to the job site in original unopened containers bearing manufacturer's name, brand and material standard indicated plainly thereon. Delivered materials shall be identical to approved samples.
- B. Store and handle materials in strict compliance with manufacturer's instructions and recommendations. Store materials on a clean dry surface or platform with air circulation; do not store directly on the ground. Protect materials from tampering, acts of vandalism, possible injury to workers and the public in general, and intrusion of foreign materials and moisture.

### 2.2 MORTAR MATERIALS

- A. Pending results of mortar characterization report and acceptance of field mock-up, the mortar mix shall be one or more of the following:
- B. Premixed natural hydraulic lime mortar: "Virginia Lime Works Mix&GO 2/1." Available from:
  - 1. Virginia Lime Works, Monroe, VA.
  - 2. Manufacturer shall maintain quality control procedures and maintain records of production. Manufacturer to provide samples of proposed materials for mock up panels at the site.

3. Natural hydraulic lime binder shall comply with European Norm EN459.

C. Sand:

1. Sand shall match color and gradation of original sand. Two or more sands and aggregates may be blended to achieve the color, gradation, and inclusions match. If necessary to improve workability, sand may be amended to improve gradation. The gradation standards of ASTM C144 may be used as a guideline, but the characteristics of the original mortar shall supersede.

D. Water shall be clean, clear, and potable.

E. Type I Portland Cement.

F. Pigments shall be synthetic or natural, alkali resistant, iron oxide pigments as required to achieve the desired color. The weight of pigment shall not exceed 10 per cent of the weight of the binder.

## 2.3 GROUT MATERIALS

A. Premixed natural hydraulic lime grout: "Virginia Lime Works Grout." Available from:

1. Virginia Lime Works, Monroe, VA.
2. Manufacturer shall maintain quality control procedures and maintain records of production. Manufacturer to provide samples of proposed materials for mock up panels at the site.

B. Sand:

Sand shall match color and gradation of original sand. Two or more sands and aggregates may be blended to achieve the color, gradation, and inclusions match. If necessary to improve workability, sand may be amended to improve gradation. The gradation standards of ASTM C144 may be used as a guideline, but the characteristics of the original mortar shall supersede.

C. Water shall be clean, clear, and potable.

## 2.4 TOOLS AND ACCESSORIES

A. Garden Spray: Spray hand-pump-up garden-type ("Hudson") sprayer with nozzle adjusted to a cone-shape. Powered garden-type sprayers providing equivalent spray are also acceptable.

B. Very-Low Pressure Spray: 30 psi (nominal) through a three-fourths inch diameter hose fitted with a nozzle producing a conical spray of approximately 60 degrees applied at a distance not closer than 4 feet from the surface. Provide pressure/volume cut off valve at the discharge end.

C. Shims: wood, removable, size and shape as required for temporary support of masonry.

- D. Pneumatic hammer: Trow and Holden Type “B” short stroke Pneumatic Hammer Mortar Removal Set with hose assembly.
- E. Chisels: Carbide-tipped masonry carving chisels by Trow & Holden. Modify as necessary to allow removal of mortar without damage to the host masonry.
- F. Hand chisels as required by project conditions.
- G. Pointing irons: Width slightly less than joint width. Various widths required suiting project conditions. Have capacity to grind pointing tools at the jobsite to achieve suitable widths.
- H. Variable Speed Bench Grinder/Sharpener: grinder for sharpening tools and modifying width of pointing irons and chisels as required by project conditions.
- I. Angle grinder: grinder for scoring center of bed joints to relieve stress in existing hard mortars. Blade shall be no larger than four and one half inch diameter and one eighth inch thick. The grinder must have a butterfly switch. Lock switches are not allowed.
- J. Masonry jointers as required to reproduce historic joint finish. Jointers may require custom fabrication.
- K. Non metallic bristle brushes of various sizes for cleaning raked-out joints.
- L. Hand water mister bottle and garden sprayer for curing, cleaning, and finishing pointed joints.
- M. Mixing Equipment: paddle mixer.
- N. Soft plastic and wood scrapers.
- O. Site fabricated or purchased pool for pre-soaking replacement masonry units.
- P. Burlap for protection of masonry. Provide ample supply for protecting all work in progress.
- Q. Cotton canvas for protection of masonry. Provide ample supply for protecting all work in progress.
- R. Shade cloths for sun protection of the masonry.
- S. Other tools as necessary for the Work.

## 2.5 MORTAR MIXES

- A. Pending results of mortar characterization report and acceptance of field mock-up:
  - 1. The mix shall be compatible with the historic mortar and shall match its visual characteristics and shall contain the following:
    - a. Virginia Lime Works Mix & GO 2/1 Mortar using Virginia Lime Works NHL 3.5G.

