

PROJECT MANUAL
MASTER SPECIFICATIONS
LEAD-BASED PAINT ABATEMENT

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DATE

JUNE, 2007

CERTIFICATION OF RELIANCE

This specification has been prepared for the exclusive use by the City of Columbus Lead Safe-Program. ATC Associates Inc. acknowledges that the City of Columbus Lead-Safe Program may rely on this document in the management of the properties being rehabilitated by the Program.

Photocopying of this document, in part or whole, by parties other than those contractors solicited or designated by the **City of Columbus Lead-Safe Program**, or use of this document for purposes other than it is intended, is prohibited.

Respectfully submitted this day June 7, 2007.

ATC ASSOCIATES INC.



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ODOH Lead Abatement Contractor OH-007179

CITY OF COLUMBUS
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Lead-Based Paint Abatement

ATC Associates Inc.

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SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, Historic Specifications: Exterior Rehab Specs by Randy Black.
- B. This Section contains general information that applies to all work performed under this Contract and is inherently made a part of each Specification Section.
- C. The Work under the Contract consists of:
 - 1. Lead paint abatement of interior and exterior components to achieve Interim Control.
 - 2. Paint removal on site, off-site dipping, removal, paint stabilization, surface preparation, enclosure and other related tasks to reduce resident exposure.
 - 3. All lead abatement work must be performed by an Ohio-licensed Deleading Contractor.
 - 4. Replacement, repair and painting of installed and repaired components included in the lead abatement process.
 - 5. All Work included in the specifications unless specifically indicated as not to be done.
- D. In addition, the Work under the Contract includes:
 - 1. Work outside the Project Site as called for in the Contract Documents and as required for the performance of the Work.
 - 2. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.
 - 3. Providing and restoring, where appropriate, all temporary facilities.

1.2 WORK UNDER SEPARATE CONTRACT

A. Coordination by Owner

1. Moving of occupants furniture will be coordinated by Owner. Contractor shall provide Owner 30 days notice prior to beginning of any work in occupied dwellings.

B. Coordination by Contractor

1. The following items shall be provided by others under a separate agreement with the Owner for which the Contractor has coordinating responsibility.
 - a. Use of on-site electricity and water
2. Contractor shall provide an Ohio-Licensed Electrician to provide electrical hook-up to existing utilities and providing proper ground fault circuit interrupters (GFCI).
3. Installation of meters to utilities, where appropriate, shall be provided by Contractor who will be reimbursed by Owner.

1.3 CONTRACTOR'S USE OF PREMISES

A. Contractor shall limit his use of the premises to allow for:

1. Owner occupancy.
2. Tenant occupancy.
3. Public use.

B. Coordinate use of premises under direction of Owner and the City.

C. Assume full responsibility for the protection and safekeeping of Products under this Contract stored on the site.

D. Obtain and pay for the use of additional storage or work areas needed for operations.

1.4 TIME FOR COMPLETION

A. The General Contractor shall submit a detailed schedule as described in Section 01300 - Submittals.

B. The Contractor must be able to deploy sufficient resources and manpower to perform required services in multiple apartments or areas.

- C. If the Contractor disputes the time allowed based upon the above schedule, due to a special order or long lead time item, the Contractor shall notify the City in writing prior to the commencement of work. The City shall thereupon make an investigation and, if warranted, adjust the time for Completion in accordance with actual conditions found to exist in the apartment, common area and/or exterior.
- D. Once a Contractor commences work in an apartment, no adjustment in the Time for Completion will be made.
- E. Contractor is required to complete all painting in occupied units on the subsequent working day following deleading.
- F. Contractor is required to commence painting in common stairhalls on the subsequent working day following deleading.

1.5 LIQUIDATED DAMAGES

- A. As actual damages for any delay in completion are impossible to determine, the Contractor and his sureties shall be liable for and shall pay to the City the sum of two hundred fifty dollars (\$250.00) as fixed, and agreed liquidated damages for each calendar day of delay beyond the contract completion date until the work is substantially complete. Costs associated with inspection, testing, and Consultant services related to the delay shall also be the responsibility of the Contractor.
- B. For purposes of liquidated damages, Substantial Completion means that the value of the work remaining to be done is, in the estimate of the City, less than one percent of the original contract price. When the Contractor considers the work to be complete, he shall request, in writing, a final inspection, which may be arranged by the City.
- C. Any deficiencies in the work shall be noted in a "Punch List" by the City within three (3) days of finishing work. Coordination for inspections with City is the responsibility of the Contractor. If the monetized punch list amounts to be less than 1% of the original contract amount, the work shall be considered to be substantially complete as of the date of written request for a substantial completion inspection. If the itemized punch list amounts to more than 1% of the original contract price, the work shall be considered not substantially complete. When punch list items are complete, the Contractor shall request a final inspection which can be arranged by the City.
- D. This procedure shall be repeated for further punch list review until final (100%) completion is achieved.

