

# **PROJECT MANUAL**

**For**

**GENERAL SERVICES ADMINISTRATION  
EXTERIOR FAÇADE REPAIR  
DONALD S. RUSSELL  
U.S. COURTHOUSE**

**For**

The City of Spartanburg  
Spartanburg, South Carolina

## **CONSTRUCTION DOCUMENTS**

**McMillan Pazdan Smith**

Spartanburg, South Carolina  
MPS Project # 022689



***Bid Package***  
***For***  
General Services Administration  
***Exterior Façade Repair***  
***Donald S. Russell U.S. Courthouse***  
***(SC0041ZZ)***

***CITY OF SPARTANBURG***

***JOB NO. GP-1306***

***August 8, 2023***

**Proposal No 2324-08-22-01**



## TABLE OF CONTENTS

### Section

Invitation to Bid	
Information for Bidders	
Bid Form (Must Be Completed)	
Non-Collusion Affidavit of Prime Bidder	
Bid Bond	
Statement of Bidder's Qualifications	
Performance Bond	
Payment Bond	
General Conditions/Provisions	
Insurance Requirements	
City Business License	
M/WBE/DBE Good Faith Efforts Documentation (Must Be Completed)	
00 00 09	Request for Substitute Form
00 00 12	Certification, Site Visit
00 00 13	Appendix A – Owner's Project Requirements
00 00 14	Appendix B – Guidelines for Using High Pressure Cleaning Equipment on Masonry

### Technical Specifications

#### Division 1 General Requirements

01 14 00	Work Restrictions
01 21 00	Allowances
01 22 00	Unit Prices
01 23 00	Alternates
01 25 00	Substitution Procedures
01 26 00	Contract Modification Procedures
01 29 00	Payment Procedures
01 31 00	Project Management and Coordination
01 31 19	Project Meetings
01 32 00	Construction Progress Documentation
01 33 00	Submittal Procedures
01 33 01	Digital Data Licensing Agreement
01 50 00	Temporary Facilities and Controls
01 56 39	Tree and Plant Protection
01 60 00	Product Requirements
01 73 00	Execution
01 73 29	Cutting and Patching
01 74 19	Construction Waste Management and Disposal
01 77 00	Closeout Procedures
01 78 23	Operation and Maintenance Data
01 78 36	Warranties
01 78 39	Project Record Documents
01 79 00	Demonstration and Training
01 81 16	Environmental Requirements

#### Division 2 Existing Conditions – Not Used

**Division 3 Concrete – Not Used**

**Division 4 Masonry**

- 04 01 40 Repair and Conservation of Limestone Masonry
- 04 10 21 Repair and Conservation of Brick Masonry – Alternate 1

**Divisions 5-8 – Not Used**

**Division 9 Finishes**

- 09 91 00 Painting

**Divisions 10-32 – Not Used**

**Division 32 Exterior Improvements**

- 32 20 01 Restoration Cleaning

**Division 33 Utilities – Not Used**

End Of Table Of Contents

# City of Spartanburg

Procurement and Property Division  
Post Office Drawer 1749, SC 29304-1749  
Phone (864) 596-2049 - Fax (864) 596-2365

## Legal Notice

*Request for Proposal for*

## **Exterior Façade Repair for Donald S. Russell U.S. Courthouse**

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**August 8, 2023**

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**NOTICE IS HEREBY GIVEN** – The City of Spartanburg is seeking proposals from vendors to provide construction services for the Exterior Façade Repair of the Donald S. Russell U.S. Courthouse in the City of Spartanburg for the General Services Administration.

Bids are invited upon the several items and quantities of work as follows:

**Exterior masonry repair of limestone as base bid and brick as Alternate 1. Alternate 2 includes additional miscellaneous masonry repair.**

**There will be a pre-bid meeting on site Tuesday August 15, 2023 at 10:30 AM at the Donald S. Russell Federal Courthouse, 201 Magnolia Street, Spartanburg, SC 29306.**

### **Proposal No: 2324-08-22-01**

The City of Spartanburg, hereby, notifies all proposers that it will affirmatively ensure that all disadvantaged and women's business enterprises will be afforded full opportunity to submit proposals in response to this invitation and will not be discriminated against on the grounds of gender, race, color, or national origin in consideration for an award.

The City of Spartanburg reserves the right to reject any or all proposals or to waive any informality in the qualifications process. Proposals may be held by the City of Spartanburg for a period not to exceed sixty (60) days from the date of the opening of Proposals for the purpose of reviewing the Proposals and investigating the qualifications of prospective parties, prior to awarding of the Contract. The vendor that is awarded the proposal will be required to obtain a "City of Spartanburg Business License and Permits". Vendors must have the insurance requirements in described in the bid documents.

**Each bid must be accompanied by a Bid Bond or Bank Cashier's Check payable to the Owner for five (5) percent of the total amount of the Bid. Please seal your bid bond or Cashier's Check in a separate envelope titled BID BOND to be opened first.**

**Drawings and Specifications may be purchased from ARC, Construction Documents, including Drawings and Technical Specifications are on file and can be purchased at ARC located at 7092 Howard Street #K, Spartanburg, SC 864 585-8388.**

Contract documents may be obtained by contacting Jan de Voest, City of Spartanburg at [jdevoest@cityofspartanburg.org](mailto:jdevoest@cityofspartanburg.org) or 864-978-3303

Technical questions regarding the scope of services should be directed to John Squires, Public Works Director, 864-596-2838 or by email at [jsquiresr@cityofspartanburg.org](mailto:jsquiresr@cityofspartanburg.org) . Questions regarding the bid should be directed to Carl Wright, Procurement and Risk Manager at 864-596-2790 and 864-596-2049 or by email at [cwright@cityofspartanburg.org](mailto:cwright@cityofspartanburg.org). Questions regarding Minority and Women Business participation should be directed to Natasha Pitts, Minority Business Development Coordinator, at 864-596-3449 or by email at [npitts@cityofspartanburg.org](mailto:npitts@cityofspartanburg.org).

Sealed Proposals shall be submitted to Carl Wright, Procurement and Property Manager, on or before **August 22, 2023 at 3:00 pm**, City Hall, 145 W. Broad Street, at which time they will be publicly opened and read aloud in the Training Room, same location. Complete proposal package also available at [www.cityofspartanburg.org](http://www.cityofspartanburg.org) by following the links for bid opportunities.

Proposals can be hand delivered or mailed to the following address:

City of Spartanburg  
P.O. Box 5107  
145 W. Broad Street  
Spartanburg, SC. 29304

Attn: Procurement and Property Division

For further information and complete Proposal Package, please contact the Procurement and Property office at (864) 596-2049. Complete proposal package also available at [www.cityofspartanburg.org](http://www.cityofspartanburg.org) by following the links for Invitations for bids.

**Proposal No: 2324-08-22-01**



INFORMATION FOR BIDDERS

Bids will be received and opened as specified in the advertisement.

**1. Bids**

Each Bid must be submitted in a sealed envelope, as advertised. Each sealed envelope containing a BID must be plainly marked on the outside as BID for City of Spartanburg for the **Exterior Façade Renovation for the Donald S. Russell U.S. Courthouse**, and the envelope should bear on the outside the Bid Number, name of BIDDER, his/her address, all license information, etc., typed thereon and sealed. If forwarded by mail, the sealed envelope contained in the BID must be enclosed in another envelope addressed to the OWNER as advertised.

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions herein and may waive any informality or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered.

All bids shall be on the printed form contained herein or on copies thereof, and shall be for all labor, material and equipment required to complete the work embraced in the contract in accordance with the plans and specifications. Bid Documents shall include the Bid, the Bid Quantity, the Non-Collusion Affidavit and the Statement of Bidder's Qualification. Bids shall be typewritten or completed in ink. All blank spaces for bid prices must be filled in, in figures, or in both words and figures if so indicated in the bid form. In addition, any other information requested in the bid form must be completed.

Each BIDDER is required to state in his proposal his/her name and place of residence and the names of all persons interested with him; in case of a corporation, the names of other than the president and secretary need not be given. Reference shall be furnished to establish the skill and business standing of the BIDDER.

If the Contract is awarded, it will be awarded by the Local Public Agency to a responsible Bidder on the basis of the lowest Bid and the selected Alternative Bid items, if any. The Contract will require the completion of the work according to the Contract Documents.

If called for in the bid, each bidder shall submit a price for all alternates listed therein. Failure to do so will result in the bid being considered incomplete and may result in rejection of the bid. On the first sheet of the bid form, the bidder shall write his/her name and address, his/her bidder's license number; and contractor's license number, if required. In South Carolina, where a mechanical contract amounts to \$10,000 or more, the name and license number of the sub-contractor, where his/her bid is used, shall also be shown.

Following the BID opening, the OWNER shall determine the Items, Alternates, and Additions to be performed. Total BIDS will be calculated by adding the amounts BID by each BIDDER for such ITEMS, Alternates, and Additions, less the Deductions, so selected by the Owner in determining the low responsive, responsible BID. The OWNER reserves the right to reject any and all BIDS.

The successful BIDDER will be further required to furnish the OWNER with a complete breakdown of the total sum BID items to the satisfaction of the ENGINEER, before signing the contract documents.

The Owner reserves the right to hold bids for a period of sixty (60) days after date of opening and to award the contract at any time during that period.

## **2. INTERPRETATIONS OR ADDENDA**

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the Local Public Agency. Any inquiry received seven or more days prior to the date fixed for opening of Bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the Contract Documents, and when issued, will be on file in the office of the Local Public Agency and the office of the Engineer at least five days before Bids are opened. In addition, all Addenda will be mailed to each person holding Contract Documents, but it shall be the Bidder's responsibility to make inquiry as to the Addenda issued. All such Addenda shall become part of the Contract and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.

Each bidder shall acknowledge receipt of all addenda in the spaces provided in the bid form. It shall be each bidder's responsibility to assure him that all addenda have been received. No claim for failure to receive addenda will be considered.

## **3. INSPECTION OF SITE**

Each Bidder should visit the site of the proposed work and fully acquaint himself/herself with the existing conditions there relating to construction and labor, and should fully inform himself/herself as to the facilities involved, the difficulties and restrictions attending the performance of the Contract. The Bidder should thoroughly examine and familiarize himself/herself with the Drawings, Technical Specifications, and all other Contract Documents. The Contractor by the execution of the Contract shall in no way be relieved of any obligation under it due to his/her failure to receive or examine any form or legal instrument or to visit the site and acquaint himself/herself with the conditions there existing and the Local Public Agency will be justified in rejecting any claim based on facts regarding which he/she should have been on notice as a result thereof.

## **4. ALTERNATIVE BIDS**

No alternative bids will be considered unless alternative bids are specifically requested by the technical specifications.

## **5. BID GUARANTY**

Each Bid must be accompanied by a BID BOND payable to the OWNER for five percent of the total amount of the Bid. As soon as the BID prices have been compared, the OWNER will return the bonds of all except the three lowest responsible BIDDERS. When the Agreement is executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned. A Certified check may be used in lieu of a BID BOND. A performance bond and payment bond, each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract in the form attached hereto.

Attorneys-in-fact who sign BID BONDS or payment bonds and performance bonds must file with each bond a certified and effective dated copy of their power of attorney.

## **6. COLLUSIVE AGREEMENTS**

Each Bidder submitting a Bid to the Local Public Agency for any portion of the work contemplated by the documents on which Bidding is based shall and attach thereto, an affidavit substantially in the form herein provided, to the effect that he/she has not entered into a collusive agreement with any other person, firm, or corporation with regard to any Bid submitted.

Before executing any subcontract the successful Bidder shall submit the name of any proposed subcontractor for prior approval.

## **7. STATEMENT OF BIDDER'S QUALIFICATIONS**

Each Bidder shall upon request of the Local Public Agency submit on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of the Bidder's qualifications, his/her experience record in constructing the type of improvements embraced in the contract, his/her organization and equipment available for the work contemplated, and when specifically requested by the Local Public Agency, a detailed financial statement. The Local Public Agency shall have the right to take such steps as it deems necessary to determine the availability of the Bidder to perform his/her obligations under the Contract and the Bidder shall furnish the Local Public Agency all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Local Public Agency that the Bidder is qualified to carry out properly the terms of the Contract.

## **8. UNIT PRICES**

The unit price for each of the several items in the proposal of each Bidder shall include its pro-rata share of overhead so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price Bid represents the total Bid. Any Bid not conforming to this requirement may be rejected as informal. The special attention of all Bidders is called to this provision, for should questions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities nor extra compensation allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of work (i.e., difference in cost) shall not increase or decrease the original contract price by more than twenty-five (25%) percent, except for work not covered in the Drawings and Technical Specifications.

The quantities listed in the proposal form are to be considered as approximate and are to be used only for the comparison of the BIDS and as basis for computing amounts of security or penal sums of bonds to be furnished. The unit prices to be tendered by the BIDDERS are to be tendered expressly for the scheduled quantities as they may be increased or decreased. Payments, except for lump sum contracts, and except for lump sum items in unit price contracts, will be made to the CONTRACTOR for the actual quantities only of work performed or materials furnished in accordance with the plans and specifications, and it is understood that the scheduled quantities of work to be done and materials to be furnished may each be increased or diminished without in any way invalidating the unit BID prices.

## **9. CORRECTIONS**

Bids which are incomplete, unbalanced, conditional or obscure, or which contain additions not called for, erasures, alterations or irregularities of any kind or which do not comply with the contract documents may be rejected at the option of the Owner.

Erasures or other changes in the Bids must be explained or noted over the signature of the Bidder.

**10. TIME FOR RECEIVING BIDS**

Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered: except that when a Bid arrives by mail after the time fixed for opening, but before the reading of all other Bids is completed, and it is shown to the satisfaction of the Local Public Agency that the non-arrival on time was due solely to delay in the mail for which the Bidder was not responsible, such Bid will be received and considered.

**11. OPENING OF BIDS**

At the time and place fixed for the opening of Bids, the Local Public Agency will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

**12. WITHDRAWAL OF BIDS**

Bids may be withdrawn on written or telegraphic request dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening; provided, that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the mail and postmarked prior to the time set for Bid opening. The Bid guaranty of any Bidder withdrawing his/her Bid in accordance with the foregoing conditions will be returned promptly.

**13. AWARD OF CONTRACT: REJECT OF BIDS**

The Contract will be awarded to the responsible Bidder submitting the lowest Bid complying with the conditions of the Invitation for Bids. The Bidder to whom the award is made will be notified at the earliest possible date. The Local Public Agency, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection or waiver is in its interest. The Local Public Agency reserves the right to consider as unqualified to do the work of general construction any Bidder who does not habitually perform with his/her own forces the major portions of the work involved in construction of the Improvements embraced in this Contract.

**14. EXECUTION OF AGREEMENT: PERFORMANCE BOND, PAYMENT BOND, BUSINESS LICENSE**

Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Local Public Agency an Agreement in the form included in the Contract Documents such number of copies as the Local Public Agency may require.

Having satisfied all conditions of award as set forth elsewhere in these documents, the successful Bidder shall, within the period specified in this document, furnish a surety bond in a penal sum not less than the amount of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms, or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him/her in performing the work. Such bond shall be in the same form as that included in the Contract Documents and shall bear the same date as, or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bond. This bond shall be obtained from companies holding certificates of authority as acceptable sureties (31 CFR 223).

The failure of the successful Bidder to execute such Agreement and to supply the required bond or bonds within ten days after the prescribed forms are presented for signature, or within such extended period as the Local Public Agency may grant, based upon reasons determined sufficient by the Local Public Agency, shall constitute a default, and the Local Public Agency may either award the Contract to the next lowest responsible Bidder or re-advertise for Bids, and may charge against the Bidder the difference between the amount of the Bid and the amount for which a Contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the Bid Bond. If a more favorable Bid is received by re-advertising the defaulting Bidder shall have no claim against the Public Agency for a refund.

The NOTICE OF AWARD shall be accompanied by the necessary Agreement and bond forms.

**15. NOTICE TO PROCEED**

The NOTICE TO PROCEED shall be issued within 10 days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period; the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the 10 day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

**16. WAGES AND SALARIES**

Attention of Bidders is particularly called to the requirements concerning the payment of not less than the prevailing wage and salary rates specified in the Contract Documents and the conditions of employment with respect to certain categories and classifications of employees.

The rates of pay set forth under the General Wage Determination for the State of South Carolina are the minimums to be paid during the life of the Contract. It is therefore, the responsibility of Bidders to inform themselves as to local labor conditions, such as the length of work day and work week, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustments of rates.

**17. EQUAL EMPLOYMENT OPPORTUNITY**

Attention of Bidders is particularly called to the requirement for ensuring that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin.

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)

The offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

**18. ILLEGAL ALIENS/WORKERS**

Attention to bidders is also called to requirements to verify the hiring eligibility of its employees as required under South Carolina's Eligible Immigration Reform Act, S. C. Code Ann., 41-8-10, et seq. by either registering and participating in the Federal Work Authorization Program (e-verify) pursuant to the Statute or employ only workers who at the time of their employment possess a valid South Carolina Driver's License or Identification Card or are eligible to obtain same or possess a valid Driver's License or Card from another state deemed by the Director of the Department of Motor Vehicles to have requirements at least as strict as those in South Carolina. Bidder also understands that he/she will comply with the Statute in its entirety and agrees to provide the Public Agency with documentation to establish applicability of the Statute.

**19. GENERAL GUARANTY**

Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the Improvements embraced in this Contract by the Local Public Agency or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties of responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting there from which shall appear within a period of 12 months from the date of final acceptance of the work. The Local Public Agency will be given notice of defective materials and work with reasonable promptness.

**20. LOCAL PUBLIC AGENCY**

Wherever the term "Local Public Agency" is referenced in the contract documents, it shall mean the Owner which is the City of Spartanburg.

**21. TAXES**

Attention is called to the following provisions of the South Carolina Tax laws: South Carolina law requires that a withholding tax of two percent (2%) be withheld from payments made to non-resident contractors performing a business of temporary nature in South Carolina, and provided the contract exceeds \$10,000. The withholding of two percent (2%) may be waived provided the nonresident taxpayer posts with the South Carolina Tax Commission a non-resident withholding tax bond. This provision insures the South Carolina Tax Commission that the non-resident contractor will comply with applicable provisions of the Income Tax Act of 1926, as amended. The prime contractor or employer of the non-resident contractor is held responsible for the tax due to be withheld and must withhold the tax unless he is notified by the South Carolina Tax Commission that a non-resident withholding bond has been posted covering the contract in question.

In addition to the above, the non-resident contractor is required to act as withholding agent for the State of South Carolina and withhold tax from wages paid to his employees working in South Carolina. It is the responsibility of the non-resident contractor to apply for an employer account number and file the quarterly withholding reports on or before the appropriate due dates.

**22. ENGINEER**

Wherever the "Engineer" is referenced in the contract documents, it shall mean the City Engineering Administrator, P. O. Drawer 1749, Spartanburg, S. C. 29304, telephone (864) 596-2838.

**PROPOSAL FOR**

**Exterior Façade Renovations for  
Donald S. Russell U.S. Courthouse**

**PROPOSAL # 2324-08-22-01**

**CITY OF SPARTANBURG**

**Job No. GP-1306 BID**

**FROM:**

**BIDDER** \_\_\_\_\_ **Date** \_\_\_\_\_

**Address** \_\_\_\_\_ **Telephone** \_\_\_\_\_

**Bidder's License No.** \_\_\_\_\_

**Contractor's License No.** \_\_\_\_\_

**TO: CITY OF SPARTANBURG (OWNER)**

**145 West Broad Street  
Post Office Drawer 5107  
Spartanburg, S. C. 29304**

The undersigned, as bidder, hereby declares that the only person, or persons, interested in this bid as principal(s) is, or are, named herein, and that no other person has any interest in the bid or the contract to be entered into; that this bid is made without connection with any person, company or parties making a bid; and that it is in all respects fair and in good faith without collusion or fraud.

The bidder further declares that he has examined the site of the work and informed himself/herself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the contract documents relative thereto; and that he/she has satisfied himself/herself as to the work to be performed.

The bidder further proposes and agrees, if this bid is accepted, to contract with the Owner in the attached form of agreement, to furnish all material, equipment, tools, apparatus means of transportation, and labor necessary to complete the project in full and complete accordance with the contract documents, to the full and entire satisfaction of the Owner, at the prices and amounts listed below.

The bidder further agrees to commence work on the date stipulated in the notice to proceed and to fully complete the project within the number of consecutive calendar days thereafter as listed below. The bidder also agrees to pay as liquidated damages, the sum as listed below for each consecutive calendar day thereafter the project remains incomplete.

**Completion Time: 30 days for base bid, 30 days for Alternate 1, 15 days for Alternate 2**

**Liquidated Damages: \$300.00 per day**

The undersigned Bidder agrees that if this Proposal shall be accepted, the undersigned will, within ten (10) days after notifications of such acceptance, enter into the contract for their performance of all work proposed under this improvement within the number of calendar days as stated herein, and, as a guaranty of the faithful performance thereof, to furnish at the time of executing the contract a performance bond in an amount not less than one hundred percent (100%) of the total amount bid, and with sureties subject to the approval of the Owner. Upon failure to execute the contract and bond as aforesaid, it is agreed that the undersigned shall forfeit check accompanying this proposal to the Owner as liquidated damages caused by such failure.

The work consists of the approximate quantities shown herein which will be used as a basis for comparison of bids and not for final estimate. The Owner does not, by expression or by implication, agree that the actual amount of work will correspond with the estimated quantities.

In case of error in extension, the unit price shall govern rather than the amount. For lump sum items, the individual amounts shall govern the total of the bid in case of discrepancy.

The Owner may delete from the contract any or all of the alternates listed in the bid form.

The prices and amounts listed below include all labor, materials, tools, equipment, transportation, removal, overhead, profit, insurance, taxes, etc., to cover the finished work in place.

## UNIT PRICES

**Bidder** offers for the Owner's consideration and use, the following UNIT PRICES. The UNIT PRICES offered by BIDDER indicate the amount to be added to or deducted from the CONTRACT SUM for each item-unit combination. UNIT PRICES include all costs to the Owner, including those for materials, labor, equipment, tools of the trades and labor, fees, taxes. Insurance, bonding, overhead, profit, etc. The Owner reserves the right to include or not to include any of the following UNIT PRICES in the Contract and to negotiate the UNIT PRICES with the BIDDER prior to including in the contract.

<u>Description</u>	<u>Unit</u>	<u>Pricing</u>
1. Repointing Brick Joints	SF	\$ _____
2. Repointing Limestone Joints	LF	\$ _____



**Bidder acknowledges receipt of the following Addenda:**

**Addenda Received: No.** \_\_\_\_\_

**Date** \_\_\_\_\_

**The undersigned further agrees that in case of failure on his part to execute the said contract and bonds within 10 consecutive calendar days after written notice has been given of the award of the contract, the check and/or bid bond accompanying this bid and the monies payable thereon will be paid into the funds of the Owner as liquidated damages for such failure; otherwise, said check or bid bond will be returned to the undersigned.**

**The bidder further purposes and agrees hereby to commence the work with adequate forces and equipment within 10 days after being notified by the Owner or Engineer to proceed, and to complete the work within the specified time.**

**ATTACHED HERETO is a certified check on the \_\_\_\_\_  
\_\_\_\_\_ Bank of \_\_\_\_\_ and/or bid bond  
with the \_\_\_\_\_ Company for the sum of \_\_\_\_\_  
Dollars ( \_\_\_\_\_ ), made payable to the Owner as a bid guarantee.**

**The attached completed and executed Debarred Firms certification is hereby made a  
part of this bid.**

**Address:**

\_\_\_\_\_ **Firm** \_\_\_\_\_

\_\_\_\_\_ **By** \_\_\_\_\_ **(L.S.)**

**Title** \_\_\_\_\_

**(SEAL is bid is by a corporation)**



**NON-COLLUSION AFFIDAVIT OF PRIME BIDDER**

**State of South Carolina)**

**ss.**

**County of Spartanburg)**

\_\_\_\_\_, being first duly sworn,  
deposes and says that:

- 1) He/She is \_\_\_\_\_ OF that has submitted the attached Bid: \_\_\_\_\_, the Bidder
- 2) He/she is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid:
- 3) Such Bid is genuine and is not a collusive or sham Bid:
- 4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Spartanburg, S.C. or any person interested in the proposed Contract; and
- 5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(signed) \_\_\_\_\_  
Title

Subscribed and sworn to before me this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Title



**BID BOND**

**KNOW ALL MEN BY THESE PRESENTS, that we the undersigned,**

\_\_\_\_\_ as PRINCIPAL, AND  
\_\_\_\_\_ as SURETY are held and firmly  
bound unto \_\_\_\_\_ hereinafter called the  
"Local Public Agency", in the penal sum of \_\_\_\_\_  
Dollars, (\$ \_\_\_\_\_) lawful money of the United States, for the payment  
of which sum well and truly to be made, we bind ourselves, our heirs, executors,  
administrators, successors, and assigns, jointly and severally, firmly by these  
presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas the Principal has submitted  
the Accompanying Bid,

dated \_\_\_\_\_, 20\_\_\_\_, for \_\_\_\_\_

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein  
after the said opening, and shall within the period specified therefore, or if no period be  
specified, within the (10) days after the prescribed forms are presented to him for signature,  
enter into a written Contract with the Local Public Agency in accordance with the Bid as  
accepted, and give bond with good and sufficient surety or sureties, as may be required, for  
the faithful performance and proper fulfillment of such Contract: or in the event of the  
withdrawal of said Bid within the period specified, or the failure to enter into such Contract  
and give such bond within the time specified, if the Principal shall pay the Local Public  
Agency the difference between the amount specified to said Bid and the amount for which the  
Local Public Agency may procure the required work or supplies for both, if the latter be in  
excess of the former, then the above obligation shall be void and of no effect, otherwise to  
remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several  
seals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_, the name and  
corporate seal of each corporate party being hereto affixed and these presents duly signed by  
its undersigned representative, pursuant to authority of its governing body.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ (Seal)  
\_\_\_\_\_ (Seal)

**Attest:** \_\_\_\_\_  
**By:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**By:** \_\_\_\_\_ **Affix Corporate Seal**

<sup>5</sup>Forms of Bid Bonds prepared to meet the requirements of local or State laws or the  
needs of the Local Public should be substituted for this form where necessary.

(continued next page)

Attest:

\_\_\_\_\_

By: \_\_\_\_\_ Affix  
Corporate  
Seal

\_\_\_\_\_

Countersigned

by \_\_\_\_\_

<sup>6</sup>Attorney-in-Fact, State of \_\_\_\_\_

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, \_\_\_\_\_, certify that  
I am the \_\_\_\_\_, Secretary  
of the Corporation named as Principal in the within bond: that  
\_\_\_\_\_ who signed the said bond on behalf  
of the Principal was then \_\_\_\_\_ of said corporation: that I know his  
signature, and his signature thereto is genuine: and that said bond was duly  
signed, sealed, and attested to, for and in behalf of said corporation by authority  
of this governing body.

\_\_\_\_\_ (Corporate Seal)

Title: \_\_\_\_\_

<sup>6</sup>Power-of-attorney for person signing for surety company must be attached to bond.

**PERFORMANCE BOND**

**KNOW ALL MEN BY THESE PRESENTS:** that

\_\_\_\_\_

(Name of Contractor)

\_\_\_\_\_

(Address of Contractor)

a \_\_\_\_\_,

(Corporation, Partnership or Individual)

hereinafter called Principal, and

\_\_\_\_\_

(Name of Surety)

\_\_\_\_\_

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto \_\_\_\_\_

**CITY OF SPARTANBURG**

\_\_\_\_\_

(Name of Owner)

**145 WEST BROAD STREET, SPARTANBURG, SOUTH CAROLINA 29306**

\_\_\_\_\_

(Address of Owner)

hereinafter called OWNER, in the penal sum of \_\_\_\_\_

Dollars, \$\_\_\_\_\_ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

**THE CONDITION OF THIS OBLIGATION** is such that whereas, the Principal entered into a certain contract with the OWNER, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NOW, THEREFORE,** if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and may extensions thereof which may be granted by the OWNER, with or without notice to the Surety during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expenses which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

**PROVIDED, FURTHER,** that the said surety, for value received hereby stipulate and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

**PROVIDED FURTHER,** that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

**IN WITNESS WHEREOF,** this instrument is executed in \_\_\_\_\_  
(number)  
counterparts, each one of which shall be deemed an original, this the  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**ATTEST:**

\_\_\_\_\_  
**Principal**

\_\_\_\_\_  
**(Principal Secretary)**

**(SEAL)**

**BY** \_\_\_\_\_ **(s)**

\_\_\_\_\_  
**(Address)**

\_\_\_\_\_  
**(Witness as to Principal)**

\_\_\_\_\_  
**(Address)**

\_\_\_\_\_  
**(Surety)**

**ATTEST:**

**BY** \_\_\_\_\_  
**Attorney-in-Fact**

\_\_\_\_\_  
**Witness as to Surety**

\_\_\_\_\_  
**(Address)**

\_\_\_\_\_  
**Address**

**NOTE:** Date of BOND must not be prior to date of Contract.  
If CONTRACTOR in Partnership, all partners should execute BOND.

**IMPORTANT:** Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.



**PAYMENT BOND**

**KNOW ALL MEN BY THESE PRESENTS:** that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_  
(Corporation, Partnership or Individual)

and \_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto \_\_\_\_\_

**CITY OF SPARTANBURG**

\_\_\_\_\_  
(Name of Owner)

**145 WEST BROAD STREET, SPARTANBURG, SOUTH CAROLINA 29306**

\_\_\_\_\_  
(Address of Owner)

hereinafter called OWNER, in the penal sum of \_\_\_\_\_

Dollars, \$ \_\_\_\_\_ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

**THE CONDITION OF THIS OBLIGATION** is such that whereas, the Principal entered into a certain contract with the OWNER, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NOW, THEREOF,** if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs or machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether

by SUBCONTRACTOR or otherwise then this obligation shall be void; otherwise to remain in full force and effect.

**PROVIDED, FURTHER,** that the said surety, for value received hereby stipulate and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed there under or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

**PROVIDED FURTHER,** that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

**IN WITNESS WHEREOF,** this instrument is executed in \_\_\_\_\_  
(number)  
counterparts, each one of which shall be deemed an original, this the  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

**ATTEST:**

\_\_\_\_\_  
**Principal**

\_\_\_\_\_

**(Principal Secretary)**

**BY** \_\_\_\_\_ **(s)**

**(SEAL)**

\_\_\_\_\_  
**(Witness as to Principal)**

\_\_\_\_\_  
**(Address)**

\_\_\_\_\_  
**(Address)**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
**(Surety)**

**ATTEST:**

\_\_\_\_\_  
**(Surety) Secretary**

**(SEAL)**

\_\_\_\_\_  
**Witness to Surety**

**BY** \_\_\_\_\_  
**Attorney-in-Fact**

\_\_\_\_\_  
**(Address)**

\_\_\_\_\_  
**(Address)**

\_\_\_\_\_

\_\_\_\_\_

**NOTE:** Date of BOND must not be prior to date of Contract.  
If CONTRACTOR in Partnership, all partners should execute BOND.

**IMPORTANT:** Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

## General Provisions Index

1. SCOPE OF DRAWINGS AND SPECIFICATIONS
2. *PERMITS*
3. *SUBMISSIONS, REPORTS, RECORDS AND DATA*
4. *JOB SITE DRAWINGS AND SPECIFICATIONS*
5. *PROHIBITED INTEREST*
6. *MUTUAL RESPONSIBILITY OF CONTRACTORS*
7. *ORDER AND PROSECUTION OF WORK*
8. *PUBLIC CONVENIENCE AND PROTECTION*
9. *SANITARY PROVISIONS*
10. *EXISTING FACILITIES*
11. *WORK DURING INCLEMENT WEATHER*
12. *RIGHTS-OF-WAY*
13. *WORK ON HIGHWAY RIGHT-OF-WAY*
14. *WORK ON RAILROAD RIGHT-OF-WAY*
15. *USE OF PREMISES*
16. *LINES AND GRAPHS*
17. *SITE DATA*
18. *EQUIPMENT INSTALLATION*
19. *QUANTITIES OF ESTIMATES*
20. *CLEANING UP*
21. *INSPECTION CERTIFICATES, BONDS AND GUARANTEES*
22. *ESTIMATES NOT TO PREVENT FINAL REJECTION*
23. *FINAL INSPECTION*
24. *GUARANTEES*
25. *TEMPORARY UTILITIES*
26. *UNAUTHORIZED DISCHARGES*



**00700-01. SCOPE OF DRAWINGS AND SPECIFICATIONS:**

- A. *Any provisions contained in the specifications or shown on standard drawings which are not applicable to the work under this contract shall be disregarded.*
- B. *The Owner will be responsible for the adequacy of the general design of the finished work. The design of standard products used in the work; temporary work required to protect existing work or adjoining property; and temporary work required to keep existing or new facilities in operation shall be the sole responsibility of the Contractor.*
- C. *Reference to standard Specifications (ASTM, AWWA, ANSI, etc.), national codes, local or state codes, and laws and ordinances shall mean the latest edition of said document in effect at the time of taking bids, unless specifically stated otherwise.*
- D. *It is the intent that the work under this contract shall result in a complete, properly usable and operating installation, structure, or plant; and that workmanship shall be of the best quality consistent with the materials and construction methods shown on drawings and as specified.*
- E. *The words "furnish", "furnish and install", "install" and "provide" or similar words shall mean, unless otherwise specifically stated, "furnish and install complete in place and ready for service".*
- F. *Incidental work and miscellaneous accessories not specifically mentioned or shown, but necessary for the proper completion of the work, shall be provided without change in the contract price. Such incidental work and accessories shall be of the same quality as specified for the major component of which the incidental work or accessory is an essential part.*
- G. *The work of all trades under this contract shall be coordinated by the Contractor in such a manner as to obtain the best workmanship possible for the entire project. All components of the work shall be installed or erected in accordance with the best practices of the particular trade.*
- H. *The Contractor shall be responsible for making the construction of habitable structures completely weatherproof, and for making equipment and utility installations properly perform the specified function. If he is prevented from so doing by any limitations of the drawings or specifications, the Contractor shall immediately notify the Engineer in writing of such limitations before proceeding with construction in the area where the problem or limitation exists.*
- I. *Materials or methods described by words which have a well known technical or trade meaning shall in fact refer to that recognized standard. Standard specifications or manufacturer's literature, when referenced, are intended to establish the minimum acceptable requirements.*
- J. *Any reference to manufacturer's brand or trade names or model numbers is intended merely to establish the standard of quality required for the particular product or material. Products or materials of other manufacturers, which in the opinion of the Engineer are equal to that specified with respect to quality, workmanship and economy of operation, and are suitable for the purpose intended, will be acceptable.*
- K. *The Contractor shall be responsible for making all necessary arrangements with governmental departments, public utilities, public carriers, service companies and corporations owning or controlling roadways, railways, water, sewer, gas, electrical, telephone and telegraph facilities, such as pavements, track, piping, wires, cables, conduits, poles, guys, etc., including incidental*

*structures connected therewith, that are encountered in the work in order that such items may be properly shored, supported, protected or relocated. He shall give all proper notices, shall comply with the requirements of such parties in the performance of his work, shall permit entrance of such parties on the project in order that they may perform their necessary work, and shall pay all charges and fees made by such parties for this work.*

- L. The Contractor's attention is called to the fact that there may be delays on the project due to work to be done by governmental agencies, public utilities and others in repairing or moving poles, conduits, etc. The Contractor shall cooperate with the above parties, in every way possible, so that construction can be completed in the least possible time.*
- M. Unless otherwise specified, the Contractor shall provide at his expense all tests and testing services required by the contract documents.*

#### **00700-02.PERMITS:**

*The Contractor shall be responsible for procuring any permits for the use of property beyond the limits of the Owner's property or a permanent rights-of-way as necessary for working or storage space during the prosecution of the work.*

#### **00700-03.SUBMISSIONS, REPORTS, RECORDS AND DATA:**

- A. The Contractor shall submit all schedules, quantities, costs, payrolls, reports, estimates, records, shop drawings, details and other data as required by the contract documents or as may be specifically requested.*
- B. The apparent successful bidder shall furnish to the Engineer for approval a complete cost breakdown of his bid, within 10 days after submission of bids. The breakdown shall include all items for each unit of construction, and shall show the cost for labor, materials and equipment, other necessary costs, and the total cost for each unit of work. Bidders shall consult with the Engineer prior to submitting the breakdown to insure a complete understanding of the requirements. Names of the project superintendent and others responsible for the work shall be included.*
- C. The Contractor shall furnish periodic itemized estimates for work done for the purpose of making partial payments thereon. The costs employed in making up these estimates will be used only for determining the basis of partial payments and will not be considered as a basis for changes in the contract price.*
- D. The Contractor shall notify the Engineer of the source of all materials and equipment required for the work, and shall supply samples of materials as specified in the technical sections or at the Engineer's request. Samples shall be submitted for approval by the Engineer prior to purchase and delivery to the job. Unless otherwise specified, three samples of each type or grade of material, showing construction, color, finish, etc., shall be submitted.*
- E. Prior to submittal of any shop drawings, the Contractor shall prepare a list of all materials, equipment and items that require shop drawings and submit this list to the Engineer. The list shall include each specific item along with the applicable specification section. The Engineer reserves the right to require shop drawings on any item, whether or not specified. Shop drawings will not be reviewed until this list is submitted to the Engineer.*

**00700-04. JOB SITE DRAWINGS AND SPECIFICATIONS:**

- A. *The Contractor shall maintain, in good and legible condition at the job site, one complete set of working drawings and specifications for the work, including all shop drawings. Such drawings and specifications shall be available for use by the Engineer or his/her representative at all times.*
- B. *The drawings and specifications shall be marked, or notes acceptable to the Engineer provided, in order to reflect as-built conditions. Changes indicating such conditions shall be kept current at all times. Upon completion of the project, this complete set of drawings and specifications or notes, showing as-built conditions, shall be returned to the Engineer.*

**00700-05. PROHIBITED INTEREST:**

*No official of the Owner who is authorized by the Owner to negotiate, make, accept or approve or to take part in negotiating, making, accepting or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, will become directly or indirectly interested personally in this matter or in any part thereof. No officer, employee, architect, attorney, engineer or representative of or for the Owner who is authorized by the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, will become directly or indirectly interested personally in this contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.*

**00700-06. MUTUAL RESPONSIBILITY OF CONTRACTORS:**

*If, through acts of neglect on the part of the Contractor, any other contractor or subcontractor suffers loss or damage on the work, the Contractor agrees to settle with the other contractor or subcontractor by agreement or arbitration if the other contractor or subcontractor agrees. If any other contractor or subcontractor asserts any claim against the Owner on account of damage alleged to have been sustained, the owner will notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.*

**00700-07. ORDER AND PROSECUTION OF WORK:**

- A. *The Contractor shall not begin any work on the project without first notifying the Owner and the Engineer. The notice shall be in writing and shall be received by the Owner and the Engineer at least three days prior to the beginning of work. Any work done without prior notice will not be accepted. Upon request, the Contractor shall meet with the Owner and Engineer prior to beginning work in order to discuss and clarify all phases of the work.*
- B. *The Contractor shall be solely responsible for the means, methods and sequence of construction, and for the safety of workers and other persons on the construction site and of all materials and equipment to be incorporated in the work. The work shall be prosecuted at as many different points, at such times, in such sections and with such forces as may be necessary to secure its completion within the contract time. The Contractor shall not suspend work without the prior approval of the Owner or Engineer.*
- C. *Pipeline work shall be prosecuted in such a manner that completed portions of the work can be*

- D. *properly dressed off as work progresses. In case of work on streets and highways, two or more crews shall not work on contiguous areas at the same time. Streets and roads shall be dressed off as soon as work is completed therein.*