- b. Synthetic iron oxide pigments to match existing historic mortar.

### PART 3 – EXECUTION

#### 3.1 INSPECTION

- A. Prior to starting the work of this section, the Masonry Contractor shall make a complete and thorough inspection of the building to confirm the total area requiring repointing. Review all areas to be pointed with the Owner and Architect. All sound original natural cement mortar should be retained.
- B. Review the Contract Drawings showing existing conditions of concern (i.e. open or defective joints) and carefully inspect these areas on the building prior to commencement of pointing. Notify the Owner immediately if discrepancies or changed conditions exist. Do not proceed until such discrepancies are resolved.
- C. Examine conditions, with Lead Restoration Bricklayer or Stone Mason present, for conditions affecting performance of masonry.
- D. Do not proceed until unsatisfactory conditions have been corrected. Once the Subcontractor begins work he has accepted all conditions and shall bear the cost of any later corrections required by unsatisfactory conditions.
- E. Before removing any deteriorated work establish bond patterns, levels, wall conditions, joint details, and coursings.

#### 3.2 SEQUENCING

- A. Sequencing of work shall be scheduled to ensure that completed work shall match adjoining work correctly, without damaging adjoining work or materials.
- B. Where pointing work precedes cleaning of walls, allow mortar to cure for not less than 28 days before beginning the cleaning treatment.

#### 3.3 JOB PROTECTION

- A. Protect all projections (sills, ledges, etc.), base of walls, and ground from mortar droppings and splattering. Immediately remove mortar that has come in contact with all surfaces other than interior faces of joints. Mortar spills shall be cleaned from all other surfaces at the end of each work day.
- B. Prior to commencing masonry work assemble sun, wind, rain, and frost protection. Keep assembly in place until the completion of curing.
- C. Prevent mortars and grouts from staining the face of masonry or other surfaces to be left exposed. Remove mortars and grouts that come in contact with such surfaces.

- D. Cover partially completed work when work is not in progress to prevent premature curing of the mortar.
- E. Protect sills, ledges, windows, doors, and projections from droppings and splatters.
- F. Secure burlap with wood shims in existing joints. Do not use tapes or adhesive on any masonry surface.

### 3.4 TEMPORARY SHIM SUPPORT

- A. Provide temporary supports where necessary to prevent displacement of masonry during re-pointing and until mortar has achieved sufficient strength.
- B. Notify Architect of need for temporary support and provide mock-up of temporary support.

### 3.5 REMOVING ANCHORS

- A. Small anchors, nails and pins have been driven into the masonry at various locations. Remove and discard anchors, nails, pins, and similar devices
- B. If anchor is suspected to be historic, notify the Architect prior to removal.
- C. Remove ferrous material completely. Do not allow portions to remain embedded.
- D. Where brittle materials cannot be pulled out intact, remove remaining embedded material by drilling.
- E. Determine finish of hole with Architect

### 3.6 REMOVING EXISTING MORTAR

- A. All existing cement mortar must be carefully removed by skilled Restoration Stone Masons. Horizontal joints may be raked out by carefully scoring the center of the mortar joint with an angle grinder to relieve the stress on the joint. The remaining mortar in head and bed joints shall be removed to the required depth using hand stone carving chisels. Only restoration masons who have demonstrated proficiency in the use of pneumatic stone carving chisels per the approval of the Architect shall be permitted to use such tools.
- B. Raking out shall leave a clean, square face of sound mortar at the back of the joint, and clean masonry surfaces. Shallow or feather edging will not be permitted.
- C. Existing historic lime-based mortar shall be removed by hand. Use only hand or pneumatic stone carving chisels that are no wider than one half the widths of the existing masonry joints.

- D. Do not widen the existing masonry joints. Do not spall or chip the surrounding masonry edges in the process of mortar removal. Damage to masonry resulting from rotary blade over running shall not be permitted.
- E. Remove debris from joints by brushing joint faces, vacuuming, or blowing with pressurized air. Joints may be rinsed using very low pressure spray assembly with caution. Verify that water will not migrate to other areas and cause damage. Ensure that all surfaces below rinse areas are wet prior to cleaning out joints.

### 3.7 MORTAR REMOVAL DEPTH

- A. Existing mortar joints shall be raked out to whichever depth is greatest:
  - 1. One inch;
  - 2. Two and one half times the width of the existing mortar joint;
  - 3. until bonded and cohesive existing mortar is encountered. Where no sound backup is found, the deteriorated backup shall be removed to a minimum depth of 2-inches. The backup shall be grouted with sufficient surface depth left to accept the new pointing mortar.