1.6 PREVAILING WAGE RATES

Wage Rates: The Contractor is required under the provisions of this Contract to pay the Prevailing Rate or Total Rate, as applicable for the Classification, to the Contractor's employees and its subcontractors' employees working on this Project in accordance with the requirements of the Contract Documents; refer to Document 00830, LITTLE DAVIS-BACON PREEMPTION RULE and Document 00835, MINIMUM PREVAILING WAGE RATES.

1.7 COMMUNICATIONS

- A. All notices, demand, requests, instructions, approvals, and claims must be in writing.
- B. Any such notice shall be deemed to have been given as of the time of delivery, or of actual receipt in the case of telegrams, or in the case of mailing, when it should have been received in due course of post.
- C. For communicating purposes, the office address of the Contractor shall be that stated on the signature page of the Contract; that of the City shall be as stated in the Notice to Contractors. Any subsequent change in address of either party shall be communicated to the other in writing.

1.8 CONTRACT DOCUMENTS (PLANS AND SPECIFICATIONS)

The City will furnish to the Contractor, without charge, all copies of the specifications reasonably necessary in the performance of the contract work.

1.9 COMPLETE COST

The proposed contract price shall be complete costs, including overhead, profit, insurance, transportation, and all other costs connected with, or incidental, to the work described.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

- END OF SECTION -

SECTION 01020
SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.
- B. This Section contains general information that applies to all work performed under this Contract and is inherently made a part of each Specification Section.

1.2 CONDUCT OF THE WORK

- A. The work must be completed in a continuous uninterrupted operation. The Contractor must use sufficient men and adequate equipment to complete all the necessary work requirements within a minimum period of time.
- B. The Contractor is responsible for the security of partially completed work until the project is finally accepted by the City and Owner.
- C. Residents who are affected by the work must be notified 48 hours in advance in writing. A description of the work, date and time of the work will be required in any notice given to the residents.
- D. The area of work must be left clean at the end of each work day to a standard acceptable to the Owner and City and in accordance with applicable laws and regulations.
- E. Noise and pollution are to be kept at a minimum.

1.3 ALTERATION

- A. The Contractor shall patch/paint all existing surfaces remaining exposed after new items which have been affected by alteration or removal of existing work. All patches and repair work shall match existing.

1.4 GENERAL DIRECTIONS

A. Damage to Person and Property

1. The buildings and premises are presently occupied. The work shall be done with as little inconvenience as reasonably possible and without danger to the occupants and to the permanent structures within the project area. Any damage to buildings, roads, public roads, bituminous concrete areas, fences, lawn areas, trees, shrubbery, electric or telephone poles, underground utilities, etc., shall be repaired by the Contractor at his/her own expense. Damaged property shall be returned to its original condition prior to the damage within a reasonable time period, except all utility outages shall be repaired immediately.

B. Protection of Persons and Property

1. The Contractor shall, at all times, leave an unobstructed way along the roadways and walks, and shall maintain barriers and lights for the protection of all persons and property in all locations where material is stored or work is occurring.
2. The Contractor shall be responsible for necessary relocation of personal belongings which interfere with the work. The Contractor shall be responsible for all damage done to personal property as a result of the work.

C. Care of Work

1. All work is to be carefully protected so that no injury will come to it from water, frost, accident, or any other cause. Any injury which may come to any of the work shall be repaired immediately by the Contractor at his/her own expense and without additional cost to the City or Owner. This shall also apply to any abutting or adjoining work on premises.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

- END OF SECTION -

SECTION 01026

UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. The Contractor shall provide Unit Prices for items of work set forth on the General Bid Form, which shall be used to determine adjustments to the Contract Sum when the work involving said items are made in accordance with the Contract Documents and Lead Paint Inspection Reports.
- B. Unit Prices shall include net cost plus overhead, profit and all other charges. All unit Prices shall be computed taking into consideration the price escalation during the life of this Contract. No changes in the predetermined prices will be permitted except as otherwise authorized by Change Order.

1.3 UNIT PRICES

- A. The City may choose not to approve any or all unit prices prior to Award of the Contract if it deems the Unit Price unreasonable.
- B. All materials, methods of installation, and definitions of terms set forth under the Unit Price items shall be as indicated in the Contract Documents.

1.4 APPLICABILITY OF UNIT PRICES

- A. Prior to commencing removal or placement of materials in excess of those established in the Contract, the Contractor shall notify the City in sufficient time to permit confirmation of abatement items. Only quantities which have been approved in writing by the City will be considered in the determination of adjustments to the Contract Sum on the Unit Price basis.
- B. Performance of work which is not required under the Contract Documents or which is not authorized by Change Order, whether or not such work item is set forth hereunder as a Unit Price item, shall not be considered cause for any extra payment on account of the Contract. The Contractor will be held fully responsible for such unauthorized work, including the performance of all corrective measures required by the City.
- C. Except as otherwise directed, measurement for each unit shall be actual quantity of materials installed in place.