**00700-08. PUBLIC CONVENIENCE AND PROTECTION:**

- A. *During progress of the work, the convenience and protection of the public must be provided for and interference held to a minimum.*
- B. *The Contractor shall, at all times, conduct the work in such a manner as to insure the least practicable obstruction to public travel. The convenience of the general public and of the residents along and adjacent to the area of the work shall be provided for in a satisfactory manner, consistent with the operation and local conditions. Roads and streets shall be kept open at all times or suitable detours provided. When necessary to close streets, suitable signs and barriers shall be placed immediately adjacent to the work, at such locations as traffic demands, and the Owner, law enforcement agencies, fire departments and parties operating emergency vehicles shall be notified before the street is closed and again as soon as it is opened. Access to fire hydrants and other fire fighting equipment shall be maintained at all times.*
- C. *When necessary, the Contractor shall provide watchmen, and lights to burn between twilight and sunrise, and shall erect and maintain barriers and all other necessary protection about the work at his own expense. He/She shall also take other precautions necessary to protect life, limb and property. The owner reserves the right to remedy any neglect on the part of the Contractor in connection with protection of the work after 24 hours notice in writing; and, in cases of emergency, the Owner will have the right to remedy any neglect without previous notice; and in either case deduct the cost of such remedy from money due to the Contractor.*

**00700-09. SANITARY PROVISIONS:**

*The Contractor shall provide temporary toilet facilities for the use of construction personnel. These facilities shall be maintained in a clean and sanitary condition, and shall comply with all applicable codes and regulations. Temporary sanitary facilities shall be removed upon completion of the work and the premises left clean. Construction personnel shall not use permanent washroom facilities in existing facilities or new work except by written permission of the Owner.*

**00700-10. EXISTING FACILITIES:**

- A. *Dimensions and elevations indicated on the drawings in reference to existing structures, location of utilities, sewer inverts, or other information on existing facilities, are based on the best available data, but are not guaranteed by the Owner. The Owner will not be responsible for their accuracy. Before proceeding with any work dependent upon such data, the Contractor shall field check and verify all dimensions, grades, inverts, lines, elevations, or other conditions or limitations at the site of the work to avoid construction errors or damage to existing facilities. If work is performed by the Contractor, or any subcontractors, prior to adequate verification of applicable data, any resultant extra cost for adjustment of work necessary to conform to existing conditions, or to repair damage to existing facilities, shall be assumed by the Contractor without additional cost to the Owner.*



- B. *In executing the work, the Contractor shall exert every effort not to damage existing facilities or to break into them. Damage that is done thereto shall be promptly repaired by the Contractor at his own expense. He/She shall not interrupt or interfere with operation of the existing facilities during construction except when absolutely necessary. Whenever existing facilities or utilities must be taken out of service, the Contractor shall consult with the Engineer and the Owner as to procedure, and shall be governed by their decision.*
- C. *The Owner does not guarantee that all existing buildings, structures, fences, pipelines, electrical lines, conduit, telephone cable, service connections or other facilities are shown on the drawings. It shall be the Contractor's responsibility to locate and protect all such existing facilities prior to beginning construction.*
- D. *Existing surface or subsurface improvements, such as pavement, curbs, sidewalks, pipes, utilities, footings, structures (including portions thereof), trees and shrubbery, not indicated on the drawings or specified to be removed or altered, shall be protected from damage at all times during construction.*
- E. *All such improvements damaged during construction shall be restored to a condition equal to that existing at the time of award of contract.*
- F. *The Contractor shall connect his/her work to each part of the existing work or work previously installed in accordance with the drawings and specifications to provide a complete installation.*
- G. *The Contractor shall do all cutting and patching of the work required to make the several parts fit together properly and to receive the work of others. The Contractor shall not endanger the work of others by cutting, excavating or otherwise altering their work, and shall not cut or alter the work of others without the written consent of the Engineer. All cut and patched work shall be restored to the satisfaction of the Engineer.*
- H. *The Contractor shall be responsible for removing and disposing of obstructions or obstacles at the job site or along the right-of-way to the satisfaction of the Engineer. Minor obstructions shall be removed and properly disposed of or protected and re-erected in as good condition as existing, at the same or other locations, and directed by the Engineer.*
- I. *Fences, at the site or along the right-of-way, which interfere with construction operations, shall be maintained by the Contractor until completion of work, unless written permission is obtained from the Owner to leave the fence dismantled until construction is completed. The Contractor shall remove, rebuild and extend fences as necessary to keep livestock away from the construction area or from straying away. Upon completion of work, all fences shall be restored to their original location and condition, unless otherwise noted. The Contractor shall purchase new material, if necessary, to replace all materials damaged, lost or destroyed.*

**00700-11. WORK DURING INCLEMENT WEATHER:**

*No work shall be done except by permission of the Engineer when the weather is unfit for good and careful work to be performed. If the severity of the weather continues, the Contractor, upon the direction of the Engineer, shall suspend all work until instructed to resume operations by the Engineer, and the contract time will be extended as required to cover the duration of the order. Work damaged during periods of suspension due to inclement weather shall be repaired and/or replaced by the Contractor at his/her own expense.*

**00700-12. RIGHTS-OF-WAY:**

- A. *The Owner will obtain all land and rights-of-way necessary for all work under this contract. If all land and rights-of-way are not obtained before construction begins, the Contractor shall start work only upon such land and rights-of-way previously obtained by the Owner, and no claim for damages will be allowed because of such delay. If the Owner is unable, for any reason, to obtain the land and rights-of-way necessary for the work, the contract time will be extended as required to cover the time lost by such delay.*
- B. *The Contractor shall confine his construction operations to the immediate vicinity of the locations shown on the drawings, and in no case shall he/she encroach beyond the limits of the Owner's property or rights-of-way. He/She shall place materials, equipment, supplies, etc., so as to cause the least possible damage to property and interference with traffic.*
- C. *The Contractor shall locate the limits of the rights-of-way, or property lines, prior to beginning construction. He/She shall be responsible for damage to trees, crops or other property outside the limits of the right-of-way, and shall make satisfactory settlement for damage directly with the property owner involved.*
- D. *Where timber is located on the property or right-of-way, the Contractor shall preserve and protect from damage all trees that do not directly interfere with the prosecution of the work. The Contractor shall not cut any tree greater than 6 inches in diameter and located more than 8 feet from the centerings of the ditch or structure without first consulting the Engineer.*
- E. *Except where specifically directed otherwise by the property owner, all grassed areas within the construction right-of-way and adjacent disturbed areas shall be restored to original or better condition. Within 30 days after backfilling, topsoil shall be replaced and seed planted, fertilized and watered until a permanent grass cover satisfactory to the Engineer and property is obtained. If necessary, a temporary grass cover shall be provided until a permanent cover can be established. If required by the property owner, shrubbery shall be replaced to the satisfaction of the Engineer and property owner.*

**00700-13. WORK ON HIGHWAY RIGHT-OF-WAY:**

- A. *The Contractor shall not begin work in the right-of-way of any State, County or City Department of Transportation until he has secured the necessary permits. He shall conform to all requirements of the Department of Transportation in the prosecution of this portion of the work. Each bidder shall contact the local Department of Transportation representative to determine the exact requirements for work to be done.*
- B. *The Contractor shall provide full time flagmen, with appropriate red flags, at all times when work is in progress along highways. Suitable warning and descriptive signs shall be placed at each end of the working area while work is in progress along highways. These signs shall be well tended, and shall be placed at sufficient distances from the work so that ample warning is given to approaching traffic. Signs shall be adequately lighted at night.*
- C. *Where pipe is installed in open cut across a highway, the cut shall be immediately backfilled and all work of repairing the pavement completed immediately. The Contractor shall keep at least one full lane open for traffic at all times. Any subsequent settlement shall be immediately corrected and repaired.*
- D. *Where a pipeline crossing under a highway is installed within encasement pipe as shown, the encasement pipe shall be provided as specified in the technical sections.*

- E. *Unless otherwise indicated, no excavated material shall be placed on the pavement side of the ditch along highways. The least possible amount of ditch shall be left open when work is not in progress, and equipment shall be removed from the pavement and shoulders during shutdown periods. Shoulders of roadways shall be left in good acceptable condition, and all disturbed topsoil and grass shall be replaced.*

**00700-14. WORK ON RAILROAD RIGHT-OF-WAY:**

- A. *The Contractor shall not begin work on railroad property until he has secured the necessary permits. He/She shall conform to all requirements of the railroad in the prosecution of this portion of the work.*
- B. *Where a pipeline crosses under a railroad, a larger encasement pipe shall first be installed and the pipe laid in it. The work shall be done in accordance with requirements of the railroad company. Encasement pipe shall be provided as specified in the technical sections, and shall be of the size shown on the drawings.*
- C. *The Contractor shall furnish the railroad company the following:*
- 1) *Certificate of Workman's Compensation or Employer's Liability insurance according to state law.*
  - 2) *Certificate of the Contractor's Public Liability Insurance, to protect the Contractor and subcontractor:*
    - a) *For loss of life or injury to person in an amount not less than \$150,000 for any one person, and not less than \$300,000 for any one accident.*
    - b) *For property loss or damage in an amount not less than \$150,000 for any one accident, and not less than \$300,000 aggregate.*
  - 3) *The original policy of Railroad Protective Liability insurance naming the railroad company as the insured:*
    - a) *For loss of life or injury to person in an amount not less than \$150,000 for any one person, and not less than \$300,000 for any one accident.*
    - b) *For property loss or damage in an amount not less than \$150,000 for any one accident, and not less than \$300,000 aggregate.*
    - c) *The Railroad Protective Liability policy shall show the location and description of the work and the name of the Owner for whom the work is done.*
- D. *The Contractor shall pay the cost of flagmen and other expenses of the railroad in protecting traffic. He shall notify the railroad of the time that the work will be done and shall not begin work until authorized by railroad officials.*

**00700-15. USE OF PREMISES:**

- A. *The Contractor shall confine his equipment, the storage of materials and equipment, and his/her*

*operations to areas permitted by law, ordinances, permits, the requirements of the contract documents, and as directed by the Owner and Engineer, and shall not unreasonably encumber the premises with materials or equipment.*

- B. The Contractor shall not overload any part of any structure with weights that will endanger its safety, nor shall he subject any part of the work to stresses or pressures that will endanger it.*
- C. The Contractor shall comply with and enforce the Owner's rules and instructions in connection with signs, advertisements, fires, smoking, and the routing and parking of vehicles on the premises.*
- D. Unless otherwise directed by the Engineer, the Contractor shall notify the Engineer, with a copy to the Owner, of all blasting operations at least 48 hours before such operations begin.*

**00700-16. LINES AND GRADES:**

- A. The Engineer will establish control points and base lines for control of the work, and will establish bench marks and determine their elevation. The Contractor shall provide such stakes and non-technical assistance as the Engineer may require for the work.*
- B. The Contractor shall have on the job, at all times, a man who is capable of setting stakes and replacing damaged stakes, and who understands the value and use of stakes and cut sheets, to whom the Engineer may deliver information. The Contractor shall furnish and set necessary batter boards and other means of control and shall be fully responsible for their accuracy. Lines and grades will be established as follows:
  - 1) For sewers and storm drains, the Contractor shall stake all offset lines with trench centers. These shall be set sufficiently off from the center line to allow for construction, and not over 50 feet apart when using batter boards. The Contractor shall be responsible for protecting all stakes and shall make necessary replacements. After stakes have been set, the Contractor shall determine necessary elevations and furnish necessary cut sheets for field use. Copies of all cut sheets shall be furnished to the Engineer.*
  - 2) For water mains, the Engineer will stake necessary control points to establish the center line of the main, which is to be located by the Contractor. The Engineer will also indicate locations of fire hydrants and valves.*
  - 3) For plant or building work, the Engineer will stake a construction base line, establish a bench mark and give its elevation to the Contractor. The Contractor shall stake all individual structures, provide batter boards, and set elevations for the work.**
- C. The Contractor shall establish all necessary lines and reference points for partitions, walls, floors, ceilings, openings, etc., both before and after concrete, masonry and other "roughing-in" materials are placed. Locations of all lines and points shall be verified by and overall distance check, end to end or side to side as applicable, of all intermediate dimensions.*

**00700-17. SITE DATA:**

*The Owner will make available to all prospective bidders, prior to the receipt of bids, information that he/she may have as to sub-surface conditions in the vicinity of the work, topographical maps, or other information that may assist the bidder in properly evaluating the amount and character of the work required for construction. Such information is given, however, as being the best information available to the Owner at the specific location without*

*the assumption of responsibility for its accuracy or for any conclusions that the Contractor might draw therefrom. The Contractor shall satisfy himself as to the nature of the work, shall investigate all other matters which may in any way affect the work under this contract, and shall determine the character of equipment and facilities needed preliminary to and during the prosecution of work. No verbal agreement or conversation with any officer, agent or employee of the Owner or the Engineer, either before or after the execution of this contract, shall affect or modify any of the terms or obligations contained herein.*

**700-18. EQUIPMENT INSTALLATION:**

*When equipment of any kind is to be installed in a building or structure, and minor changes are necessary in the building or structure to accommodate the equipment, such changes shall be considered incidental to the proper completion of the work, and shall be made by the Contractor without additional compensation therefore.*

**00700-19. QUANTITIES OF ESTIMATES:** *The estimated quantities of work to be done and materials to be furnished under this contract shown in any of the documents, including the bid, are given for use in comparing bids and to indicate approximately the total amount of the contract. The Owner reserves the right to increase or decrease the amount of work under this contract as specified elsewhere in these contract documents.*

**00700-20. CLEANING UP:**

- A. *During construction, the Contractor shall maintain the site and adjacent public and private property, including streets and highways, free from accumulations of waste, debris, rubbish and dirt caused by his operations. Dry materials and rubbish shall be wet down as necessary to prevent blowing dust.*
- B. *At completion of the work, the Contractor shall remove all waste materials, rubbish, tools, construction equipment and machinery, surplus materials and temporary facilities, and shall clean all exposed finished surfaces to prepare the project for occupancy by the Owner.*
  - 1) *Grease, dust, dirt, stains, labels, fingerprints and other foreign materials shall be removed from all exposed finished surfaces. All surfaces so designated shall be polished to a shine finish.*
  - 2) *Marred or damaged surfaces shall be repaired, patched or touched up to the specified finish or to match adjacent surfaces.*
  - 3) *Floors and paved surfaces shall be broom clean. Other surfaces of the grounds shall be raked clean.*
  - 4) *Both sides of all glass surfaces shall be cleaned.*
- C. *Cleaning and disposal operations shall be conducted in accordance with local ordinances and anti-pollution laws. Wastes shall not be disposed of into streams or waterways.*

**00700-21. INSPECTION CERTIFICATES, BONDS AND GUARANTEES:**

*Upon final completion of the work and prior to submission of certificate for final payment, the Contractor shall have had electrical plumbing, heating and other work, as applicable inspected by the proper authorities as required by the technical sections of the specifications and all applicable codes, laws and ordinances. Before final payment is made, the Contractor shall submit all inspection certificates to the Engineer covering such work, signed by the proper authorities, together with all required bonds and guarantees.*

**00700-22. ESTIMATES NOT TO PREVENT FINAL REJECTION:**

*Final inspection and acceptance of the work will take place at completion of the work under this contract. Any inspection or acceptance of materials and workmanship at mills, shops or elsewhere to facilitate the progress of the work will not preclude rejection of such materials or workmanship thereafter if the same is found unsuitable or not in complete accordance with the contract documents.*

**00700-23. FINAL INSPECTION:**

*Upon written notice from the Contractor that the work is complete, the Engineer, Owner and applicable jurisdictional agencies will make a final inspection, and will notify the Contractor in writing of all defective, incomplete or otherwise unacceptable work revealed by the inspection. The Contractor shall immediately correct all such deficiencies to the satisfaction of the Engineer.*

**00700-24. GUARANTEES:**

- A. *If, in fulfilling the requirements of this contract, the Contractor disturbs any work guaranteed under another contract, he/she shall restore such disturbed work to a condition satisfactory to the Engineer, and shall guarantee such restored work to the same extent as it was guaranteed under the other contract.*
- B. *All special guarantees applicable to specific parts of the work that may be stipulated in the contract documents shall be subject to the terms of the general one-year guaranty (see General Conditions) during the first year of the life of such special guarantee.*

**00700-26. TEMPORARY UTILITIES:**

- A. *The Contractor shall provide all equipment, fuel, supplies, services and attendance for interim heating as required during construction to protect the work against damage from cold weather. Unless otherwise specified, the permanent heating system shall not be used to provide temporary heat. The Contractor's proposed methods of heating shall be submitted to the Engineer for approval.*
- B. *During construction, the Contractor shall provide all interim electrical power and wiring required for operation of power tools, equipment and machinery and for temporary lighting. Lighting shall be provided where necessary for proper workmanship, inspection and safety. Temporary electrical service shall be installed and maintained by a qualified electrical contractor approved by the Engineer. The Contractor shall pay all charges for electrical service required for temporary power and lighting.*

**00700-27. UNAUTHORIZED DISCHARGES:**

*During construction, the Contractor shall be solely responsible for prevention of unauthorized discharges of wastewater and sludge which may result in such environmental problems as fish kills, contaminated water supplies and the interruption of the intended use of certain stream segments. Such unauthorized discharges are a violation of state law and will be strictly enforced in accordance with all applicable laws and regulations. The Contractor shall be liable for all civil penalty assessments as prescribed for such violations.*

*End of Section*





# **INSURANCE REQUIREMENTS**

## **CONTRACTOR INSURANCE REQUIREMENTS**

Contractor shall provide, pay for and maintain in full force and effect, all insurance outlined herein with limits of liability not less than the limits of liability shown covering Contractor's activities, those of any subcontractors or anyone directly or employed by any of them, or by anyone for whose acts any of them might be liable.

### **Insurer Qualifications**

All insurance should be provided through insurance companies authorized to do business in South Carolina with an A M Best's Rating of no less than A and shall be approved by and acceptable to Owner.

### **Certificates of Insurance**

Within **5 (five) days** of execution of Contract but **PRIOR** to commencing Work, Contractor's insurer shall provide to Owner a Certificate of Insurance issued by an authorized representative of its insurer certifying that the insurance as required in this Exhibit is in full force and effect. Certificates should be sent via fax or mail to the following:

Risk Coordinator  
City of Spartanburg  
P. O. Box 1749  
Spartanburg, SC 29304  
Fax:# 864-596-2262  
Email: [kbooker@cityofspartanburg.org](mailto:kbooker@cityofspartanburg.org)

The original of the Certificate is to be sent as well. The Certificate shall include a statement that the policies will not be canceled or non-renewed without 30 days advance written notice to Owner.

### **Primary Insurance**

All insurance coverage required of the Contractor shall be primary over any insurance or self insurance carried by City of Spartanburg.

### **Duration of Coverage**

All required insurance coverage shall be maintained without interruption during the entire term of the Contract plus an additional 3 years for Products and Completed Operations Coverage following final acceptance of the Work by Owner.

### **Subcontractor's Insurance**

The Contractor shall require any Subcontractor to purchase and maintain insurance of same types and limits required herein.

**Waiver of Subrogation**

The Contractor shall require all policies of insurance as required herein to be endorsed to provide that the insurance company shall waive all of its right of recovery or subrogation against Owner. The Contractor shall require similar waivers from any Sub-contractors.

**Additional Insured**

The Contractor’s insurance policies as required herein with the exception of Workers Compensation shall be endorsed to name Owner as an additional insured.

**Insurance Coverage and Limits**

**Workers’ Compensation:** The Contractor shall provide and maintain Workers Compensation insurance in each jurisdiction in which the Work is located.

Limits:

Coverage A – State Statutory Benefits	
Coverage B - Employers Liability	\$1,000,000

Specific Coverage:

- United States Longshoremen and Harbor Workers Act
- Coverage endorsement must be provided if any work is to be performed on or around navigable water.

**Automobile Liability:** Contractor shall provide and maintain Business Auto

Liability insurance covering bodily injury and/or property damage liability arising out of the use of any auto (including owned, hired, and non-owned autos).

Limits:

Combined Single Limit Each Accident:	\$1,000,000
--------------------------------------	-------------

**Commercial General Liability:** Contractor shall provide and maintain in full force and effect Commercial General Liability Insurance covering all operations by or on behalf of Contractor on an occurrence basis against claims for bodily injury, personal in-jury, and/or property damage (including loss of use).

Limits:

Each Occurrence	\$1,000,000
General Aggregate	\$2,000,000
Products/Completed Operations	\$2,000,000

Specific Coverage:

Occurrence Form  
Blanket Contractual Liability  
Underground Explosion and Collapse

**Umbrella/Excess Liability:** Contractor shall provide and maintain Umbrella/Excess Liability Insurance on an occurrence basis with coverage as broad a underlying policies.

Limits:

Each occurrence:	\$2,000,000
Annual Aggregate:	\$2,000,000

Specific Coverage:

Blanket Contractual Liability  
Follow Form Primary

**Other Insurance:** Any other insurance as specified by Owner in the Contract Documents.

**Changes:** Exceptions to specified insurance requirements shall be submitted at time of any bid.



CITY OF SPARTANBURG

BUSINESS LICENSE APPLICATION

(864) 596-2055 (864) 596-2424 Fax
P O Box 1749 Spartanburg, SC 29304
Bus Lic#

Year \_\_\_\_\_

\*\*All City of Spartanburg Business License expire December 31st of each year\*\*

\_\_\_\_ New Business \_\_\_\_ Renewal of License \_\_\_\_ Change of Ownership \_\_\_\_ Change of Location

Name of Business: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Business Location: \_\_\_\_\_ Start Date: \_\_\_\_\_

Telephone number: Business ( ) \_\_\_\_\_ or ( ) \_\_\_\_\_

Federal Tax ID No. \_\_\_\_\_ Social Security No. \_\_\_\_\_

Type of ownership: \_\_\_\_ Sole Proprietor \_\_\_\_ Partnership \_\_\_\_ Corporation \_\_\_\_ Other

Are you a Contractor? \_\_\_\_ Yes \_\_\_\_ No Are you located \_\_\_\_ inside or \_\_\_\_ outside the city limits?

State Contractors License No. \_\_\_\_\_ SC State Sale Tax No. \_\_\_\_\_

Do you have Coin Operated Machines? \_\_\_\_ Yes \_\_\_\_ No How many? \_\_\_\_\_

Do you own the Machines? \_\_\_\_ Yes \_\_\_\_ No What type of Machines? \_\_\_\_\_

Types of Business or Profession - Please describe in detail products sold or services provided.

Computation of Fees

A. New Business - (Fees are due Prior to beginning operation in the City)

- 1. Estimated total gross sales/revenue for remaining \$ \_\_\_\_\_ of the year ending December 31, \_\_\_\_
2. Calculate and enter fee based on A1. \$ \_\_\_\_\_

B. Existing Business (After 2nd year of operation)

\*\*Bus License fee is due/payable by last day of February\*\*

- 1. Total actual gross sales/revenue for preceding \$ \_\_\_\_\_ December 31, \_\_\_\_
2. Total Gross receipts \$ \_\_\_\_\_
3. Calculate fee based on B3. \$ \_\_\_\_\_
4. Penalties due (Delinquent after end of February) \_\_\_\_\_ % \$ \_\_\_\_\_
5. Total Fees \$ \_\_\_\_\_

Owner Information

Name of Owner \_\_\_\_\_ Social Security No. \_\_\_\_\_

Telephone number: ( ) \_\_\_\_\_ Home ( ) \_\_\_\_\_

I UNDERSTAND THAT ISSUANCE OF A CITY BUSINESS LICENSE DOES NOT RELIEVE ME OF THE RESPONSIBILITY OF MEETING ALL CITY OF SPARTANBURG ZONING AND BUILDING CODE REQUIREMENTS. I AM SUBJECT TO ALL PROVISIONS OF THE BUSINESS LICENSE ORDINANCE OF THE CITY OF SPARTANBURG.

I CERTIFY THAT THE INFORMATION GIVEN IN THIS APPLICATION IS TRUE.

\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

owner

NOTE: AN ORIGINAL CITY OF SPARTANBURG BUSINESS LICENSE APPLICATION IS INCLUDED IN THIS BID PACKET FOR YOU TO COMPLETE



**GOOD FAITH DOCCUMENTATION MUST ACCOMPANY THE BID DOCUMENT**

**City of Spartanburg, hereby, notifies all proposers that it will affirmatively ensure that all disadvantaged and women's business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of gender, race, color, or national origin in consideration for an award. Each proposer shall attest that they engaged in good faith efforts in an endeavor to achieve the City's M/WBE goal of 10%.**

**Any questions or any assistance please contact Mrs. Natasha Pitts.**

**Contact Information**

**Phone 864-596-3449**

**Email [npitts@cityofspartanburg.org](mailto:npitts@cityofspartanburg.org)**





**INTENT TO PERFORM CONTRACT WITH OWN WORKFORCE**

I HERBY CERTIFY THAT IT IS OUR INTENT TO PERFORM 100% OF THE WORK REQUIRED FOR THE ABOVE PROJECT. IN MAKING THIS CERTIFICATION, THE BIDDER STATES THAT THE BIDDER DOES NOT CUSTOMARILY SUBCONTRACT ELEMENTS OF THIS TYPE OF PROJECT, AND NORMALLY PERFORMS AND HAS THE CAPACITY TO PERFORM AND WILL PERFORM ALL ELEMENTS OF THE WORK PROJECT WITH HIS/HER OWN CURRENT WORK FORCES; AND IF THE BIDDER DOES NOT PERFORM 100% OF THE WORK REQUIRED, THE BIDDER WILL PROVIDE A LIST OF SUBCONTRACTORS

THE BIDDER AGREES TO PROVIDE ANY INFORMATION OR DOCUMENTATION TO THE CITY OF SPARTANBURG IN SUPPORT OF THE ABOVE STATEMENT.

THE UNDERSIGNED HEREBY CERTIFIES THAT HE OR SHE HAS READ THIS DOCUMENTATION AND IS AUTHORIZED TO BIND THE BIDDER TO THE COMMITMENTS HEREIN SET FORTH.

The listing of an MWBE shall constitute a representation by the bidder/responder to City of Spartanburg that such MWBE has been contacted and properly appraised of the upcoming City of Spartanburg project. Bidders/Responders are advised that the information contained herein is subject to verification by the Minority & Women Business Enterprise Program Coordinator and that submission of said information is an assertion of its accuracy. These documents are a part of this solicitation and contract. You are required to fill out this information.

I certify that the above information is true to the best of my knowledge:

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

Notary Signature \_\_\_\_\_

Notary Seal

**THIS DOCUMENT MUST BE PROVIDED WITH THE SUBMITTAL AND SIGNED BY THE PERSON SIGNING THE SUBMITTAL**



**MWBE Good Faith Effort Participation Commitment Contract**

This form should be filled out completely and **included in your bid document**. This form should also be accompanied by an executed Letter of Intent from each Sub-Contractor firm listed in this form. You may use additional sheets if necessary.

<b>BID NO:</b>	<b>DATE:</b>
<b>PROJECT NAME:</b>	
<b>PRIME CONTRACTOR:</b>	<b>ADDRESS:</b>
<b>CONTACT PERSON:</b>	<b>CITY:</b> _____ <b>STATE:</b> _____
<b>TELEPHONE: ( )</b>	<b>EMAIL:</b>
	<b>FAX: ( )</b>

**MWBE SUBCONTRACTORS**

COMPANY	MWBE CLASS	CITY, STATE	CONTACT	PHONE	TYPE OF WORK TO BE PERFORMED	SUBCONTRACT AMOUNT	% OF WORK
						\$	%
						\$	%
						\$	%
						\$	%
Total MWBE Participation						\$	%
Total Contract Amount						\$	
<b>MWBE CLASSIFICATION</b>							
MBE-B - African American    MBE-S - Asian American    MBE-H - Hispanic American    WBE - American Woman    MBE N/A - Native American							

**NON-MWBE SUBCONTRACTORS**

COMPANY	MWBE CLASS	CITY, STATE	CONTACT	PHONE	TYPE OF WORK TO BE PERFORMED	SUBCONTRACT AMOUNT	% OF WORK
						\$	%
						\$	%
						\$	%
						\$	%
Total Non-MWBE Participation						\$	%
Total Contract Amount						\$	



## **REQUEST FOR SUBSTITUTE FORM**

### **INSTRUCTIONS**

Please read the specifications before completing this form.

This form is only applicable to requests for substitutes that are made during the Bidding Phase. All requests for substitutes after Contract Execution shall be in accordance with the General Requirements Section 01 25 00 Substitution Procedures. Although the form is detailed and the requested information is specific, it is no more than what was requested from manufactures that are listed in the project specifications. However, approval of this form does not necessarily imply approval for future projects. Products, materials, and components not specified or approved but are installed will be removed and replaced with acceptable products, materials, components at the Contractors expense.

Submit this form along with all required supporting product data, specifications and performance criteria when requesting the use of products or services that are not listed in the Specifications. The Architect must receive this Request For Substitute form no later than the time stated in the Bidding Requirements for submitting product substitutions. If no time is stated, then no later than 10 days prior to date of bid opening.

Where the Contract Documents list at least three manufacturers or products, the Architect reserves the option to reject any and all requests for substitute. Where the Contract Documents list only one manufacture or product without "Or equal" or similar language, substitutes will not be considered. Where the Contract Documents list less than 3 products or manufacturers, substitutes may be reviewed and evaluated on an individual base.

Receipt of inquiries or submittals without this completed Request For Substitute form will not extend the deadline. Include only one request for substitution on each form. Verbal requests for a substitute or requests submitted on the incorrect request for substitute form are not acceptable and will not extend the submittal deadline established by the Instructions To Bidders. Incomplete forms; forms with vague or unspecific answers; forms without supporting data to substantiate equal or superior quality/design; forms that do not include requested proof, verification, reports, and substantiating documentation; or forms received after the time established in the Instructions will be disapproved. Disapproval will not extend the submittal deadline.

The manufacturer's published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified item even if they are not specifically mentioned in the Contract Documents. Products of manufacturers other than those specified may be acceptable after proper submittal to the Architect and after the Architect's review. However, manufacturers capable of providing specified products shall not, for the convenience of their normal production methods, vary from the specified product.

Where test data and standards are being submitted as supporting data and for comparison with the specified item, submit certified data provided by an independent testing laboratory. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item the substitute item. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer's published data for performance criteria. Identify and define all abbreviations and acronyms. All substitutes shall meet all of the minimum performance criteria of the specified product. Submittals not complying with this provision will be considered incomplete, unacceptable, and will be rejected. Where not applicable or NA is entered, state why the item is not applicable. Knowingly and intentionally providing incorrect information is fraud.

General Services Administration  
**Exterior Façade Repair**  
**Donald S. Russell U.S. Courthouse (SC0041ZZ)**  
Spartanburg, South Carolina

Project Number 022689.00

Complete the following parts as follows:

PART 1: Complete for all requests for substitutes. Contains general, substitute product, marketing/sales, manufacturer, warranty.

PART 1 (All Substitutes)

Project Name

General Services Administration

Project Number 022689.00

**Exterior Façade Repair**

**Donald S. Russell U.S. Courthouse (SC0041ZZ)**

Spartanburg, South Carolina

Date:

Specification No.:

Drawing No. Reference:

Name of Specified Item:

Substitute Information

Name of Substitute:

Manufacturer of Substitute:

Name:

Address:

Telephone No.:

Fax No:

Years in Business:

**General Information**

1. Has the entity submitting this Request For Substitute read and fully understands the applicable specifications and stated provisions. Yes \_\_\_ No \_\_\_\_. If no, please explain.

2. Is this request at the request of subcontractor or general contractor? Yes \_\_\_ No \_\_\_  
If yes, please give the name and address of that subcontractor or general contractor.

3. If the entity requesting the substitute will not be the installer, please provide the following information about the intended installer:

Name:

Address:

Telephone No.:

Fax No:

Years in Business:      Years installing this product:

Did the manufacturer certify the installer? Yes \_\_\_ No \_\_\_ If yes, when:

Is the certification still effective? Yes \_\_\_ No \_\_\_

Did the manufacturer train the installer? Yes \_\_\_ No \_\_\_ If yes, when:

4. If the entity requesting the substitute is a distributor, list all installers within 50 miles of the project site that you sell to:

5. Who will service the substitute?

6. Why is this substitute being requested? (Competitive pricing or being local are not acceptable answers. Please be specific!)

**Substitute Product Information**

1. Including installation and operational costs, will the substitute be less expensive than the specified entity? Yes \_\_\_\_\_ No \_\_\_\_\_ Same \_\_\_\_\_. (Don't know or can't be determined are not an acceptable answers)

a. If No or the same, why should the substitute be considered? If more expensive, why is it more expensive? (Please be specific!).

b. If less expensive, why is it less expensive? (Please be specific)

2. What is the functional and physical difference between the specified item and the substitute? If there are no differences, why should this substitute be approved? (Please be specific!)

3. Other than cost, what are the proven and verifiable benefits or advantages of the substitute item? (Please be specific! Convince us. Don't just reference product data. Being local does not necessarily mean better or more economical. Mention any unique benefits or attributes). If there are none, why should this substitute be approved?

a. If the substitute is more economical, why is it more economical? Please provide detailed cost comparison including material and labor as to why costs are more economical.

b. If the substitute is better, why/how is it better? Show side-by-side comparison

c. What does the substitute do that the specified will not do?

d. If service for the substitute is better, why/how is it better?

4. Are there any known failures of the substitute? If so, where and when did the failures occur and what was the probable cause of the failures?

5 Will the Owner have difficulty getting the substitute serviced or repaired?

6 Does the substitute installer meet all of the specified qualifications and requirements? Yes: \_\_\_\_\_

No: \_\_\_\_\_. If no, please describe the differences.

7. Will the proposed substitution affect dimensions shown on the Drawings? Yes \_\_\_ No \_\_\_\_\_. If yes, please explain.

8. Will the proposed substitution have an adverse affect on other trades, the construction schedule, or specified warranty requirements. Yes \_\_\_ No \_\_\_\_\_. If yes, please explain.

10. Will maintenance and service parts for the proposed substitution will be readily available locally? Yes \_\_\_ No \_\_\_\_\_. If no, please explain.

11. Will the proposed substitute meet or exceed all aspects of the specifications, including overall performance, appearance, and manufacturer's/installers qualifying criteria stated in the Contract Documents? Yes \_\_\_ No \_\_\_\_\_. If no, please explain.

12 Will the proposed substitute meet all applicable governing codes, regulations, and listed or indicated UL assemblies? Yes \_\_\_ No \_\_\_ Not Applicable \_\_\_\_\_. If no, please explain.

13. Does the substitute have any affect on other contractors or trades? Yes \_\_\_ No \_\_\_\_\_. If yes, please explain.

#### **Installer Information**

If this request for substitute is being submitted by a manufacturer, general contractor, or distributor, complete the following installer information for each installer that may be selected. If this is for a metal roof installer, omit this section and complete Part 7 of this form.

1. Who will install the substitute Product? Provide

Name

Address

Telephone No.

Contact Person?

2. How long has installer been in business? \_\_\_\_\_ Years

3. How long has the installer operated under this name? \_\_\_\_\_ Years

4. Has installer ever operated under a different name? Yes \_\_\_ No \_\_\_

5. If yes, under what name?

6. If this request for substitute is being submitted by a manufacturer, general contractor, or distributor, how long have you had a business relationship with the installer? \_\_\_ years.

7. Will installer purchase the substitute or specified product directly from the manufacturer? Yes \_\_\_ No \_\_\_\_\_. If no, please provide name and address of entity the product will be purchased from?

8. Years experience installing the specified or substitute product/system? \_\_\_\_\_ years.

9. When required by the contract documents, has the installer been trained, qualified, and approved by the manufacturer prior to the date of Advertisement or Invitation for Bids for this project? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, how was approval obtained?

10. Has the installer ever had a manufacturer's approval or certification revoked because of unsatisfactory performance? Yes \_\_\_ No \_\_\_\_\_. If yes, please explain.

11. Will installer maintain a trained work force, including a non-working supervisor on project site at all time installation is in progress? Yes \_\_\_\_\_ No \_\_\_\_\_. If no, please explain why?

12. Will the installer install the entire product/system with own employees? Yes \_\_\_ No. \_\_\_\_\_. If no, please explain.



13. Does the installer presently have the staff and equipment on board to perform the contracted work? Yes \_\_\_\_\_ No \_\_\_\_\_. If no, please explain. For the purpose of this Contract, the installer's own employees are considered employees for which the installer contributes directly to and is directly financially responsible for the following employee expenses:

- a. All Federal, State and Local Taxes
- b. Social Security
- c. Insurance
- d. Workers Compensation
- e. Holidays
- f. Vacations
- g. Sick Time
- h. Retirement

14. Has the installer successfully completed a minimum of 5 projects of the size and complexity as required for this project? Yes \_\_\_\_\_ No \_\_\_\_\_.

15. Has the installer completed at least 80% of projects on time and under budget? Yes \_\_\_\_\_ No \_\_\_\_\_.

16. Has the installer been refused a bond in the last 5 years? Yes \_\_\_\_\_ No \_\_\_\_\_. If no, please submit proof.

17. Does the installer provide a written warranty? If yes, length of material and labor warranty? Material \_\_\_ years. Labor warranty? \_\_\_years. If no, please explain.

18. How many warranty claims have been filed against the installer within the last 3 years? None \_\_\_\_\_ Labor \_\_\_\_\_ Product \_\_\_\_\_

19. Are there any judgments, claims, or arbitration proceedings or suits pending against the installer? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, please explain.

20. Has the installer ever failed to complete any portion of any assigned or contracted work? Yes \_\_\_ No \_\_\_ If yes, please explain.

21. Does the installer have verifiable means to provide necessary funds to honor warranty requirements? Yes \_\_\_\_\_ No \_\_\_\_\_. Please submit proof.

22. Has the installer ever filed for protection under either Chapter 7 or 11 of the US Bankruptcy Laws within last 5 years under this name or any other name? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, please explain

23. Does the installer have a current and active open line of credit with the product/system/material manufacturer (A distributor is not acceptable). Yes \_\_\_\_\_ No \_\_\_\_\_. If no, please explain. If the manufacturer does not sell directly to installers, where will the product/system/material manufacturer be purchased?

**Sales/Marketing Information**

1. How long has this substitute been on the market? \_\_\_\_\_ years.
2. Did this substitute replace a previous product? Yes\_\_\_\_ No\_\_\_\_. If yes, why.
3. Is the substitute an improvement of a previous product? Yes\_\_\_\_ No\_\_\_\_. If yes, what is the improvement.
4. What was the annual sales volume of this substitute last year?
5. How much more or less is this than the previous year's volume? More \_\_\_\_\_ Less \_\_\_\_\_
6. In sales volume of this product, where does the manufacturer rank compared to other manufacturers of the same product? Top 5 10, 15, 20 of \_\_\_\_\_manufacturers.
7. How long has the substitute been marketed locally (within 75 miles) to the project? \_\_\_\_\_years. List 3 local installations of comparable type, size, and scope where substitute has been successfully used and has been in place and in use for a minimum of 3 years:
  - a.
  - b.
  - c.
8. If the product has not been installed locally (within 75 miles), why do you think that is so?
9. If substitute has been marketed elsewhere, but not locally to the project, why?
10. Is substitute listed in SWEETS Catalogs? Yes\_\_\_\_ No\_\_\_\_ If no why?
11. Is product listed in AIA Masterspec? Yes\_\_\_\_ No\_\_\_\_ If no, why?
12. Has this same substitute been marketed under a different name or by a different manufacturer? Yes\_\_\_\_ No\_\_\_\_ If so, please state details

**Manufacturer/Fabricator Information**

1. How long has the manufacture been in business? \_\_\_\_\_ years.
2. How long has the manufacturer been operating under the present name? \_\_\_\_\_years.
3. Has the manufacturer operated under any other name? Yes\_\_\_\_ No\_\_\_\_ If so, what name?
4. What other products does the manufacturer produce?
5. Has the manufacture, supplier, or contractor ever failed to complete any portion of any assigned or contracted work? Yes\_\_\_\_ No\_\_\_\_ If yes, please explain.
6. Does the substitute manufacturer meet all of the specified qualifications and requirements? Yes:\_\_\_\_ No:\_\_\_\_. If no, please describe the differences.
7. When specified, will the installers be certified and factory-trained by the manufacturer? Yes\_\_\_\_No\_\_\_\_ Not Applicable\_\_\_\_\_ If no, please explain.
8. Does the manufacturer presently meet all specified qualifying criteria. Yes\_\_\_\_No\_\_\_\_. If no, please explain.
9. Does the manufacturer comply with the special warranty provisions, when they are specified. Yes\_\_\_\_No\_\_\_\_ Not Applicable\_\_\_\_\_ If no, please explain.