### 3.8 REMOVING MORTAR EXCESS FROM MASONRY FACES

- A. Existing excess mortar from prior masonry work and excess mortar from the work of this contract shall be removed from the faces of the masonry using the gentlest means possible
- B. Existing excess mortar from prior masonry work shall be carefully picked off taking care not to damage the host masonry. If, per the directive of the Architect, the mortar cannot be removed from the face of the host masonry without damage, then the mortar shall be left in place.

### 3.9 FULL DEPTH POINTING

- A. Provide temporary support where necessary to prevent displacement of masonry during repointing and until mortar has achieved sufficient strength.
- B. Where required to maintain support of units, rake out and re-point each area in stages, allowing freshly re-pointed portions to cure sufficiently before raking out and re-pointing remaining portion of joints supporting the unit.
- C. Remove temporary shims and supports when no longer necessary, and re-point voids left by temporary shims and supports.

### 3.10 CONTROL OF ABSORPTION

- A. Absorption rate is dependent upon the properties of the original host masonry and mortar, climate conditions, and the condition of the historic masonry. Masonry conditions and moisture levels will vary from one location to another in a historic structure. Evaluate existing conditions to determine methods for absorption control.

- B. Brush joint faces and flush out joints with water to remove dirt and loose debris, working from top to bottom of wall. Thoroughly dampen wall below to avoid soiling. Time the pre-soaking application so that at the time of pointing excess water has evaporated or run off. Joint surfaces should be damp but free from standing water.
- C. Achieve the proper absorption rate before masonry repair commences. Project conditions may require pre-wetting in dry conditions, or drying in wet conditions. The Lead Restoration Bricklayer or Stone Mason shall evaluate conditions with the Architect and determine methods for control of absorption rate.
- D. Masonry units shall be damp but without standing water at the time of re-pointing.
- E. Maintain hand mister bottles or a garden sprayer with clean, clear, potable water immediately available to masons at all times during the re-pointing process. A very low-pressure spray may be used over large areas providing erosion of joints is prevented.
- F. Exposed surface of masonry adjacent to joint shall be damp prior to re-pointing.

### 3.11 RE-POINTING OF MORTAR JOINTS

- A. Joints shall be re-pointed in layers or "lifts" where the joints are deeper than three quarters inch.
  - 1. Joints greater than three quarters of an inch deep shall be re-pointed with an initial lift to bring the joint depth to a uniform three quarters of an inch depth.
  - 2. Compact each layer at the time it is placed in the joint by applying firm pressure with the pointing tool to ensure close contact between the lifts. Pack mortar firmly against the previously placed mortar.
  - 3. Roughen face of previous lift to create bond with subsequent lift.
- B. Finishing Face Joints: Based on acceptance of mockup by West Virginia SHPO, Capital Building Commission, and Architect following mock up.
- C. Finishing Skyward Facing Joints: When mortar is thumbprint hard the joints shall be finished by striking off with a tool, leaving the joint proud approximately a trowel's thickness but not more than one sixteenths inch from the face of the masonry.
- D. Finish joints uniformly. Do not overwork. Leave the surface of the masonry clean.

### 3.12 CLEANING

- A. Maintain clean surfaces on the face, sills, ledges, and projections of masonry on a daily basis.
- B. With a trowel, strike off minor dabs of adherent mortar from face of masonry.
- C. After mortar is thumbprint hard and joint finish is achieved, lightly dry brush masonry face to remove small mortar burrs.

- D. Refer to manufacturer's guidelines on final cleaning.

### 3.13 CURING

- A. Keep mortar from drying out too quickly.
- B. Freshly re-pointed mortar shall be maintained as described below.
  - 1. Apply water to the re-pointed masonry in a fine, low-volume mist with a garden spray to maintain a damp environment for the first twenty four hours. Do not wash out fresh mortar or damage joint details
  - 2. Refer to manufacturer's guidelines for subsequent steps in curing.
  - 3. Curing and protection may last for several months in extreme conditions after installation of mortar. Refer to manufacturer's guidelines for duration of curing in specific project conditions.
- C. Protect freshly re-pointed areas with damp burlap or cotton canvas, or both in extreme conditions, for the first seventy two hours after installation. Keep burlap and canvas clean.
- D. Shield from direct sun and drying winds for the first seven days after installation.
- E. Finishing Skyward Facing Joints: When mortar is thumbprint hard the joints shall be finished by striking off with a tool, leaving the joint proud approximately a trowel's thickness but not more that one sixteenths inch from the face of the masonry.
- F. Finish joints uniformly. Do not overwork. Leave the surface of the masonry clean.

END OF SECTION 041100

## SECTION 045350 — BRICK SALVAGING

### PART 1- GENERAL

#### 1.1 DESCRIPTION:

- A. This work of this Section includes, but is not limited to, the following:
  - 1. Removal, salvaging, and reinstallation of existing bricks at areas where brick crack repair, brick stitching, and brick replacement occur.

#### 1.2 RELATED WORK

- 1. Section 014300 – Mock-up for Preservation Work.
- 2. Section 024119 – Selective Demolition
- 3. Section 041100 – Mortar and Repointing.
- 4. Section 079200 – Joint Sealants.

#### 1.3 QUALITY ASSURANCE:

- A. Superintendent shall submit resume demonstrating a minimum of five (5) years of experience working on historic structures. In acceptance or rejection of brick replacement, no allowance will be made for lack of skill on the part of the mechanics.
- B. The building is listed on the National Register of Historic Places. The Work is subject to review by the Connecticut State Historic Preservation Officer (SHPO) and the Architect.

#### 1.4 SUBMITTALS:

- A. Mock ups and Test Areas: Contractor shall remove brick from areas selected by the Architect for sample purposes. The sample areas shall be used to determine the following:
  - 1. Procedure for brick removal for each type of condition including method for stabilizing and/or shoring the existing masonry.
  - 2. Procedure for cleaning of brick and storing brick for reuse.
  - 3. Procedure for sorting brick as to location in existing wall. Bricks to be reused shall be sorted by the wythes from which they were removed. Ensure that the bricks on the outer wythes are clearly separated from others.

#### 1.5 TESTING

- A. When requested by the Architect and/or Owner the salvaged bricks shall be tested for strength and adhesion qualities.

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- B. Testing shall be performed by an independent agency.
- C. The Contractor shall coordinate contacting the testing agency and the testing of the brick units.
- D. The Contractor shall pay for the testing.

1.6 PRODUCT HANDLING:

- A. Protect masonry from which brick has been removed from the weather until the areas have been rebuilt under the scope of related sections.
- B. Deliver packaged material in original unbroken packages with the manufacturer's name, brand, and material standard indicated plainly thereon.
- C. Clearly label the salvaged brick as to the areas and wythes from which they were removed.
- D. Store and handle all material in a manner as to prevent damage by water or water vapor. Store salvaged materials on a clean, dry, surface or platform as required to protect from deterioration and to prevent inclusion of foreign matter.

PART 2- MATERIALS

2.1 TOOLS:

- A. Hand tools and small grinders shall be used for removal of brick and mortar. No power tools which can damage existing brick to remain shall be used.
- B. Chisels shall be narrower than the joints in which they are used.
- C. Brushes for cleaning brick shall be stiff, natural bristle brushes.

2.2 BRICK

- A. In general, brick described as "historic" comprises most of the face brick on the building. Brick of this type in sound condition is typically suitable for salvage and reuse.
- B. Unclassified brick, including: historic backup brick, site brick, and recent replacement brick. These types of brick are not typically recommended for reuse, but could be considered for reuse if favorable comprehensive test date is submitted by the Contractor.
- C. Select only bricks of acceptable type that are in good, usable condition and ascertain whether the proper shapes and sizes are present.
- D. Standards for brick salvaging shall be based on approved mock ups and test areas as noted in Part 1 of this Section.

### PART 3- EXECUTION

#### 3.1 INSPECTION:

- A. Examine all areas scheduled for work to determine whether existing masonry conditions will adversely affect execution of the work of this section. Report any such conditions to the Architect.
- B. Review the amount and extent of brick rebuilding to be accomplished and review area with Architect on site prior to the execution of the work. The estimates provided on the Drawings are approximations; if other areas requiring work are found, Contractor shall seek approval from Architect in advance before additional work is executed.
- C. In general, areas to be rebuilt are noted on the Keynotes. Bricks that are sound shall be salvaged from those areas prior to re-building.
- D. In general, all bricks which are severely spalled or cracked shall be discarded. Consult with owner, owner's representative and/or architect before discarding bricks.

#### 3.2 TOOLS

- A. Use primarily hand tools for brick removal and cleaning.
- B. Provide chisels sized for width of historic mortar joints.
- C. Chisels shall be made available to Architect for approval if requested.
- D. Use of rotary power saws, power chisels, or any other power tool is permitted ONLY:
  - 1. After manual methods of removal have failed AND;
  - 2. After the Architect has approved their use AND;
  - 3. After mechanic to use said tool has demonstrated proficiency with that particular tool.