10. Will the installer meet all specified qualifying criteria. Yes \_\_\_ No \_\_\_\_\_. If no, please explain.

**Warranty Information**

1. Does substitute manufacturer provide a warranty? Yes: \_\_\_\_\_ No: \_\_\_\_\_.

2. If no, why not?

3. If yes, are the warranty provisions equal to or better than those of the specified product, including the exclusions? Yes: \_\_\_\_\_ No: \_\_\_\_\_.

4. What provisions or exclusions does the substitute manufacturer's warranty have that are not in the specified warranty?

5. If the manufacturer's warranty period exceeds the time the manufacturer has been in business or the time the product has been available or marketed, how was the warranty time determined? Please be specific.

6. How many warranty claims have been filed against this product in the last 5 years? If product is less than 5 years old, then how many claims since the product was introduced? 0 \_\_\_ 1-5 \_\_\_ 6-10 \_\_\_ Over 10 \_\_\_.

7. Are there outstanding warranty claims against this product now? Yes: \_\_\_ No: \_\_\_\_\_. If yes, what is the longest period? \_\_\_ months. What is its disposition.

8. If there has been warranty a claim, what was the basis of the claim?

9. If there was more than one claim, were the claims for the same reason? Yes: \_\_\_ No: \_\_\_\_\_. If yes, what is the reason? If claim is related to a design or manufacturing problem, has the problem been corrected?

10. Does warranty require Owner's signature for proper execution? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, Can it be revised to exclude Owner's signature? Yes \_\_\_\_\_ No \_\_\_\_\_.  
If the warranty cannot be revised, will the manufacturer issue a certified letter stating that the Owner's signature does not deprive the Owner of other rights, including, but not limited to, provisions under the Uniform Commercial Code and the Magnusson Moss Act.  
Yes \_\_\_\_\_ No \_\_\_\_\_.

11. Is the warranty pro-rated? Yes \_\_\_\_\_ No \_\_\_\_\_.

12. Are there any judgments, claims, or arbitration proceedings or suits pending against the substitute entity? Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, please explain.

**Foreign Manufacturer**

1. Is the manufacturer of proposed item foreign owned? Yes: \_\_\_\_\_ No: \_\_\_\_\_

2. Is proposed item manufactured or assembled outside of the United States? Yes: \_\_\_\_\_  
No: \_\_\_\_\_. If yes, what percentage? \_\_\_\_\_ percent.
3. Is proposed item manufactured or assembled from components or materials manufactured or assembled outside of the United States? Yes: \_\_\_\_\_ No: \_\_\_\_\_. If Yes, what portion of the components or materials are manufactured or assembled outside the United States? \_\_\_\_\_ percent
4. Do you certify that the substitute product complies with the "Made In America" provisions stipulated elsewhere in the Contract Documents? Yes \_\_\_\_\_ No \_\_\_\_\_

**LEED Projects**

Complete this portion if this is a LEED project

1. If the project anticipates LEED certification, what credits are affected by this proposed substitute?
2. How does the proposed substitute affect anticipated LEED credits?
3. Does the substitute meet same LEED credits as specified product? Yes \_\_\_ No \_\_\_
4. Has substitute been successfully been used on a LEED certified project? Yes \_\_\_ No \_\_\_  
If yes, What project? What certification?
5. **Life Cycle Assessment (LCA):** Submit, with this form, a complete LCA as stipulated by LEED requirements. The Life Cycle Assessment for the substitute shall meet or exceed that of the specified entity. Substitutes that do not include the LCA requirement or that do not meet the LCA of the specified entity are not acceptable and will not be approved. As a minimum, include the following:
- a. LCA of Specified Entity:
  - b. LCA of Substitute:
  - c. Source of LCA

**7. Recycled Content**

- Is product manufacturer form recycled materials? Yes \_\_\_ No \_\_\_\_\_. If yes, provide the following information:
- a. Percent Pre-Consumer Content : \_\_\_\_\_%  
What is its Source?  
Is it all tested? Yes \_\_\_\_\_ No \_\_\_\_\_ If yes, how?  
If not, why?  
  
Is it all inspected? Yes \_\_\_\_\_ No \_\_\_\_\_ If yes, how?  
If not, why?  
  
Is it all Graded? Yes \_\_\_\_\_ No \_\_\_\_\_ If yes, how?  
If not, why?
  - b. Percent Post Consumer Content \_\_\_\_\_%  
What is its Source?  
Is it all tested? Yes \_\_\_\_\_ No \_\_\_\_\_ If yes, how?  
If not, why?  
  
Is it all inspected? Yes \_\_\_\_\_ No \_\_\_\_\_ If yes, how?  
If not, why?  
  
Is it all Graded? Yes \_\_\_\_\_ No \_\_\_\_\_ If yes, how?  
If not, why?

Is it tested or graded for quality consistency? Yes \_\_\_ No \_\_\_ If yes, how?  
If not, why?

**Acknowledgements**

1. Will the undersigned will pay for costs resulting in changes to the building design, including architectural and engineering design, detailing, and construction costs caused by incorporating the requested substitution or costs associated with any delays caused by deliveries of the substitute? Yes \_\_\_ No \_\_\_. If no, please explain.

2. If it is determined that a substitute does not fully comply with the Contract Documents after the substitute has been accepted or installed, will the undersigned assume responsibility for all applicable costs, including removal and installation of non-conforming products, to provide one of the specified products that does comply with the specifications. Yes \_\_\_ No \_\_\_ If no, please explain.

3. Is it understood and agreed to that final and ultimate approval of the substitute shall be determined at final completion of the project. Failure to provide equivalent substitutes in appearance, function, and performance to that specified, may result in the removal of the substitute and the installation of approved product at contractor's expense. Yes \_\_\_ No \_\_\_. If no, please explain.

**Enclosed Attachments:**

- 1.
- 2.
- 3.
- 4.

**Certification Of Performance And Assumption Of Liability**

As a manufacturer or representative of the proposed substitution, it is presumed that you are the most knowledgeable of the proposed substitution. By signing this request, you certify that all information provided in this request is accurate and true. Additionally, you certify that the product, material, component, or service being submitted as a substitute for that specified meets or exceeds the performance, function, and appearance criteria listed in the specifications and in the manufacturer's published literature, and that all information provided in this Request For Substitute, including other applicable Parts, is true and accurate. The Signee also agrees to assume all liability for the ultimate performance, function, and appearance criteria of the submitted substitute.

Person Making Request:  
Name:

Signature:

Company:  
Address:

Telephone No.:  
No.:

Fax.

General Services Administration  
**Exterior Façade Repair**  
**Donald S. Russell U.S. Courthouse (SC0041ZZ)**  
Spartanburg, South Carolina

Project Number 022689.00

Approved substitutes and manufacturers will be released by Addendum as described in the Instructions To Bidders

For Architect's Use

Approved: \_\_\_\_\_ Approved As Noted: \_\_\_\_\_

Disapproved: \_\_\_\_\_ Because

Received Too Late: \_\_\_\_\_

Incomplete Form: \_\_\_\_\_

Insufficient/Improper Supporting Data: \_\_\_\_\_

Does Not Meet Specifications: \_\_\_\_\_

**CERTIFICATION OF SITE VISIT**  
FOR  
**General Services Administration**  
**Exterior Façade Repair**  
**Donald S. Russell U.S. Courthouse (SC0041ZZ)**  
**Spartanburg, South Carolina**

**OWNER:** General Services Administration

I, \_\_\_\_\_, certify that the following listed representatives of \_\_\_\_\_ visited the project site on the listed dates, and we have completely evaluated and fully understand the existing conditions, Scope of Work, and have read and fully comprehend the Contract Documents relative to the Work to be completed as described in the Contract Documents.

Name of General Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

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

Coordinate and arrange for site visits with Donald L. Love, Jr. of McMillan Pazdan Smith at [dlove@mcmillanpazdansmith.com](mailto:dlove@mcmillanpazdansmith.com).

Conflicts between existing conditions and the Contract Documents are noted.

**PROJECT SITE VISIT**

**1.**

Representative: \_\_\_\_\_ Date of Visit: \_\_\_\_\_

Noted Conflicts With Contract Documents:





## **APPENDIX A**

### **Owner's Project Requirements**

#### **4.1 General Requirements**

Aesthetics is a concern. The look of the finished installation is to be uniform in color and texture. As the building is on the National Register of Historic Places, aesthetic consistency is also priority and should be approved by the GSA Historic Preservation Specialist.

Contractor shall research and test the existing mortar and sealant types to determine the correct type of mortar / sealant required to perform the job needed.

Installation must only be done by experienced and trained installers that were trained and approved by the mortar / sealant manufacturer to apply the specified mortar and sealant. Workers must also have been trained and briefed in safety measures and OSHA regulations that would apply and also review the final approved Safety and Indoor Air Quality Plans for this project.

Follow mortar / sealant manufacturer's directions for installation. Take photos of construction progress stages for each area of work and submit to GSA's Project Manager with each monthly progress pay application.

Design and construction details, means and methods, and safety are the responsibility of the Design-Build Contractor and shall comply with the most current edition of ASTM C1193 (applicable to sealant) and ASTM C1329 (applicable to mortar). Design to include sections and details for all work.

Design and Installation shall include new mortar / sealants, and any other necessary replacement materials for defective materials beyond repair. Type, color, and look shall match existing.

All construction work for this project will need to be done using quality control measures and provide protections to drives, entrances and walkways below work area(s). A safety plan is required. Block off sidewalks and areas below where any work is being done. Contractor shall also submit a safety plan and also an Indoor Air Quality plan to GSA defining how indoor air quality will be maintained while caulking / sealant operations are going on during normal operation hours. GSA wishes to keep odors from curing sealant from coming inside the building.

All joint repointing and sealing must be completed at the end of each day. All work to be water tight before the Contractor shuts down the work for the night or weekend.

Contractor to provide to the GSA Architect and GSA Project Manager an updated Work Schedule identifying clearly where the work will be performed for each week and day of each week, a full week in advance of the actual work. Contractor shall maintain and provide a log weekly that tracks the actual linear footage of mortar joints being replaced against the design amounts.

Contractor shall coordinate with GSA Building Manager for any work which will need areas closed off. Keep GSA Building Manager informed of the work area and work schedule one week in advance, each week. Contractor to provide and install adequate warning signs and area block off barriers below work areas outside and inside the building, as needed and maintain. Remove construction safety barriers when no longer needed.

**NOTE:** Work will occur during normal work hours. Scaffolding and signage must be in place to protect drives and walks below before work starts.

**NOTE:** Only apply new mortar in conditions as defined by manufacturer. Temperature range during application shall meet the manufacturer's requirements. The surfaces to be repointed are to be clean and dry.

**NOTE:** Review existing Hazardous Materials O & M Plan located in the GSA Building Office as part of hazardous materials investigations.

**NOTE:** The following materials are prohibited:

- Materials manufactured using chlorofluorocarbons (CFCs) shall not be used.
- Sealants containing mercury shall not be used.
- Compressible foam joint fillers, polyester polyurethane foam impregnated with neoprene rubber or acrylic ester styrene copolymer used in this project shall not be manufactured with CFC blowing agents.
- Sealants formulated with aromatic solvents (organic solvent with a benzene ring in its molecular structure) fibrous talc or asbestos, formaldehyde, halogenated solvents, mercury, lead, cadmium, hexavalent chromium, or their components shall not be used.
- Asbestos-containing materials (ACM).
- Lead-based paints and coatings.

**NOTE:** Contractor and subs to comply with 40 CFR 261.7 regarding disposal of containers of unused mortar/sealant

#### **4.1.1 Building Occupation during Construction**

The building will remain fully occupied by GSA and GSA tenants during the entire construction period. Cooperate with the GSA Building Manager during construction operations to minimize conflicts and facilitate owner usage. Perform the work so as not to interfere with day-to-day operations of building occupants. Comply with all guidance in the "Noise Management" section below. Maintain existing exits unless authorized by GSA.

#### **4.1.2 Noise Management**

1. Noise Control: Perform construction and repair operations to minimize noise. Work which exceeds 100 dB for any duration, 80dB for more than 3 minutes in any hour, 70 dB for more than 12 minutes in any hour, or 65 dB for any longer duration in any hour when measured at any occupied location must be performed outside of normal working hours.
2. In the event the existing local ambient noise level exceeds the maximum allowable receiving noise level (dB), the noise level from construction operations shall be adjusted by a maximum 5 additional dB above the local ambient.
3. Provide equipment, sound-deadening devices, and take noise abatement measures that are necessary for compliance.
4. When compliance with these criteria is in question, the Contractor shall monitor noise produced from applicable construction operations in accordance with ASTM E1780 and report findings to the GSA Project Manager.

## **APPENDIX B**

### **Guidelines for Using High Pressure Cleaning Equipment on Masonry**

#### **Introduction**

When used properly, high pressure cleaning equipment can safely and effectively remove dirt from masonry materials. However, when NOT used properly, this type of cleaning equipment can cause severe damage.

**CAUTION: HIGH PRESSURE CLEANING IS NOT RECOMMENDED FOR USE ON POROUS SURFACES SUCH AS MASONRY. RATHER, POROUS SURFACES SHOULD BE CLEANED USING LOW PRESSURE TECHNIQUES.**

There are three important factors to consider when specifying the use of high pressure cleaning equipment. All three factors influence the "impact" of the spray on the masonry surface. They are:

1. Pressure rating of water from the nozzle in pounds per square inch (psi)
2. Flow rate of water from the pump in gallons per minute (gpm)
3. Size and type of nozzle or spray tip

#### **Pressure Rating**

1. The pressure rating is the rate of intensity that water is supplied to the pump and is measured in pounds per square inch (psi).
2. The pumps most preferred by cleaning contractors are those providing adjustable pressure between 500 and 2,000 psi.
3. Pressures between 1,000 and 2,000 psi are typically used for surface preparation cleaning.
4. For typical masonry cleaning, the pressure rating can range from 500 to 1,000 psi. **NOTE: FOR OLDER AND DELICATE SURFACES, MUCH LOWER PRESSURES MUST BE USED.**
  - a. A low-pressure wash generally measures between 100 psi and 400 psi.
  - b. A medium-pressure wash generally measures between 400 psi and 800 psi.
  - c. A high-pressure wash generally measures between 800 psi and 1200 psi.

#### **Flow Rate**

1. Flow rate is the volume of water supplied by the pump and is measured in gallons per minute (gpm).
2. Higher volume pumps are preferable for masonry cleaning. They allow flexibility in adjusting the water pressure as necessary while providing a strong enough flow of water to thoroughly rinse dirt and cleaner residue from the masonry.

#### **Nozzle Type and Size**

1. A fan type nozzle providing a 15-40 degree fan is preferred.
2. Laser tips, O-tips, or any fan spray narrower than 15 degrees should NOT be used on masonry. These types of tips generate a concentrated stream of water which can be damaging to the surface.
3. Nozzles should be held perpendicular to the surface at a distance between 18 and 30 inches from the surface.

### **Removing Cleaning Compounds After Use**

1. Do not use high pressure equipment to apply cleaning compounds to masonry.
  - a. High pressure application will make it difficult to completely rinse away cleaning compounds.
  - b. Low pressure spray equipment (50 psi maximum) should be used.
2. Traces of cleaning compounds left in the masonry surface can result in severe remedial problems and staining, such as:
  - a. Efflorescence
  - b. Vanadium staining
  - c. Acid burn
  - d. Rust and other metallic oxidation stains

### **Pressure Washing with Hot Water**

1. Useful for cleaning when outside temperatures are too cold to clean with cold water.
2. Water temperatures should not exceed 160 degrees. Higher temperatures may adversely react with some chemical cleaners, resulting in surface discolorations or streaking.
3. Hot water is most effective when used in conjunction with alkaline cleaning compounds. It is best used in applications for removing paint, grease and oil.
4. Hot water is NOT effective when used in conjunction with acidic masonry cleaners.

Source: [https://www.gsa.gov/technical-procedures/guidelines-using-high-pressure-cleaning-equipment-masonry?Form\\_Load=88409](https://www.gsa.gov/technical-procedures/guidelines-using-high-pressure-cleaning-equipment-masonry?Form_Load=88409)

## SECTION 01 14 00 - WORK RESTRICTIONS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A This section of the Specifications includes but is not limited to the following:
  - 1. Contractor's use of the premises
  - 2. Owner's use of the premises
  - 3. Background checks
  - 4. Substance abuse
  - 5. Contractor Conduct

#### 1.2 DEFINITIONS

- A. Contractor: As defined in AIA Document A201, General Conditions of the Contract.
- B. Subcontractor: Any contractor, consultant, individual, or other entity that has its contract directly with the (primary) Contractor. Subcontractors are responsible for the implementation of the safety, health, and environmental requirements of this program for the work to be done by their own employees as well as any work done by their subcontractors. For the purposes of this program, a contractor may be either a Subcontractor or Sub-Subcontractor or consultant.
- C. Sub-Subcontractor: Any contractor, sub-contractor, consultant, individual, or other entity working for a Subcontractor (has other contractors under contract to perform work on the site of this project). They shall also be responsible for all provisions specified in this program.
- D. Owner: As defined in the Contract Documents.
- E. Architect: As defined in AIA Document A201- General Conditions of the Contract.

#### 1.3 RELATED DOCUMENTS

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

#### 1.4 CONTRACTOR'S USE OF PREMISES

- A. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
- B. Maintain the existing building in a weather tight condition throughout construction. Repair damage caused by construction operations. Take precautions necessary to protect the building during the construction period.
- C. Keep accesses, drives, parking lots, and side streets clear.
  - 1. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize requirements for storage of materials.
  - 2. Schedule deliveries to minimize use of driveways and entrances.
  - 3. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

- D. All fire exits from the building, as determined by the architect, must be maintained during construction unless noted otherwise on the drawings. Construction of fences and/or tunnels to maintain these exits is the responsibility of the General Contractor.
- E. Contractor will be required to wear badges with the employee's name and company name clearly indicated on the badge.
- F. Contractor shall follow all Federal, State, and Local guidelines and requirements, and General Services Administration and City of Spartanburg policy related to COVID-19 at all times while on site.
- G. Contractor shall adhere to all requirements included in current version of IBC – Chapter 33 Safeguards During Construction.
- H. Hours of Work
  - 1. All work must be conducted between 6:00 am and 6:00 pm EST including weekends unless noted otherwise. All work, which may affect normal building operations including power interruptions, must be closely coordinated with the GSA Property Manager. Access to secured areas must be coordinated with the GSA Property Manager. Security clearance will be required for all personnel working on this project.

#### 1.5 OWNER'S USE OF PREMISES

- 1. If, in the opinion of the Architect, the General Contractor does not properly water tight the building from the elements – the Owner maintains the right to call in a third party Industrial Hygienist for the purpose of evaluating the infiltration of moisture. This Industrial Hygienist will prepare a report of corrective action necessary to prevent future mold and mildew issues and the General Contractor is solely responsible for the corrective action necessary, as well as all costs associated with the services of the Industrial Hygienist and any additional surface or air quality testing fees that may be required to insure a safe building. No finishes, including drywall work are to commence until the building is permanently enclosed.
- 2. Partial Occupancy: The 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 partial or full acceptance or approval of the total Work or any portion of the Work.
- 3. In the event the Contractor fails to meet the approved schedule and this failure to meet the scheduled completion dates affect the delivery of Owner furnished furniture and / or equipment – the Owner has the right (at the sole expense of the contractor) to procure the services of security guards to protect furniture and / or equipment that has been delivered to the project until such time as contractor has met the requirements for the Owner's permanent occupancy of the building (Substantial Completion). The Contractor further agrees that they will pay for all handling, shipping and storage costs associated with the storage of furniture and equipment that cannot be delivered and placed in the building due to the Contractor's failure to meet the scheduled completion dates.

#### 1.6 BACKGROUND CHECKS

- A. The Contractor shall be responsible and liable for the conduct and actions of their employees and all individuals working under them.
- B. The Owner may, at any time, request verification of criminal background investigation for any employee or subcontractor on Owner's property.

#### 1.7 SUBSTANCE ABUSE

A. General

1. The use of any type of tobacco product on the Owner's property is prohibited. Workers will be asked to leave the site for the balance of the day on their first offense. Workers will be asked to permanently leave the site after the second offense.
2. The Contractor shall remind employees that remaining "drug/alcohol-free" is a condition of employment for this Project. Alcohol and illegal drug use pose a serious threat to workplace safety and health.
3. The General Contractor shall implement and enforce a Drug and Alcohol Free Workplace Substance Abuse Program for all personnel on this project. This includes, but is not limited to, educating all employees on the project on the requirements of the Drug Free Workplace Program for this project. Copies of this program shall be maintained on site for review by the Owner.
4. As a minimum, the program shall include the following:
  - a. The use, possession, sale, transfer, acceptance, or purchase of illegal drugs and/or controlled substances at any time is strictly prohibited except prescription medications as legally prescribed by a physician. The use, possession of an open container, personal sale, transfer or acceptance of alcohol on the construction project property or while performing business is strictly prohibited. Any violation of this policy will be grounds for immediate termination and may result in a report to the appropriate law enforcement authorities.
  - b. Prescription drugs shall not be used by any person other than the individual to whom it is prescribed. Such substances or non-prescription (over-the-counter) drugs shall be used only as prescribed or indicated. Employees shall be removed from the project if the side effects of prescription drugs adversely affect the safe completion of their work activity. Employees should be encouraged to discuss with their supervisor and physician any effects of medication that could adversely affect their safety or the safety of others on the project.
  - c. Employees of Contractors may be tested for substance abuse when involved in an incident that results in injury to them or cause injury to another employee or damage to property. A decision to test an individual for substance abuse following an incident will be based on an objective evaluation of observable signs of substance abuse regarding an individual's behavior, appearance, speech or body odor. This decision will be made by or in conjunction with a medical professional or other individual with the knowledge to recognize the signs of substance abuse.
  - d. Employees who fail a drug or alcohol test shall not be allowed to work on the this project or enter the Owner's property 60 days.
  - e. The all entities shall implement a drug-free work place program that is consistent with this program.

1.8 CONTRACTOR CONDUCT

- A. The Contractor shall acknowledge and respect the Owner's working environment.
- B. To the greatest extent possible, no one shall interact with member of the student body.

- C. Abusive or offensive language, or gestures, in dealing with members of the student body, faculty, staff, or visitors to the campus or project site, is unacceptable behavior and will not be tolerated. No one shall make sexually suggestive comments or gestures to anyone on or near (passer-by) this job site. Sexual harassment in any form, whether verbal, visual, physical, or emotional, which is threatening or harmful, both physically or mentally, to a second party of another gender or same gender; or so perceived by a third party is unacceptable and will result in immediate termination.
- D. All personnel shall be fully dressed at all times including but not limited to shoes, socks, pants and at least a full "T" shirt. Tank tops are not allowed. No article of clothing shall display any graphic that may be construed as obscene, distasteful, or disrespectful.
- E. No one shall use profane language.
- F. No one may consume food or drinks anywhere within the project site except in designated approved areas; smoking is not permitted on the project site.
- G. Certain areas of the building/site complex not under this renovation shall be off limits to all workers.
- H. The Owner reserves the right to recommend removal or termination of any one who violates these conditions.

PART 1 - PRODUCTS (Not Used)

PART 2 - EXECUTION (Not Used)

END OF SECTION 01 14 00



SECTION 01 21 00 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
  - 1. Selected materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
  - 1. Lump-sum allowances.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. Division 1 Section "Modification Procedures" specifies procedures for submitting and handling Change Orders.
  - 2. Division 1 Section "Quality Control Services" specifies procedures governing the use of allowances for inspection and testing.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise the Architect of the date when the final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At the Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by the Architect from the designated supplier.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show the actual quantities of materials delivered to the site for use in fulfillment of each allowance.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly upon delivery for damage or defects.

3.2 PREPARATION

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

3.3 SCHEDULE OF ALLOWANCES

- A. Contingency Allowance: Contractor shall include in his base bid the lump sum of \$50,000.00 to be used by the City of Spartanburg and the Architect. Items charged to the contingency allowance shall not be included in or considered for the general contractor's overhead and profit.

For all allowances, any money remaining after the procurement of the allowance item is complete shall be transferred to the contingency allowance and not subject to contractor overhead and profit.

For all allowances, the architect / owner will receive proposals from outside subcontractors and shall assign the contract of the successful bidder to the general contractor for administration and coordination. Items charged to the allowance are not subject to contractor overhead and profit.

END OF SECTION 01 21 00

SECTION 01 22 00 - UNIT PRICES

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 administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
  - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
  - 2. Division 01 Section "Quality Requirements" for general testing and inspecting requirements.
  - 3. Division 01 Section "Payment Procedures" for procedures for measurement and payment for unit-price items.

1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include necessary material, cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.
- E. Daily Log: Maintain an accurate daily log of work contracted by unit prices. When requesting payment applicable to established unit price work, submit unit price log with the appropriate

Change Order/Application For Payment. As a minimum, the unit price log shall show the following:

1. Date
2. Project Name
3. Name of unit price
4. Location of the unit price item
5. Unit cost of the item unit price item
6. Exact measured quantity of the unit price item
  - a. For excavation units, measure by "Bank Measurement". Survey the area to be removed and replaced and surveyed again once the material is removed. The volume shall then be calculated based upon the difference. Supply survey data to the civil engineer of record for verification and approval.

PART 2 - LIST OF UNIT PRICES

<u>Description</u>	<u>Unit</u>	<u>Pricing</u>
1. Repointing Brick Joints	SF	\$ _____
2. Repointing Limestone Joints	LF	\$ _____

END OF SECTION 01 22 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 DEFINITIONS

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

1.4 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if 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 the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

- A. Alternate No. 1 – Repair and Conservation of Brick Masonry  
Provide a price to repair brick masonry per Section 04 10 21 and as shown on the drawings.
  
- B. Alternate No. 2 – Miscellaneous Brick and Limestone Repair  
Provide a price for repair and cleaning of perimeter site wall, cheek walls and site signage per Sections 04 10 21 and 04 01 40 as shown on the drawings.

END OF SECTION 01 23 00

## SECTION 01 25 00 – SUBSTITUTION PROCEDURES

### 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.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. AIA A701 Instructions To Bidders
  - 2. Division 01 Section "References" specifies the applicability of industry standards to products specified.
  - 3. Division 01 Section "Submittal Procedures" specifies requirements for submitting the Contractor's construction schedule and the Submittal Schedule.
  - 4. Division 01 Section "Product Requirements" specifies requirements governing the Contractor's selection of products and product options.

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for handling substitution requests, that do to extenuating circumstances as determined collectively by the Owner and the Architect, require a substitution to be made after award of the Contract. Examples of extenuating circumstances include, specified product is no longer manufactured or available, change in Project scope or design renders the specified product unusable. Failure to account for adequate ordering lead time does not constitute extenuating circumstances.
  - 1. Submittals shall comply with provisions and requirements of the Instructions To Bidders.
  - 2. Substituting products and manufacturers after Contract Execution is allowed when extenuating circumstances arise that require consideration of requesting substitutes for specified products.
  - 3. Substitute product shall be consistent with, comply with and meet the intent of the Contract Documents and shall not increase Contract sum or Contract time.

#### 1.3 DEFINITIONS

- A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor. The following are not considered to be requests for substitutions:
  - 1. Substitutions requested during the bidding period, and accepted by Addendum prior to award of the Contract, are included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
  - 2. Revisions to the Contract Documents requested by the Owner or Architect.

3. Specified options of products and construction methods included in the Contract Documents.
4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### 1.4 SUBMITTALS

- A. Substitution Request Submittal: Submit 3 copies of request for consideration, using the Substitution Request Form in Division 00 of Project Manual.
1. Timing: The Architect will consider requests for substitution if received within 60 days after commencement of the Work and the request complies with requirements specified elsewhere in this Project Manual.
  2. Requests received more than 60 days after commencement of the Work may be considered or rejected at the discretion of the Architect.
    - a. Where the Contract Documents list at least three entities, the Architect reserves the option to reject request for a substitute.
    - b. Where the Contract Documents list only one entity without "Or equal" or similar language, a substitute will not be considered.
    - c. Where the Contract Document lists less than 3 entities, a substitute may be reviewed and evaluated on an individual basis.
  3. Performance Criteria: Meet or exceed the minimum performance criteria called for in the Specifications and those published by the manufacturer of the specified item even if they are not specifically mentioned in the Specifications. Submittals not complying with this provision will be considered incomplete, unacceptable, and will not be reviewed.
  4. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Identify the product or the fabrication or installation method to be replaced. Include related Specification Section and Drawing numbers.
    - b. Statement indicating why specified material or product cannot be provided.
    - c. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
    - d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, necessary to accommodate proposed substitution.
    - e. Product data: Manufacturer's published description, capabilities, operating and performance parameters, options, accessories.
    - f. Performance Criteria: Detailed comparison of significant qualities of proposed substitute with those of the Work specified. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated. Prepare supporting data in tabular form showing the submitted criteria next to the each specified performance criteria.
    - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
      - 1) Reports shall be based on same tests and standards and with the values and results in the same units of measure as those shown for the specified item.



- h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
  - i. Samples, where applicable or requested.
  - j. Cost information, including a proposal of the net change, if any in the Contract Sum.
  - k. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
  - l. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents and is appropriate for the applications indicated.
  - m. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure to produce indicated results.
5. Products of manufacturers other than those specified may be acceptable, however, manufacturers capable of providing specified products shall not, for convenience of their normal production methods, vary from the specified product.
6. Architect's Action: If necessary, the Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. The Architect will notify the Contractor of acceptance or rejection of the substitution within 2 weeks of receipt of the request, or one week of receipt of additional information or documentation, whichever is later. Acceptance will be in the form of a change order.
- a. Form of Acceptance: Change Order.
  - b. Use the product specified if the Architect cannot make a decision on the use of a proposed substitute within the time allocated.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS

- A. Conditions: The Architect will consider the Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, the Architect will return the requests without action except to record noncompliance with these requirements.
- 1. The request complies with **all** of the following conditions:
    - a. Extensive revisions to the Contract Documents are not required.
    - b. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - c. Requested substitution is compatible with other portions of the Work.
    - d. Requested substitution has been coordinated with other portions of the Work.
    - e. Requested substitution provides specified warranty.
    - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
    - g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to contractors involved.
    - h. Requested substitution will not adversely affect Contractor's construction schedule.
    - i. The request is timely, fully documented, and properly submitted, and

2. The request complies with **one** of the following conditions:
    - a. The specified product or method of construction cannot be provided within the Contract Time. The Architect will not consider the request if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
    - b. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
    - c. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.
    - d. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
    - e. The specified product or method of construction cannot be provided in a manner compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
    - f. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.
    - g. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
  3. The Architect will not consider substitutions for materials not ordered properly or when the ordering was not adjusted for lead time. Where a specified product or material cannot be delivered in time for reasons beyond the control of the Contractor, submit the following with the Request For substitution. Requests without the following information will be denied:
    - a. Statement from the supplier that the specified products or materials cannot be provided in sufficient time to be incorporated in to the Work.
    - b. Statement from the supplier as to the normal lead time required for the specified products or materials and that this lead is common knowledge in the industry.
    - c. Statement from the supplier that the specified products or materials were ordered within the normal lead-time. If the specified products or materials were not ordered within the normal lead time, provide a statement from the supplier as to the date the Contractor initially inquired about the specified products or materials, the date the order was placed by the Contractor, and the date the order was received by the supplier.
- B. Final approval of the substitute shall be determined at final completion of the Project. Failure to provide equivalent substitutes in appearance, function, and performance to that specified, may result in removal of the substitute and installation of approved product at Contractor's expense.
- C. Unapproved Products:
1. Product, material, component, or system that is not listed in the Specifications or was not approved by addendum during the Bidding Phase and is installed on this Project without the written approval of the Architect may, at the Architect's discretion, be subject to removal and replacement with a specified product, material, component, or system. Costs, including Project delays, the Architect's expenses, additional testing/inspection, associated with this removal and replacement shall be at the Contractor's expense.

2. Shop drawings: Submitting unapproved products, materials, components, or systems on shop drawings is not an acceptable approval procedure. The Contractor's submittal and the Architect's acceptance of shop drawings, product data, or samples for construction activities not complying with the Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval. Products, materials, components, or systems that were not previously approved by the Architect and are submitted on the shop drawings are also subject to removal at the Contractor's expense even though the shop drawing containing an unapproved product, material, component, or system has been approved by the Architect.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00



## SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

### 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 specifies administrative and procedural requirements for handling and processing Contract Modifications.
- B. Related Sections include the following:
  - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.
  - 2. Division 1 Section "Submittal Procedures" for requirements for the Contractor's construction schedule.
  - 3. Division 1 Section "Payment Procedures" for administrative procedures governing Applications for Payment.
  - 4. Division 1 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after award of the Contract.

#### 1.3 MINOR CHANGES IN THE WORK

- A. Minor changes in the Work are defined as instructions or interpretations that do not affect the Contract Sum or Contract Time.
- B. The Architect will have the authority to issue supplemental instructions authorizing Minor Changes in the Work, and will do so on AIA Document G710, "Architect's Supplemental Instructions".

#### 1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: The Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop Work in progress or to execute the proposed change.
  - 2. Within 20 days after receipt of Proposal Request, unless specified otherwise, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

- b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  - c. Include costs of labor and supervision directly attributable to the change.
  - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require Modifications to the Contract, Contractor may propose changes by submitting a request for a change to the Architect.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  4. Include costs of labor and supervision directly attributable to the change.
  5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

## 1.5 ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of Work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
1. Include installation costs in purchase amount only where indicated as part of the allowance.
  2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
  4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing Work to proceed. Owner will reject claims submitted later than 10 days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, the Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: The Architect may issue a Construction Change Directive on AIA Document G714, in particular when the Owner and the Contractor disagree on the terms of a Proposal Request. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  1. A Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of Work required by the Construction Change Directive.
  1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00





## SECTION 01 29 00 - PAYMENT PROCEDURES

### 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 specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
  - 2. Division 01 Section "Submittal Procedures" for administrative requirements governing preparation and submittal of Contractor's construction schedule and submittals schedule.

#### 1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### 1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's construction schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with Continuation Sheets.
    - b. Submittals schedule.
    - c. Contractor's construction schedule.
    - d. List of subcontractors.
    - e. Schedule of allowances.
    - f. Schedule of alternates.
    - g. List of products.
    - h. List of principal suppliers and fabricators.
  - 2. Submit the Schedule of Values to the Architect at earliest possible date but no later than 7 days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of Architect.
    - c. Architect's project number.
    - d. Contractor's name and address.
    - e. Date of submittal.
  2. Submit draft of AIA Document G703 Continuation Sheets.
  3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
    - a. Related Specification Section or Division.
    - b. Description of the Work.
    - c. Name of subcontractor.
    - d. Name of manufacturer or fabricator.
    - e. Name of supplier.
    - f. Change Orders (numbers) that affect value.
    - g. Dollar value: Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
  4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training in the amount of 5 percent of the Contract Sum.
  5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
  6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
    - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
  7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
  8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
  9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
    - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
  10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
  - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: Submit progress payments to Architect by the 25th day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
  - 1. Entries shall match data on the Schedule of Values and Contractor's construction schedule. Use updated schedules if revisions were made. Submit schedule with Application for Payment, regardless of whether revised or not.
  - 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  - 3. Submit copies of invoices for each item of material/equipment listed in the Application For Payment. If material/equipment is stored off-site, submit certificate of insurance to substantiate that the materials/equipment are stored in a bonded warehouse.
- E. Transmittal: Submit 1 electronic signed and notarized original copy of each Application for Payment to Architect by a method ensuring receipt within 24 hours. Each copy shall include waivers of lien and similar attachments.
- F. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  - 1. List of subcontractors.
  - 2. Schedule of Values.
  - 3. Contractor's construction schedule (preliminary if not final).
  - 4. Products list.
  - 5. Schedule of unit prices.
  - 6. Submittals schedule (preliminary if not final).
  - 7. List of Contractor's staff assignments.
  - 8. List of Contractor's Subcontractors.
  - 9. Copies of building permits.
  - 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  - 11. Initial progress report.
  - 12. Report of preconstruction conference.
  - 13. Certificates of insurance and insurance policies.
  - 14. Performance and payment bonds.
  - 15. Data needed to acquire Owner's insurance.
  - 16. Initial settlement survey and damage report if required.

- G. Application for Payment at Substantial Completion: After issuance of the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- H. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final meter readings for utilities and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
  9. Transmittal of required project construction records to Owner.
  10. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)  
PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. Coordination Drawings.
  - 2. Administrative and supervisory personnel.
  - 3. Construction progress documentation including Construction Schedules and construction reports.
  - 4. Preconstruction and periodic construction photographs required in other sections.
  - 5. Requests for Information (RFIs).
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.
- C. Related Sections include the following:
  - 1. Division 01 Section "Project Meetings" for submitting and distributing meeting and conference minutes.
  - 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
  - 4. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
  - 5. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.
  - 6. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.
  - 7. Division 02 Section "Selective Structure Demolition" for photographic documentation before selective demolition operations commence.
- D. The Specifications may contain materials, products, equipment, or procedures that are not applicable to this Project. Refer to the Drawings for materials, products, and equipment applicable to this Project. Materials, products, equipment, or procedures that are not shown or indicated on the Drawings or in the Specifications, but would be inferred as being required by a person who is competent and experienced in the applicable trade/s, shall be furnished and installed to ensure a quality, complete and fully functional installation. If there is a question regarding the applicability of a material, product, equipment, or procedure on the Drawings or in the Specifications, contact the Architect for an Information at least 10 days prior to date of Bid Opening.

### 1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.
- E. Major Area: A story of construction, a separate building, or a similar significant construction element.
- F. Milestone: A key or critical point in time for reference or measurement.
- G. RFI: Request from Contractor seeking information or clarification of the Contract Documents.

### 1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.
  - 1. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
  - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of components, including mechanical and electrical.
  - 3. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.
  - 4. Make adequate provisions to accommodate items scheduled for later installation.
  - 5. Schedule construction operations in sequence where installation of one part of the Work depends on installation of other components, before or after its own installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

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

#### 1.5 SUBMITTALS

- A. Submittals schedule: Submit 1 electronic copy of the schedule. Arrange the following information in a tabular format:
1. Scheduled date for first submittal.
  2. Specification Section number and title.
  3. Submittal category (action or informational).
  4. Name of subcontractor.
  5. Description of the Work covered.
  6. Scheduled date for Architect's final release or approval.
- B. Preliminary construction schedule: Submit 1 electronic copy.
1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.
- C. Contractor's construction schedule: Submit 1 electronic copy of initial schedule, large enough to show entire schedule for entire construction period.
- D. Contractor's Statement of Responsibility: As required in IBC, Section 17.
- E. Field Condition Reports: Submit 1 electronic copy at the time of discovery of differing conditions.
- F. Special Reports: Submit 1 electronic copy at the time of unusual event.
- G. Coordination Drawings: Prepare Coordination Drawings for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
    - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    - b. Indicate required installation sequences.
    - c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
  2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
  3. Number of Copies: Submit 1 electronic pdf copy of each submittal. Architect will return 1 copy.
    - a. Where Coordination Drawings are required for operation and maintenance manuals, mark up and retain 1 returned copy as a Project Record Drawing.
  4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.
- H. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including cell and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current.
- 1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL
- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel required for proper performance of the Work.
    1. Include special personnel required for coordination of operations with other contractors.
- 1.7 CONSTRUCTION SCHEDULES
- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
  - B. Coordinate Contractor's construction schedule with the Schedule of Values, list of subcontracts, submittals schedule, progress reports, payment requests, and other required schedules and reports.
    1. Secure time commitments for performing critical elements of the Work from parties involved.