#### 3.3 BRICK REMOVAL

- A. Where brick is to be removed not because it is damaged, but to allow access to the lintels and spandrels, or to allow for the removal of unsound terra cotta units scheduled for replacement, the Contractor shall attempt to salvage as many whole, undamaged bricks as possible.
- B. Support: Protect and structurally support existing masonry that is to remain which surrounds or contacts the removal area.

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- C. Removal of Units: Loose and damaged masonry units are to be carefully removed by hand. Damaged brick and residual mortar shall be removed with a chisel.
- D. Cut out full brick units from joint to joint in a manner that will permit replacement with full sized brick units.
- E. Preparation of Surface: Leave the surfaces on which brick shall be laid free of all loose material and washed with water to remove dust.
- F. Sorting of brick:
  - 1. Bricks shall be removed by wythe and shall be so sorted.
  - 2. Ensure that bricks removed from inner and outer wythes are not mixed up during the cleaning and storing process.
  - 3. Bricks are to be sorted by wythe, size, and location.
- G. Bricks are to be cleaned of all dirt, mortar, and other debris and left ready for reuse.

END OF SECTION

## SECTION 051200 - STRUCTURAL STEEL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work specified in this section.

#### 1.2 DESCRIPTION OF WORK

- A. Extent of structural steel work is shown on drawings, including schedules, notes, details and type of steel required.

#### 1.3 QUALITY ASSURANCE

- A. Codes and Standards: Comply with Provisions of following except as otherwise indicated:
  - 1. American Institute of Steel Construction, AISC "Code of Standard Practice for Steel Buildings and Bridges".
  - 2. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" Ninth Edition, including the "Commentary" and Supplements thereto as issued.
  - 3. American Welding Society AWS D1.1 "Structural Welding Code".
  - 4. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use".
- B. Fabricator Qualifications: Fabricator must have a minimum of 5 years successful experience in the fabrication of structural steel framing components similar, in nature, to those required for this project. In addition, the fabricator shall have a quality control program acceptable to the Engineer.
- C. Qualifications for Welding Work: Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure."

Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests within previous 12 months.

- 1. If recertification of welders is required, retesting will be Contractor's responsibility.
- D. The Contractor shall review the existing 3<sup>rd</sup> floor and attic as part of the access and erection plan for the new structural steel work to be performed. The Contractor shall employ a Specialty Engineer (structural) registered to practice in the State of Connecticut to assess the areas of the 3<sup>rd</sup> floor and attic structure for compliance with the intended erection loads from

the new structural steel delivery and assembly. Loadings and calculation shall be submitted for review prior to work beginning in these areas. The Owner will make available past documents entitled *The Barnum Museum, Bridgeport, CT prepared by Richard Meirer & Partners dated April 3, 1987*. Any openings required for the purpose of attaining structural information shall be reviewed and approved by the Architect after approval by the Owner. If temporary shoring is required, signed and sealed drawings shall be submitted for review indicated the size and details of all shoring elements. All shoring to be removed at the completion of the work.

#### 1.4 SUBMITTALS

- A. Shop Drawings: Submit shop drawings including complete details and schedules for fabrication and assembly of structural steel members procedures and diagrams.

Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by others.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver anchor bolts and anchorage devices, which are to be embedded in masonry, in ample time to not delay that work.
- B. Store materials to permit easy access for inspection and identification. Keep steel members off the ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Structural Steel Shapes, Plates and Bars: ASTM A 36.
- B. Anchor Bolts: ASTM A 307, nonheaded type unless otherwise indicated.
- C. Unfinished Threaded Fasteners: ASTM A 307, Grade A regular low-carbon steel bolts and nuts.
1. Provide hexagonal heads and nuts for all connections.
- D. High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, hardened washers as follows:
1. Quenched and tempered medium-carbon steel bolts, nuts and washers, complying with ASTM A 325.
- E. Electrodes for Welding: Comply with AWS Code.

- F. Non-Metallic Shrinkage-Resistance Grout: Premixed, non-metallic, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents, complying with U.S. Army Corps of Engineers: CRD-C621 – Specification for Non-Shrink Grout.
- G. Structural Steel Primer Paint: SSPC - Paint 13.

## 2.2 FABRICATION

- A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings.

Properly mark and match-mark materials for field assembly.

- B. Connections: Weld or bolt shop connection, as indicated. Bolt field connections. **Field welding and torch cutting is not permitted at any time within the building.**

- 1. Provide high-strength threaded fasteners for principal bolted connections, except where unfinished bolts are indicated.
- 2. Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.

- C. Holes for Other Work: Provide holes required for securing other work to structural steel framing, and for passage of other work through steel framing members, as shown on final shop drawings.