2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

#### 1.8 REQUESTS FOR INFORMATION (RFIs)

- A. Procedure: Immediately on discovery of the need for clarification of the Contract Documents, and if not possible to request information at Project meeting, prepare and submit an RFI in the form specified.
  1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing Information and the following:
  1. Project name.
  2. Date.
  3. Name of Contractor.
  4. Name of Architect.
  5. RFI number, numbered sequentially.
  6. Specification Section number and title and related paragraphs.
  7. Drawing number and detail references.
  8. Field dimensions and conditions.
  9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  10. Contractor's signature.
  11. Attachments: Include drawings, descriptions, measurements, photos, product data, shop drawings, and other information necessary to fully describe items needing Information.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
  12. Software-Generated RFIs: Software-generated form with substantially the same content as AIA Form G716.
    - a. Attachments shall be electronic files in Adobe Acrobat PDF format.
    - b. Identify each page of attachments with the RFI number and sequential page number.
- C. Architect's Action: Architect will review each RFI, determine action required, and return it.
  1. The following RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for coordination information already indicated in the Contract Documents.
    - d. Requests for adjustments in the Contract Time or the Contract Sum.
    - e. Requests for information of Architect's actions on submittals.
    - f. Incomplete RFIs or RFIs with errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
  - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- D. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
  1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect.
  4. RFI number including RFIs that were dropped and not submitted.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's response was received.
  8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request.
  9. Identification of related Field Order, Work Change Directive, and Proposal Request.

## PART 2 - PRODUCTS

### 2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's construction schedule.
  2. Initial Submittal: Submit concurrently with preliminary schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead-time for manufacture or fabrication.
  3. Indicate the following:
    - 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.

4. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

## 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.
  1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
  1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
  2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
  3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittals schedule.
  4. Startup and Testing Time: Include not less than 15 days for startup and testing.
  5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
  1. Phasing: Arrange list of activities on schedule by phase.
  2. Work under More Than One Contract: Include a separate activity for each contract.
  3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
  6. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Limitations of continued occupancies.
    - c. Uninterruptible services.
    - d. Partial occupancy before Substantial Completion.
    - e. Use of premises restrictions.

- f. Provisions for future construction.
  - g. Seasonal variations.
  - h. Environmental control.
- 7. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
  - a. Structural completion.
  - b. Permanent space enclosure.
  - c. Completion of mechanical installation.
  - d. Completion of electrical installation.
  - e. Substantial Completion.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.
- F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall Project schedule.
- G. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules and works with currently available Windows operating system.

## 2.3 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within 7 days of date established for commencement of the Work.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

## 2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's construction schedule within 30 days of date established for commencement of the Work. Base schedule on the Preliminary construction schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
  - 1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

## 2.5 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
  2. List of separate contractors at Project site.
  3. Approximate count of personnel at Project site.
  4. Equipment at Project site.
  5. Material deliveries.
  6. High and low temperatures and general weather conditions.
  7. Accidents.
  8. Meetings and significant decisions.
  9. Unusual events (refer to special reports).
  10. Stoppages, delays, shortages, and losses.
  11. Meter readings and similar recordings.
  12. Emergency procedures.
  13. Orders and requests of authorities having jurisdiction.
  14. Change Orders received and implemented.
  15. Construction Change Directives received and implemented.
  16. Services connected and disconnected.
  17. Equipment or system tests and startups.
  18. Partial Completions and occupancies.
  19. Substantial Completions authorized.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## 2.6 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within 1 day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Employ skilled personnel or outside consultant with experience in scheduling and reporting techniques.
- B. Meetings: Individual responsible for scheduling shall attend meetings related to Project progress, alleged delays, and time impact.
- C. Contractor's construction schedule updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- D. Distribution: Distribute copies of approved schedule to Architect, Owner, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  - 1. Post copies in Project meeting rooms and temporary field offices.
  - 2. When revisions are made, distribute updated schedules 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 performance of construction activities.

## SECTION 01 31 19 - PROJECT MEETINGS

### 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 administrative and procedural requirements for project meetings including, but not limited to, the following:
  - 1. Preconstruction conferences.
  - 2. Preinstallation conferences.
  - 3. Moisture coordination meeting.
  - 4. Ceiling coordination meeting.
  - 5. Project meetings.
- B. Related Sections include the following:
  - 1. Division 01 Section "Project Management & Coordination" for a description of the division of Work among separate contracts and responsibility for coordination activities not in this Section, for preparing and submitting Contractor's construction schedule.
  - 2. Division 01 Section "Submittal Procedures" for procedures for submitting the Contractor's construction schedule.
- C. The following sections specify requirements for a preinstallation conference:
  - 1. Division 06 Section "Millwork and Laminated Plastic Casework"
  - 2. Division 08 Section "Door Hardware"
  - 3. Division 09 Section "Gypsum Board Assemblies"
  - 4. Division 09 Section "Acoustical Tile Ceilings"
  - 5. Division 09 Section "Resilient Tile Flooring"
  - 6. Division 09 Section "Painting"

#### 1.3 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
  - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
  - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to invited attendees.
  - 3. Minutes: Have an experienced note-taker record and type complete and accurate meeting minutes for scheduled and unscheduled meetings that pertain to the Project, regardless of who called or scheduled the meeting. Record significant discussions and

agreements achieved. Organize the minutes of the proceedings in chronological order. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within 72 hours of the meeting.

4. Minutes shall include, but are not limited to the items listed below.
  - a. Convening time, date, and place
  - b. Attendees
  - c. Discussion topics and how initiated
  - d. Action items and person responsible for item
  - e. Key events
  - f. Decisions made and by whom
  - g. Unresolved issues and disposition of those issues

#### 1.4 PRECONSTRUCTION CONFERENCE

- A. Schedule a preconstruction conference before starting construction, at a time convenient to Owner, and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
  - a. Tentative construction schedule.
  - b. Phasing.
  - c. Critical work sequencing and long-lead items.
  - d. Designation of key personnel and their duties.
  - e. Procedures for processing field decisions and Change Orders.
  - f. Procedures for RFIs.
  - g. Procedures for testing and inspecting.
  - h. Procedures for processing Applications for Payment.
  - i. Distribution of the Contract Documents.
  - j. Submittal procedures.
  - k. Preparation of Record Documents.
  - l. Use of the premises and existing building.
  - m. Work restrictions.
  - n. Owner's occupancy requirements.
  - o. Responsibility for temporary facilities and controls.
  - p. Construction waste management and recycling.
  - q. Parking availability.
  - r. Office, work, and storage areas.
  - s. Equipment deliveries and priorities.
  - t. First aid.
  - u. Security.
  - v. Progress cleaning.
  - w. Working hours.
3. Minutes: Record and distribute meeting minutes.



4. Preconstruction Photographs: Provide professional-quality, color pictures of different views of the existing work areas. Views should include all exterior works areas from various vantage points to significantly capture all work areas. Views selected should be suitable to serve as "before" photographs for comparison with final photographs to be taken after the construction is complete.

Provide a digital media storage device (thumb drive) containing digital images in JPEG format with a minimum resolution of 100 dpi when opened to 8 inches by 10 inches.

All prints and digital images must be accompanied by a statement signed by the photographer (or his or her authorized representative) allowing the GSA to reproduce the images without compensation in print and electronic media.

## 1.5 PREINSTALLATION CONFERENCES

- A. Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
  1. Attendees: 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 Architect of scheduled meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. The Contract Documents.
    - b. Options.
    - c. Related RFIs.
    - d. Related Change Orders.
    - e. Purchases.
    - f. Deliveries.
    - g. Submittals.
    - h. Review of mockups.
    - i. Possible conflicts.
    - j. Compatibility problems.
    - k. Time schedules.
    - l. Weather limitations.
    - m. Manufacturer's written requirements and recommendations.
    - n. Project Specifications.
    - o. Documentation requirements.
    - p. Warranty requirements.
    - q. Compatibility of materials.
    - r. Acceptability of substrates.
    - s. Temporary facilities and controls.
    - t. Space and access limitations.
    - u. Regulations of authorities having jurisdiction.
    - v. Testing and inspecting requirements.
    - w. Installation procedures.
    - x. Coordination with other work.
    - y. Required performance results.
    - z. Protection of adjacent work.
    - aa. Protection of construction and personnel.

3. Have an experienced person record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Remind the manufacturer's representative of provisions in the Contract Documents that require him/her to inspect not only for compliance with the manufacturer's requirements but also compliance with the Specifications when Specifications are more stringent. Inspection reports shall include deviations from both manufacturer's requirements and the Specifications. Provide the Manufacturer's representative with a copy of the Project Specifications including Addenda.
6. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
7. A sample agenda with discussion topics for a pre-roofing conference is included at the end of this section.

#### 1.6 MOISTURE COORDINATION MEETING

- A. Conduct a moisture coordination meeting prior to installing any materials related to moisture intrusion.
  1. Complete the Moisture Certification Form and submit at Substantial Completion. Application For Payment will not be processed without the completed form.
- B. Representatives of the following entities shall be in attendance: Architect, General Contractor, and installers of the HVAC, masonry, windows, waterproofing, damproofing, vapor retarder, and roofing. Representatives of the applicable materials manufacturers are encouraged to attend also. Attendee shall be qualified and authorized to make or suggest changes, modifications, or revisions to installation details.
- C. Prior to convening this meeting, responsible entities shall review all applicable drawings, details, shop drawings, and manufacturer's data for conflicts, compatibility, and coordination problems during installation. Discussion topics include, but are not limited to, the following:
  1. Reviewing installation details
  2. Delivery problems
  3. Keeping materials dry
    - a. Methods
    - b. Definition of wet materials
    - c. Disposition of wet materials
    - d. Wet materials are to be removed and not installed
    - e. Protection of lumber, treated and untreated
    - f. Moisture content of treated lumber, KD to 16 percent
    - g. Project thermometer and location
  4. Setting entrances and storefronts
    - a. End dams
    - b. Sealing
    - c. Slope and drainage
    - d. Inspection of opening by window manufacturer
  5. Installing carpentry, woodwork and casework
    - a. Building in the dry
    - b. Acclimating the building
    - c. All wet work complete
  6. Installing drywall, insulation, and painting
    - a. Building in the dry
    - b. Acclimating the building

- c. All wet work complete
7. Installing floor covering
  - a. Testing substrate for moisture
  - b. Relative humidity test
  - c. Calcium chloride test
  - d. Who conducts the test
  - e. Procedures if moistures level are too high
  - f. Importance of concrete mixes with low W:C ratio

1.7 PROGRESS MEETINGS:

- A. Progress meetings will be held once per month. Coordinate dates of meetings with preparation of payment requests. Notify the Owner and the Architect of scheduled meeting dates.
  1. Attendees: In addition to representatives of Owner and Architect, each Contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion related to status of Project.
    - a. Contractor's construction schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      - 1) Review schedule for next period.
    - b. Review present and future needs of each entity present, including the following:
      - 1) Interface requirements.
      - 2) Sequence of operations.
      - 3) Status of submittals.
      - 4) Deliveries.
      - 5) Off-site fabrication.
      - 6) Access.
      - 7) Site utilization.
      - 8) Temporary facilities and controls.
      - 9) Work hours.
      - 10) Hazards and risks.
      - 11) Progress cleaning.
      - 12) Quality and work standards.
      - 13) Status of correction of deficient items.
      - 14) Field observations.
      - 15) RFIs.
      - 16) Status of proposal requests.
      - 17) Pending changes.
      - 18) Status of Change Orders.
      - 19) Pending claims and disputes.

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

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 19



## SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Contractor's construction schedule.
  - 2. Daily construction reports.
  - 3. Field condition reports.

#### 1.2 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
  - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
  - 2. Predecessor Activity: An activity that precedes another activity in the network.
  - 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Float: The measure of leeway in starting and completing an activity.
  - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

#### 1.3 SUBMITTALS

- A. Format for Submittals: One electronic copy.
- B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
  - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

- C. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
  - 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
  - 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
  - 3. Total Float Report: List of all activities sorted in ascending order of total float.
  - 4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Work until most recent Application for Payment.
- D. Field Condition Reports: Submit at time of discovery of differing conditions.

#### 1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from entities involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

### PART 2 - PRODUCTS

#### 2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.
  - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
  - 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
  - 2. Startup and Testing Time: Include not less than 15 days for startup and testing.
  - 3. Final Acceptance: Indicate completion in advance of date established for Final Acceptance, and allow time for Architect's administrative procedures.



- C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
  - 1. Phasing: Arrange list of activities on schedule by phase.
  - 2. Work under More Than One Contract: Include a separate activity for each contract.
  - 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
  - 4. Work Restrictions: Show the effect of the following items on the schedule:
    - a. Coordination with existing construction.
    - b. Limitations of continued occupancies.
    - c. Uninterruptible services.
    - d. Use of premises restrictions.
    - e. Provisions for future construction.
    - f. Seasonal variations.
    - g. Environmental control.
  - 5. Work Stages: Indicate important stages of construction for each major portion of the Work.
- D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, and final acceptance.
  - 1. Notify Architect and Owner 48 hours prior to planned milestone inspection.

## 2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.
  - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 60 days after date established for commencement of the Work.
    - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
  - 2. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
  - 3. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to correlate with Contract Time.
- C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the start-up network diagram, prepare a skeleton network to identify probable critical paths.
  - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

- a. Preparation and processing of submittals.
  - b. Mobilization and demobilization.
  - c. Purchase of materials.
  - d. Delivery.
  - e. Fabrication.
  - f. Utility interruptions.
  - g. Installation.
  - h. Work by Owner that may affect or be affected by Contractor's activities.
  - i. Testing
  - j. Punch list and final completion.
  - k. Activities occurring following final completion.
2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
  3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
  4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
    - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
- D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- E. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
1. Contractor or subcontractor and the Work or activity.
  2. Description of activity.
  3. Principal events of activity.
  4. Immediate preceding and succeeding activities.
  5. Early and late start dates.
  6. Early and late finish dates.
  7. Activity duration in workdays.
  8. Total float or slack time.
  9. Average size of workforce.
  10. Dollar value of activity (coordinated with the schedule of values).
- F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
1. Identification of activities that have changed.
  2. Changes in early and late start dates.
  3. Changes in early and late finish dates.
  4. Changes in activity durations in workdays.
  5. Changes in the critical path.
  6. Changes in total float or slack time.

7. Changes in the Contract Time.

## 2.3 REPORTS

- A. Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
  1. List of subcontractors at Project site.
  2. List of separate contractors at Project site.
  3. Approximate count of personnel at Project site.
  4. Equipment at Project site.
  5. Material deliveries.
  6. High and low temperatures and general weather conditions, including presence of rain or snow.
  7. Accidents.
  8. Meetings and significant decisions.
  9. Unusual events.
  10. Stoppages, delays, shortages, and losses.
  11. Meter readings and similar recordings.
  12. Emergency procedures.
  13. Orders and requests of authorities having jurisdiction.
  14. Change Orders received and implemented.
  15. Construction Change Directives received and implemented.
  16. Services connected and disconnected.
  17. Equipment or system tests and startups.
  18. Final Acceptance authorized.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  3. As the Work progresses, indicate final completion percentage for each activity.

- B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
  2. When revisions are made, distribute updated schedules 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 performance of construction activities.

END OF SECTION 01 32 00

## SECTION 01 33 00 - SUBMITTAL PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
  - 1. Submittal procedures.
  - 2. Action submittals.
  - 3. Information submittals.
  - 4. Delegated design.
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
  - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes, for submitting schedules and reports, including Contractor's Construction and Submittals Schedules, construction photographs and Coordination Drawings.
  - 3. Division 01 Section "Quality Requirements" for submitting test and inspection reports and mockup requirements.
  - 4. Division 01 Section "Closeout Procedures" for submitting warranties, Record Drawings and Record product data operation and maintenance manuals and demonstration of equipment and training of Owner's personnel.
  - 5. Division 01 Section "References" for permits, certifications and similar documents.
  - 6. Divisions 02 through 33 Sections for specific requirements for submittals in those Sections.

#### 1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.
- C. Field samples: Full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials, used to establish the standard by which the Work will be judged.
- D. Mockups: Full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

#### 1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  2. Coordinate each submittal with the applicable specification by clearly indicating, on each copy the submittal, the appropriate drawing number, specification number, and the specific product, material, equipment, or component that is applicable to the submittal. Submittals without this information will not be reviewed.
  3. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Submittals Schedule: Comply with requirements in Division 01 Section "Project Management and Coordination" for list of submittals and time requirements for scheduled performance of related construction activities.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 15 days for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
    - a. Products in Specification Divisions 21 through 33.
  5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 21 days for review of each submittal. Submittal will be returned to Architect, before being returned to Contractor.
    - a. Products in Specification Divisions 21 through 33.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.

- d. Name and address of Contractor.
  - e. Name and address of subcontractor.
  - f. Name and address of supplier.
  - g. Name of manufacturer.
  - h. Submittal number or other unique identifier, including revision identifier.
    - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06 10 00.01.A).
  - i. Number and title of appropriate Specification Section.
  - j. Drawing number and detail references.
  - k. Location(s) where product is to be installed.
  - l. Other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
- 1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
  - 2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.
- 1. Transmittal Form: Provide locations on form for the following information:
    - a. Project name.
    - b. Date.
    - c. Destination (To:).
    - d. Source (From:).
    - e. Names of subcontractor, manufacturer, and supplier.
    - f. Category and type of submittal.
    - g. Submittal purpose and description.
    - h. Specification Section number and title.
    - i. Drawing number and detail references.
    - j. Transmittal number, numbered consecutively.
    - k. Submittal and transmittal distribution record.
    - l. Remarks.
    - m. Signature of transmitter.
  - 2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked "No corrections noted".
- 
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
  - J. Use for Construction: Use only final submittals with mark indicating "No corrections noted" taken by Architect.
- 1.5 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES
- A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
    1. Complete the attached letter of waiver for CADD/Electronic File Transfer located at the end of this Section of the Specifications at the time files and documents are being requested on electronic media. Files on electronic media will not be delivered to the Contractor until receipt of this waiver.
    2. Architect will charge a \$100 per sheet service fee.

## PART 2 - PRODUCTS

### 2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
  1. Submit electronic submittals directly to extranet specifically established for Project.
- B. Product data: Collect information into a single submittal for each element of construction and type of product or equipment. 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. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Material Safety Data Sheets (MSDS).
    - e. Standard color charts.
    - f. Manufacturer's catalog cuts.
    - g. Wiring diagrams showing factory-installed wiring.
    - h. Printed performance curves.
    - i. Operational range diagrams.
    - j. Mill reports.
    - k. Standard product operation and maintenance manuals.
    - l. Compliance with specified referenced standards.
    - m. Testing by recognized testing agency.



- n. Application of testing agency labels and seals.
  - o. Notation of coordination requirements.
2. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as shop drawings, not as product data.
  3. Mark each copy of each submittal to show which products and options are applicable. Where printed product data includes information on several products that are not required, mark copies to indicate the applicable information.
  4. Submit product data before or concurrent with Samples.
  5. Number of Copies: Submit 4 copies of product data, unless otherwise indicated. Architect will return 3 copies. Mark up and retain one returned copy as a Project Record Document.
    - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
  6. 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.
- C. Shop drawings: Prepare Project-specific information, drawn accurately to scale. Do not base shop drawings on reproductions of the Contract Documents or standard printed data. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Standard information prepared without specific reference to the Project is not a shop drawing.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shopwork manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Design calculations.
    - j. Compliance with specified standards.
    - k. Notation of coordination requirements.
    - l. Notation of dimensions established by field measurement.
    - m. Relationship to adjoining construction clearly indicated.
    - n. Seal and signature of professional engineer if specified.
    - o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
  2. 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 30 by 40 inches. Sheets in a set must be the same size.

3. Number of Copies: Submit 1 opaque (bond) copy and 1 electronic pdf copy of each submittal. Architect will return 1 opaque and 1 electronic pdf copy. Mark up and retain one returned copy as a Project Record Drawing.
  4. Do not use shop drawings without an appropriate final stamp indicating action taken.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of appropriate Specification Section.
  3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit 1 full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
  5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit 3 sets of Samples. Architect will retain 1 Sample set; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.
      - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least 3 sets of paired units that show approximate limits of variations.

- E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product.
  2. Number and name of room or space.
  3. Location within room or space.
  4. Number of Copies: Submit 3 copies of product schedule or list, unless otherwise indicated. Architect will return 2 copies.
    - a. Mark up and retain one returned copy as a Project Record Document.
- F. Contractor's construction Schedule: Comply with requirements specified in Division 01 Section "Project Management and Coordination".
- G. Submittals Schedule: Comply with requirements specified in Division 01 Section " Project Management and Coordination".
- H. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
- I. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
  2. Number and title of related Specification Section(s) covered by subcontract.
  3. Drawing number and detail references covered by subcontract.
  4. Number of Copies: Submit 3 copies of subcontractor list, unless otherwise indicated. Architect will return 2 copies.
    - a. Mark up and retain one returned copy as a Project Record Document.

## 2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
1. Number of Copies: Submit 2 copies of each submittal, unless otherwise indicated. Architect will not return copies.
  2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Have certificates and certifications signed by an officer or other individual authorized to sign documents on behalf of that entity.
  3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- C. Contractor's construction schedule: Comply with requirements specified in Division 01 Section " Project Management and Coordination".

- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- M. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."
- N. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- O. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Closeout Procedures."
- Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
  - 1. Preparation of substrates.
  - 2. Required substrate tolerances.
  - 3. Sequence of installation or erection.
  - 4. Required installation tolerances.
  - 5. Required adjustments.
  - 6. Recommendations for cleaning and protection.
- S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
  - 1. Name, address, and telephone number of factory-authorized service representative making report.
  - 2. Statement on condition of substrates and their acceptability for installation of product.
  - 3. Statement that products at Project site comply with requirements.
  - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  - 6. Statement whether conditions, products, and installation will affect warranty.
  - 7. Other required items indicated in individual Specification Sections.
- T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

## 2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
  - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to shop drawings, product data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

### PART 3 - EXECUTION

#### 3.1 CONTRACTOR'S REVIEW

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

#### 3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
  1. No corrections noted
  2. Make corrections noted
  3. Submit 1 corrected copy for file
  4. Revise and resubmit
  5. Rejected – see remarks
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 33 00



# AIA<sup>®</sup> Document C106<sup>™</sup> – 2013

## Digital Data Licensing Agreement

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

**BETWEEN** the Party transmitting Digital Data ("Transmitting Party"):  
*(Name, address and contact information, including electronic addresses)*

McMillan Pazdan Smith Architecture  
127 Dunbar Street  
Spartanburg, SC 29306

and the Party receiving the Digital Data ("Receiving Party"):  
*(Name, address and contact information, including electronic addresses)*

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

The Transmitting Party and Receiving Party agree as follows.

### TABLE OF ARTICLES

- 1      **GENERAL PROVISIONS**
- 2      **TRANSMISSION OF DIGITAL DATA**
- 3      **LICENSE CONDITIONS**
- 4      **LICENSING FEE OR OTHER COMPENSATION**
- 5      **DIGITAL DATA**

### ARTICLE 1 GENERAL PROVISIONS

**§ 1.1** The purpose of this Agreement is to grant a license from the Transmitting Party to the Receiving Party for the Receiving Party's use of Digital Data on the Project, and to set forth the license terms.

**§ 1.2** This Agreement is the entire and integrated agreement between the parties. Except as specifically set forth herein, this Agreement does not create any other contractual relationship between the parties.

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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

§ 1.3 For purposes of this Agreement, the term Digital Data is defined to include only those items identified in Article 5 below.

§ 1.3.1 Confidential Digital Data is defined as Digital Data containing confidential or business proprietary information that the Transmitting Party designates and clearly marks as "confidential."

## ARTICLE 2 TRANSMISSION OF DIGITAL DATA

§ 2.1 The Transmitting Party grants to the Receiving Party a nonexclusive limited license to use the Digital Data identified in Article 5 solely and exclusively to perform services for, or construction of, the Project in accordance with the terms and conditions set forth in this Agreement.

§ 2.2 The transmission of Digital Data constitutes a warranty by the Transmitting Party to the Receiving Party that the Transmitting Party is the copyright owner of the Digital Data, or otherwise has permission to transmit the Digital Data to the Receiving Party for its use on the Project in accordance with the terms and conditions of this Agreement.

§ 2.3 If the Transmitting Party transmits Confidential Digital Data, the transmission of such Confidential Digital Data constitutes a warranty to the Receiving Party that the Transmitting Party is authorized to transmit the Confidential Digital Data. If the Receiving Party receives Confidential Digital Data, the Receiving Party shall keep the Confidential Digital Data strictly confidential and shall not disclose it to any other person or entity except as set forth in Section 2.3.1.

§ 2.3.1 The Receiving Party may disclose the Confidential Digital Data as required by law or court order, including a subpoena or other form of compulsory legal process issued by a court or governmental entity. The Receiving Party may also disclose the Confidential Digital Data to its employees, consultants or contractors in order to perform services or work solely and exclusively for the Project, provided those employees, consultants and contractors are subject to the restrictions on the disclosure and use of Confidential Digital Data as set forth in this Agreement.

§ 2.4 The Transmitting Party retains its rights in the Digital Data. By transmitting the Digital Data, the Transmitting Party does not grant to the Receiving Party an assignment of those rights; nor does the Transmitting Party convey to the Receiving Party any right in the software used to generate the Digital Data.

§ 2.5 To the fullest extent permitted by law, the Receiving Party shall indemnify and defend the Transmitting Party from and against all claims arising from or related to the Receiving Party's modification to, or unlicensed use of, the Digital Data.

## ARTICLE 3 LICENSE CONDITIONS

The parties agree to the following conditions on the limited license granted in Section 2.1:

*(State below rights or restrictions applicable to the Receiving Party's use of the Digital Data, requirements for data format, transmission method or other conditions on data to be transmitted.)*

- The digital data defined in Article 5 is provided "AS IS" and without representations or warranties of any kind.
- The data contained in these electronic files are part of the MPS Instruments of Service and shall not be used by Receiver or anyone else receiving this data through or from Receiver for any purpose other than as a convenience in the preparation of shop drawings for the referenced project. The Receiver acknowledges and agrees that the data is for reference only and shall not be used for Construction. Any use of re-use shall be at the Receiver's sole risk and without liability or responsibility to MPS.
- The Receiver shall defend, indemnify, and hold harmless MPS, its officers, employees, agents to the fullest extent permitted by law from any and all actions, claims, damages, liabilities, judgements, losses, recoveries, costs and expenses, including attorney fees, which may result from the use, whether unaltered or altered, of the digital data described in Article 5.
- Receiver acknowledges and agrees that any Sub-Receiver of this digital data shall be bound by the same terms and conditions as provided herein between Transmitter and Receiver.

## ARTICLE 4 LICENSING FEE OR OTHER COMPENSATION

The Receiving Party agrees to pay the Transmitting Party the following fee or other compensation for the Receiving Party's use of the Digital Data:

Init.



*(State the fee, in dollars, or other method by which the Receiving Party will compensate the Transmitting Party for the Receiving Party's use of the Digital Data.)*

No Fee.

#### **ARTICLE 5 DIGITAL DATA**

The Parties agree that the following items constitute the Digital Data subject to the license granted in Section 2.1: *(Identify below, in detail, the information created or stored in digital form the parties intend to be subject to this Agreement.)*

Project-related files referencing the Bid Set Drawings in Auto CAD and .pdf format. Project-related Revit models from the design team, including the Architectural, Structural, Mechanical, Plumbing and Fire Protection models.

The Revit models being provided are not intended to be a final coordination document. The responsibility for the final coordination is the contractors, and the Revit models are being provided, solely, to assist with their coordination efforts.

This Agreement is entered into as of the day and year first written above and will terminate upon Substantial Completion of the Project, as that term is defined in AIA Document A201™–2007, General Conditions of the Contract for Construction, unless otherwise agreed by the parties and set forth below.

*(Indicate when this Agreement will terminate, if other than the date of Substantial Completion.)*

N/A

\_\_\_\_\_  
**TRANSMITTING PARTY** *(Signature)*

\_\_\_\_\_  
McMillan Pazdan Smith Architecture  
*(Printed name and title)*

\_\_\_\_\_  
**RECEIVING PARTY** *(Signature)*

\_\_\_\_\_  
*(Printed name and title)*



## SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

### 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 requirements for temporary utilities, support facilities, security and protection facilities.
- B. Related Sections include the following:
  - 1. Division 01 Section "Summary of Work" for limitations on utility interruptions and other work restrictions.
  - 2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
  - 3. Division 01 Section "Execution" for progress cleaning requirements.
  - 4. Divisions 02 through 49 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.
  - 5. Division 31 Section "Dewatering" for disposal of ground water at Project site.

#### 1.3 USE CHARGES

- A. General: Include cost or use charges for temporary facilities in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.

#### 1.4 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

#### 1.5 QUALITY ASSURANCE

- A. Comply with ANSI A10 "Construction and Demolition Standards Package".
- B. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70, NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations".

- C. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

## 1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- B. Temporary Utilities: Prepare schedule indicating dates for termination of each temporary utility. Change over from temporary service to permanent service at the earliest date acceptable to the Owner.
- C. Conditions of Use: Keep temporary services and facilities clean, neat in appearance, fully equipped and operational. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.
- D. Project Thermometer: Provide an accurate, easily read, accessible thermometer at the job trailer, mounted to avoid damage and direct sun. Maintain thermometer in working condition from commencement of construction activities through substantial completion. If a job trailer is not used on this Project, install the thermometer in another suitable location.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Pavement: Comply with Division 32 pavement Sections.
- B. Portable Chain-Link Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts at 10 foot spacing; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide concrete bases for supporting posts and lockable entrance gates.
- C. Plastic fencing: Open mesh orange plastic mesh fence 5 feet high with lockable entrance gates.
- D. Lumber and Plywood: Comply with requirements in Division 06 Section "Rough Carpentry".
- E. Gypsum Board: Minimum 1/2 inch thick by 48 inches wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36/C 36M.
- F. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.
- G. Sticky Mat: Multipayer pad of 36" x 48" adhesive mats in a reusable plastic frame with non-skid backing, similar to Cole Cleanroom Sticky Mat or TackMat Contamination Control Mat.

- H. Paint: Comply with requirements in Division 09 painting Sections.

## 2.2 TEMPORARY FACILITIES

- A. Storage and Fabrication Sheds: Sized, furnished, and equipped to accommodate materials and equipment for construction operations, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on-site.
  - 1. Store combustible materials apart from building.

## 2.3 EQUIPMENT

- A. General: Provide new equipment, suitable for use intended. If acceptable to the Architect, the Contractor may use undamaged, previously used equipment in serviceable condition.
- B. Fire Extinguishers: Portable, UL rated, dry-chemical extinguishers with class and extinguishing agent required by locations and classes of fire exposures. Class A fire extinguishers for temporary offices and similar spaces.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- C. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Maintain, relocate and modify facilities as required by progress of the Work.
  - 1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
  - 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
  - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Water Service: Install water service and distribution piping of sizes and pressures adequate for construction purposes. Contractor to provide all necessary materials and labor to run water to construction area. The Contractor may tap into the Owner's existing service. The General Contractor must provide an operable and readable meter to measure Contractor's usage, and ensure that the water supply to the Owner's service is not contaminated. All connections to the Owner's or municipal water source shall include backflow protection and be installed by the General Contractor.
- D. Electric Power Service: Provide weatherproof, grounded electric power service and distribution service of size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnectors, automatic ground fault interrupters, main distribution switch gear, and sub-panels. Contractor to provide all materials and labor to distribute power to construction site and to provide temporary lighting.
  - 1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage.
  - 2. Electrical Outlets: Provide properly configured NEMA polarized outlets. Provide outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.
  - 3. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to traffic
- F. Temporary Telephones: Provide temporary telephone service throughout the construction period for all personnel engaged in construction activities. Cell phones are acceptable.
  - 1. Provide superintendent with cellular telephone.
- G. Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.

1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.
- D. Project Identification and Temporary Signs: Provide Project identification and other signs as indicated on Drawings. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
  1. Provide temporary, directional signs for construction personnel and visitors.
  2. Maintain and touchup signs so they are legible.
- E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
- F. Project Identification and Temporary Signs: Provide Project identification and other signs after coordination with Owner. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
  1. Prepare project identification and other signs on grade B-B high density overlay plywood. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support project signs on posts or framing of preservative-treated wood or steel.
  2. Engage an experienced sign painter to apply graphics. Comply with details shown on the drawing 01 50 50 Construction Project Sign.
  3. Obtain graphic logo information on magnetic media, including design, color, placement, arrangement, proportions, and verbiage, from the Architect's Construction Administration Department.
    - a. a. The sign shall be 4' 0" wide x 8' 0" high. The background shall be off-white with red and black letters. Top of sign shall be 9' 0" above finish grade. Sign to be mounted on two 4" x 4" posts with two 2" x 4" diagonal braces to grade. Sign location to be chosen by Architect. Sign to be painted by a professional sign painter and erected within two (2) weeks of start of construction. Image shall be on both sides of sign for a total of two (2) signs
  4. Do not alter the logo in any manner. Alterations to the logo or any other graphics or verbiage shall be corrected at the Contractor's expense.
  5. The Architect shall approve all completed project signs through shop drawing submittals prior to erection. Unacceptable signs shall be redone promptly at the Contractor's expense, even if already erected.
  6. Unauthorized signs shall be removed promptly at the Contractor's expense.
  7. Position and orient the sign so as to be readily visible and legible by both directions of traffic that is traveling at the speed limit on the main thoroughfare. When the sign is installed at

an intersection with the main thoroughfare, prepare a double-sided sign that is visible by traffic traveling both roads.

8. Provide temporary, directional signs for construction personnel and visitors.
9. Maintain and touchup signs so they are legible at all times.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- B. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- C. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
- D. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner and tenants from fumes and noise.
  1. Construct dustproof partitions of not less than nominal 4-inch studs with 5/8-inch gypsum wallboard with joints taped on occupied side, and 1/2-inch plywood on construction operations side. Or with (Construct dustproof partitions with 2 layers of 3-mil polyethylene sheet on each side.)
    - a. Construct vestibule and airlock at each entrance to occupied premises through temporary partition with not less than 48 inches between doors. Maintain sticky or water-dampened foot mats in vestibule.
  2. Insulate partitions to provide noise protection to occupied areas.
  3. Cover floor with 2 layers of 3-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.
  4. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
  5. Protect air-handling equipment.
  6. Weather strip openings.
  7. Provide fire-rated temporary partitions where called for on the drawings.
- E. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
  1. Prohibit smoking in construction areas.
  2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.



4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

F. The contractor shall provide temporary orange construction fencing around materials to be left on site and around roof access points.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.

2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00



## SECTION 01 56 39 – TREE AND PLANT PROTECTION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes the protection of trees that interfere with, or are affected by, execution of the Work, including:
  - 1. Tree protection
  - 2. Tree pruning
  - 3. Demolition near trees
  - 4. Excavation near roots
  - 5. Utility installation near trees
  - 6. Regrading within tree dripline
  - 7. Tree maintenance and protection
- B. Related Sections include the following:
  - 1. Division 32 Section "Planting" for planting replacement trees.

#### 1.3 DEFINITIONS

- A. Drainage Fill: free draining material.
- B. Certified Arborist: Individual certified by International Society of Arboriculture (ISA).

#### 1.4 REFERENCES

- A. ANSI A300: Standards for Tree Care Operations: Part 1 – Pruning and Part 5 - Management of Trees and Shrubs During Site Planning.

#### 1.5 SUBMITTALS

- A. Qualification Information: For Certified Arborist

1.6 QUALITY ASSURANCE

- A. Predemolition Conference: Attend conference at Project site to comply with requirements in Division 01 Section "Project Meetings." Review methods and procedures for protecting and working around existing trees.

1.7 AVOIDING TREE DAMAGE

- A. Protection Perimeter: Based on a radius of 1 foot per 1 inch of tree diameter measured 8 feet above grade, unless shown otherwise on Drawings.
- B. Protect tree root systems from damage, flooding, and erosion.
- C. Take care not to contact canopy or trunk when operating large equipment or vehicles in the proximity of protected trees.
- D. Do not operate or idle equipment, particularly paving equipment, and trucks under the canopy of protected trees.
- E. Uncovered Roots: When roots have been excavated, but not cut, cover within 2 days.
- F. Severed Roots: Re-cover roots that have been pruned within 1 hour of uncovering them.

1.8 STORAGE, AND HANDLING

- A. Do not store materials, including soil, under the canopy of protected trees.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.1 INSTALLATION OF TREE PROTECTION BARRIER

- A. Construct a tree protection barrier around each tree or group of trees that is to remain, and as shown in plans.
- B. Construct barrier immediately after hand removal of pavement within drip line of tree and before any additional demolition or construction-related activities occur.
- C. Leave tree protection in place until site work dictates that the barrier be moved to the tree protection site work location.
- D. Do not relocate the tree protection fencing closer to the existing trees than indicated on the plans.

### 3.2 TREE PRUNING

- A. Prune trees affected by the Work, as indicated on the Drawings. Prune dead wood and limbs which would, in the opinion of the Certified Arborist, interfere with the use of the site after construction. Do not prune trees merely to make construction more efficient or accessible.
- B. Prune trees to compensate for root loss caused by damaging or cutting root system. Prune trees according to ANSI A300 as follows:
  - 1. Crown cleaning
  - 2. Crown thinning
  - 3. Crown reduction
  - 4. Vista pruning
  - 5. Crown restoration.
- C. Cut branches with sharp pruning instruments; do not break or chop.
- D. Chip branches removed from trees. Spread or stockpile chips where indicated or dispose of as indicated in Division 01 Section "Construction Waste Management and Disposal".

### 3.3 FIELD QUALITY CONTROL

- A. Have the Arborist remain on site during pruning and overhead or underground utility installation within or near the established protection area.

### 3.4 DEMOLITION NEAR TREES

- A. Break up concrete and other pavements within the drip line of trees within the protection perimeter with a jackhammer and remove by hand to prevent root and root crown injuries. Avoid lifting large sections of concrete near the tree.
- B. Pavements outside the drip line can be lifted in large sections provided they are kept out of protection area.
- C. When removing/loading demolition debris, do not scoop materials from below the existing grade; avoid inadvertent digging and damage in the root area.
- D. Cut off pipe and conduit, that have grown into trunks and root systems, close to the tree. Do not remove portions underneath the bark or wood. Do not remove bark growing around the pipe, conduit or other attachments.
- E. While removing overhead poles or other infrastructure near trees, do not push or allow them to fall into the tree canopies.

### 3.5 EXCAVATION METHODS NEAR ROOTS

- A. Air Spade: Use Model 2000 Air Spade equipped with a 225 scfm nozzle to excavate soil near tree roots and to determine location of tree roots.

- B. Compressor: Use a minimum 250 scfm air compressor to operate the Air Spade and nozzle combination listed above.
- C. Sewer Vacuum: A sewer vacuum may be used to remove soil dislodged by the Air Spade if it cannot be easily blown clear of the hole or trench.
- D. Dig interval exploratory or test trenches with the Air Spade to determine the location of roots before digging within the established protection perimeter.
  - 1. Test trenches: 8 inches deep and 4 to 6 inches wide.
- E. Root conflicts:
  - 1. When roots are encountered in test trenches, do not cut if they are larger than 2 inches in diameter or are closer than the established protection perimeter.
  - 2. Cut roots smaller than 2 inches in diameter that must be severed with a hand pruning saw.
  - 3. Do not use paint and wound treatment on cut surfaces.

### 3.6 UTILITY INSTALLATION NEAR TREES

- A. For the installation of utility lines, consult the Arborist after digging test trenches, to establish an acceptable method for excavation. Use one of the methods described in this section and approved by the Agency having power of Jurisdiction.
- B. Boring under tree roots shall be an acceptable method for the installation of utilities in order to avoid cutting roots. Bores shall be at a minimum depth of 30 inches.
- C. Buried Wiring and Plumbing: Install wiring for street or traffic lights, communication conduits, or plumbing for irrigation in a trench using an air spade, when in conflict with roots 2 inches or greater in diameter, or closer than the established protection perimeter. Fit the conduit and plumbing around the tree roots.
- D. Sewer Lines: Consult the Arborist before digging existing sewer lines for replacement, in areas with roots 2 inches or greater in diameter, or closer than the established protection perimeter.
- E. Water Service Lines: When possible, place water service lines in the same trench as the sewer lines. If a separate trench is needed within the established protected perimeter or where there are roots 2 inches or greater in diameter, dig with an Air Spade and the install the pipe beneath the tree roots.