Cut drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

## 2.3 SHOP PAINTING

- A. General: Shop paint structural steel by providing one coat shop applied paint system complying with Steel Structures Painting Council (SSPC) Paint Systems Guide No. 7.00.
  - 1. Do not paint surfaces which are to be welded or high strength bolted with friction type connections.
  - 2. Steel which is designated to receive a field-applied contact-type fireproofing shall not be painted and shall be shop cleaned of loose mill scale, dirt, oil, and grease by appropriate means.

## PART 3 - EXECUTION

### 3.1 ERECTION

- A. Comply with AISC Code and Specifications, and maintain work in safe and stable condition during erection. Provide temporary bracing and shoring as required; remove when final connections placed.
- B. Shoring of third floor may be required when using third floor west balcony as access point to bring steel into building. Submit shoring plan for review as stated in Section 1.3 – D of this specification and the General Requirements.
- B. Anchor Bolts: Furnish anchor bolts and other connectors required for securing structural steel to in-place work.
- C. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
- D. Field Assembly: Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming a part of a complete frame or structure before permanently fastening. Field welding is not permitted.
- E. Splice members only where indicated and accepted on shop drawings.
- F. Touch-Up Painting: Immediately after erection, clean bolted connections, and abraded areas of shop paint. Apply paint to exposed areas with same material as used for shop painting.

### 3.2 QUALITY CONTROL

- A. The owner will engage an independent testing and inspection agency to inspect high-strength bolted connections and welded connections and to perform tests and prepare test reports.  
  
Testing agency shall conduct and interpret tests and state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom.
- B. Correct deficiencies in structural steel work which inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at contractor's expense, as may be necessary to reconfirm any non-compliance of original work, and as may be necessary to show compliance of corrected work.

END OF SECTION

SECTION 071416 - COLD FLUID-APPLIED WATERPROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Polyester waterproofing over existing metal roofing.
2. System includes the following:
  - a. Primer approved for metal substrate.
  - b. Fluid applied membrane reinforced with polyester fabric.
  - c. Color coating.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

B. Shop Drawings:

1. Show locations and extent of waterproofing.
2. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample warranty.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.

1.6 WARRANTY

- A. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace waterproofing that fails in materials or workmanship within specified warranty period.
  - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 POLYESTER WATERPROOFING

- A. Multicomponent, Reinforced, Unsaturated Polyester Waterproofing: ASTM C 836/C 836M.
  - 1. Basis of Design: Provide the following or an equal system by alternate manufacturer listed:
    - a. Kemper System Inc. Primer "D".
    - b. Kemper System, Inc; 2K-PUR liquid reinforced membrane.
    - c. Kemper "Kemperdur Coating 2K-SFR", in color selected by Architect.
  - 2. Alternate manufacturer: Sika.

2.2 AUXILIARY MATERIALS

- A. Primer: Manufacturer's standard primer, sealer, or surface conditioner; factory-formulated acrylic latex, polyurethane, or epoxy.
- B. Color Coating: Color as selected from manufacturer's full color line.
- C. Sheet Flashing: 50-mil- (1.3-mm-) minimum, nonstaining, uncured sheet neoprene.
  - 1. Adhesive: Manufacturer's recommended contact adhesive.
- D. Membrane-Reinforcing Fabric: Manufacturer's recommended fiberglass mesh or polyester fabric.
- E. Joint Reinforcing Strip: Manufacturer's recommended fiberglass mesh or polyester fabric.
- F. Joint Sealant: Multicomponent polyurethane sealant, compatible with waterproofing; and as recommended by manufacturer for substrate and joint conditions.
  - 1. Backer Rod: Closed-cell polyethylene foam.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions.
- B. All surfaces must be free from gross irregularities, loose, unsound or foreign material such as dirt, ice, snow, water, grease, oil, release agents, lacquers, or any other condition that would be detrimental to adhesion of the primer and substrate. This requires careful preparation of existing horizontal and vertical substrates; cracks are filled, expansion joints are prepared, flashings are removed or modified, and termination points are determined. Substrates and penetrations are prepared to SSPC-SP3 standards, and may require scarifying, sandblasting or grinding in some cases to achieve a suitable substrate
- C. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
- D. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, acid residues, and other penetrating contaminants.
- E. Prepare surfaces at terminations and penetrations through waterproofing and at expansion joints, and corners according to waterproofing manufacturer's written instructions and to recommendations in ASTM C 898/C 898M.
- F. Apply waterproofing in two separate applications, and embed a joint reinforcing strip in the first preparation coat when recommended by waterproofing manufacturer.
- G. Prepare, treat, rout, and fill joints and cracks in substrate according to waterproofing manufacturer's written instructions and to recommendations. Before coating surfaces, remove dust and dirt from joints and cracks according to ASTM D 4258.