### 3.7 REGRADING WITHIN DRIP LINE OF EXISTING TREES

- A. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade beyond drip line of trees. Maintain existing grades within drip line of trees unless indicated otherwise on the Drawings.
  - 1. Root Pruning: Prune tree roots exposed during grade lowering. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots with sharp pruning instruments; do not break or chop.

- B. Minor Fill: Where existing grade is 6 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.
- C. Moderate Fill: Where existing grade is more than 6 inches, but less than 12 inches, below elevation of finish grade, place drainage fill, filter fabric, and topsoil on existing grade as follows:
  - 1. Place drainage fill 2 inches above finish grade elevation for at least 18 inches from tree trunk. For balance of area within drip-line perimeter, place drainage fill up to 6 inches below elevation of grade.
  - 2. Place filter fabric with edges overlapping 6 inches minimum.
  - 3. Place topsoil layer of to finish grade. Do not compact drainage fill or topsoil. Hand grade to required finish elevations.

### 3.8 TREE REPAIR AND REPLACEMENT

- A. Repair trees damaged by construction operations within 24 hours of damage. Treat damaged trunks, limbs, and roots according to written instructions of the arborist. Where cuts and minor abrasions occur to living tissue of trees and shrubs, trace back injured cambium according to arboriculture practice and thoroughly apply a commercially prepared, penetrating-type tree wound paint to the wounds. Use red if no arborist on project.
- B. Remove and replace dead and damaged trees that the arborist determines to be incapable of restoring to a normal growth pattern.
  - 1. If damaged or dead tree is less than 6 inch diameter, replace with new tree of the same size and species as that being replaced; plant and maintain as specified in Division 32 Section "Planting".
  - 2. If damaged or dead tree is 6 inches caliper size or more at breast height, replace with new tree of 6 inch caliper size and of a species selected by Owner.
- C. Aerate surface soil, if compacted during construction, 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill 2 inch diameter holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with an equal mix of augered soil and sand.

### 3.9 MAINTENANCE AND PROTECTION

- A. Do not apply fertilizer to trees in the Project area prior to construction.
- B. Water and fertilize trees impacted by construction during construction.

END OF SECTION 01 56 39





## SECTION 01 60 00 - PRODUCT REQUIREMENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
- B. Related Sections include the following:
  - 1. Division 01 Section "Substitution Procedures" for administrative procedures for making substitution requests after award of the Contract.
  - 2. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
  - 3. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

#### 1.3 DEFINITIONS

- A. Products: Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.
  - 1. Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
  - 2. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, current as of date of the Contract Documents.
  - 3. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
  - 4. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
  - 5. Foreign Product: Distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside the United States and its possessions. Products produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of, nor living within, the United States and its

possessions are considered to be foreign products. Products that are produced in foreign facilities owned by American firms are also considered to be foreign products.

6. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
  7. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

#### 1.4 SUBMITTALS

- A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
1. Coordinate product list with Contractor's construction schedule and the submittals schedule.
  2. Form: Tabulate information for each product under the following column headings:
    - a. Specification Section number and title.
    - b. Generic name used in the Contract Documents.
    - c. Proprietary name, model number, and similar designations.
    - d. Manufacturer's name and address.
    - e. Supplier's name and address.
    - f. Installer's name and address.
    - g. Projected delivery date or time span of delivery period.
    - h. Identification of items that require early submittal approval for scheduled delivery date.
  3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.
    - a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.
  4. Completed List: Within 30 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
  5. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.

6. Certify that products, material, components, equipment, and systems, comply with the requirements specified on the Drawings, in this section and with Divisions 2 through 33.
- B. Product Substitution Requests: Refer to Division 1 Section "Substitution Procedures" for requirements and process.
- C. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 8 days of receipt of additional information or documentation, whichever is later.
    - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
    - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.
- D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

#### 1.5 QUALITY ASSURANCE

- A. Source Limitations: To the extent possible, provide products of the same kind from a single source.
- B. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
  1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.
- C. Products with recycled content: Recycled content must be free of hazardous material contamination.
- D. Foreign Product Limitations: Except under one or more of the following conditions, provide domestic products, not foreign products, for inclusion in the Work.
  1. No available domestic product complies with the Contract Documents.
  2. Domestic products that comply with the Contract Documents are available only at prices or terms substantially higher than foreign products that comply with the Contract Documents.
- E. Comply with provisions of the Contract Documents including providing such entities that include, but are not limited to, the products, materials, equipment, components, or systems that were proposed at the time bids were received.

1. Except for extenuating circumstances, as determined by the Architect, notification of not being able to meet the provisions of the Contract Documents will not be considered after receipt of bids. Comply with the Contract Documents at no increase in Contract Sum or Contract Time.
2. Out Of Stock Items: Neither the Owner or the Architect will be responsible for the Contractor's failure to allow for adequate lead times to ensure delivery of products, materials, or equipment to prevent installation delays.
  - a. The Contractor shall be responsible for ordering, shipping, handling, storage, duty, fee, and costs applicable to ordering products, materials, and equipment for on-time installation.
  - b. If products, materials, or equipment are discontinued or are no longer available at the time they are ordered, the Contractor shall be responsible for costs incurred by the Architect and the Owner in selecting and approving a substitute and for the cost differential between the originally specified product, material, or equipment and the selected substitute. The Owner and Architect reserve the right to select and approve substitutes.
3. Products, materials, components, etc. not specified or indicated in the Contract Documents or approved in writing by the Architect prior to use shall not be incorporated into the Work. Unspecified or unapproved products, materials, components, etc. used on the project or incorporated into the work shall be removed and acceptable products, materials, components, etc. installed at no increase in Contract Amount or Time.

#### 1.6 ASBESTOS-CONTAINING MATERIALS

- A. Do not use products, materials, components, and equipment that contain asbestos fibers, in the construction of this Project. Certify to the Owner that no asbestos has been used in the construction of this Project. Require each supplier of material to furnish certification that no asbestos fiber is contained in the product supplied. Compile certifications and furnish the Owner with a copy.
- B. During execution of the Work, if asbestos or asbestos-containing materials are suspected of being delivered or being present, perform the following steps immediately:
  1. Immediately, stop work in the suspected area.
  2. Immediately, notify the Contractor, Owner, and the Architect.
  3. Do not touch, disturb or approach the suspected area or materials.
  4. Erect a barrier around the suspected area or materials, not less than 10 feet from the suspected area or materials. If the area is in a room or space that can be sealed or closed to traffic, seal or close off the space. If there are HVAC vents to the space, seal the vents.
  5. Erect a sign that is clearly legible from at least 10 feet. Use weatherproof lettering if the sign will be exposed to weather. Post the sign at each access to the area and around the barrier. Space the signs around the barrier a maximum of 8 feet apart. The sign shall contain the following wording:

**DANGER**

**ASBESTOS-CONTAINING MATERIALS ARE PRESENT. DO NOT ENTER OR CROSS THE BARRIER WITHOUT WRITTEN PERMISSION AND APPROVED PROTECTIVE CLOTHING**

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
  - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  - 2. Order materials to compensate for lead times and manufacturer's delays.
  - 3. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  - 4. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  - 5. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
  - 6. Repair damaged or defaced components, or remove and replace with acceptable components.
- C. Storage:
  - 1. Store products to allow for inspection and measurement of quantity or counting of units in a clean dry location away from uncured masonry or concrete.
  - 2. Store materials in a manner that will not endanger Project structure.
  - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
  - 4. Store cementitious products and materials on elevated platforms.
  - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
  - 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  - 7. Protect stored products from damage and liquids from freezing.

1.8 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
  - 1. **Manufacturer's Warranty:** Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  - 2. **Special Warranty:** Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. **Special Warranties:** Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
  2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
  3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

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

7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system.
  8. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated.
    - a. Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.
  9. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
  10. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.
  11. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
    - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
  12. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
    - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.
  13. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.
- C. Electrical Provisions: Where electrical components or equipment are specified or required, provide a complete and operable system complying with the specified or required electrical equipment or component manufacturer's warranty requirements. Include items such as transformers, power supplies, switches, controllers, relays, wire, conduit, circuit breakers, junction boxes, transfers, and other electrical devices, components, and materials.
1. Where such items are not available from the specified or required electrical equipment or component manufacturer, provide such items recommended by it to meet its warranty requirements.

## 2.2 PRODUCT SUBSTITUTIONS

- A. Refer to Division 1 Section, "Substitution Procedures".

## 2.3 COMPARABLE PRODUCTS

- A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
  1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
  5. Samples, if requested.

## 2.4 GOVERNING AUTHORITIES

- A. Materials and work shall be in compliance with applicable codes, ordinances, laws, regulations, and requirements of local, state, and federal governing authorities having jurisdiction.
- B. The Owner will not pay for furnishing items required by applicable codes, ordinances, laws, regulations, and requirements of local, state, and federal governing authorities even though such may not be shown or indicated on the Drawings or called for in the Specifications.
- C. Submit discrepancies noted within the Drawings, within the Specifications, and between the Drawings and Specifications to the Architect prior to bidding.
  1. Discrepancies submitted after the bidding, will be considered by the Architect. Should the Contractor base his bid on a lesser quality or install the item incorrectly, the Contractor may be responsible for the additional costs.
  2. Where conflicts arise that were not brought to the Architect's attention, the Architect will make an interpretation, even if the interpretation or judgment is the most expensive or complex of the conflicting issues.

## PART 3 - EXECUTION

### 3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Where specifications requirements are more stringent or severe than the manufacturer's requirements, comply with the specifications unless the manufacturer states, in writing, that the specification requirements are detrimental to performance and will void the manufacturer's warranty. Anchor each product securely in place, accurately located and aligned with other Work.



**Exterior Façade Repair****Donald S. Russell U.S. Courthouse (SC0041ZZ)**

Spartanburg, South Carolina

1. All Work is to be performed by and all materials are to be installed by craftsmen that are skilled, trained and experienced in their respective trades.
  2. All Work is to be performed to and all materials are to be installed to the highest level of quality and workmanship that meets or exceeds manufacturer's instructions and industry standards and shall meet the quality and performance requirements of the Architect. Work not conforming to this requirement shall be removed and replace with conforming work.
  3. Where specific manufacturers and product names are not listed, provide materials and products that are the best types and that are best suited for the intended use as indicated in the Contract Documents, and that will provide the maximum longevity with minimum maintenance. Where more than one product can be used in an application, the best product shall be selected and used. Work not conforming to this requirement shall be removed and replace with conforming work.
  4. All products and materials shall be installed using the best procedures, techniques and practices recommended or suggested by the respective manufacturers and industry standards. Provide all supplementary materials and products recommended or suggested by the applicable manufactures and industry standards even if the supplementary materials and products are not indicated or specified. Work not conforming to this requirement shall be removed and replace with conforming work.
  5. Bring all conflicts within the drawings, within the specifications, and between the drawings and specifications to the Architect's attention. Where such conflicts that were not brought to the Architect's arise, the Architect will interpret and judge for the best interest of the Owner even if the interpretation or judgment is the most expensive or complex of the conflicting issues.
  6. Before, during, and after their installation, and until substantial completion, continuously protect all materials, finishes, equipment, assemblies, and subassemblies from weather, deterioration, premature wear, damage, theft, or vandalism.
  7. When installing items, including but not limited to materials, components, assemblies, subassemblies, and systems, ensure that all supports, substrates, and surfaces to receive installed items meet the manufacturer's requirements, and are in a suitable condition, to receive the installed items. Beginning installation shall be inferred as acceptance of existing conditions and that the installer accepts full responsibility for the performance and aesthetics of the completed Work.
    - a. This evaluation includes, but is not limited to, conducting applicable testing to determine the presence and effects of moisture; the soundness, strength, and integrity of substrates so as to prevent separation or delamination, sag, or excess deflection; the compatibility of adjoining, connecting, or contacting materials; proper support of elements and members to prevent sag or excessive deflection. Where bracing or supports are not specifically shown on the Drawings, but are required to achieve, aesthetics, structural requirements, support, etc, applicable members shall be provided and installed.
  8. Where materials, components, assemblies, subassemblies, and systems, co-exist with or are dependent on the proper performance of other materials, components, assemblies, subassemblies, and systems, ensure that all necessary measures are taken to preserve that synergistic relationship.
  9. Clean exposed surfaces to a like-new condition, to the satisfaction of the Architect, and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- B. Fasteners: Unless specified or required otherwise, comply with the following:
1. Use fasteners of the proper type, design, size, and length as recommended by the manufacturers of the components or material being fastened for the intended application.
  2. Fasteners shall provide proper and secure attachment without damaging the components or materials being fastened or the substrate.

3. Install fasteners is a pattern and density recommended by the applicable manufacturers, referenced agencies, and governing authorities to ensure suitable fastening to meet conditions. Where there is a conflict in recommended fastening, the most severe shall govern.
4. Fasteners that are used in exterior applications, are exposed to weather or moisture, or are in contact with earth, interior and exterior treated wood, interior and exterior cementitious materials, or dissimilar materials shall be corrosion-proof.
5. Use fasteners that will not penetrate surfaces that will be exposed to view or that will be finished.
6. Where fasteners must completely penetrate the substrate to which materials or components are being attached, fasteners shall be of the recommended length so as not to penetrate completely through the substrate more than 3/4 inch, unless the manufacturer recommends otherwise. In no case shall fasteners extend past the bottom of the metal roof deck flutes.
7. After being tightened to the recommended torque, bolts shall be of proper length to penetrate items being fastened and have sufficient thread exposed to accept a flat washer, lock washer and a nut with 3/8 inch of bolt extending past the nut.

C. Control, Expansion, and Contraction Provisions

1. If provisions for control, expansion, and contraction in materials and systems are indicated on the Drawings or described in the specifications, these provisions shall be installed. If provisions for control, expansion, and contraction in materials and systems, such as concrete, plaster, masonry, EIFS, drywall, flooring materials, roof systems, and metal are not provided on the Drawings or in the specifications, notify the Architect during the Bidding Phase for an evaluation, clarification, and determination. If applicable, the Architect will provide drawings or specifications or both to address the situation. If the Architect is not notified during the Bidding Phase that there are no provisions for control, expansion, and contraction on the Drawings or in the Specifications, and it is later determined that these provisions are required, then the contractor shall provide the required Control, Expansion, and Contraction provisions at no adjustment to the Contract Price or Time. As a minimum, material and system manufacturer's requirements and instructions for control, expansion, and contraction shall be followed.

3.2 MOISTURE CONTROL

- A. The intent of these specifications is not to state, suggest, or imply that the Architect is a moisture or mold specialist or expert. Instead, the specifications are the minimum directives to the Contractor regarding the handling and installation of materials. Furthermore, these specifications do not relieve the Contractor of any additional or other responsibilities, duties, or procedures, including hiring and paying for applicable specialists or consultants, necessary to ensure that the building is free of mold and or any other conditions that may promote mold or may be interpreted as detrimental to any form of Indoor Air Quality. The Contactor shall be responsible for all coincidental damage related to moisture intrusion or moisture accumulation related to the Contractor's failure to take the necessary precautions and preventive measure to prevent moisture intrusion and accumulation.
- B. Fibrous and cellulose-base materials and products that become wet and are not dried within 24 hours can and usually do initiate and promote the growth of mold and mildew. Saturation of these materials is not necessary to initiate the mold cycle. Preventing and detecting the spread of mold, mildew, other fungi, and their related spores is of paramount importance during construction of this Project and after Owner occupancy. The Contractor shall be ever mindful of how the procedures used to handle, stage, and install materials and products will impact and affect the growth of mold and mildew during construction and after Owner occupancy.

1. Building materials and products that are prone to absorbing and retaining moisture include, but are not limited to, the following:
  - a. Carpet
  - b. Drapery
  - c. Drywall
  - d. Masonry
  - e. Concrete
  - f. Furniture
  - g. Insulation
  - h. Casework,
  - i. Fiberboard
  - j. Wood floor
  - k. Wood doors
  - l. Fabric items
  - m. Particleboard
  - n. Finish carpentry
  - o. Acoustical ceiling
  - p. Wood finishes and trim
  - q. Cellulose, fibrous, or moisture absorbing materials and products
  - r. Any material or product that may promote, encourage, or sustain mold or mildew growth or the spores of same.
  
- C. At the time of Contract Execution, submit the following:
  1. A signed Moisture Control Certification, which is located in front of this Project Manual.
  2. Complete and detailed procedures that describe the following conditions:
    - a. Manufacturer's certification for any listed materials or products that are normally used in the building shell and for which the manufacturer claims that moisture will not harm the material or product will not promote or support the growth of mold or mildew.
    - b. Identification of moisture and mold on or in any of the listed materials and products, whether being unloaded, staged, or in-place.
    - c. Protection of any of the listed materials and products during staging, handling, and while in place.
    - d. Disposition of materials and products that are wet, show signs of having been wet, or have evidence of mold or mildew on arrive at the site or off-site staging/storage location.
    - d. Removal of materials or products that have been identified as being wet or having signs of mold or mildew.
  
- D. Methods to prevent mold, mildew, other fungi, and their related spores include, but are not limited to, the following:
  1. Comply with the provisions for "Temporary Use Of Owner's HVAC" as stipulated in Section 01500 of the Specifications.
  2. Establish and enforce proper and effective construction sequencing throughout the project to protect moisture sensitive products and materials from contamination.
  3. Monitor interior humidity levels and provide proper ventilation during construction to promote drying and curing of concrete, masonry, fireproofing, drywall, etc. and to prevent mold/mildew formation. This is especially critical during humid or wet weather conditions.
  4. Take necessary precautions for moisture conditions/surfaces that may be concealed after constructions.

5. Immediately dry leaks, spills, or other moisture that has entered the structure or building shell and monitor and regulate, as necessary, water generating activities to prevent mold/mildew contamination.
6. Be constantly alert for any signs of mold, mildew, and musty odors and take prompt remedial and preventative action at their first sign. Encapsulation is not an acceptable treatment.
7. Erect the exterior finish (masonry, siding, EIFS, etc.) of the building shell as quickly as possible to protect internal components (sheathing, insulation, blocking, etc.) of building shell. Protect these components until the exterior finish is installed.
8. Use all possible means and methods to prevent moisture intrusion into the structure after any of the listed materials or products have been installed.
9. Any listed material or product that arrives on the job site wet or shows evidence of having been wet shall be considered defective, shall be rejected, and promptly removed from the site.
10. Keep the listed materials and products from direct contact with moisture. Use all necessary means to keep materials dry during staging and after installation. Take all measures to close openings in the building shell after installation of building materials and products. Promptly remove from the site all materials and products that have become wet and have an unacceptable moisture level or that may produce or encourage the growth of mold as determined by an independent testing laboratory that is acceptable to the Owner and Contractor.
11. When materials and products are wrapped, and moisture has condensed on the inside of the wrapping, the materials that are wrapped shall be tested by the independent testing agency. If the agency determines that the materials are wet, those materials shall be removed from the site promptly at the contractor's expense.
12. Do not install any of the listed materials and products until they are completely protected from direct contact with moisture or water.
13. Promptly remove from the site all materials and products, including porous products such as masonry, that show signs of mold, mildew, and musty odors even if already installed. Procedures to only clean surfaces to remove the mold, mildew, and musty odors are not acceptable.
14. Take all measures to prevent scrap and waste materials from being covered or buried in the construction.
15. Prevent moisture accumulation and promote drying by providing air circulation and temperature control during installation of systems that dissipate moisture such as plaster, sprayed fireproofing, concrete, drywall finishing, etc. Refer to Section 01500 for procedures regarding temporary use of the Owner's HVAC system.
16. None of the listed materials or products shall be installed until the building is completely in the dry, and not prior to completing moisture producing operations (concreting, plastering, plastering, sprayed fireproofing, etc. Any of these materials or products that are installed prior to the building being in the dry or completing moisture producing operations shall be promptly removed from the site and replaced with new materials at the contractor's expense.

17. Coordinate construction activities to ensure that the listed materials and products are not exposed to moisture or to conditions that will initiate, promote, or encourage the growth of mold or mildew or that will otherwise be detrimental to the materials and products. Where a manufacturer's requirements for ambient conditions (such as the HVAC operational and temperature and humidity stabilized at expected operating levels) exceed these requirements, the most stringent shall govern.
18. Keep all HVAC duct covered and sealed when the system is not operating to prevent dust from entering system. Keep air-conditioning ducts free of moisture and condensation pans and lines operational and unclogged. Ensure that other water sources are not draining into condensation pans.
  - a. Keep HVAC filters and ducts clean during construction. (Use pleated filters).
  - b. Do not operate HVAC when dusty (sawing, sweeping, sanding, etc.) operations are being performed.
  - c. Use air filtration devices (dust collectors) on sanding and sawing equipment.
  - d. Use freestanding air filtration devices.
  - e. Do not operate HVAC when doors and windows are open.
19. Do not conduct any dust-producing activities when the HVAC system is operating. Secure the system and seal all duct openings prior to performing any dust-producing operations.

END OF SECTION 01 60 00



SECTION 01 73 00 - EXECUTION

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 general procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering and surveying.
  - 3. General installation of products.
  - 4. Moisture Control.
  - 5. Coordination of Owner-installed products.
  - 6. Progress cleaning.
  - 7. Starting and adjusting.
  - 8. Protection of installed construction.
  - 9. Correction of the Work.
- B. Related Sections include the following:
  - 1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
  - 2. Division 01 Section "Submittal Procedures" for submitting surveys.
  - 3. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
  - 4. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

- A. Certificates: Submit certificate signed by land surveyor professional engineer certifying that location and elevation of improvements comply with requirements.
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- C. Certified Surveys: Submit 2 copies signed by land surveyor.
- D. Final Property Survey: Submit 2 copies showing the Work performed and record survey data.

#### 1.4 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
  - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
    - a. Description of the Work.
    - b. List of detrimental conditions, including substrates.
    - c. List of unacceptable installation tolerances.
    - d. Recommended corrections.
  - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  - 4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  - 5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.



### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 3. Inform installers of lines and levels to which they must comply.
  - 4. Check the location, level and plumb, of every major element as the Work progresses.
  - 5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
  - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

### 3.4 MOISTURE CONTROL

- A. General: The Contractor shall be responsible to maintain the building free of mold and other conditions that may promote mold or may be interpreted as detrimental to Indoor Air Quality, including hiring and paying for applicable specialists or consultants, if necessary.
  - 1. The Contractor shall be responsible for coincidental damage related to moisture intrusion or accumulation related to the Contractor's failure to take the necessary precautions and preventive measure to prevent moisture intrusion and accumulation.
- B. At the time of Contract Execution, submit the following:
  - 1. Complete and detailed procedures that describe the following conditions:
    - a. Manufacturer's certification for listed materials or products that are normally used in the building shell and for which the manufacturer claims that moisture will not harm the material or product will not promote or support the growth of mold or mildew.
    - b. Identification of moisture and mold on or in listed materials and products, whether being unloaded, staged, or in-place.
    - c. Protection of listed materials and products during staging, handling, and while in place.
    - d. Disposition of materials and products that are wet, show signs of having been wet, or have evidence of mold or mildew on arrival at the site or off-site staging/storage location.
    - e. Removal of materials or products that have been identified as being wet or having signs of mold or mildew.
- C. Fibrous and cellulose-base materials and products that become wet and are not dried within 24 hours can initiate and promote the growth of mold and mildew. Saturation of these materials is not necessary to initiate the mold cycle.
  - 1. Detecting the presence of and preventing the spread of mold, mildew, other fungi, and their spores is of paramount importance during construction of this Project and after Owner occupancy. Procedures used to handle, stage, and install materials and products will impact and affect the growth of mold and mildew during construction and after Owner occupancy.
  - 2. Building materials and products that are prone to absorbing and retaining moisture include, but are not limited to, the following:
    - a. Drywall
    - b. Insulation
    - c. Casework
    - d. Fiberboard
    - e. Wood products such as flooring, doors, trim and finishes
    - f. Fabric items
    - g. Particleboard
    - h. Finish carpentry
    - i. Carpet
    - j. Acoustical ceiling tile
    - k. Other cellulose, fibrous, or moisture absorbing materials and products
    - l. Material or product that may promote, encourage, or sustain mold or mildew growth or their spores.

3. Where a manufacturer's requirements for ambient conditions (such as the HVAC operational and temperature and humidity stabilized at expected operating levels) exceed these requirements, the most stringent shall govern.
- D. Methods to prevent mold, mildew, other fungi, and their related spores include, but are not limited to, the following:
1. Establish and enforce effective construction sequencing throughout the Project to protect moisture sensitive listed products and materials from contamination. Keep materials dry during staging and after installation.
  2. Erect the exterior cladding of the building shell as quickly as possible to protect internal components of building shell. Protect these components until the exterior finish is installed.
  3. Monitor interior humidity levels, provide ventilation and temperature control during installation of systems that dissipate moisture such as plaster, sprayed fireproofing, concrete, and drywall finishing, especially during humid or wet weather conditions.
  4. Do not install listed materials or products until the building is completely in the dry, exterior openings are closed and moisture producing operations are completed.
  5. Take necessary precautions for moisture conditions/surfaces that may be concealed after constructions.
  6. Immediately dry leaks, spills, or other moisture that has entered the structure or building shell.
  7. Watch for signs of mold, mildew, and musty odors and take prompt remedial and preventative action at their first sign. Encapsulation is not an acceptable treatment.
  8. Reject and remove wetted listed material or product:
    - a. That arrives on the job site wet or shows evidence of having been wet; it shall be considered defective.
    - b. If moisture has condensed on the inside of wrapping of listed materials and products, have the material tested. An independent testing laboratory, acceptable to the Owner and Contractor, shall make the determination
    - c. That are installed prior to the building being in the dry or completing moisture producing operations. Replace with new materials at no additional expense to the Owner.
    - d. That show signs of mold, mildew, and musty odors, even if already installed. Applies also to porous products such as masonry. It is not acceptable to only clean surfaces to remove the mold, mildew, and musty odors.
    - e. That become wet and have an unacceptable moisture level or may produce or encourage the growth of mold. An independent testing laboratory, acceptable to the Owner and Contractor, shall make the determination.
  9. Comply with the provisions for Temporary Use Of Owner's HVAC Equipment, found in Division 1 Section "Temporary Facilities and Controls".
  10. Keep HVAC ducts sealed when the system is not operating. If use is intermittent, secure the system prior to performing dust-producing operations. Keep them free of moisture. Keep condensation pans and lines operational and unclogged. Ensure that other water sources are not draining into condensation pans.
  11. Prior to Substantial Completion, contract with an independent licensed and professional testing agency, acceptable to the Owner and Architect, which specializes in indoor air quality.
    - a. Take recommended and required corrective action to bring unacceptable conditions to an acceptable level, as determined by additional air sampling, at no additional cost to the Owner. This testing agency shall be responsible for, but not limited to the following:

- 1) Sampling air of all spaces and analyzing for mold and mold spores.
- 2) Sending copies of reports to the Owner, the Architect, and the Contractor. Show actual levels of each space tested and denote areas that are not within acceptable limits.
- 3) Submitting recommendations to bring unacceptable areas to acceptable levels.
- 4) Acceptable levels/conditions shall be determined by comparing samples of indoor air with samples of background and outside air. The mold content of indoor air samples shall not exceed that of the background and outdoor air samples. Additionally, the indoor air samples shall not contain traces of mold that would not ordinarily be found in the outside air.

- E. At Substantial Completion, execute a Moisture Control Certification, located in Division 00 of the Project Manual.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated on drawings.
1. Make vertical work plumb and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
  4. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the indicated results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners to secure each component in place, accurately located and aligned with other portions of the Work.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  2. Allow for building movement, including thermal expansion and contraction.
  3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Do not use products, cleaners, and installation materials that are considered hazardous.

### 3.6 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area.
- D. Daily Cleaning: Comply with the following daily cleanup requirements:
  - 1. Do not allow trash, debris, waste, defective and unused materials, equipment and tools to collect in the work areas, areas objectionable to the Owner, or in areas that will be unsightly to passersby. Remove these items regularly and dispose of in approved manner.
  - 2. Keep work area clean and free of clutter.
  - 3. Secure materials, equipment, and tools to prevent movement during windy conditions. Do not allow material or debris to become airborne.
  - 4. Cover materials, equipment, and tools completely at the end of each day to prevent water entry and so that covers will not loosen or separate during windy conditions.
  - 5. Promptly remove unused or unneeded sharp or pointed objects, including sheet metal, that may puncture, cause injury or damage to the Work.
  - 6. Keep fasteners and anchors, including screws and nails, in rigid storage containers until ready for use. Put used or defective mechanical fasteners in a designated rigid container that is clearly marked, SCRAP. Do not allow used or defective fasteners to mix with new fasteners.
- E. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

- F. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- G. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect to ensure freedom from damage and deterioration at time of Substantial Completion.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.7 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

### 3.8 PROTECTION OF INSTALLED CONSTRUCTION

- A. Protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.
- B. Maintain completed construction through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.
- C. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- D. Limiting Exposures: Supervise operations to prevent Work, completed or in progress, from harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period, such as the following:
  - 1. Excessively high or low temperatures.
  - 2. Thermal shock.
  - 3. Excessively high or low humidity.
  - 4. Water or ice.

5. Light.
6. Puncture, abrasion.
7. Heavy traffic.
8. Soiling, staining, and corrosion.
9. Rodent and insect infestation.
10. Combustion.
11. Electrical current.
12. Unusual wear or other misuse.
13. Contact between incompatible materials.
14. Misalignment.
15. Excessive weathering.
16. Unprotected storage.
17. Improper shipping or handling.
18. Theft and vandalism.

- E. Comply with manufacturer's written instructions for temperature and relative humidity.

### 3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00





## SECTION 01 73 29 - CUTTING AND PATCHING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
  - 1. Providing and paying for all required personnel air monitoring according to OSHA Standard 29 CFR 1926.62, relative to lead-based paints.
- B. Related Sections include the following:
  - 1. Division 02 Section "Selective Demolition" for demolition of selected portions of the building.
  - 2. Divisions 02 through 33 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
  - 3. Division 07 Section "Firestopping" for patching fire-rated construction.

#### 1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.
- C. Lead-Based Paint: The most severe of paint that contains more than 6 percent lead by weight (600 mg/kg) as stipulated by the SCDHEC (South Carolina Department of Health and Environmental Control) or requirements as stipulated by other governing authorities having jurisdiction.

#### 1.4 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 15 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
  - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.

3. Products: List products to be used and firms or entities that will perform the Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

B. Certifications: Submit a copy of the following certifications to the Architect:

1. For each applicator, their current lead certification, in conformance with OSHA Standard 29CFR1926.62, showing date, place, and type of certification. Lead paint certifications for each applicator shall be maintained throughout the painting contract.
2. Lead physicals for each applicator in conformance with OSHA Standard 29CFR1926.62. Lead physicals for each applicator shall be maintained throughout the painting contract.

1.5 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

1. Elements that might otherwise be overlooked as structural elements and that require Architect's approval of a cutting and patching proposal.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:

1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Fire-suppression systems.
4. Mechanical systems piping and ducts.
5. Control systems.
6. Communication systems.
7. Conveying systems.
8. Electrical wiring systems.
9. Operating systems of special construction in Division 13 Sections.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.

3. Exterior curtain-wall construction.
4. Equipment supports.
5. Piping, ductwork, vessels, and equipment.
6. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1. If possible retain the original Installer or fabricator to cut and patch the exposed Work. If it is impossible to engage the original Installer or fabricator, engage another recognized experienced and specialized firm.
2. Comply with the recommendations and instructions of the manufacturer of the Work to be cut and patched and of the materials being used for cutting and patching.
3. Incorporate materials and procedures of a quality not less than used in the original construction, recommended by the manufacture of the Work being cut and patched, and acceptable to the Architect.
4. Match the finish, profile, and dimensions, and shall not compromise design, function, operation, and performance of the Work that was cut and patched.
5. Where cutting and patching is necessary on work that is under warranty, cutting and patching shall not compromise, void or reduce the conditions and provisions of warranties or insurance that are in effect.
6. Where cutting and patching may compromise the conditions and provisions of a warranty or insurance, notify the Architect prior to starting cutting or patching operations.
7. The Architect reserves the right to accept and approve cutting and patching. Acceptance and approval shall be based on overall aesthetics, performance, function, and operation.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

## 1.6 WARRANTY

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

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

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

#### 3.2 PREPARATION

- A. **Temporary Support:** Provide temporary support of Work to be cut.
- B. **Protection:** Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. **Adjoining Areas:** Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. **Existing Utility Services and Mechanical/Electrical Systems:** Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize or prevent interruption to occupied areas.
- E. **Lead-based paints:**
  1. Applicators involved in the disturbance of lead-based paint must comply with OSHA 29 CFR 1926.62. OSHA requires that the employees involved in the contact of lead-based paint must be trained, must have medical examinations (if the action level is exceeded during work activities involving the disturbance of lead-based paint), and must have an exposure assessment performed. If the employee is exposed to levels over the Permissible Exposure Limit (PEL), other work engineering and personnel protective equipment requirements of OSHA must be followed in accordance with 29 CFR 1926.62.
  2. Perform required personnel air monitoring to establish employee exposure assessments in accordance with OSHA 29 CFR 1926.62 when working with lead-based paints. Send copy of the air monitoring reports to the Architect.
  3. Prior to the disturbance of lead-based painted surfaces, place a layer of six mil polyethylene sheeting on the floor beneath the work area. The intent of work-related activities involving the disturbance of lead-based paint is to minimize large accumulations of lead. Clean up floors and other surfaces contaminated with lead-based paint dust/chips by vacuuming and/or wet wipe methods to minimize the likelihood of lead becoming airborne. The vacuum shall be equipped with HEPA filters. Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction

with a ventilation system designed to capture the airborne dust created by the compressed air.

4. All construction debris having painted surfaces exceeding 0.06% lead must be disposed of in a municipal solid waste landfill (lined landfill) according to SCDHEC Division of Solid and Waste Planning and Recycling pertaining to waste disposal requirements. Hazardous waste shipments shall be accompanied by a Uniform Hazardous Waste Manifest that shall be properly completed and copies returned to the Architect before the Contractor receives final payment.
5. Upon completion of all work activities involving the disturbance of lead-based painted surfaces including the exterior of the building, the Environmental Consultant will conduct a final visual inspection of the areas. Provided the areas are visibly clean, clearance testing shall be performed. The clearance test will include the collection of wipe samples from the interior areas of the building. These results will be compared to current regulatory requirements as outlined EPA 40 CFR Part 745. Should the clearance samples fail to meet the regulatory requirements outlined in EPA 40 CFR Part 745, the contractor will be required to perform additional cleaning, and a second clearance test will be performed at the Contractor's expense for all professional and laboratory fees.

### 3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay. All cutting and patching shall be by the general contractor.
  1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
  5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Replacing Existing Materials, Components, Equipment: Where the Work requires the removal of existing materials, components, and equipment (items) and replacing them with new, the replacement items shall match the finish, appearance, and function of that removed, unless directed otherwise.
1. If there is a conflict with these requirements or there is an uncertainty with these requirements, notify the Architect for interpretation and clarification. Do not order or install replacement materials, components, or equipment without this understanding. There will be no additional compensation in time or money for installed replacement items that do not meet this requirement.
  2. Where a replacement item does not match the existing item, or when installed, the replacement item will leave mounting holes or unfinished surfaces, notify the Architect for interpretation.
  3. When it is necessary to install new items as a replacement for existing items, and the mounting holes and exposed surfaces from the previous items will be exposed, fill the vacant holes and dress smooth, even, and flush with the adjacent surfaces. Finish filled areas and exposed surfaces to match the color and gloss of the existing adjacent surfaces.
  4. Contact the Architect for the disposition of items that are to be removed and replaced with new items.
  5. Where the Work requires the replacement of electrical or electronic items, comply with the requirements of applicable governing authorities. Wire and coax shall be concealed, unless otherwise approved. If exposed wire/coax is approved, run it in metallic conduit/wire molding finished to match adjacent surfaces. Exterior installations shall be in approved weatherproof conduit.
- E. Replacing Roofing Materials: In addition to other provisions of this section,
1. Coordinate cutting and patching with the roof system manufacturer and ensure that it records the work being done. Describe in detail the work that is proposed.
  2. Coordinate cutting and patching with the applicable discipline (mechanical, electrical, architectural, structural).
  3. Perform cutting and patching with skilled professionals experienced in their respective trades and specializing in the type of roof system being penetrated or disturbed.
  4. Use the same materials produced by the roof system manufacturer.
  5. Do not use materials that will void or diminish the Owner's existing roof warranty.
  6. Frame openings 12 inches and longer in either direction with galvanized steel angle and channel. Refer to Division 05 Section "Metal Fabrications".
  7. Ensure that the roof system is in a watertight condition at the close of each day, when wet conditions are imminent, and if areas where cutting and patching occur will be unattended for longer than one hour.

8. Arrange for a representative of the existing roof system to examine completed cutting and patching. This representative shall issue a report of the findings, that the cutting and patching comply with the manufacturer's requirements, and that the existing roof warranty shall include the cutting and patching and disturbed areas.

#### 3.4 CLEANING

- A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 01 73 29





## SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
  - 1. Salvaging nonhazardous demolition and construction waste.
  - 2. Recycling nonhazardous demolition and construction waste.
  - 3. Disposing of nonhazardous demolition and construction waste.
- B. Related Sections include the following:
  - 1. Division 01 Section "Environmental Requirements" for environmental protection measures during construction.
  - 2. Division 01 Section "Execution" for progress cleaning requirements.
  - 3. Division 02 Section "Selective Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements, and for disposition of hazardous waste.
  - 4. Division 04 Sections "Unit Masonry" for disposal requirements for masonry waste

#### 1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of minimum 75 percent by weight of total waste generated by the Work.
- B. Salvage/Recycle Requirements: Owner's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible including the following materials:

1. Demolition Waste:

- a. Asphaltic concrete paving.
- b. Concrete and reinforcing steel.
- c. Brick and concrete masonry units.
- d. Wood studs and joists, paneling and trim
- e. Plywood and oriented strand board.
- f. Structural and miscellaneous steel.
- g. Rough hardware.
- h. Roofing.
- i. Insulation.
- j. Doors, frames and hardware.
- k. Windows and glazing.
- l. Metal studs.
- m. Gypsum board.
- n. Acoustical tile and panels.
- o. Carpet and pad.
- p. Demountable partitions.
- q. Equipment.
- r. Cabinets.
- s. Plumbing fixtures, piping, valves, sprinklers, supports and hangers.
- t. Mechanical equipment, refrigerants.
- u. Electrical conduit and copper wiring.
- v. Lighting fixtures, lamps and ballasts.
- w. Transformers, electrical devices, switchgear and panelboards.

2. Construction Waste:

- a. Site-clearing waste.
- b. Masonry and CMU.
- c. Lumber, wood sheet materials and trim.
- d. Metals.
- e. Roofing.
- f. Insulation.
- g. Carpet and pad.
- h. Gypsum board.
- i. Piping.
- j. Electrical conduit and wiring
- k. Paper, cardboard and boxes.
- l. Plastic sheet and film.
- m. Polystyrene packaging.
- n. Wood crates.
- o. Plastic pails.

1.5 SUBMITTALS

- A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Provide separate reports for demolition and construction waste. Include the following information:
  - 1. Material category
  - 2. Total quantity of waste in tons.
  - 3. Quantity of waste salvaged in tons.
  - 4. Quantity of waste recycled in tons.
  - 5. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Waste Reduction Calculations: Before request for Substantial Completion, submit 3 copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- H. LEED Submittal: Complete LEED credit template for MR credit 2, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.
- I. Qualification Data: For Waste Management Coordinator and refrigerant recovery technician.
- J. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that refrigerant was recovered compliant with EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: LEED Accredited Professional. Waste management coordinator may also serve as Contractor's LEED coordinator.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management & Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
  - 1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
  - 2. Review requirements for documenting quantities of each type of waste and its disposition.
  - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
  - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
  - 5. Review waste management requirements for each trade.

#### 1.7 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
  - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
  - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
  - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  - 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.
- D. Forms: Use form to match that required in LEED credit template.

#### PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 PLAN IMPLEMENTATION

- A. General: Implement waste management plan approved by Architect. Provide handling, containers, storage, signage, transportation, and other items required to implement waste management plan during the entire duration of the Contract.
  - 1. Comply with Division 01 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures appropriate for the Work occurring at Project site.
  - 1. Distribute waste management plan to everyone concerned within 3 days of submittal return.
  - 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
  - 2. Comply with Division 01 Section "Environmental Requirements" for controlling dust and dirt, environmental protection, and noise control.

### 3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work:
  - 1. Clean salvaged items.
  - 2. Pack or crate items after cleaning. Identify contents of containers.
  - 3. Store items in a secure area until installation.
  - 4. Protect items from damage during transport and storage.
  - 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale and Donation: Not permitted on Project site.
- C. Salvaged Items for Owner's Use:
  - 1. Clean salvaged items.
  - 2. Pack or crate items after cleaning. Identify contents of containers.
  - 3. Store items in a secure area until delivery to Owner.

4. Transport items to Owner's designated storage area.
5. Protect items from damage during transport and storage.

D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

### 3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle beverage containers used by on-site workers.

B. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
  - a. Inspect containers and bins for contamination and remove contaminated materials if found.
2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

C. Asphaltic Concrete Paving: Grind asphalt to maximum 1-1/2-inch size.

1. Crush asphaltic concrete paving and screen to comply with requirements in Division 31 Section "Earth Moving" for use as general fill.

D. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

E. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 1-1/2-inch size.
2. Crush concrete and screen to comply with requirements in Division 31 Section "Earth Moving" for use as satisfactory soil for fill or subbase if approved by project Civil Engineer and Geotechnical Consultant.

F. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 1-1/2-inch size.
  - a. Crush masonry and screen to comply with requirements in Division 31 Section "Earth Moving" for use as general fill or subbase if approved by project Civil Engineer and Geotechnical Consultant.
2. Clean and stack undamaged, whole masonry units on wood pallets.

- G. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- H. Metals: Separate metals by type on site if practical.
- I. Gypsum Board: Separate for recycling if practical
- J. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
  - 1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.
- K. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
  - 1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- L. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- M. Plumbing Fixtures: Separate by type and size for possible re-use.
- N. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- O. Lighting Fixtures: Separate lamps by type and protect from breakage.
- P. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.
- Q. Conduit: Reduce conduit to straight lengths and store by type and size.
- R. Electrical Wiring: Document weight of copper or aluminum wiring that is take to recycling facilities.
- S. Packaging:
  - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  - 2. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
  - 3. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- T. Site-Clearing Wastes: Chip brush, branches, and trees on-site.
  - 1. Comply with requirements in Division 32 Section "Plants" for use of chipped organic waste as organic mulch.

### 3.4 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in an EPA approved landfill acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 2. Collect waste from construction areas and elsewhere daily.
  - 3. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 4. Comply with requirements of authorities having jurisdiction and NFPA 241 for removal of combustible waste material and debris.
  - 5. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F.
  - 6. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 74 19



## SECTION 01 77 00 - CLOSEOUT PROCEDURES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Inspection procedures.
  - 2. Operations and Maintenance Data: Operation and maintenance documentation directory, Operation manuals for systems, subsystems, and equipment, Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.
  - 3. Project record documents: Record Drawings, Record Specifications, and Record product data.
  - 4. Demonstration and Training: of operation of systems, subsystems, and equipment.
  - 5. Final cleaning.
- B. Related Sections include the following:
  - 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
  - 2. Division 01 Section "Project Management and Coordination" for submitting Final Completion construction photographs and negatives.
  - 3. Division 01 Section "Execution" for progress cleaning of Project site.
  - 4. Division 01 Section "Warranties" for warranty requirements.
  - 5. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

#### 1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

#### 1.4 MAINTENANCE MANUALS

- A. Initial Submittal: Submit 3 draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return 1 of draft and mark whether general scope and content of manual are acceptable.

- B. Final Submittal: Submit 1 of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
  - 1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.
- C. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

#### 1.5 RECORD DOCUMENTS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit 1 set of marked-up Record Drawings.
    - a. Electronic Media: Flash Drive
- B. Record Specifications: Submit 1 of Project's Specifications, including addenda and contract modifications.
- C. Record product data: Submit 1 of each product data submittal.
- D. Where Record product data is required as part of operation and maintenance manuals, submit marked-up product data as an insert in manual instead of submittal as Record product data.
- E. Final Project Photographs: Provide professional-quality, color pictures of different views of the existing work areas. Views should include all exterior works areas from various vantage points to significantly capture all work areas. Views selected should be suitable to serve as "after" photographs for comparison with photographs taken before construction started.

Provide a digital media storage device (thumb drive) containing digital images in JPEG format with a minimum resolution of 100 dpi when opened to 8 inches by 10 inches.

#### 1.6 DEMONSTRATION AND TRAINING

- A. Instruction Program: Submit 2 copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include outline for each training module.
  - 1. At completion of training, submit 1 complete training manual(s) for Owner's use.
- B. Attendance Record: For each training module, submit list of participants and length of instruction time.
- C. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.
- D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
  - 1. Inspect and discuss locations and other facilities required for instruction.

2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

#### 1.7 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  2. Advise Owner of pending insurance changeover requirements.
  3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs and image files, damage or settlement surveys, property surveys, and similar final record information.
  6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  8. Complete startup testing of systems.
  9. Submit test/adjust/balance records.
  10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
  11. Advise Owner of changeover in heat and other utilities.
  12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  13. Complete final cleaning requirements, including touchup painting.
  14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, which 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 completed inspection will form the basis of requirements for Final Completion.

#### 1.8 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures." Documents include but are not limited to the following:
    - a. AIA G706 - Contractor's affidavit of Payments of Debts and Claims.
    - b. AIA G706A - Contractor's affidavit of Release of Liens.
    - c. AIA G707 - Consent of Surety to Final Payment.
    - d. Final statement accounting for the changes to the Contract Sum.
    - e. The final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
    - f. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, 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.
    - g. A final liquidated damages settlement statement.
  2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Submit pest-control final inspection report and warranty.
  5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training notes.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
- 1.9 LIST OF INCOMPLETE ITEMS (PUNCH LIST)
- A. Preparation: Submit 3 copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Page number.

## PART 2 - PRODUCTS

### 2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
  - 1. Table of contents.
  - 2. List of documents.
  - 3. List of systems.
  - 4. List of equipment.
- B. Tables of Contents: Include a table of contents for each operation and maintenance manual.
- C. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- D. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

### 2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name, address, and telephone number of Contractor.
  - 6. Name and address of Architect.
  - 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
  - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents in each volume of the set.

- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
  4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
  5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
    - c. Avoid placing loose, oversize drawings in binder pockets. Use reduced drawings or place folded drawings in labeled envelopes bound in manual.

## 2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions.
  2. Performance and design criteria if Contractor is delegated design responsibility.
  3. Operating standards.
  4. Operating procedures.
  5. Operating logs.
  6. Wiring diagrams.
  7. Control diagrams.
  8. Piped system diagrams.
  9. Precautions against improper use.
  10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.

4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

## 2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
1. Standard printed maintenance instructions and bulletins.
  2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  3. Identification and nomenclature of parts and components.
  4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
  2. Troubleshooting guide.
  3. Precautions against improper maintenance.
  4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  5. Aligning, adjusting, and checking instructions.
  6. Demonstration and training videotape, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.



- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

## 2.6 RECORD DRAWINGS

- A. Record Prints: Maintain one set of black-line white prints of the Contract Drawings and shop drawings.
  - 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 prepare the 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 understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  - 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. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order or Construction Change Directive.
    - k. Changes made following Architect's written orders.
    - l. Details not on the original Contract Drawings.
    - m. Field records for variable and concealed conditions.
    - n. Record information on the Work that is shown only schematically.
  - 3. Mark the Contract Drawings or shop drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If shop drawings are marked, show cross-reference on the Contract Drawings.
  - 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. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Organize Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."
    - d. Name of Architect.
    - e. Name of Contractor.

## 2.7 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, Record product data, and Record Drawings where applicable.

## 2.8 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, Record Specifications, and Record Drawings where applicable.

## 2.9 MISCELLANEOUS RECORD SUBMITTALS

- A. Examples of miscellaneous Record Submittals in this Article include documentation of foundation depths, special measurements, tests and inspections, surveys, mix records, and inspections by authorities having jurisdiction. If necessary, add a list of specific submittals.

- B. 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
- C. Submit an executed copies of the Asbestos-Free Certification from the General Contractor and all subcontractors, vendors, and suppliers.
- D. Submit the Original executed Moisture Control Certification.
- E. Submit copies of all roof inspection reports conducted by the roof manufacturer inspector or the third party inspector or both as applicable.
- F. Submit legible and clear color copies of all photographs and videos made during all phases of construction, whether required by the contract documents or not. Submit photos in an album or binder neatly arranged with proper labels/captions by phase, area, and in chronological order. Blurred, fuzzy, out-of-focus, or black and white copies are not acceptable. Photographs and videos may be submitted on CD's or DVD's with proper labels/captions by phase, area, and in chronological order may be submitted instead of a binder or album.

## 2.10 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:
  - 1. Equipment, laboratory equipment
  - 2. Fire-protection systems.
  - 3. Intrusion detection systems.
  - 4. Conveying systems.
  - 5. Medical equipment, including medical gas equipment and piping.
  - 6. Heat generation, refrigeration and HVAC systems, instrumentation and controls.
  - 7. Electrical service and distribution, packaged engine generators, transfer switches.
  - 8. Lighting equipment and controls.
  - 9. Communication systems and equipment.
- B. Training Modules: Develop a teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.
    - d. Regulatory requirements.
    - e. Equipment function.
    - f. Operating characteristics.
    - g. Limiting conditions.
    - h. Performance curves.
  - 2. Documentation: Review the following items in detail:
    - a. Emergency manuals.

- b. Operations manuals.
  - c. Maintenance manuals.
  - d. Project Record Documents.
  - e. Identification systems.
  - f. Warranties and bonds.
  - g. Maintenance service agreements and similar continuing commitments.
3. Emergencies: Include the following, as applicable:
  - a. Instructions on meaning of warnings, trouble indications, and error messages.
  - b. Instructions on stopping.
  - c. Shutdown instructions for each type of emergency.
  - d. Operating instructions for conditions outside of normal operating limits.
  - e. Sequences for electric or electronic systems.
  - f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
  - a. Startup procedures.
  - b. Equipment or system break-in procedures.
  - c. Routine and normal operating instructions.
  - d. Regulation and control procedures.
  - e. Control sequences.
  - f. Safety procedures.
  - g. Instructions on stopping.
  - h. Normal shutdown instructions.
  - i. Operating procedures for emergencies.
  - j. Operating procedures for system, subsystem, or equipment failure.
  - k. Seasonal and weekend operating instructions.
  - l. Required sequences for electric or electronic systems.
  - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
  - a. Alignments.
  - b. Checking adjustments.
  - c. Noise and vibration adjustments.
  - d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
7. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.

8. Repairs: Include the following:
  - a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.
  - e. Review of spare parts needed for operation and maintenance.

## 2.11 CLEANING MATERIALS

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

## PART 3 - EXECUTION

### 3.1 MANUAL PREPARATION

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
  1. Do not use original Project Record Documents as part of operation and maintenance manuals.

### 3.2 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the 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.

### 3.3 DEMONSTRATION AND TRAINING

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Owner will furnish Contractor with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with Owner, through Architect, with at least 7 days' advance notice.
- C. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.
- D. Cleanup: Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

### 3.4 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

- d. Remove tools, construction equipment, machinery, and surplus material from Project site.
  - e. Remove snow and ice to provide safe access to building.
  - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
  - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
  - h. Sweep concrete floors broom clean in unoccupied spaces.
  - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
  - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - k. Remove non-permanent labels.
  - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or already show evidence of repair or restoration.
    - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
  - m. Wipe surfaces of mechanical and electrical, elevator and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - n. Replace parts subject to unusual operating conditions.
  - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
  - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
  - s. Leave Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Submit report.

END OF SECTION 01 77 00





SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Administrative and procedural requirements for preparing operation and maintenance manuals, including:
  - 1. Emergency manuals.
  - 2. Operation manuals for systems, subsystems, and equipment.
  - 3. Maintenance manuals for the care and maintenance of products, materials, finishes, systems and equipment.

1.2 SUBMITTALS

- A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
  - 1. Correct or modify each manual to comply with Architect's comments. Submit 2 copies of each corrected manual within 10 days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

- A. Coordinate maintenance and operation training materials with Owner.
- B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.
- C. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name, address, and telephone number of Contractor.
  - 6. Name and address of Architect.
  - 7. Cross-reference to related systems in other operation and maintenance manuals.
- D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

- E. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    - a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
  4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.2 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire flood gas leak water leak power failure water outage equipment failure and chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

## 2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
- B. Descriptions: Include the following:
  - 1. Product name and model number.
  - 2. Manufacturer's name.
  - 3. Equipment identification with serial number of each component.
  - 4. Equipment function.
  - 5. Operating characteristics.
  - 6. Limiting conditions.
  - 7. Performance curves.
  - 8. Engineering data and tests.
  - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.4 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
  - 1. Product name and model number.
  - 2. Manufacturer's name.
  - 3. Color, pattern, and texture.
  - 4. Material and chemical composition.
  - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

## 2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:
- D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions that detail essential maintenance procedures:
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

## PART 3 - EXECUTION

### 3.1 MANUAL PREPARATION

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
- F. Comply with Section 01 77 00 - Closeout Procedures for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23



## SECTION 01 78 36 - WARRANTIES

### 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 administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties:
  - 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.
- B. Related Sections include the following:
  - 1. Division 01 Section "Submittal Procedures" for procedures for submitting warranties.
  - 2. Division 01 Section "Closeout Procedures" for Project closeout.
  - 3. Divisions 02 through 33 for Sections for specific content requirements for warranties and special warranties on products and installations specified to be warranted.
- C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.
  - 1. Warranties shall begin on the date of substantial completion. If the manufacturer's or provider's warranty begins on the date of shipment or delivery or some other date that precedes the Date of Substantial Completion, provide a gap warranty to extend the warranty period by such a time to ensure that the Owner receives the full warranty period specified in the Contract Document beginning with the Date of Substantial Completion.
  - 2. Warranties shall be written to cover the Owner and shall name the Project location. Warranties written for the benefit of only the original purchaser are not acceptable.
  - 3. Warranties that require the Owner's signature to become affective are not acceptable and will be rejected.

#### 1.3 DEFINITIONS

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

#### 1.4 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to comply with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
  - 1. Warranties shall have provisions to cover the costs for labor, materials, fees, taxes, shipping, handling, equipment and other incidental costs associate with restoring Work to an acceptable condition.
- D. Warranties and their provisions for material, equipment, components, systems, subsystems, or other entities that are covered by a Warranty or that require a Warranty, shall pass directly to and apply directly to the Party whose name appears as the Owner in Contract Documents.
- E. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies. Written or expressed warranties shall not be in lieu of or void or dilute the Owner's rights provided under the Uniform Commercial Code (UCC).
  - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- F. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

#### 1.5 SUBMITTALS

- A. Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. 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. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.



1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within 15 days of completion of that designated portion of the Work.
  
- D. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect, for approval prior to final execution.
  
- E. Form of Submittal: At Final Completion, compile 2 copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  1. Provide additional copies of each warranty to include in operation and maintenance manuals
  
- F. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
  1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness to accommodate contents, and sized to receive 8-1/2-by-11-inch paper
  2. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
  3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor
  4. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty for inclusion in each required manual.
  
- G. Cutting and Patching: For areas involving cutting and patching, issue a certification, from the manufacturer of the materials and systems being cut and patched stating that all conditions and provisions of existing warranties and insurance will remain in effect. Where cutting and patching materials are by manufacturers other than those of the original manufacturer, provide a certification that the materials will not affect the conditions and provisions of existing warranties and insurance.

PART 2 - PRODUCTS not used

PART 3 - EXECUTION not used

END OF SECTION 01 78 36



SECTION 01 78 39 PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Administrative and procedural requirements for Project Record Documents, including:
  - 1. Record Drawings.
  - 2. Record Specifications.

1.2 SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit one set(s) of marked-up Record Prints.
  - 2. Number of Copies: Submit copies of Record Drawings as follows:
    - a. Initial Submittal: Submit one set of marked-up Record Prints. Architect will mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return prints for organizing into sets, and final submittal.
    - b. Final Submittal: Submit one set(s) of marked-up Record Prints.
- B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
  - 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 prepare the 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. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  - 2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.

3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Transparencies: Immediately before inspection for Certificate of Final Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.
1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
  2. Refer instances of uncertainty to Architect for resolution.
  3. Architect will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
  4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.
    - a.
- 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. 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. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 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. Provide two hard copies and copy on CD of complete sets of Designer approved shop drawings and operation and maintenance manuals shall be furnished to the Owner no later than fourteen (14) calendar days prior to final acceptance of the project by the Owner.

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 modifications to Project Record Documents as they occur; do not wait until the 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.
- C. Final payment will not be made until "As-Built Drawings" are turned over to the Designer and approved in writing by the Designer.

END OF SECTION 01 78 39



SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SECTION INCLUDES

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

1.2 SUBMITTALS

- A. Instruction Program: Submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.

1.3 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative experienced in operation and maintenance procedures and training.
- C. Preinstruction Conference: Conduct conference at Project site. Review methods and procedures related to demonstration and training.
- D. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:

1. Basis of System Design, Operational Requirements, and Criteria: Include system and equipment descriptions, operating standards, regulatory requirements, equipment function, operating characteristics, limiting conditions, and performance curves.
2. Documentation: Review emergency, operations, and maintenance manuals; Project Record Documents; identification systems; warranties and bonds; and maintenance service agreements.
3. Emergencies: Include instructions on stopping; shutdown instructions; operating instructions for conditions outside normal operating limits; instructions on meaning of warnings, trouble indications, and error messages; and required sequences for electric or electronic systems.
4. Operations: Include startup, break-in, control, and safety procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; operating procedures for emergencies and equipment failure; and required sequences for electric or electronic systems.
5. Adjustments: Include alignments and checking, noise, vibration, economy, and efficiency adjustments.
6. Troubleshooting: Include diagnostic instructions and test and inspection procedures.
7. Maintenance: Include inspection procedures, types of cleaning agents, methods of cleaning, procedures for preventive and routine maintenance, and instruction on use of special tools.
8. Repairs: Include diagnosis, repair, and disassembly instructions; instructions for identifying parts; and review of spare parts needed for operation and maintenance.

### PART 3 - EXECUTION

#### 3.1 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  1. Owner will furnish qualified personal to describe Owner's intended operations.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  1. Schedule training with Owner with at least seven days' advance notice.
- D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

END OF SECTION 01 79 00



## SECTION 01 81 16 - ENVIRONMENTAL 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 guidelines pertaining to protection of the environment. Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Environmental protections include:
  - 1. Avoiding air pollution.
  - 2. Avoiding water pollution.
  - 3. Avoiding noise pollution.
  - 4. General housekeeping.
- B. DHEC (South Carolina Department of Health and Environmental Control), Architect, Owner, and authority having jurisdiction may inspect periodically during construction.

#### 1.3 DEFINITIONS

- A. Sediment Basin: Basin designed to collect and detain sediment-laden storm water runoff and release, at a slower rate, a much cleaner, better quality water.

#### 1.4 CONTRACTOR RESPONSIBILITY

- A. Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result.
- B. In addition to the responsibilities and duties described elsewhere in these documents, Contractor shall also be responsible to:
  - 1. DHEC site environmental permits not already obtained by the Owner,
  - 2. Arrange and coordinate a DHEC pre-construction meeting,
  - 3. Comply with provisions in the most current DHEC regulations,
  - 4. Maintain the site as stipulated in the approved DHEC permit,
  - 5. Fines and penalties levied by DHEC applicable to site control, water management, dust and noise control, and other applicable pollution issues,
  - 6. Site inspections and reporting,

1.5 COORDINATION

- A. Schedule Work to expose areas subject to erosion for the shortest possible time.
- B. Preserve natural vegetation beyond construction limits.
- C. Locate temporary storage and construction buildings and route construction traffic to minimize soil disturbance and erosion.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 AIR POLLUTION

- A. Open Burning: On-Site burning is not permitted.
- B. Dust Control. Control dust throughout the Contract period within the Project area and other areas affected by the construction. This includes, but is not specifically limited to, paved and unpaved roads, haul roads, access roads, disposal sites, borrow pits, and material and equipment storage sites.
  - 1. Dust control measures may include, but are not limited to, wetting down disturbed earth surfaces or eliminating traffic across them, removing accumulations of dirt from paved areas by hand or mechanical means, and washing streets at the end of the work day.
  - 2. Perform dust control measures when required by the controlling agency for streets and roadways or the Architect.

3.2 WATER POLLUTION

- A. Exercise every reasonable precaution throughout the construction period to prevent pollution of rivers, streams, and water impoundments.
  - 1. Do not discharge pollutants such as chemicals, fuels, lubricants, asphalt, bitumen, concrete, grout, raw sewage, pesticides, herbicides, or other harmful waste into or alongside a watercourse, impoundment, or channel.

3.3 NOISE POLLUTION

- A. Avoid use of tools and equipment that produce noise above 85 dB at a distance of 25 feet. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.
- B. If noise levels are above acceptable levels, erect sound barriers to control noise or conduct demolition during times that are less disturbing to the Owner or a combination of both.
- C. Work that creates noise above 85 decibels must be performed between 3 P.M. and 8 A.M.

3.4 GENERAL HOUSEKEEPING

- A. Ensure that vehicles and equipment have functional and operable mufflers and noise control apparatus.
- B. Water down grading and excavation areas, drives and roads, parking areas, and disturbed areas that can produce dust.
  - 1. Where demolition is a part of the Contract, the same dust and erosion controls apply to structures being demolished. Perform as much demolition on calm days as possible without interfering with or compromising schedules.
- C. Hose down trucks including cargo box, wheels, axels, and chassis to remove dust and debris that may drop during transportation.
- D. Keep vehicle windows clean for visibility.
- E. Cover transport trucks with heavy-duty tarps that completely enclose the cargo box; tie down to prevent flapping, fluttering, or blowing debris. Tarps with holes or rips or that do not fit the cargo box are not acceptable.
  - 1. Ensure that no debris is exposed or extends past the cargo box during transportation.
- F. Clean up trash and debris droppings on public and private property resulting from this Work.
- G. Repair damage to public and private property including buildings, structures, landscaping, roads, and highways that results from this Work.

END OF SECTION 01 81 16



## SECTION 04 01 40 – REPAIR AND CONSERVATION OF LIMESTONE MASONRY

### PART 1 – GENERAL – PATCHING SPALLED LIMESTONE

#### 1.1.0 SUMMARY

- A. This procedure includes guidance on repairing spalls in limestone using a cementitious patching material.
- B. These guidelines cover the following sections:
  - 1. Safety Precautions
  - 2. Historic Structures Precautions
  - 3. Submittals
  - 4. Quality Assurance
  - 5. Delivery, Storage and Handling
  - 6. Project/Site Conditions
  - 7. Sequencing and Scheduling
  - 8. General Protection (Surface and Surrounding)

These guidelines should be reviewed prior to performing this procedure and should be followed, when applicable, along with recommendations from the Regional Historic Preservation Officer (RHPO)

#### 1.1.1 SUBMITTALS

- A. Sample Stone Repair: Reattach stone fragments and patch stone at locations selected by the Contracting Officer's Representative using methods specified. Provide one sample each for granite, limestone and marble.

#### 1.2.0 PRODUCTS

##### 1.2.1 MANUFACTURERS

- A. Jahn Restoration Techniques and Research [www.jahnmortars.com](http://www.jahnmortars.com)

##### 1.2.2 MATERIALS

- A. Cementitious patching material such as "M70 Stone Restoration Mortar" (Jahn Restoration), or approved equal; mixed and applied following manufacturer's guidance.
- B. Clean, soft cloths
- C. Clean, potable water

##### 1.2.3 EQUIPMENT

- A. Stiff natural bristle brush
- B. Trowel
- C. Chisel
- D. Hammer
- E. Putty knife

### 1.3.0 EXECUTION

#### 1.3.1 ERECTION, INSTALLATION, APPLICATION

- A. Cut back to sound stone with chisel and hammer. Mechanical grinders, cutters or discs are not allowed. Score surface to receive patch with chisel to provide a mechanical key with patching material. Undercutting if possible is recommended to hold patch more securely.
- B. Thoroughly clean all stone dust and debris from areas that are to be repaired by air and then with a soft brush and water.
- C. Pre-moisten stone with clean water and a stiff natural bristle brush to prevent patching mortar from drying out prematurely. Avoid over wetting stone, which inhibits adhesion. Prepare test patches as required for approval by the Contracting Officer's Representative to determine the correct degree of moistening.
- D. First mix the cementitious patching material well in a dry state, then add water as per manufacturer's instructions, depending on the porosity of the limestone; between 150-200 cc of water to one kg of dry material. Patching mortar should be shapable without using molds and as it is being applied should hold its shape right away. Do not mix more material than can be used within 30 minutes.
- E. Apply with trowel so that patch is slightly higher than adjacent surfaces. Jahn Patching mortar can be put on from 3 mm to any required thickness at once. Allow to harden for 7 days, then carefully cut back and tool to match adjacent surfaces.

## PART 2 – REATTACHING LOOSE OR SPALLED LIMESTONE

### 2.1.0 SUMMARY

- A. This procedure includes guidance on reattaching loose or spalled limestone that is reusable and has not been extensively damaged.
- B. These guidelines cover the following sections:
  - 1. Safety Precautions
  - 2. Historic Structures Precautions
  - 3. Submittals
  - 4. Quality Assurance
  - 5. Delivery, Storage and Handling
  - 6. Project/Site Conditions
  - 7. Sequencing and Scheduling
  - 8. General Protection (Surface and Surrounding)

These guidelines should be reviewed prior to performing this procedure and should be followed, when applicable, along with recommendations from the Regional Historic Preservation Officer (RHPO).

#### 2.1.1 REFERENCES

- A. American Society for Testing and Materials (ASTM), [www.astm.org](http://www.astm.org)

#### 2.2.0 PRODUCTS

##### 2.2.1 MANUFACTURERS

- A. Axson Technologies (formerly Akemi Plastics, Inc.) [www.axsontech.us](http://www.axsontech.us)

- B. Sika Corporation <http://usn.sika.com>

### 2.2.2 MATERIALS

- A. Replacement limestone - reuse any loose or fallen stone fragments that are still sound; re-use such stone in its original position and location; replacement stone should match existing limestone in color, texture and type.
- B. Epoxy Adhesive such as "Sikadur 32 Hi Mod" epoxy adhesive, or approved equal (Sika Corporation).
  - 1. High modulus, high strength, moisture insensitive epoxy adhesive with a pot life of 30 minutes at 70 degrees F.
  - 2. Can be applied at temperatures as low as 40 degrees F.
  - 3. Colored to match existing limestone.
- C. A color-matched polyester-based adhesive such as "Limestone Super", (Wood & Stone Company, a Axson Technologies US, Inc. company), or approved equal.
  - 1. 10-12 minute cure depending on ambient temperature; temperatures below 32 degrees F (0 degrees C) require heated mixture.
  - 2. Can be applied at temperatures as low as 20 degrees F
  - 3. Colored to match existing limestone.
- D. Permanent coloring agent as required, compatible with adhesive, and as recommended by adhesive manufacturer.
- E. Stainless steel rods for reinforcement: 1/4 inch diameter threaded rods, length as required.

### 2.2.3 EQUIPMENT

- A. Stiff bristle brushes (natural fiber or nylon)
- B. Polyethylene plastic mixing vessel for mixing adhesives and patching mortar.

### 2.3.0 EXECUTION

#### 2.3.1 ERECTION, INSTALLATION, APPLICATION

- A. Carefully remove all loose fragments of stone. Set aside all pieces in good condition for reuse.
- B. Clean exposed metal anchors. Remove corrosion by scraping with a stiff wire bristle brush.
- C. Remove unsound metal anchors and replace with new stainless steel anchors of similar size and shape. Bed anchors in epoxy grout.
- D. Remove dust and debris from building stone and fragments using a stiff bristle brush.
- E. For small fragments (.5 cubic feet or less):
  - 1. Coat building stone surface with adhesive such as noted above, or approved equal. Be sure to cover the entire surface, filling all voids.
  - 2. While adhesive is still tacky, set stone fragment in place. Prevent fragment from

- moving until adhesive is fully cured.
3. Clean any residual adhesive from the stone surface using water and stiff bristle brush. Wet stone and fill any chips with lime-based patching mortar of appropriate color, texture and composition. Tool surface level with surrounding stone.
- F. For large fragments (more than 4 inches by 4 inches by 4 inches):
1. Follow procedures in E.1. above.
  2. After adhesive has cured, anchor fragments with 1/4 inch smooth stainless steel rods.
    - a. Drill 1/4 inch holes at a 45 degree downward angle through the face of the newly set stone fragment. Drill holes should extend at least 2 inches into the backing stone, 2 inches into the fragment and should allow for the rod to be countersunk at least 3/4 inches from the face of the stone.
    - b. Space the anchor rods between 3 and 5 inches apart and no less than 2 inches from any edge.
  3. Clean any residual adhesive from the stone surface using water and a stiff bristle brush. Wet stone and fill holes from countersunk rods with patching mortar. Tool surface level with surrounding stone.

### PART 3 – RESETTING LIMESTONE

#### 3.1.1 SUMMARY

- A. This procedure includes guidance on removing displaced limestone panels, repairing the substrate and re- installing the panels.
- B. These guidelines cover the following sections:
  1. Safety Precautions
  2. Historic Structures Precautions
  3. Submittals
  4. Quality Assurance
  5. Delivery, Storage and Handling
  6. Project/Site Conditions
  7. Sequencing and Scheduling
  8. General Protection (Surface and Surrounding)

These guidelines should be reviewed prior to performing this procedure and should be followed, when applicable, along with recommendations from the Regional Historic Preservation Officer (RHPO).

#### 3.1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM) [www.astm.org](http://www.astm.org)

#### 3.1.3 QUALITY ASSURANCE

- A. Certifications: Prior to delivery, submit certificates attesting compliance with applicable specifications for grades, types and classes.
- B. Joint Raking: Prior to raking out all areas, cut back joints at location selected by the Contracting Officer using the methods specified. Raking will continue at no additional cost to the owner, until an acceptable sample is achieved. This area will serve as standard for joint raking for the entire job. It will be marked and left unpointed until all other pointing is



completed. Point when directed by the Contracting Officer.

- C. Sample Stone Pointing and Repair: Repoint joints, re-attach stone fragments and patch stone using materials and methods specified at a location selected by the Contracting Officer. The samples accepted by the Contracting Officer will serve as standard for the entire job. They will be marked and left undisturbed.

### 3.1.4 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: No stonework will be performed when the air temperature is 40F or below during and for 48 hours subsequent to the work.

### 3.2.0 PRODUCTS

#### 3.2.1 MATERIALS

- A. Stone: To match existing in grade, color and finish.
- B. Lime: Should conform to ASTM C207, Type S, high plasticity, Hydrated Lime for Masonry Purposes.
  - 1. Lime which meets this standard will "work" well, resists drying during curing, and is sufficiently strong for the purpose of repointing.
  - 2. Lime expands as it hydrates, making high lime mortars more resistant to crack formation.
- C. Cement: Should conform to ASTM C150, Type I, White. It should not have more than 0.60%/o alkali nor more than 0.15% water soluble alkali. Use gray portland cement ONLY if a dark mortar is to be matched.
  - 1. Cement meeting this standard should increase the workability of the mortar, accelerate the setting time and slightly increase the strength of the mortar.
  - 2. The low alkali content will prevent efflorescence.
- D. Sand: Free of impurities and conforming to ASTM C144.
  - 1. Sand color, size, and texture should match the original as closely as possible. Provide a sample of the sand for comparison to the original, and have it approved by the RHPO before beginning repointing work.
  - 2. When possible, use bar sand or beach sand rather than crushed sand for the repointing mortar.

NOTE: Bar sand or beach sand should be washed to remove the salts before using.

- a. Crushed sand has sharp edges, which makes it more "sticky" and difficult to work into the joints.
- b. Bar sand, on the other hand, has rounded edges and flows easily during the mortar application.
- c. The working characteristics of mortar made with crushed sand may be improved by adding a slight amount of portland cement. The amount of cement should be determined by experimentation, but should not exceed 20%/o of the total lime/cement binder. 20% or less of cement has minimal effect on the hardness of the mortar. Cement content above 20% will make the mortar too hard.

- E. Clean, potable water: If the water must be transported or stored in a container, the container must not impart any chemicals to the water.
- F. Stone dust finely ground from the same stone as that to be repointed.
- G. Additives: No antifreeze compounds or other admixture shall be used.

Note: Do not use anti-freeze compounds. These compounds are designed for use with cement mortars, and their effectiveness with high lime mortars is questionable. Furthermore, the compounds contain salts which can lead to serious problems in the masonry at a later time.

Note: Air entraining agents are not recommended. These agents are designed for use with cement rather than lime, and they result in decreased bonding of the mortar and the masonry. Air entraining is not necessary with high lime mortars because of the natural ability of these mortars to flex with temperature changes.

- H. Epoxy grout
- I. Reinforcement/Anchors: Stainless steel type 302/304 3/8" in diameter threaded rods, length as required.

### 3.2.2 EQUIPMENT

- A. Natural fiber or nylon bristle brushes
- B. Wire bristle brush for cleaning anchors
- C. Mixing Vessels
- D. Joint tools
- E. Chisel
- F. Hammer
- G. Hawk (plywood or steel mortar board)
- H. Trowel
- 1. Hoe
- J. Mesh screen
- K. Putty knife
- L. Wooden mortar boxes

### 3.2.3 MIXES

- A. Some factors to consider when mixing lime mortar include durability, color and texture, and workability.
  - 1. Durability: Repointing and resetting mortar should be softer than the masonry units and the original mortar to reduce stresses at the edge of the masonry and, in the case of lime mortar, to reduce shrinkage which can cause cracks in the mortar.
    - a. If the new mortar is harder than the masonry or the original mortar, it can cause serious stresses within the wall during thermal expansion and contraction, which can lead to deterioration of the masonry units rather than the mortar.
    - b. If the mortar is softer, any deterioration which occurs will take place in the mortar, which is easier to replace than the units themselves.

2. The repointing and resetting mortar should allow the passage of water, both liquid and vapor. If the mortar does not allow water to pass freely through it, the water can become trapped inside the wall, freeze and cause serious deterioration to the masonry.
  3. Color and texture: The repointing mortar should match the original mortar in color, texture and physical characteristics.
    - a. Obtaining an accurate color match is best achieved by selecting appropriate sand.
      1. Use sand which is similar to the original in color and gradation. Sand from more than one source may be required.
      2. For repointing of natural stones, use finely ground stone "dust" in the mortar to match the joints as closely as possible to the stone.
    - b. If the original mortar was tinted, or if it is impossible to obtain a color match through the use of sand, it may be necessary to use a special mortar pigment. CAUTION: PIGMENTS MAY REACT WITH OTHER INGREDIENTS IN THE MORTAR TO FORM EFFLORESCENCE. THEY MAY ALSO WEATHER AT A DIFFERENT RATE THAN NATURAL COLORING AND CAUSE A COLOR VARIATION IN THE MORTAR. NOTE: IF PIGMENTS MUST BE USED, PURE MINERAL OXIDES SHOULD BE USED BECAUSE THEY DO NOT FADE OR LEACH OUT OF THE MORTAR. AMOUNT OF PIGMENT SHOULD NOT EXCEED 2% OF THE MORTAR MIX BY WEIGHT.
    - c. Many mortars used before the twentieth century have small lumps of incompletely burned or ground lime, or other impurities. To match the original appearance of the masonry, these impurities must be included in the new repointing mortar. Use identical materials such as ground oyster shells (obtained at feed stores) or lumps of lime, to duplicate original lumps.
  4. Workability: The workability or plasticity of the mortar is a direct result of the selection of materials.
- B. Mortar Mix:
1. Have the existing mortar completely analyzed to insure that the repointing mortar will not be less permeable/harder than the masonry units or the original mortar. Note: It is better to have mortar that is more permeable than less.
  2. Measure all ingredients by cubic volume using a pre-established uniform measure, such as a small bucket, rather than a less uniform measure such as a shovel.
  3. For historic masonry set in lime mortar, use the following mortar mix:  
  
1 part portland cement  
3 parts lime  
8-12 parts sand (To match existing mortar as closely as possible.) NOTE: The exact mix required will relate to the grain size and sharpness of the sand and will vary depending on the supply.  
  
-OR-  
  
For historic masonry set in standard mortar, use the following mortar mix (ASTM C270 Type "0") as a starting point:  
1 part portland cement  
2 parts lime or lime putty

6 to 9 parts sand and stone dust (To match existing mortar as closely as possible.)

-OR-

For Limestone (ASTM C270 Type "N"): 1 part  
portland cement  
1 parts lime  
4-6 parts aggregate  
Enough water to form a workable consistency

4. Mix a final "job-size" batch once the correct sand color, cement content, etc. have been determined through small tests to ensure the on-site mixing conditions will result in the same final product.

### 3.3.0 EXECUTION

#### 3.3.1 ERECTION, INSTALLATION, APPLICATION

- A. Carefully remove shifted and loose stone panels. Clean of dirt, mortar, and loose debris. Retain for re-use. Re-build support masonry and lay new bedding material.
- B. Clean any exposed metal anchors of all corrosion by scraping and brushing with stiff wire brushes. Replace any unsound anchors as necessary with new stainless steel anchors of same approximate size and shape. Bed new anchors in epoxy grout.
- C. Re-set limestone, maximum tolerances from plumb and level of new work not to exceed variation from plumb and level of adjacent existing work.
- D. Wet masonry and lay in full bed of mortar. See 04100-03- S for mortar mixing procedures. Construct uniform joints. Shove vertical joints tight. Adjust stone units to final position while mortar is soft and plastic. Set stone with joints tooled back one inch. Point remaining depth as the rest of the stone is pointed. For pointing procedures, see 04520- 02-R.
- E. Keep mortar and stone damp (80-90% RH) for 72 hours or until mortar is cured.

#### 3.3.2 ADJUSTING/CLEANING

- A. Immediately after repairing, patching, pointing and re- setting the stone, remove mortar, grout and adhesives from the face of the masonry.
- B. Use only tools and equipment which are clean and free of hardened or partially hardened material.
- C. After all work is complete, clean stone only with fiber bristle brushes and water. Use no acids, detergents, or other cleaning agents.

## PART 4 – EPOXY PATCHING CRACKS IN LIMESTONE

### 4.1.0 SUMMARY

- A. This procedure includes guidance on patching cracks in limestone using an epoxy resin. This type of repair is suited for dormant (inactive) cracks no larger than 3/8" wide.
- B. These guidelines cover the following sections:

1. Safety Precautions
2. Historic Structures Precautions
3. Submittals
4. Quality Assurance
5. Delivery, Storage and Handling
6. Project/Site Conditions
7. Sequencing and Scheduling
8. General Production (Surfacing and Surrounding)

These guidelines should be reviewed prior to performing this procedure and should be followed, when applicable, along with recommendations from the Regional Historic Preservation Officer (RHPO).

#### 4.1.1 QUALITY ASSURANCE

- A. Contractor: A skilled firm with not less than five (5) years experience in masonry repointing and restoration. The Contractor shall be required to submit references for five (5) successfully completed projects of similar nature.
- B. Source of Material: Obtain materials for stone restoration from a single source for each type of material required, to ensure match of quality, color, pattern, and texture.

#### 4.1.2 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: Perform work only in dry and otherwise favorable weather conditions. Protect repaired masonry against freezing or excessively rapid drying for at least 48 hours after being laid. Do not repoint mortar joints or repair masonry unless air temperatures are between 40 F (4 C) and 80 F (27 C) and will remain so for at least 48 hours after completion of work.