#### 3.2 WATERPROOFING APPLICATION

- A. Apply waterproofing according to manufacturer's written instructions and to recommendations in ASTM C 1471.
- B. Reinforced Waterproofing Applications:
  - 1. Apply first coat of waterproofing, embed membrane-reinforcing fabric, and apply second coat of waterproofing to completely saturate reinforcing fabric and to obtain a seamless reinforced membrane free of entrapped gases and pinholes, with an average dry film total thickness of 80 mils (2 mm).

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3.3 PROTECTION

- A. Do not permit foot or vehicular traffic on unprotected membrane.
- B. Protect waterproofing from damage and wear during remainder of construction period.
- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

END OF SECTION 071416

## SECTION 073210 – REPLACING LOOSE BROKEN OR MISSING CLAY ROOF TILES

### PART 1---GENERAL

#### 1.1 SUMMARY

- A. This project consists of all labor, equipment, materials and services required to perform the remediation of tornado-related damage at the Barnum Museum, as indicated on the Drawings and specified herein.
- B. This procedure includes guidance on replacing selected clay roof tiles that are loose, broken, or missing.
- C. Intent: It is the specific intent of this Section to provide for replacement of individual missing or severely deteriorated clay roof tiles with existing matching attic stock stored and owned by the Barnum Museum. All sound adjacent tile material and underlayment shall be maintained and protected. All work required to achieve this intent shall be included.

#### 1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications sections, apply to work of this section, except as modified herein.
- B. Related Sections:
  - 1. Section 014300 – Mock-up for Preservation Work.
  - 2. Section 024119 – Selective Demolition
  - 3. Section 041100 – Mortar and Repointing.
  - 4. Section 045350 – Brick Salvage.
  - 5. Section 079200 – Joint Sealants.

#### 1.3 SYSTEM DESCRIPTION

- A. A good roofing tile should be well and evenly burnt throughout, compact, hard yet tough, free from pinholes, lumps, or specks of unslaked lime, cracks or laminations, glazed or vitrified patches on the bed or underside, must not be warped or otherwise distorted, must not have broken edges or corners, and must not have high absorbent qualities. It should also comply with ASTM standards for strength in resistance to compressive and tensile loads.
- B. A dense well-burned tile will show a clean fracture when struck sharply with the edge of a trowel; a soft tile will crumble, and an overburnt tile will splinter or crack.
- C. A clay tile roof in good condition is free of any loose, broken, or missing field tiles. All starter tiles, circular cover starter tiles, eave closure tiles, top fixture pieces, ridge covers and other "special tiles" are also in place. The roof surface is clear of all debris so that

rainwater flow is not impeded.

#### 1.4 DELIVERY, STORAGE, AND HANDLING

##### A. Storage and Protection.

1. Use existing “attic stock” tiles stored at the top of the interior stairs to the attic. Contractors to maintain tile roofing materials in a dry location until ready for installation.

#### 1.5 PROJECT/SITE CONDITIONS

- ##### A. Environmental Requirements: Do not replace or repair tile roofs in wet weather.

### PART 2---PRODUCTS

#### 2.1 SOURCE

- ##### A. Contractors to use existing “attic stock” for selected individual replacement tiles.

#### 2.2 MATERIALS

- ##### A. Salvaged or replacement clay tile to match existing (see Section 2.1 above).
- ##### B. Nails: Use copper nails long enough to penetrate through the roofing material and at least $\frac{3}{4}$ -inches into the deck lumber section.
- ##### C. Sealant: Clear Silicone Rubber Sealant or clear silicone sealant of highest quality.
- ##### D. Elastic cement: Use only non-staining, non-corrosive roof tile cement.

### PART 3---EXECUTION

#### 3.1 EXAMINATION

- ##### A. Prior to commencement of Work, inspect for:
1. Individual tiles: Inspect tile ridge details and starter courses for missing, loose, broken, or out of place tiles.

#### 3.2 PREPARATION

##### A. Protection:

1. Prevent unnecessary and excessive traffic on clay tile roofing.
  - a. Lay down heavy padding and then hang a self- supporting ladder over the ridge of the roof.

- b. Do not work on roof when wet or snow-covered.

B. Surface Preparation;

1. Carefully examine, measure, and record existing tile patterns at edges, hips, ridges, and other special conditions. Measure the exposed dimensions and amount of lap of each type piece prior to the removal, as well as length, width, and thickness after removal.
2. For safety of the personnel, keep the deck clear of waste material as the work proceeds. Sweep the deck clean after all loose or broken pieces have been removed.