#### 4.2.0 PRODUCTS

##### 4.2.1 MANUFACTURERS

- A. Akemina [www.akemina.com](http://www.akemina.com)
- B. Euclid Chemical Company [www.euclidchemical.com](http://www.euclidchemical.com)

##### 4.2.2 MATERIALS

- A. Epoxy-Based Stone Repair Adhesive: A commercially available, two component, moisture insensitive, high modulus, low viscosity, epoxy resin-formulated for penetrating deep into thin masonry cracks, such as "Akepox 1005 or 1006" (Akemina), "Eucopoly Injection Resin" (Euclid Chemical Company), or approved equal.
- B. Single Source Responsibility: Provide epoxy resin, hardener and solvent produced by the same manufacturer.
- C. Acetone (C<sub>3</sub>H<sub>6</sub>O):
  1. A volatile fragrant flammable liquid ketone used chiefly as a solvent and in organic synthesis.
  2. Other chemical or common names include Dimethyl ketone; Propanone
  3. Potential Hazards: Volatile and flammable solvent
  4. Available from chemical supply house or hardware store.
- D. Limestone Dust

- E. Clean, potable water

#### 4.2.3 EQUIPMENT

- A. Syringe
- B. Stiff bristle brushes (non-metallic)

#### 4.3.0 EXECUTION

##### 4.3.1 PREPARATION

- A. Protection:
  1. Take whatever precautions are necessary to protect the existing building from damage resulting from work under this section.
  2. Prevent mortar and patching compounds used in repointing and repair work from staining face of surrounding masonry and other surfaces. Remove immediately mortar and patching compounds in contact with exposed masonry and other surfaces.
  3. Improper use of chemicals may constitute a health hazard. Refer to manufacturer's Material Safety Data Sheets for hazard data, special protection for use and precautions to be taken in handling and storage. Comply with manufacturer's recommendations for proper use of chemicals.

##### 4.3.2 ERECTION, INSTALLATION, APPLICATION

- A. Thoroughly clean dust, dirt and debris from crack.
- B. Wipe surfaces to be bonded with acetone and allow to dry thoroughly.
- C. Thoroughly and completely mix resin and hardener (2 minutes). Mix at low speeds to minimize entrapped air. Blend the epoxy adhesive to match color matrix of adjacent limestone by adding color limestone dust or pigment.
- D. Mask stone surfaces adjacent to crack to prevent staining of the limestone during repair operation.
- E. After mixing, inject epoxy into cracks with a syringe and allow to seep in. Continue to apply material until crack is full. Sprinkle limestone dust on epoxy adhesive to mask crack.
- F. Clean tools and any tape residue with acetone or solvent specifically formulated for the particular product used.

## PART 5 - REPOINTING LIMESTONE

### 5.1.0 GENERAL

#### 5.1.1 Description of Work

- A. The masonry repairs involve repointing of mortar joints in limestone.
- B. New pointing mortars shall match original in porosity and hardness.
- C. All work must be done in accordance with Preservation Brief 2 – Repointing Mortar Joints

in Historic Masonry Buildings from the National Park Service.

5.1.2 Related Work

- A. All associated work shall be coordinated with the masonry repairs.
- B. All corrective work of leaking water carry-off systems, flashing, and associated ironwork shall be performed, as is practical, before, or in association with, the masonry repairs if required.

5.1.3 Qualifications

- A. All masonry repairs shall be performed by masons or conservators skilled, experienced, and specializing in the type of work specified. Contractor shall demonstrate that he has completed at least 5 similar projects within the last 5 years.
- B. All work shall be supervised and directed by a skilled mason.

5.1.4 Testing

- A. During the course of the work the mason shall allow the sampling and testing of all masonry materials and mortars to ensure the compliance of the work with the specifications.
- B. Work not conforming to the specifications shall be removed and replaced with no additional cost to the owner.

5.1.5 Test Panel

- A. Prior to performing repairs and restoration, perform examples of each type of work to be performed under this section of the specifications. Prepare test panels to verify selections of materials and use of proper methods and to demonstrate aesthetic effects as well as qualities of materials and execution. Build test panels to comply with the following requirements, using materials indicated for final unit of Work, including same base construction, special features for expansion joints, and contiguous work as indicated.
  - 1. Locate test panels on portions of the structure as directed by the Architect.
  - 2. Notify Architect one week in advance of the dates and times when test panels will be prepared.
  - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
  - 4. Obtain GSA acceptance of test panels before start of final unit of Work.
  - 5. Retain and maintain test panels during construction in an undisturbed condition as a standard for judging the completed Work.
    - a. Accepted test panels in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.
- B. Test panels shall be used to demonstrate all removal techniques, tooling and mortar finishing. Test panels on the historic building shall not be used to demonstrate the abilities of the workmen. This must be demonstrated by prior projects.
- C. For critical or exceptionally fine work it may not be practical to locate panels on the building. Separately constructed test panels may be required.

- D. Test panels on the building shall be located in inconspicuous areas and located by the Architect.

#### 5.1.6 Product Samples

- A. Make available to the Architect all package labels and descriptions for each product or ingredient listed in the work.
- B. Submit samples of all special ware prior to their installation in the work.

#### 5.1.7 Material Storage

- A. All materials are to be kept dry and protected from weather and contamination.
- B. All labels and seals must remain intact until use.
- C. Any material that has deteriorated or been contaminated shall be discarded.

#### 5.1.8 Local Conditions

- A. All stored materials must be maintained above 40 degrees F.
- B. No mortar shall be placed when the air temperature is 40 degrees F or lower. No antifreeze additives shall be allowed.
- C. Placed work which reaches 32 degrees F during the four days (96 hours) after placement shall be replaced.
- D. No mortar shall be placed when the wall temperature is above 80 degrees
- E. All new work shall be protected from drying out for four days after placement. Refer to moisture curing instructions described in these specifications.

### 5.2.0 PRODUCTS

#### 5.2.1 MATERIALS

- A. Stone: To match existing in grade, color and finish.
- B. Lime: Should conform to ASTM C207, Type S, high plasticity, Hydrated Lime for Masonry Purposes.
  - 1. Lime which meets this standard will "work" well, resists drying during curing, and is sufficiently strong for the purpose of repointing.
  - 2. Lime expands as it hydrates, making high lime mortars more resistant to crack formation.
- C. Cement: Should conform to ASTM C150, Type I, White. It should not have more than 0.60% alkali nor more than 0.15% water soluble alkali. Use gray portland cement ONLY if a dark mortar is to be matched.
  - 1. Cement meeting this standard should increase the workability of the mortar, accelerate the setting time and slightly increase the strength of the mortar.
  - 2. The low alkali content will prevent efflorescence.
- D. Sand: Free of impurities and conforming to ASTM C144.



1. Sand color, size, and texture should match the original as closely as possible. Provide a sample of the sand for comparison to the original, and have it approved by the RHPO before beginning repointing work.
2. When possible, use bar sand or beach sand rather than crushed sand for the repointing mortar.

NOTE: Bar sand or beach sand should be washed to remove the salts before using.

- a. Crushed sand has sharp edges, which makes it more "sticky" and difficult to work into the joints.
- b. Bar sand, on the other hand, has rounded edges and flows easily during the mortar application.
- c. The working characteristics of mortar made with crushed sand may be improved by adding a slight amount of portland cement. The amount of cement should be determined by experimentation, but should not exceed 20% of the total lime/cement binder. 20% or less of cement has minimal effect on the hardness of the mortar. Cement content above 20% will make the mortar too hard.

- E. Clean, potable water: If the water must be transported or stored in a container, the container must not impart any chemicals to the water.
- F. Stone dust finely ground from the same stone as that to be repointed.
- G. Additives: No antifreeze compounds or other admixture shall be used.

Note: Do not use anti-freeze compounds. These compounds are designed for use with cement mortars, and their effectiveness with high lime mortars is questionable. Furthermore, the compounds contain salts which can lead to serious problems in the masonry at a later time.

Note: Air entraining agents are not recommended. These agents are designed for use with cement rather than lime, and they result in decreased bonding of the mortar and the masonry. Air entraining is not necessary with high lime mortars because of the natural ability of these mortars to flex with temperature changes.

- H. Epoxy grout
- I. Reinforcement/Anchors: Stainless steel type 302/304 3/8" in diameter threaded rods, length as required.

#### 5.2.2 MIXES

1. Refer to Part 3.2.3

#### 5.3.0 EXECUTION

##### 5.3.1 REPOINTING LIMESTONE MASONRY

- A. Only masonry joints that are open, loose, crumbled, or cracked shall be prepared for repointing.
- B. All joints to be repointed shall be raked out to a depth equal to 2 1/2 times the width of the joint. Any loose or disintegrated mortar beyond this depth should also be removed.
- C. All raking and cutting out shall be performed with masonry hand chisels and hammers.

Chisels shall not be wedge type, but shall easily fit between the bricks to the required depth without touching the brick edges or faces.

- D. No chipping or cutting of the existing stone units shall be allowed or accepted.
- E. No mechanical grinders, cutters or discs shall be allowed in the work.
- F. All loose material shall be removed from the joints. Excessive water shall not be used, nor high pressure washing.
- G. Prepare and repoint joints with a historically appropriate (color, texture, hardness) mortar mix.
- H. The interiors and all surrounding areas shall not be wetted during the preparation of the joints. Temporary coverings, guttering and all necessary protection shall be installed prior to the preparation of the joints. Special attention shall be given to the protection of any electrical service, and fire and smoke detection systems.
- I. All joints to be repointed shall be thoroughly wetted to prevent the extraction of the water in the mortar mix by the stone units.
- J. Pointing shall not begin until all standing water in the joints is absorbed into the masonry.
- K. Pointing tools shall be square faced, and shall be intended for masonry repointing. No pointing trowels shall be used.
- L. All pointing tools shall fit easily into the full depth of the joint without wedging between the stone. Straight edged hawks shall be used to hold the mortar.
- M. Bring all backup bedding mortars up to a uniform depth equal to 2 1/2 times the width of the joint.
- N. Install pointing mortars in layers not to exceed 3/8" in depth, fully compacting each layer of mortar.
- O. Each successive layer of mortar shall not be installed until the previous mortar is thumbnail hard.
- P. Rewet joints, as described above, between installation of layers.
- Q. Leave each layer of mortar square and smooth.
- R. Remove any loose excess mortar in joint before installing next mortar layer.
- S. Final tooling of the exterior stonework shall leave the joint matching the surrounding existing joints.
- T. Great care shall be taken to ensure that the mortar does not extend onto the face of the stone.
- U. Clean masonry surfaces upon completion of the work.

### 5.3.2 CURING

- A.. Provide sufficient moisture in the lime mortar mix to permit continuous hydration of the cementitious materials. The most effective procedure for curing shall be based on climatic and job conditions. The lime mortar must remain moist for 96 hours following installation into the work.
- B. The timing between mortar layers will vary with climatic conditions. Temperature and relative humidity extend or reduce the time between consecutive operations. Cold or wet weather lengthens and hot or dry weather shortens the time period. Moderate changes in temperature and relative humidity can be overcome by providing additional heating materials during cold weather and by reducing the absorption of the base by pre-wetting during hot weather.
  - 1. Some moisture must be retained in or added back to freshly applied mortar. If the relative humidity is relatively high (above 75%) the frequency for re-wetting may be reduced. If it is hot, dry and windy, the frequency of re-wetting must be increased.
  - 2. The method of curing selected should consider the physical characteristics of the structure as well as the previously mentioned conditions. The methods can be one or a combination of the following.
    - a. Moisture curing is accomplished by applying a fine fog spray of water as frequently as required, generally twice daily in the morning and evening. Care must be taken to avoid erosion damage to mortar surfaces.
    - b. Plastic film, when taped or weighted down around the perimeter of the repointed area, can provide a vapor barrier to retain the moisture between the membrane and mortar. Care must be exercised when placing the film; if too soon, the film may damage the surface texture; if too late, the moisture may have already escaped.
    - c. Canvas, cloth, or sheet material barriers can be erected to deflect sunlight and wind, both of which will reduce the rate of evaporation. If the humidity is very low, this option may not provide adequate protection.

## PART 6 - GENERAL CLEANING OF EXTERIOR LIMESTONE

The cleaning or removal of stains from stone may involve the use of liquids, detergents or solvents which may run off on adjacent material, discolor the stone or drive the stains deeper into porous stones. Use the products and techniques described here only for the combinations of dirt/stain and stone specified.

### 6.1.0 SUMMARY

- A. This procedure includes guidance on the removal of surface dirt and environmental pollution on exterior limestone. NOTE: GENERALLY, THIS WORK SHOULD BE ACCOMPLISHED BY AN EXPERIENCED CONTRACTOR.
- B. Read "General Project Guidelines" along with this specification. These guidelines should be reviewed prior to performing this procedure and should be followed, when applicable, along with recommendations from the Regional Historic Preservation Officer (RHPO). The guidelines cover the following sections:
  - 1. Safety Precautions

2. Historic Structures Precautions
3. Submittals
4. Quality Assurance
5. Delivery, Storage and Handling
6. Project/Site Conditions
7. Sequencing and Scheduling
8. General Protection (Surface and Surrounding)

C. See also: "Guidelines For Using High Pressure Cleaning Equipment On Masonry", Appendix B.

## 6.2.0 PRODUCTS

### 6.2.1 MANUFACTURERS

ProSoCo, Inc.  
Lawrence, KS 66117  
1-800-255-4255

### 6.2.2 MATERIALS

- A. Limestone (unpolished): Sodium hydroxide, (pH 14), undiluted.
  1. For heavy high pollution stains, an alkaline-based prewash such as "Sure Klean 766 Limestone & Masonry Prewash" or equal, follow manufacturer's instructions including rinse cycle.
  2. Followed up with "Sure Klean Limestone & Masonry Afterwash" or equal, as per manufacturer's instructions.
- B. Clean, potable water (heated to a temperature effective and tested for cleaning procedure and approved by RHPO).

### 6.2.3 EQUIPMENT

- A. Pressure water rinsing equipment (measuring between 100 and 400 psi for low-pressure; between 400 and 1000 psi for medium pressure).
- B. Fan-type spray tips (15 -45 degree fan spray).
- C. Stiff fiber-bristle brushes.
- D. Plastic spatula.

## 6.3.0 EXECUTION

### 6.3.1 EXAMINATION

- A. Examine site conditions to determine that current drainage is sufficient for adequately and safely removing cleaning waste and run-off from the site.
- B. Test-clean a small, inconspicuous area to check for adverse effects and damage to the material.

### 6.3.2 PREPARATION

- A. Protection:
  1. Protect surrounding materials on the site and adjacent building surfaces from coming

- in contact with the cleaning materials and run-off.
2. Provide workers with necessary protection against cleaning chemicals, overspray and run-off.
  3. Prevent cleaning chemicals from coming in contact with any painted, polished or metallic surfaces.
  4. Divert flow of run-off to drains in compliance with municipal codes. Comply with municipal codes regarding containment and disposal of cleaning materials.

B. Surface Preparation:

1. Before proceeding with cleaning operations, remove all miscellaneous hardware, anchors and bird excrement from the surface to prevent any discoloration.
2. Check for open holes and joints in surface and repoint mortar joints and caulk gaps around window and door openings, as required to prevent water and cleaning solutions from penetrating deeply into the wall.
3. Clean the limestone working from bottom to top.

Note: Bird excrement that comes in contact with cleaning solution will leave a permanent dark-colored stain on the surface.

6.3.3 ERECTION, INSTALLATION, APPLICATION

- A. Pre-wet limestone surface using a low pressure wash (between 100 and 400 psi).
- B. Apply a heavy coating of limestone pre-wash using a soft, nylon bristle brush. Follow manufacturer's applications instructions.
- C. Allow to stand for one hour or as long as determined by testing.
- D. Thoroughly rinse the surface using high pressure water (between 800 and 1000 psi) until all suds have disappeared.
  1. Rinse all corners, moldings, and interstices to remove all traces of chemical without damaging surrounding materials.
  2. Rinse water should be heated to 150-180 degrees Fahrenheit or as determined most effective during testing.
- E. While surface is still wet from rinsing off pre-wash, apply limestone afterwash with a soft, fiber bristled brush.
  1. Dilute limestone afterwash with as much water as determined effective during testing.
  2. If surface has begun to dry, re-wet before applying afterwash.
  3. Cover all corners, moldings, and interstices of the limestone.
- F. Allow to stand for 3-5 minutes or as long as determined by testing.
- G. Thoroughly rinse the surface using high pressure water (between 400 and 1000 psi), with a water flow of 6-8 gallons per minute.
  1. Rinse all corners, moldings, and interstices to remove all traces of chemical without damaging surrounding materials.
  2. Heat rinse water to a temperature determined most effective during testing.

Notes:

When cleaning, avoid overcleaning. Aim for achieving 85% clean. Most damage occurs when attempting to clean the last 15'/o.

Test-clean a small area to determine effectiveness of cleaning methods, materials, equipment, pressures, etc., as necessary. Do not proceed until an acceptable cleaning operation has been approved and fully documented

Do not treat the surface with acid cleaner more than once.

SECTION 04 10 21 – REPAIR AND CONSERVATION OF BRICK MASONRY – ALTERNATE 1

PART 1. General

1.1 Description of Work

- A. The brick masonry repairs involve repointing of mortar joints and relaying of brick.
- B. New pointing mortars shall match original in porosity and hardness.
- C. All work must be done in accordance with Preservation Brief 2 – Repointing Mortar Joints in Historic Masonry Buildings from the National Park Service.

1.2 Related Work

- A. All associated work shall be coordinated with the masonry repairs.
- B. All corrective work of leaking water carry-off systems, flashing, and associated ironwork shall be performed, as is practical, before, or in association with, the masonry repairs.

1.3 Qualifications

- A. All masonry repairs shall be performed by masons or conservators skilled, experienced, and specializing in the type of work specified. Contractor shall demonstrate that he has completed at least 5 similar projects within the last 5 years.
- B. All work shall be supervised and directed by a skilled mason.

1.4 Testing

- A. During the course of the work the mason shall allow the sampling and testing of all masonry materials and mortars to ensure the compliance of the work with the specifications.
- B. Work not conforming to the specifications shall be removed and replaced with no additional cost to the owner.

1.5 Test Panel

- A. Prior to performing repairs and restoration, perform examples of each type of work to be performed under this section of the specifications. Prepare test panels to verify selections of materials and use of proper methods and to demonstrate aesthetic effects as well as qualities of materials and execution. Build test panels to comply with the following requirements, using materials indicated for final unit of Work, including same base construction, special features for expansion joints, and contiguous work as indicated.
  - 1. Locate test panels on portions of the structure as directed by the Architect.
  - 2. Notify Architect one week in advance of the dates and times when test panels will be prepared.
  - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
  - 4. Obtain GSA acceptance of test panels before start of final unit of Work.
  - 5. Retain and maintain test panels during construction in an undisturbed condition as a standard for judging the completed Work.

- a. Accepted test panels in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.
  - B. Test panels shall be used to demonstrate all removal techniques, tooling and mortar finishing. Test panels on the historic building shall not be used to demonstrate the abilities of the workmen. This must be demonstrated by prior projects.
  - C. For critical or exceptionally fine work it may not be practical to locate panels on the building. Separately constructed test panels may be required.
  - D. Test panels on the building shall be located in inconspicuous areas and located by the Architect.
  - E. Test panels shall be installed at each façade of the original building and each façade of all additions in order to match the mortar at each location.
- 1.6 Product Samples
- A. Make available to the Architect all package labels and descriptions for each product or ingredient listed in the work.
  - B. Submit samples of all special ware prior to their installation in the work.
- 1.7 Material Storage
- A. All materials are to be kept dry and protected from weather and contamination.
  - B. All labels and seals must remain intact until use.
  - C. Any material that has deteriorated or been contaminated shall be discarded.
- 1.8 Local Conditions
- A. All stored materials must be maintained above 40 degrees F.
  - B. No mortar shall be placed when the air temperature is 40 degrees F or lower. No antifreeze additives shall be allowed.
  - C. Placed work which reaches 32 degrees F during the four days (96 hours) after placement shall be replaced.
  - D. No mortar shall be placed when the wall temperature is above 80 degrees
  - E. All new work shall be protected from drying out for four days after placement. Refer to moisture curing instructions described in these specifications.

## PART 2 - PRODUCTS

- 2.1 Lime shall conform to ASTM C-207, Type S.
- 2.2 Cement shall conform to ASTM C-150, white Portland cement, Type II. Type N.



2.3 Sand.

- A. Sand shall conform to ASTM C-144 where standard well graded masonry aggregate is specified. Color shall match existing mortar.
- B. Ungraded sand shall be as specified or described, free of salts and other deleterious material. Color shall match existing mortar.

2.4 Water shall be potable.

2.5 Bricks.

- A. New brick shall match existing work in color, texture, and all dimensions. Bricks shall be whole and uncut.
- B. Salvage brick matching the existing work in color, texture, and all dimensions may be used if it is hard burned face brick, free of deleterious salts and other materials, and was not previously used in a below water table or chimney stack location. Salvage all original brick to be removed for reuse.

PART 3. EXECUTION

3.1 Lime Putty.

- A. Lime putty shall be made from Type S hydrated lime by adding full bags of lime to water.
- B. Thoroughly mix to a thick cream consistency.
- C. Allow to stand a minimum of 24 hours before use.
- D. Carefully note wet lime equivalence to dry lime.
- E. Store in covered containers and protect from contamination or freezing.

3.2 Mortar Formulas.

- A. All proportions are given in dry volume.
- B. The equivalent lime putty shall be used for the dry lime volume in the mix.
- C. Pointing mortars for all work shall consist of the following ratio of materials.

Type S Lime	White Portland Cement	Sand Aggregate
1	1	4 1/2 - 6
:	:	

3.3 Mortar Mixing

- A. All measurements of mortar ingredients shall be made with fixed volume units.
- B. No shovel measuring shall be accepted.
- C. Wood boxes equal in volume to each ingredient of the mix are required to ensure consistent  
exa

ct mixes.

- D. Mechanical batch mixers shall be used.
- E. Lime and aggregates shall be mixed for 5 minutes prior to addition of cement.
- F. After addition of cement batch shall be mixed for a total of 10 minutes.
- G. The amount of water added shall be carefully measured during batch mixing. It shall be determined by the plasticity of the mortar. If mortar clinging to the bottom of the mason's trowel is not released by a single slight shake, it is too stiff. If mortar will not cling to bottom of the trowel, too much water has been added.
- H. Mortars containing any portion of cement must be placed in the work within two hours of its introduction into the mortar mix. Retempering of mortar shall be done with potable water in small amounts from a squeeze bottle or a clean bristle brush. After two hours all unused mortar shall be discarded.
- I. All mixing boards and mechanical mixers shall be thoroughly cleaned between batches.

#### 3.4 Joint Preparation

- A. Only masonry joints that are open, loose, crumbled, or cracked shall be prepared for repointing.
- B. All joints to be repointed shall be raked out to a depth equal to 2 1/2 times the width of the joint. Any loose or disintegrated mortar beyond this minimum depth shall also be removed.
- C. All raking and cutting out shall be performed with masonry hand chisels and hammers. Chisels shall not be wedge type, but shall easily fit between the bricks to the required depth without touching the brick edges or faces.
- D. No chipping or cutting of the existing brick units shall be allowed or accepted.
- E. No mechanical grinders, cutters or discs shall be allowed in the work.
- F. All loose material shall be removed from the joints. Excessive water shall not be used, nor high pressure washing.
- G. Prepare and repoint joints with a historically appropriate (color, texture, hardness) mortar mix.

#### 3.5 Repointing of Brick and Masonry

- A. All precautions and requirements of Section 1.8 above shall be observed.
- B. The interiors and all surrounding areas shall not be wetted during the preparation of the joints. Temporary coverings, guttering and all necessary protection shall be installed prior to the preparation of the joints. Special attention shall be given to the protection of any electrical service, and fire and smoke detection systems.
- C. All joints to be repointed shall be thoroughly wetted to prevent the extraction of the water in the mortar mix by the brick units.
- D. Pointing shall not begin until all standing water in the joints is absorbed into the masonry.

- E. Pointing tools shall be square faced, and shall be intended for masonry repointing. No pointing trowels shall be used.
- F. All pointing tools shall fit easily into the full depth of the joint without wedging between the bricks. Straight edged hawks shall be used to hold the mortar.
- G. Bring all backup bedding mortars up to a uniform depth equal to 2 1/2 times the width of the joint.
- H. Install pointing mortars in layers not to exceed 3/8" in depth, fully compacting each layer of mortar.
- I. Each successive layer of mortar shall not be installed until the previous mortar is thumbnail hard.
- J. Rewet joints, as described above, between installation of layers.
- K. Leave each layer of mortar square and smooth.
- L. Remove any loose excess mortar in joint before installing next mortar layer.
- M. Final tooling of the exterior brickwork shall leave the joint matching the surrounding existing joints.
- N. Great care shall be taken to ensure that the mortar does not extend onto the face of the brick.
- O. Observe all protection requirements as outlined in Section 1.08.
- P. Clean masonry surfaces upon completion of the work.

### 3.6. Deteriorated and Loose Units

- A.. Deteriorated Bricks
  - 1. All broken bricks and adjacent bedding mortars shall be cut out by hand as described above. Headers shall be removed to full depth in backup masonry. No half-bricks shall be substituted for headers.
  - 2. Replacement bricks and surrounding masonry shall be thoroughly wetted to prevent the extraction of moisture from the mortar.
  - 3. Replacement bricks shall be laid in full head and bedding mortar, leaving no voids in the work.
  - 4. Mortars shall be raked out to the specified depth to allow the installation of the pointing mortar, as described in Sections 1, 2, and 3 above.

3.7 Loose Bricks

- A. All brick units which are loose, or become loose as a result of repointing or other repairs, shall be carefully removed from the work.
- B. Loose brick units are defined as any bricks which exhibit any perceptible vertical or lateral movement when hand force is applied.
- C. Removal of loose brick shall not cause damage to loose brick or surrounding brick or sound joints.
- D. Removal shall be by hand tools as described in Section 3.04 above.
- E. All mortar shall be removed from wall cavity, as well as from brick which is to be installed.
- F. Replacement of brick shall be as described in Section 4.01 above.

3.8. Curing

- A.. Provide sufficient moisture in the lime mortar mix to permit continuous hydration of the cementitious materials. The most effective procedure for curing shall be based on climatic and job conditions. The lime mortar must remain moist for 96 hours following installation into the work.
- B. The timing between mortar layers will vary with climatic conditions. Temperature and relative humidity extend or reduce the time between consecutive operations. Cold or wet weather lengthens and hot or dry weather shortens the time period. Moderate changes in temperature and relative humidity can be overcome by providing additional heating materials during cold weather and by reducing the absorption of the base by pre-wetting during hot weather.
  - 1. Some moisture must be retained in or added back to freshly applied mortar. If the relative humidity is relatively high (above 75%) the frequency for re-wetting may be reduced. If it is hot, dry and windy, the frequency of re-wetting must be increased.
  - 2. The method of curing selected should consider the physical characteristics of the structure as well as the previously mentioned conditions. The methods can be one or a combination of the following.
    - a. Moisture curing is accomplished by applying a fine fog spray of water as frequently as required, generally twice daily in the morning and evening. Care must be taken to avoid erosion damage to mortar surfaces.
    - b. Plastic film, when taped or weighted down around the perimeter of the repointed area, can provide a vapor barrier to retain the moisture between the membrane and mortar. Care must be exercised when placing the film; if too soon, the film may damage the surface texture; if too late, the moisture may have already escaped.
    - c. Canvas, cloth, or sheet material barriers can be erected to deflect sunlight and wind, both of which will reduce the rate of evaporation. If the humidity is very low, this option may not provide adequate protection.

General Services Administration  
**Exterior Façade Repair**  
**Donald S. Russell U.S. Courthouse (SC0041ZZ)**  
Spartanburg, South Carolina

Project Number 022689.00

END OF SECTION 04 10 21



SECTION 09 90 00 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation, painting, and finishing of exposed exterior items and surfaces.

- 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop-priming and surface treatment specified under other Sections.
- 2. Providing and paying for all required personnel air monitoring according to OSHA Standard 29 CFR 1926.62, relative to lead-based paints.
- 3. Coordinate lead-based paint activities with the architect.

- B. Paint exposed surfaces whether or not colors are designated in schedules, except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.

- 1. Painting includes field-painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.

- C. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.

- 1. Prefinished items not to be painted include the following factory-finished components:

- a. Acoustic materials.
- b. Architectural woodwork and casework.
- c. Finished mechanical and electrical equipment.
- d. Light fixtures.
- e. Switchgear.
- f. Distribution cabinets.

- 2. Concealed surfaces not to be painted include wall or ceiling surfaces in the following generally inaccessible areas:

- a. Foundation spaces.
- b. Furred areas.
- c. Utility tunnels.
- d. Pipe spaces.
- e. Duct shafts.

- 3. Finished metal surfaces not to be painted include:

- a. Anodized aluminum.
  - b. Stainless steel.
  - c. Chromium plate.
  - d. Copper.
  - e. Bronze.
  - f. Brass.
4. Operating parts not to be painted include moving parts of operating equipment, such as the following:
- a. Valve and damper operators.
  - b. Linkages.
  - c. Sensing devices.
  - d. Motor and fan shafts.
5. Labels: Do not paint over Underwriters Laboratories, Factory Mutual or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 05 Section "Structural Steel Framing" for shop-priming structural steel.
  2. Division 08 Section "Hollow Metal Doors and Frames" for shop-priming steel doors and frames.
  3. Divisions 23 and 26 for painting mechanical and electrical work is specified in Divisions 23 and 26, respectively.
- E. Definitions
1. Cracking: Fine, jagged, interconnected breaks in top layer or layers of paint.
  2. Intercoat Peeling: Loss of adhesion between layers of paint.
  3. Peeling: Loss of adhesion of paint from substrate.
  4. Alligating: Cracking extending to substrate.

### 1.3 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each paint system specified, including block fillers and primers.
1. Provide the manufacturer's technical information including label analysis and instructions for handling, storage, and application of each material proposed for use.
  2. List each material and cross-reference the specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.



3. When submitting a substitute for specified paints, submit Performance Characteristics based on same tests and units of measure as listed in published data for specified products. Drying times shall be measured at same temperature and relative humidity and gloss units measured at the same angle as those listed in the manufacturer's published literature of the specified products. If manufacturer's published literature for substitute products states conditions that differ from those for the specified materials, submit certified calculations that convert advertised conditions to meet the conditions of the specified product. Submittals not meeting this requirement will not be reviewed.
  4. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
  5. Where substitutes are being submitted for review, as a minimum the following listed properties of the substitute product shall meet or exceed the same published properties of the specified product. Submittals without these properties will not be reviewed:
    - a. Generically the same
    - b. Solids volume
    - c. Solids weight
    - d. Recommended spread rate
    - e. Recommended dry film thickness
    - f. Drying times measured under the same conditions as those specified
    - g. Sheen/Gloss measured at the same angle as those specified
    - h. VOC properties
    - i. Abrasion resistance measured by the same testing standard and using the same units of measure.
    - j. Hardness
    - k. Chemical resistance
    - l. Weather/UV resistance
    - m. Pot life
- C. Samples for initial color, gloss, and texture selection in the form of manufacturer's color charts.
1. After color selection, the Architect will furnish color chips for surfaces to be coated.
- D. Samples for Verification Purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.
1. Provide stepped samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved. Approved samples will be used as a standard to judge, accept, or reject color, gloss, texture, and other attributes of the applied paints. The Architect will have final judgement of aesthetics of applied paints.
  2. Provide a list of material and application for each coat of each sample. Label each sample as to location and application.
  3. Submit samples on the following substrates for the Architect's review of color and texture only:
    - a. Concrete Masonry: Provide two 4 x 8-inch samples of masonry, with mortar joint in the center, for each finish and color.
    - b. Painted Wood: Provide two 12-inch square samples of each color and material on hardboard.
    - c. Stained or Natural Wood: Provide two 4 x 8-inch samples of natural and stained wood finish on actual wood surfaces.
    - d. Ferrous Metal: Provide two 4-inch long samples of each color and finish.

- E. Paint Schedule: After all painting has been completed and accepted by the Owner, the painting contractor shall prepare and submit to the Owner an as-painted painting schedule. This schedule shall be dated, in tabular form, and shall list the following information by room name/number:
  - 1. Room Name
  - 2. Room Number
  - 3. Paint Manufacture
  - 4. Product Name
  - 5. Product Color
  - 6. Product Number
  
- F. Certifications: Submit a copy of the following certifications to the Architect:
  - 1. For each applicator, their current lead certification, in conformance with OSHA Standard 29CFR1926.62, showing date, place, and type of certification. Lead paint certifications for each applicator shall be maintained throughout the painting contract.
  - 2. Lead physicals for each applicator in conformance with OSHA Standard 29CFR1926.62. Lead physicals for each applicator shall be maintained throughout the painting contract.

#### 1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall meet all of the following requirements:
  - 1. Have products and paint systems listed with the Master Painters Institute (MPI) at the time of invitation or advertisement for bids for this project.
  - 2. Be able to provide published complete product performance data sheets for the specified products. These sheets shall be available at the time of invitation or advertisement for bids for this project.
  - 3. Have the production volume capacity to develop, produce and deliver the volume of paint and coatings required for this project within the required lead times to meet delivery dates without delaying the project.
  - 4. Be actively engaged in researching and developing its own paint and coating formulations.
  - 5. Specialize in manufacturing paint and protective coatings of the type specified for this project.
  - 6. Employ a fully trained and experienced technical staff capable of providing necessary field support to investigate problems and failures regarding surface preparation, application, and performance of supplied paints and coatings. As a minimum, technical staff shall have their own diagnostic equipment including dry film thickness gauges, adhesion gauges, and gloss meters.
  
- B. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to those indicated for the Project that have resulted in a construction record of successful in-service performance.
  
- C. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.
  
- D. Benchmark Samples (Mockups): Provide a full-coat benchmark finish, including painting and staining, sample of each type of coating, staining and natural finish and substrate required on the Project. Comply with procedures specified in PDCA P5. Duplicate finish of approved prepared samples.

3. The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted or finished with a stain or natural finish.
  - a. Wall Surfaces: Provide samples on at least 100 sq ft of wall surface.
  - b. Small Areas and Items: The Architect will designate an item or area as required.
4. After permanent lighting and other environmental services have been activated, apply coatings in this room or to each surface according to the Schedule or as specified. Provide required sheen, color, and texture on each surface.
  - a. After finishes are accepted, the Architect will use the room or surface to evaluate coating systems of a similar nature.
5. Final approval of colors, stains, finishes and overall aesthetics will be determined by the Architect.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
  1. Product name or title of material.
  2. Product description (generic classification or binder type).
  3. Manufacturer's stock number and date of manufacture.
  4. Contents by volume, for pigment and vehicle constituents.
  5. Thinning instructions.
  6. Application instructions.
  7. Color name and number.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
  1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

#### 1.6 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F and 90 deg F.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F and 95 deg F.
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 90 percent; or at temperatures less than 5 F deg above the dew point and falling; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.
- D. Paint that is applied under conditions other than these stated conditions will be removed, surfaces prepared, and new paint applied under acceptable conditions at no additional cost.
- E. Work Conditions: During all renovation work, lead-safe work practices must be followed in accordance with EPA's lead-Based Paint Renovation, Repair, and Painting Program Rule.

## 1.7 EXTRA MATERIALS

- A. Provide 1 gallon of paint for each type and color of paint applied. Furnish extra paint in manufacturer's sealed shipping containers. Containers shall only be opened by the painter manufacturer/supplier to formulate required colors/mixes. These extra materials shall not be opened or used by the Contractor without written permission from the Owner. Place a label, protected by clear plastic, on the lid of each container with the following typewritten information:
  1. Paint Manufacturer
  2. Product name and number
  3. Mixing and color formulation
  4. Painting contractor
  5. Date that the paint container is put in the Owner's inventory
  6. Room or area number where the paint applied was used.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturer: Paint systems and manufacturers listed in the paint schedule are by The Sherwin-Williams Company and are intended to establish expected quality, performance, and type paint and are not intended to limit competition. Colors shown in Finish Schedule may not be Sherwin-Williams. However products submitted for review must meet or exceed the published performance criteria of the specified product. Submitted product must be accompanied with the manufacturer's published product data sheets that show performance criteria. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item. All substitutes shall meet all of the minimum performance criteria of the specified product. Submittals not complying with this provision will be considered incomplete, unacceptable, and will not be reviewed or approved. Subject to compliance with requirements, products of one of the following manufacturers may be submitted for review.
  1. Duron
  2. ICI Paints
  3. Porter Paints
  4. PPG Industries, Pittsburgh Paints
- B. The applicable paint manufacturer intended for use on this project shall review the specified paint systems for accuracy, performance, and product availability. Notify the Architect of any

discrepancies and compatibility between the substrates and paint systems and for intended use. Submit a letter of review and acceptance to the Architect prior to date of Bid. Failure to submit the requested letter will be inferred as acceptance of the specified paint systems.

2.2 PAINT MATERIALS, GENERAL

- A. **Material Compatibility:** Provide block fillers, primers, finish coat materials, and related materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.
- B. **Material Quality:** Provide the manufacturer's best-quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.
  - 1. **Proprietary Names:** Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish the manufacturer's material data and certificates of performance for proposed substitutions.
- C. **Colors:** Provide for selections made by Architect from manufacturer's full range of standard and custom styles, colors, textures, and patterns.
- D. **Lead-Based Paint Barrier:** Where existing lead-based paint is to be top-coated (encapsulated) with a new finish paint, lead barrier paints, that contact the existing lead-based paints and act as an intermediate coat between the lead-based paint and the finish coat, shall be as recommended by the paint manufacturer. This barrier paint shall be acceptable to EPA, OSHA, and local governing officials for the intended purpose. Notify the Architect where specified paints are not suitable for lead-based paint top-coatings (encapsulation).
- E. **Gloss:** The following gloss levels, as established by the Master Painter Institute (MPI) shall apply to all references to gloss/sheen/luster.

<b>MPI Gloss Level</b>	<b>Common Description</b>	<b>Gloss Units at 60 Deg.</b>	<b>Gloss Units at 20 Deg.</b>	<b>Gloss Units at 85 Deg.</b>
1	Flat	0 to 5 units	-----	0 to 15
2	Velvet or Matte	5 to 10 units	-----	Not listed
3	Eggshell	10 to 25 units	-----	5 to 25 units
4	Satin	20 to 35 units	-----	10 to 40 units
5	Semi-Gloss	35 to 70 units	5 to 45 units	-----
6	Gloss	70 to 85 units	20 to 90 units	-----
7	High Gloss	Over 85 units	Not listed	-----

## 2.3 CLEANING MATERIALS

- A. To remove stains, spots, mold, and mildew, use Extra Muscle Pre-Paint Cleaner by Great Lakes Laboratories or as required by the paint manufacturer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Surfaces receiving paint must be thoroughly dry before paint is applied.
  - 1. Do not begin to apply paint until unsatisfactory conditions have been corrected.
  - 2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
  
- B. Moisture Testing. Test all interior and exterior wood surfaces and to be painted with pinless moisture meter to ensure moisture level complies with manufacturer's requirements. If manufacturer does not have requirements, then 15 to 16 percent maximum for exterior wood and 8 percent maximum for interior wood. No painting will be permitted if moisture content exceeds the recommended content. Record the following minimum information and submit to the Architect:
  - 1. Name of person making measurements
  - 2. Date and time of measurement
  - 3. Manufacturer and model no. of meter being used.
  - 4. Weather conditions at time of measurements (temperature in deg. F., relative humidity in %, and dew point in deg. F.
  - 5. Location on structure of each reading. For reference, make measurements at a protected area known to be dry to establish a base line. As a minimum, make measurements at the following locations on each side of the structure at the roof line and the grade line.
    - a. Trim
    - b. Sills and Jambs (window and door)
    - c. Doors
    - d. Windows frames
    - e. Weather boards
    - f. Where wood is in contact with masonry, concrete, or stone, check moisture content of these materials on the meter's relative scale.
  - 6. Record moisture levels in percent for each reading.
  
- C. Cementitious Materials:
  - 1. Masonry: Test all masonry surfaces that were exposed to moisture and are to be painted for moisture to ensure moisture level complies with manufacturer's requirements. Test with a pinless moisture meter calibrated for masonry. Moisture shall be within the limits of the paint manufacturer. If none specified, 12 percent or less.
  - 2. Concrete: Test all concrete surfaces to be painted or coated for moisture to ensure moisture level complies with manufacturer's requirements. Test with a pinless moisture meter specifically designed for and calibrated for concrete. Moisture shall be within the limits of the paint manufacturer. If none specified, 8 percent or less.

- D. Dry Wall: Test all dry wall to be painted for moisture content levels that are acceptable to the paint manufacturer and the dry wall manufacturer. If acceptable levels are not available, then perform moisture tests in accordance with ASTM D4263 –Test Method For Indicating Moisture In Concrete By the Plastic Sheet Method. Although this method was developed for determining moisture presence in concrete, it is also suitable for dry wall work. If there is any presence of moisture on the back of the plastic sheet after the prescribed time, the dry wall is too damp to paint. Retest in the same location after the dry wall has been allowed to dry. Continue testing for moisture until there is no trace of moisture. Submit reports showing locations where tests were conducted.
- E. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

### 3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items, if necessary, to completely paint the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease prior to cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified.
  - 1. Provide barrier coats over incompatible primers or remove and reprime. Notify Architect in writing about anticipated problems using the specified finish-coat material with substrates primed by others.
  - 2. Cementitious Materials: Prepare concrete, concrete masonry block, and brick surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen, as required, to remove glaze and establish a suitable anchor pattern for topcoats. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
    - a. Ensure new materials have cured a minimum of 28 days.
    - b. Moisture: Determine moisture content of surfaces by performing appropriate tests. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions. Submit test results along with locations where measurements were made to the Architect.
    - c. Alkalinity: Determine alkalinity content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Ensure that pH is 10 or lower. Submit test results along with locations where measurements were made to the Architect.
    - d. Brick: In addition to above, perform the following:

- 1) Confirm with paint manufacturer that paint to be used is suitable for clay composition and glaze of the brick.
  - 2) Knock down glaze as recommended by the paint manufacturer.
  - 3) For previously painted brick, brush surfaces to achieve a surface profile acceptable to the paint manufacturer.
  - 4) Ensure that brick surfaces are primed with alkali resistant primer prior to applying finish paint.
  - 5) Do not apply primers or paints until a technical representative of the paint manufacturer has accepted the prepared surfaces.
3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off. Orbital sanders are not permitted.
- a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
  - b. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
  - c. When transparent finish is required, backprime with spar varnish.
  - d. Backprime paneling on interior partitions where masonry, or other wet wall construction occurs on backside.
  - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.
  - f. Do not use steel wool to sand or smooth wood.
  - g. Check all wood surfaces for blue stain. Remove blue stain carefully with oxalic acid or Ply Brite.
  - h. Where substrate bleeds through occurs, apply as many coats of stain block as necessary to stop the bleed through. Use blocker that is recommended by the finish coat manufacturer.
  - i. Wash surfaces with mild solution of household detergent and gallon clean water, applied with medium soft fiber brush. Rinse with clean water and allow to dry completely.
  - j. **Crazing and Intercoat Peeling:** Remove all paint layers by chemical methods.
  - k. **Peeling and Alligating:** Remove all paint layers by chemical methods.
4. Ferrous Metals:
- a. Prepare only those surfaces that can be safely primed that same day while allowing for manufacturer's recommended curing time. Do not allow prepared surfaces to remain unprimed longer than 8 hours or overnight. Prepared surfaces that are allowed to remain unprimed longer than 8 hours or overnight shall be prepared again as specified even if there are no traces of rust bloom or dirt.
  - b. Remove loose dirt from damaged areas with a soft brush or with clean, non-linting rags.
  - c. Solvent-clean to remove grease, grime, residue, and surface contamination from damaged areas according to SSPC-SP1 – Solvent Cleaning.
  - d. Allow all surfaces solvent cleaned to thoroughly dry.
  - e. Remove loose primer and paint back to sound paint according to SSPC 3 – Power Tool Cleaning. Use SSPC 2 - Hand Tool Cleaning for areas not accessible to power tool cleaning. Remove all traces of visible mill scale, flux, and weld spatter.
  - f. Where existing primer is glazed or shiny, knock down glaze or gloss to establish and anchor pattern for new primer.



- g. Where existing primer appears to be thin as evidenced by shadows or variegated appearance, check thickness of primer with a magnetic thickness tester such as a Positester. If dry film thickness of primer is less than 2 mils, perform steps b, c, d, e, and f of this procedure, and prime as specified.
  - h. When performing surface preparation, feather all exposed edges of existing primer to zero.
  - i. **Crazing and Intercoat Peeling:** Remove all paint layers by chemical methods.
  - j. **Peeling and Alligating:** Remove all paint layers by chemical methods.
5. Galvanized Surfaces:
- a. Remove soil, cement spatter, weld flux and spatter, and other surface dirt with a stiff brush, scraper, power grinder (for weld flux and spatter), or other suitable means.
  - b. Remove oil or grease by wiping or scrubbing the surface with rags or brushes wetted with suitable solvent such as mineral spirits according to SSPC-SP1-Solvent Cleaning. Perform final wiping with clean solvent and clean rags or brushes. Suitable solvents are mineral spirits, turpentine, or high-flash naphtha. If high-flash naphtha is selected, it shall be used only outdoors or in an extremely well ventilated area. Only when conditions prevent the use of flammable or toxic solvents such as MEK, mineral spirits, etc. for cleaning, then use safety solvents such as OF 482 by Hexcel Chemical Products, 205 N. Main Street, Lodi NJ 07664; phone 201 / 472-6800. Consult with Hexcel for specific products applications.
  - c. Should residual oils be difficult to remove, use an alkaline detergent such as trisodium phosphate (TSP). After cleaning, wash these surfaces thoroughly with water to remove the alkaline residue. Use water or water under pressure, preferably both. Follow manufacturer's instructions closely.
  - d. Some materials may not be easily removed by the above solvents and detergents. If this is the case, use stronger solvents such as methyl ethyl ketone (MEK) or acetone. Use aromatic and chlorinated hydrocarbons and ketones only when there is adequate supervision to assure safe working conditions.
  - e. Allow surfaces to dry completely then apply a vinyl wash primer to a minimum dry film thickness of 0.5 mil but not exceed 1.0 mil. Top coat wash primer within 8 hours or as directed by coating manufacturer.
  - f. Repair galvanized surfaces with galvanizing repair paint.
  - g. Test for Passivation Treatment: Prior to painting or applying any type of treatment, prep, repair material, or coating, test all galvanized steel for passivation treatment as follows:
    - 1.) Remove all oils and contamination as previously described.
    - 2.) Thoroughly sand a small area of the galvanizing with 80-150 grit sandpaper.
    - 3.) Saturate a small cotton swab with a 2 % solution of copper sulfate (Available at most drug stores) and dab both the sanded area and an unsanded area of the galvanized steel.
    - 4.) If both the sanded and unsanded areas turn black at approximately the same time (within approximately 10 seconds), the galvanizing was not treated with a passivator.
    - 5.) If only the unsanded area does not turn black or turns black slower than the sanded area, the galvanized steel was treated with a passivator.
    - 6.) If neither sanded or unsanded areas turn black, then the metal is not galvanized.
    - 7.) If test indicates the metal is galvanized steel that has been treated with a passivator, then prepare the surfaces as recommended by the paint manufacturer.

- h. Craze and Intercoat Peeling: Remove all paint layers by chemical methods.
  - i. Peeling and Alligatoring: Remove all paint layers by chemical methods.
6. Previously Painted Surfaces:
- a. Remove grease, oil and dirt according to SSPC-SP-1 solvent cleaning.
  - b. Only when conditions prevent the use of flammable or toxic solvents such as MEK, mineral spirits, etc. for cleaning, then use safety solvents such as F0482 by Hexcel Chemical Products, 205 N. Main Street, Lodi, NJ 07644: phone 201 / 472-6800. Consult with Hexcel for specific products applications.
  - c. Remove dust, grime, loose dirt, etc. with soft brush and vacuum. Remove all loose paint back to sound paint, and knock down all gloss. Roughen, as required, to remove glaze and establish a suitable anchor pattern for topcoats. Ensure that surfaces are sufficiently abraded and roughened to provide a sound anchoring base for new paint.
  - d. Where rusting conditions exist on ferrous surfaces, remove rust according to SSPC-SP2-Hand Tool Cleaning or SSPC-SP3-Power Tool Cleaning. Touch up with one coat of coating recommended by finish coating manufacturer to a dry film thickness recommended by finish coat manufacturer.
  - e. Where knots in wood are exposed or have damaged or discolored the finish, scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer and finish. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
  - f. Where paint is missing, damaged, dented, or concrete, concrete block, wood, and gypsum wallboard, are exposed, remove surface contamination, feather all edges to zero, sand surfaces smooth, and prime surfaces with primer recommended by finish coating manufacturer. Primer shall be compatible with the existing and new finish.
  - g. Where substrate bleeds through occurs, apply as many coats of stain block as necessary to stop the bleed through. Use blocker that is recommended by the finish coat manufacturer.
  - h. Where paint is loose or is not otherwise fully and tightly adhered to the substrate or to undercoats, remove all paint back to sound paint and down to the substrate and then feather all edges to zero. If 40 percent or more of the paint on a given substrate (wall, floor, ceiling, door, column, etc.) is loose or damaged or is otherwise unsound, remove all of the paint down to the substrate. If 25 percent or more of paint on given substrate is loose or is not otherwise fully and tightly adhered to the substrate or to undercoats, the technical representative of the paint manufacturer shall approve surface preparation prior to beginning painting.
  - i. Test small area of previously painted finish with new finish paint in the presence of the Owner. Apply finish paint to specified thickness. Do not continue coating this previously painted surface until test area has been reviewed by the Owner. Continue test for manufacturer's recommended published "length of time before recoating". If the previously painted surface blisters, wrinkles, dissolves, delaminates, or shows other signs of incompatibility, the previously painted surface and new finish are not compatible. Where previously painted surface is not compatible with finish coat, apply a proper barrier coat to prime coat. Allow manufacturer's suggested drying time between succeeding coat and check film of previous coat with fingernail to be certain it is cured. Notify the Owner before applying succeeding coat so that previous coat may be inspected, if necessary, and credited as an applied coat. Failure to do so shall result in recoating at no expense to the Owner.

- j. Where surrounding paint has been removed to expose substrate and the edges of removed paint have feathered to zero, touch up exposed substrate with proper and recommended primer. After touch up has properly cured, apply a complete prime coat over entire surface to be painted including the touched up surfaces.
- k. A qualified technical representative from the paint manufacturer shall approve, in writing, a sample surface preparation for each type substrate to be prepared over previously painted surfaces. This approval shall state time, date, location, and substrate being evaluated. The approved sample shall be a standard for evaluating all other surface preparation for the same substrate.
- l. Lead-based paints:
  - 1) Applicators involved in the disturbance of lead-based paint must comply with OSHA 29 CFR 1926.62. OSHA requires that the employees involved in the contact of lead-based paint must be trained, must have medical examinations (if the action level is exceeded during work activities involving the disturbance of lead-based paint), and must have an exposure assessment performed. If the employee is exposed to levels over the Permissible Exposure Limit (PEL), other work engineering and personnel protective equipment requirements of OSHA must be followed in accordance with 29 CFR 1926.62.
  - 2) Perform required personnel air monitoring to establish employee exposure assessments in accordance with OSHA 29 CFR 1926.62 when working with lead-based paints. Send copy of the air monitoring reports to the Architect.
  - 3) Prior to the disturbance of lead-based painted surfaces, place a layer of six mil polyethylene sheeting on the floor beneath the work area. The intent of work-related activities involving the disturbance of lead-based paint is to minimize large accumulations of lead. Clean up floors and other surfaces contaminated with lead-based paint dust/chips by vacuuming and/or wet wipe methods to minimize the likelihood of lead becoming airborne. The vacuum shall be equipped with HEPA filters. Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.
  - 4) All construction debris having painted surfaces exceeding 0.06% lead must be disposed of in a municipal solid waste landfill (lined landfill) according to SCDHEC Division of Solid and Waste Planning and Recycling pertaining to waste disposal requirements. Hazardous waste shipments shall be accompanied by a Uniform Hazardous Waste Manifest that shall be properly completed and copies returned to the Architect before the Contractor receives final payment.
  - 5) All waste that includes lead-based paint chips must be treated as lead hazardous waste or sampled and analyzed by TCLP analysis to determine leachable lead content. Waste that contains >5.0 parts per million of lead must be disposed of as hazardous waste. Sampling and lab analysis will be the responsibility of the Contractor. Sample data must be provided to represent each waste stream. Results and waste manifests must be provided to the Building Owner's Representative upon request.
  - 6) **Crazing and Intercoat Peeling:** Remove all paint layers by chemical methods.
  - 7) **Peeling and Alligating:** Remove all paint layers by chemical methods.

7. Dry Wall

1. Inspect dry wall in the presence of the General Contractor, drywall contractor and Architect to evaluate condition of drywall for painting. Ensure that all defects in drywall are corrected prior to primer application.
2. Brush or wipe down drywall surfaces with a damp (not wet) mop to remove all loose dust.
3. Evaluate drywall surfaces after primer has cured. Primer will highlight imperfections that must be corrected prior to application of top coats.

D. **Materials Preparation:** Carefully mix and prepare paint materials according to manufacturer's directions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
3. Use only thinners approved by the paint manufacturer and only within recommended limits.
4. Do not store shellac in iron containers.

E. **Tinting:** Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat. Should there be a disagreement in the number of coats applied and the individual coats were not tinted so as to be distinguished, then the painting contractor shall apply, at no additional cost, the additional number of coats that when added to the number of coats already applied by the painting contractor and that can be positively distinguished, will equal the number of specified coats.

### 3.3 APPLICATION

A. **General:** Apply paint according to manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Use only primer color that is recommended on the back of the paint manufacturer's finish color chip to achieve the required color. Where the finish color, sheen, or texture is not as represented in the approved color sample and the recommended primer was not used, apply required additional coats to achieve acceptable results. These additional coats will be applied at no increase in contract sum or time.

B. Do not paint over defective undercoat, dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

1. Paint colors, surface treatments, and finishes are indicated in the schedules.
2. Provide finish coats that are compatible with primers used.
3. The number of coats and the film thickness required are the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce a smooth even surface according to the manufacturer's directions.
4. Apply additional coats if undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, texture, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed

- fasteners, receive a dry film thickness equivalent to that of flat surfaces. The additional coats shall be applied at no additional cost to the Owner.
5. The term exposed surfaces includes areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
  6. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  7. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint.
  8. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
  9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
  10. Finish exterior doors on tops, bottoms, and side edges same as exterior faces.
  11. Sand lightly between each succeeding enamel or varnish coat.
  12. Omit primer on metal surfaces that have been shop-primed and touch-up painted.
- C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- D. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to the manufacturer's directions.
1. Brushes: Use brushes best suited for the material applied.
  2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
- E. Minimum Coating Thickness: Apply materials no thinner than the manufacturer's recommended spreading rate and dry film thickness for each coat. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- F. Block Fillers: Apply block fillers to concrete masonry at a rate and as many coats as required to fill, seal, and smooth, and to ensure complete coverage with pores filled so that finish produces a smooth and cleanable surface. Prior to applying an epoxy finish to CMU in the Kitchen and Cafeteria, obtain approval from the District Food Supervisor, of the application of the block filler.
- G. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime-coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
1. Back Priming: Back prime, including all edges and concealed surfaces, of all lumber, ferrous and galvanized metal prior to installation. Apply primer to the same specifications as for the exposed surfaces. Installed items not back-primed shall be removed, properly

primed, and reinstalled at the Contractor's expense. Damaged materials shall be replaced. This provision applies to both interior and exterior installations. Coordinate with all carpentry and steel specifications for materials to be painted.

- H. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.
  - 1. Provide satin finish for final coats.
- I. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with specified requirements.

### 3.4 FIELD QUALITY CONTROL

- A. Each applicator shall have a clean accurate wet film gauge for use over smooth surfaces (metal, GWB, plaster and concrete, etc.). During application of each coat of paint, including primers, each applicator shall make regular measurements of the applied paint using a clean wet film gauge. The gauge shall be wiped clean after each measurement.
  - 1. The project painting supervisor shall complete a Project Paint Record form similar to the form at the end of this specification. The forms shall be completed at the end of each day and submitted to the Architect weekly.
    - a. Date: The date measurements were taken.
    - b. Location: Room or area where measurements were made.
    - c. Substrate: Drywall, CMU, concrete, wood, steel doors, structural steel, etc.
    - d. Applied WFT or Spread Rate Per Coat: Show the specified wet film thickness (WFT) and the actual measured wet film thickness of each coat. Show the min-max range such as 4-6 mils. If a coat is not applicable (primer is shop-applied), no entry is required.
    - e. For irregular surfaces such as CMU and rough concrete and plaster, thickness shall be determined by spread rate. Spread rate is determined as follows:
      - 1. Check the manufacturer's published theoretic spread rate of square feet per gallon per coat.
      - 2. Measure off the square footage a gallon of paint is to cover on the substrate that is to be painted
      - 3. Apply one gallon of properly prepared paint over the measured area of substrate using equipment and procedures that will be used for actual application.
      - 4. If the gallon of paint completely covers the measured area in an even and uniform manner with no drips, sags, runs, or spread marks, the spread rate is acceptable. If there is paint left over, the spread rate may be too high resulting in a coat that is too thin. If the paint runs out before completing, the spread rate may be too low resulting in a coat that is too thick.
- B. If the Owner or the Architect determine that the substrate or undercoats are visible through the finish, or the finish appearance is shaded, or texture is uneven, then additional coats shall be applied, at no additional cost to the Owner, to provide an acceptable finish.
- C. If the Owner or Architect suspect that substrates were not properly prepared or improper primer/finishes were used, or that coatings were not applied to the recommend or specified rate or thickness, the Owner reserves the right to engage the testing and evaluation services of the either the Architect or an independent testing agency or both. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:

1. The Owner will engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
2. The testing agency will perform appropriate tests for the following characteristics as required by the Owner:
  - a. Quantitative materials analysis.
  - b. Abrasion resistance.
  - c. Apparent reflectivity including color and shading of undercoats.
  - d. Flexibility.
  - e. Washability.
  - f. Absorption.
  - g. Accelerated weathering.
  - h. Dry opacity.
  - i. Accelerated yellowness.
  - j. Recoating.
  - k. Skinning.
  - l. Color retention.
  - m. Alkali and mildew resistance.
3. If test results show that material being used does not comply with specified requirements, that substrate was not properly prepared, the specified or recommended number of coats were not applied, or the thickness of each coat is not as specified or recommended, then the Contractor may be directed to stop painting, remove noncomplying paint, pay for testing, repaint surfaces coated with rejected paint, and remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are incompatible.

### 3.5 CLEANING

- A. Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
  1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

### 3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
  1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.7 PROJECT COMPLETION

- A. The certified Lead Renovator will be responsible for Cleaning Verification. The Cleaning Verification must be performed in accordance with EPA's RRP Rule. Documentation of Cleaning Verification must be obtained by the Lead Certified Firm in accordance with recordkeeping requirements of the RRP Rule. Documentation of proper Cleaning Verification must be provided to the Building Owner's Representative upon request.

### 3.8 PAINTING SYSTEMS, GENERAL

- A. General: Review the following painting systems and notify the Architect of any conflict between these systems and the painting manufacturer's recommendations for the specific substrate. Where film thickness and spread rate are not listed, apply paints at manufacturer's published thickness and rate for specified paint. Except where specified otherwise, paint systems are by Sherwin Williams to establish expect quality and performance and not to restrict competition. Equal systems by other listed manufacturers may be submitted for review provided the substitute manufacturer certifies that the substitute paint system is equal to or better than that specified or recommended by the specified manufacturer.

END OF SECTION 09 90 00



## SECTION 32 20 01 - RESTORATION CLEANING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Refer to Division 01 Section Cutting and Patching for repair of damaged surfaces that are encountered during the execution of this Work. Repair damaged surfaces as specified.

#### 1.2 SUMMARY

- A. This Section includes liquid pressure cleaning the following:
  - 1. Exterior Cleaning
    - a. Limestone Masonry
    - b. Brick Masonry
- B. Test cleaning will be performed to determine the most effective method that will not damage the substrate. Test cleaning, using the following four cleaning methods, shall be done in progression, beginning with the least harsh method and progressing to the most severe. The following cleaning methods begin with the least severe method and progress to the most severe.
  - 1. Dry brush
  - 2. Bucket of fresh water and soft brush
  - 3. Bucket of fresh water, detergent, and soft brush
  - 4. Bucket of water, detergent, and stiff brush
  - 5. Low pressure water (less than 50 psi)
  - 6. Medium pressure water
  - 7. Low pressure solution of a mild non-ionic detergent additive
  - 8. Specified Cleaning materials
- C. If dry brush does not produce desired results, then proceed to fresh water and soft brush. If this does not produce desired results, then proceed to fresh water, detergent, and soft brush. If this does not produce desired results, then proceed to low pressure water cleaning, etc. If this does not produce desired results, then proceed to the next step until the desired results are achieved.
- D. Any deviations from any of the portion of this specification must be approved by the Architect and be acceptable to the manufacturer of the cleaning materials.

#### 1.3 SUBMITTALS

- A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each product indicated including recommendations for their application and use. Include test reports and certifications substantiating that products comply with requirements.

- C. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include a list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.
  - D. Cleaning program indicating cleaning schedule, cleaning process, including protection of surrounding materials on building and site, and control of runoff during operations. Describe in detail the materials, methods, and equipment to be used.
  - E. Applicator Qualifications: Submit qualifications of applicator.
    - 1. Certification stating applicator is experienced in the application of the specified products.
    - 2. List of recently completed cleaning projects, including project name and location, names of owner and architect, description of cleaning products used and substrates, applicable local environmental regulations, and application procedures.
  - F. Environmental Regulations: Submit description for testing, handling, treatment, containment, collection, transport, disposal, and discharge of hazardous wastes and cleaning effluents. Describe any hazardous materials to be cleaned from substrates. Submit applicable local environmental regulations.
  - G. Protection: Submit description for protecting surrounding areas, landscaping, building occupants, pedestrians, vehicles, and surfaces not to be cleaned during the work from contact with cleaners, residues, rinse water, fumes, wastes, and cleaning effluents.
  - H. Surface Preparation: Submit description for surface preparation of substrates to be completed before application of cleaners.
  - I. Application: Submit description for application procedures of cleaners.
  - J. Certification that the manufacturer of the cleaning materials has been notified that cleaning operations are to be conducted, that a date has been established to prepare a mock-up, and that the manufacturer's representative will be present for the mock-up preparation.
- 1.4 QUALITY ASSURANCE
- A. Restoration Specialist: Engage an experienced restoration cleaning firm that specializes in the types of cleaning solutions and equipment required and the types of materials to be cleaned on this project and has completed at least three projects of the same size and scope in the last five years.
  - B. Manufacturer Qualifications: A company regularly engaged in producing restoration cleaning compounds, which have been used on similar projects and material with successful results, and that retains factory-trained representatives who are available for consultation and job site inspection and assistance at no additional cost.
  - C. Mockups (Test Methods):
    - 1. Prepare a mockup for each substrate to be cleaned and for each chemical to be used during the cleaning process.
    - 2. Mockups of the cleaning methods shall be prepared beginning with the dry brush and progressing to fresh water and brush, then proceeding to fresh water, detergent, and brush, etc. until the desired results are achieved. The least severe method that produces the desired results on each respective substrate, shall be used throughout the cleaning

operation. If the selected method becomes ineffective during the cleaning operation, notify the Architect prior to using on of the more severe method.

3. A representative of the cleaning materials manufacturer shall be present when the mockup is prepared to ensure that the cleaning contractor is familiar with each product specified, product use, and the product application, dwell time, and rinsing. Prior to start of restoration cleaning for each material scheduled for cleaning, prepare a sample panel where directed by Architect. Prepare sample panels using same materials and methods proposed for the Work, and under same weather conditions to be expected during time of the Work. Obtain Architect's acceptance of visual qualities before proceeding with the Work. Retain acceptable panels in an undisturbed condition, suitably marked, during construction as a standard for judging the completed Work.
  4. Before full-scale application, review manufacturer's product data sheets to determine the suitability of each product for the specific surfaces. Apply each cleaner to test panels to determine dilution rates, dwell times, number of applications, compatibility, effectiveness, application procedures, effects of pressure rinsing, and desired results.
  5. Apply cleaners to test panels in accordance with manufacturer's written instructions. Allow 48 hours or until test panels are thoroughly dry before evaluating final appearance and results. Do not begin full-scale application until test panels are inspected and approved by the architect. Any traces of acid burn, chalking, residual residue, streaking, etching, uneven cleaning, etc, are unacceptable.
  6. Test Panel Requirements:
    - a. Size: Minimum 4 feet by 4 feet each.
    - b. Locations: As determined by the Architect.
    - c. Number: As required to completely test each cleaner with each type of substrate to be cleaned.
  7. Test all cleaning effluents generated by the cleaning of the test panels to determine any hazardous characteristics. Comply with applicable federal, state, and local environmental regulations including testing, handling, treatment, containment, collection, transport, disposal, and discharge of hazardous wastes.
  8. Retain and protect test panels approved by the Architect in undisturbed condition during the work of this section, to be used as a standard for judging the cleaning work.
  9. The same operator that prepares the mock-up shall perform the actual cleaning. If, for any reason, a substitute operator is used to perform the cleaning, the Architect shall be notified. Prior to starting cleaning, the substitute operator shall prepare a mock-up of the same size as the original mock-up. This mock-up shall be reviewed by the Architect. If the mock-up prepared by the substitute operator, using the same materials, equipment, and procedures as used to prepare the original mock-up, is not acceptable, that operator shall not be permitted to perform cleaning on this project.
  10. Record and retain the chemical used, application rate, application pressure, spray tip used for application, and dwell time for each approved mockup. Submit this information to the Architect prior to commencing cleaning substrates. This information shall be used as a guide by the applicator.
- D. Pre-Cleaning Meeting: Convene a pre-cleaning meeting 1 week before the start of cleaning. Require attendance of parties directly affecting work of this section, including the Contractor,

Architect, applicator, and cleaning solutions representative. Review environmental regulations, test panel procedures, protection of surrounding areas and surfaces not to be cleaned, surface preparation, application, field quality control, final cleaning, and coordination with other work.

- E. Responsibility: The Contractor shall be responsible for correcting, to the satisfaction of the Owner and Architect, all damage, including consequential and collateral damage to the substrate being cleaned, the structure and adjacent areas and structures, including landscaping, pedestrians, and vehicles.
- F. The Contractor shall fully comply with all provisions of the Contract Documents including, but not limited to, providing and installing such entities as the products, materials, equipment, components, or systems that were proposed at the time bids were received. Except for extenuating circumstances as determined by the Architect, notification of not being able to meet any of the provisions of the Contract Documents or communicating conflicts in the Contract Documents to the Architect will not be considered after receipt of bids; and the Contractor shall fully comply with the Contract Documents at no increase in Contract Sum or Contract Time.
- G. Substitute Requests For A Specified Entity
  1. Provisions, requirements, and stipulations stated under this paragraph of this specification apply not only to this specification, but they also apply to all other specifications that are included in the project manual, on the drawings or are otherwise a part of the Contract Documents even if not so stated in these documents. Information requested under this paragraph heading is the minimum required information for consideration and evaluation and additional information may be requested. This information is required in addition to information required by any substitute request forms that may be included in the Project Manual or Contract Documents, or otherwise provided.
  2. Where the Contract Documents list at least three entities (products, materials, components, systems, manufacturers, installers, methods, etc.), the Architect reserves the option to reject any and all requests for a substitute. Where the Contract Documents list only one entity without "Or equal" or similar language, substitutes will not be considered. Where the Contract Documents list less than 3 entities, substitutes may be reviewed and evaluated on an individual base.
  3. Include the following information on the cover page of the request:
    - a. Name of Project and project number as shown in the header of the specification
    - b. Date request is being made.
    - c. Name of person, company, and contact information of person requesting substitute.
    - d. Specification title and number and drawing number where the specified product is listed or shown.
    - e. Exact name of the specified entity and substitute entity. .
  4. When requesting a substitute, include all requested and required supporting data, specifications, and performance criteria. The Architect must receive this substitute request no later than the time stated elsewhere for submitting product substitutions. If no time is stated, then 10 days prior to date of bid opening. When a Request For Substitute Form is included in the Project Manual, properly complete the form and include it with the submittal.
  5. Verbal requests for a substitute or requests that do not comply with these provisions are not acceptable, will be rejected, and will not extend the submittal deadline. Submittals

that are incomplete, have vague or unspecific answers (“Better”. “Cheaper”. “More competitive”, etc.); that lack supporting data to substantiate equal or superior quality/design; that do not include the requested proof, verification, reports, and substantiating documentation; or are received after submittal deadline will be rejected. Provide convincing answers as to why the substitute should be approved. Rejection or disapproval will not extend the submittal deadline.

- a. If the substitute entity differs from specified entity, compare the substitute entity with the specified entity in a tabular format that clearly shows all the differences.
6. Include the following information on all requests for substitutes:
    - a. Length of time the manufacturer has been in business.
    - b. Whether the manufacturer operated under any other name, and if so, under what name and when?
    - c. Length of time the substitute entity has been on the market.
    - d. Whether the substitute entity has been marketed under any other name, and if so, under what name and when?
    - e. Who will install and service the substitute entity?
    - f. Whether the installer is trained and certified by the manufacturer? If so, describe how this training and certification are achieved and if training records are maintained?
    - g. All required changes in the project design that will be required to incorporate the substitute entity.
    - h. Describe any known problems or failures associated with the substitute entity? If there are any, provide details.
  7. The manufacturer’s published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified entity even if they are not specifically mentioned in the Contract Documents. Additionally, manufacturers whose standards are less than those of the specified entity but are capable of producing an entity that meets the specified entity shall not, for the convenience of their normal production methods, vary from the specified entity standards.
  8. Where test data and standards are being submitted as supporting data and for comparison with the specified item, comply with the following requirements. Submittals not complying with these provision will be considered incomplete, unacceptable, and will be rejected:
    - a. All substitutes shall meet all of the minimum performance criteria of the specified entity.
    - b. Submit certified data provided by an independent testing laboratory.
    - c. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item the substitute item.
    - d. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item.
    - e. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer’s published data for performance criteria.
    - f. Where the specified entity requires certifications, registrations, approvals, policies, practices, etc., submit proof that the substitute entity is in compliance.
  9. Each and all requests for substitutes shall be signed by the person making the submittal. By signing the submittal, the person requesting the substitute certifies and agrees to the

following requirements. Requests without the signature of a responsible person will be rejected.

- a. That the specifications have been read and are understood,
- b. That the entity being submitted meets or exceeds all provisions of the specifications,
- c. That all submitted information is true and accurate,
- d. Will remove the substitute entity and replace it with an acceptable product, at his expense, if it is determined that the substitute does not meet the specifications as certified.
- e. Agrees to pay for all necessary design changes and increased construction costs to incorporate the substitute entity.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original and unopened containers and packaging, bearing labels as to type and names of products and manufacturers.
- B. Protect during storage and construction from rain, snow, and ground water, and from staining or mixing with soil and other materials.
- C. Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

#### 1.6 PROJECT CONDITIONS

- A. Clean surfaces only when surface and air temperature is as recommended by the cleaning solution manufacturer's instructions. However, no cleaning solutions shall be applied when the ambient or surface temperatures are 45 deg F or less or if the temperatures are forecasted to go below 40 deg. F within 7 days of application.
- B. Do not perform cleaning operations if wind conditions are such that cleaning solutions will be carried to surfaces not scheduled for cleaning including adjacent structures, landscaping, pedestrians, and vehicles.

#### 1.7 ENVIRONMENTAL REGULATIONS

- A. Comply with applicable federal, state, and local environmental regulations including testing, handling, treatment, containment, collection, transport, disposal, and discharge of hazardous wastes and cleaning effluents..

### PART 2 - PRODUCTS

#### 2.1 EXTERIOR CLEANING SOLUTIONS

- A. Limestone Masonry: See Section 04 01 40
- B. Brick Masonry: Prosoco Light Duty Restoration Cleaner

## 2.2 MISCELLANEOUS CLEANING MATERIALS

- A. Liquid Strippable Masking Agent: Manufacturer's standard liquid, film-forming, strippable masking material for protecting glass, metal, and polished stone surfaces from the damaging effects of acidic and alkaline masonry cleaners.
- B. Spray Equipment: Provide equipment, approved by the cleaner manufacturer for controlled spray application of water and chemical cleaners and rinses at rates indicated for pressure, measured at spray tip, and for volume. Use a minimum 15 deg. fan-type spray tip. Minimum requirements are 400 to 1200 psi pressure with a flow rate of 4 - 6 gpm. Adjust pressure and volume, as required, to ensure that damage to masonry does not result from cleaning methods.
  - 1. For chemical cleaner spray application, provide low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with a cone-shaped spray tip.
  - 2. For water spray application, provide a fan-shaped spray tip that disperses water at an angle of not less than 15 degrees.
- C. Water for Cleaning: Clean, potable, free of oils, acids, alkalis, salts, and organic matter.
- D. Brushes: Acid-resistant, fiber bristle only.
- E. Neutralizer: As recommended by the cleaning solutions manufacturer to neutralize cleaning chemical resulting from cleaning, splashing, and spilling.

## 2.4 MIXING

- A. General: Unless otherwise indicated, mix or dilute chemical cleaning materials with water to produce solutions and concentrations recommended by the cleaner manufacturer.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify by examination that applicable surfaces are acceptable to receive the specified cleaning solutions. Notify the Architect if surfaces are not acceptable to receive the specified products.

### 3.2 PREPARATION

- A. General: Comply with recommendations of cleaner manufacturer's chemical cleaners for protecting building surfaces against damage from exposure to their products.
- B. Protect persons, motor vehicles, surrounding surfaces of structures being cleaned, building site, plants, and surrounding buildings from injury or damage resulting from cleaning process.
- C. Protect adjacent surfaces and surfaces not to be cleaned, including glass, metal, wood, paint, and other finishes, from contact with chemical cleaners by covering them with a liquid strippable masking agent or polyethylene film and waterproof masking tape. Apply masking agent to

comply with manufacturer's recommendations. Do not apply liquid masking agent to painted or porous surfaces.

1. Protect surrounding areas, building occupants, pedestrians, and surfaces not to be cleaned from contact with cleaning solutions, residues, rinse water, fumes, wastes, and cleaning effluents in accordance with manufacturer's written instructions.
2. Prevent chemical cleaning solutions from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be injured by such contact. Divert and protect pedestrian and auto traffic as required
3. Clean interior surfaces before installation of interior finishes, doors, hardware, metal fixtures, and all other interior non-concrete materials.
4. Protect open joints
5. Do not clean during winds of sufficient force to spread cleaning solutions to unprotected surfaces. Avoid wind drifting of spray of cleaning products, residues, and rinse water.
6. Dispose of containers and runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
7. Erect temporary protection covers over pedestrian walkways and at points of entrance and exit for persons and vehicles that must remain in operation during course of cleaning work.

### 3.3 CLEANING GENERAL

- A. Begin cleaning each substrate with the most effective and least severe cleaning method as determined during testing and mockup preparation. If the selected cleaning method become ineffective after cleaning has started, notify the Architect prior to using one of the more harsh methods.
- B. Wear all protective clothing and follow all of manufacturer's instructions before, during, and after use of cleaning chemicals. During interior cleaning, apply in well-ventilated areas.
- C. Prior to beginning cleaning, test cleaner, equipment, and procedures on a small area to determine effectiveness. Use test to determine pressure, angle, flow rate, and surface contact time, and chemical reaction with adjacent surfaces not to be cleaned. Allow test area to dry thoroughly prior to evaluation. Compare to the approved mock-up. If the same operator, materials, equipment, and procedures produce results that differ from the mock-up, notify the Architect and manufacturer of the cleaning materials.
- D. After satisfactory test results, proceed with cleaning in an orderly manner; work from bottom to top of each scaffold width and from one end of each elevation to the other. Work from bottom to top of the building for each scaffold drop.
- E. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging substrate being cleaned or adjacent surfaces.
- F. During application, do not exceed spray pressures or flow rates recommended by the cleaning solution manufacturer for the product being applied and the material being cleaned.
- G. Do not allow cleaning solutions to dry on surfaces. Dilute or rinse as recommended by the cleaning solution manufacturer.



- H. Do not exceed the product dwell time recommended by the product manufacturer. Rinse off chemical residue and soil by working upwards from bottom to top of each treated area at each stage or scaffold setting.
- I. Removing Plant Growth: Completely remove plant and moss growth completely from surfaces to be cleaned.
  - 1. Apply ammonium sulfate or another acceptable root-killing material to plant roots according to manufacturer's instructions. Do not apply materials to plants or vegetation to remain on or around the building.
- J. Chemical Cleaner Application Methods: Apply chemical cleaners to surfaces to comply with chemical manufacturer's recommendations using spray application methods, unless otherwise recommended by the chemical manufacturer. Brushes and rollers may be used in areas not accessible to spray equipment if approved by the chemical manufacturer. Do not allow chemicals to dry on surfaces or to remain on surface for periods longer than those indicated or recommended by manufacturer. If materials dry, reapply cleaner to dried portions and then gently scrub and rinse with fresh water.
  - 1. Spray Application: Apply chemical cleaners at pressures not exceeding 50 psi, unless otherwise indicated or recommended by the cleaning chemical manufacturer.
    - a Application rates shall be at the rates determined during preparation of the mockup. The chemical manufacturer shall approve deviation from these established rates.
  - 2. Reapplying Chemical Cleaners: Do not apply chemical cleaners to same surfaces more than twice. If additional cleaning is required, use a steam wash.
  - 3. During Cleaning, if the substrate shows any sign of the unacceptable criteria listed under Field Quality Control, stop cleaning on that substrate immediately, notify the Architect, and contact a technical representative of the cleaning material manufacturer for instructions.
  - 4. Loose Joints And Mortar: If loose joints are encountered or become loose during cleaning, stop spraying procedures and continue cleaning with a soft brush and a bucket of cleaning solution. Notify the Contractor and Architect of all loose joints that are encountered.

### 3.4 FIELD QUALITY CONTROL

- A. Inspection: Inspect the cleaning work with the Contractor, Architect, applicator, and cleaning solution manufacturer's representative, and compare with test panel results approved by the Architect. Determine if the substrates are suitably clean. Unacceptable criteria includes, but is not limited to, the following items. Evidence of unacceptable criteria shall be corrected to the satisfaction of the Owner and the Architect at no additional cost.
  - 1. Streaks
  - 2. Etching
  - 3. Chalking
  - 4. Bleaching
  - 5. Acid burn
  - 6. New cracks
  - 7. Discoloring
  - 8. Efflorescence
  - 9. Uneven cleaning
  - 10. Surface abrasion

11. Damaged substrate
12. Depressions or gouges
13. Changes in surface texture
14. Hazy residue or appearance
15. Residual dirt, mildew, soot, etc.
16. Deformation to substrate of details on the substrate
17. Damage to items and surfaces not scheduled for cleaning

- B. **Manufacturer's Field Services:** Provide the services of a manufacturer's authorized field representative to verify specified products are used, and protection, surface preparation, and application of cleaners are in accordance with the manufacturer's written instructions and the test panel results approved by the Architect.

### 3.4 FINAL CLEANING

- A. Clean site of all unused cleaning products, residues, rinse water, wastes, and cleaning effluents in accordance with environmental regulations.
- B. Remove and dispose of all materials used to protect surrounding areas and surfaces not scheduled for cleaning, following completion of the work of this section.
- C. Repair, restore, or replace to the satisfaction of the Architect, all materials, landscaping, and surfaces not scheduled for cleaning that were damaged or disturbed by exposure to the cleaning process.

END OF SECTION 32 20 01