3.3 ERECTION, INSTALLATION, APPLICATION

- A. Salvaging a Broken or Loose Tile: If the shingle tile is broken at the nail hole, salvage the tile by carefully drilling a new hole with a carbide-tip drill and nailing the tile in place with a hammer so that the tile "hangs" on the nail.

B. Replacing Shingle Tiles:

1. Remove loose tile(s).
  - a. If tile is to be salvaged and reused, carefully remove nails using either a slate ripper, or insert a hack saw blade under the cover tile and saw through the nail.
  - b. If the tile is already broken, light blows with a hammer to further break it into pieces will facilitate removal.
2. From the "attic stock" select a replacement tile of proper size to match existing, allowing a typical gap on each side.
3. Slide the replacement tile into position.
4. After aligning it carefully, drill a hole right below the slot of the two covering tiles
5. Hold the new tile in place using a heavy gauge copper wire nail with a large flat head.
6. Drive the nail between the covering tiles.
7. Cover the nailhead:
  - a. Bend a strip of copper about 2" wide and 6" long into a slightly concave shape to make a cover for the exposed nailhead.
  - b. After tile is secure, slide copper strip under the tile positioned above the tile just replaced until the bottom of strip is 2" below nailhead.

-OR-

Secure with a 1" wide copper tab (20 oz). Nail the copper tab into the deck between the butt joint of the two tiles below.
  - c. Seal the nail hole with a nonstaining, noncorrosive cement as recommended by the manufacturer and suitable for use with copper.
  - d. Lay in the new tile and bend tab up and over the end of the tile to hold it in place. The tab should be doubled at the bent end to provide extra stiffness to the tab.

**END OF SECTION 073210**

## SECTION 079200 - JOINT SEALANTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Silicone joint sealants.
  - 2. Urethane joint sealants.
- B. Related Sections:
  - 1. Section 041100 – Mortar and Repointing.

#### 1.3 PRECONSTRUCTION TESTING

- A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
  - 1. Locate test joints where indicated on Project.
  - 2. Conduct field tests for each application indicated below:
    - a. Each kind of sealant and joint substrate indicated.
  - 3. Notify Architect seven days in advance of dates and times when test joints will be erected.
  - 4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
    - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
      - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
  - 5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.

6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

#### 1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Joint-Sealant Schedule: Include the following information:
  1. Joint-sealant application, joint location, and designation.
  2. Joint-sealant manufacturer and product name.
  3. Joint-sealant formulation.
  4. Joint-sealant color.
- D. Qualification Data: For qualified Installer.
- E. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.
- G. Field-Adhesion Test Reports: For each sealant application tested.
- H. Warranties: Sample of special warranties.

#### 1.5 QUALITY ASSURANCE

- A. Restoration Specialist: The bidder must, within the last three (3) consecutive years prior to the bid opening, have successfully completed in a timely fashion projects similar in scope and type to the required work. Such prior projects must have involved facilities determined by the SHPO to be of landmark quality and/or historical significance.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
- C. Product Testing: Test joint sealants using a qualified testing agency.
  1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
- D. Preinstallation Conference: Conduct conference at Project site.

## 1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
  2. When joint substrates are wet.
  3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## 1.7 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- D. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

## 2.2 SILICONE JOINT SEALANTS

- A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.
  - 1. Products: Subject to compliance with requirements, provide one of the following.
    - a. Dow Corning Corporation;790.
    - b. GE Advanced Materials - Silicones; SilPruf LM SCS2700.
    - c. Sika Corporation, Construction Products Division; SikaSil-C990.
    - d. Tremco Incorporated; Spectrem 1.
- B. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

## 2.3 URETHANE JOINT SEALANTS

- A. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, for Use NT.
- B. Single-Component, Nonsag, Traffic-Grade, Urethane Joint Sealant: ASTM C 920. Type S, Grade NS, Class 25, for Use T.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. BASF Building Systems; Sonolastic NP1.
    - b. Sika Corporation, Construction Products Division; Sikaflex - 1a.
    - c. Tremco Incorporated; Vulkem 116.

## 2.4 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, As approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

## 2.5 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean porous joint substrate surfaces to produce a clean, sound substrate capable of developing optimum bond with joint sealants, in accordance with manufacturer recommendations and in manner not to harm historic material. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

#### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  - 1. Do not leave gaps between ends of sealant backings.
  - 2. Do not stretch, twist, puncture, or tear sealant backings.
  - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Remove excess sealant from surfaces adjacent to joints.
  - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
  - 4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
  - 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.
    - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

### 3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 079200