- D. Should certain additional work be required, or should the quantities of certain classes of work be increased from those required by the Contract Documents, by authorization of the City, the unit prices listed on the General Bid Form shall, at the option of the City, be the basis of payment to the Contractor or credit to the City, for such increase in work. The Unit Prices shall represent the exact net amount per unit to be paid the Contractor. No additional adjustment will be allowed for overhead, profit, insurance, or other direct or indirect expenses of the Contractor.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

- END OF SECTION -

SECTION 01027

APPLICATION FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black apply to the work of this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for submitting the following:
 - 1. Schedule of Values.
 - 2. Applications for Payment.
- B. Comply with all applicable laws and regulations pertaining the processing of payment applications and the payment of moneys owed to the Contractor, including all applicable retainages and related items.
- C. The City is tax exempt. Refer to the Conditions of the Contract for tax exempt number.

1.3 RELATED REQUIREMENTS

- A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
 - 1. CONTRACT FORM; Agreement between City, Owner, and Contractor.
 - 2. GENERAL CONDITIONS and SUPPLEMENTS AND AMENDMENTS TO THE GENERAL CONDITIONS; Progress Payments, Retainages, and Final Payment.
 - 3. Section 01700, CONTRACT CLOSEOUT; Final payment.

1.4 SCHEDULE OF VALUES

- A. **Timing:** Submit Schedule of Values allocated to the various portions of the Work within ten days after issuance of Notice to Proceed.
- B. When requested by City, submit substantiating data supporting the values submitted.

- C. **Intent:** Unless objections are stated by City, the Schedule of Values will be used as the basis for the Contractor's Applications for Payment.
- D. **Form and Content of Schedule of Values:** Type schedule on 8-1/2 in. x 11 in. white paper. Contractor's standard forms and automated printout will be considered for approval by City upon Contractor's request. Identify schedule with title of Project and location, name and address of Contractor, Contract designation, and date of submission.
- E. **Sub-Values:** For each major line item, list sub-values of major products or operations under the item.
- F. **Overhead and Profit:** For the various portions of the Work, include a directly proportional amount of the Contractor's overhead and profit.
- G. **Stored Material:** For items on which progress payments will be requested for stored on-site materials only, break down the value into the following sub-values:
 - 1. The cost of material, delivered and unloaded at Project Site, with taxes paid.
 - 2. Installation cost including overhead and profit.
- H. The sum of all values listed in the schedule shall equal the total Contract Sum.
- I. **Change Orders:** Amount shown in approved Schedule of Values may be used to determine Change Order values for credit and add.

1.5 APPLICATION FOR PAYMENT

- A. Provide itemized data on continuation sheet. Format, schedules, line items and values shall match those of the Schedule of Values accepted by City.
- B. **Preparation of Application for Payment:** Execute each Application for Payment consistent with previous applications and payments certified and paid for by City. Provide full lien waivers for completed Work. Fill in required information, including Change Orders information executed prior to date of submittal of this application. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets. Execute certification with signature of responsible officer of Contractor. Fill out continuation sheets as follows:
 - 1. Fill in total list of scheduled component items of Work, with item number and scheduled dollar value for each item.
 - 2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored. Round off values to nearest dollar, or as specified for Schedule of Values.
 - 3. List each Change Order executed prior to date of submission at end of continuation sheets. List by Change Order Number, and description, as if an original item of work.

4. Submit to City pencil copy of application and monthly payroll records of Contractor and subcontractors.
- C. **Substantiating Data for Progress Payments:** When City requires substantiating data, submit suitable information with cover letter, identifying Project name, Project number, application number and date, and detailed list of enclosures. Submit one copy of data and cover letter for each copy of application.
1. For stored products, identify Item number and identification as shown on application along with description of specific material.
- D. **Preparation of Final Application for Payment:** Fill in application form as specified for progress payments. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700, CONTRACT CLOSEOUT. Administrative actions and submittals that must precede submittal of final Application for Payment, include the following:
1. Completion of Project closeout requirements.
 2. Completion of incomplete Work.
 3. Assurances that unsettled claims will be settled.
 4. Transmittal of Project record documents to City.
 5. Proof that fees and similar obligations have been paid.
 6. Removal of temporary facilities and services.
 7. Removal of surplus materials, rubbish, and similar elements (except that material specified for additional stock to be provided at conclusion of Work).
- E. **Submittal Procedure:** Submit Application for Payment to City at intervals stipulated in the Agreement, and as follows:
1. Number of Copies: Five copies of each Application.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

- END OF SECTION -

SECTION 01035

MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements required for handling modifications to the Contract, including, but not limited to:
 - 1. Preliminary procedures.
 - 2. Documentation of proposals and claims.
 - 3. Preparation of Change Orders.

1.3 RELATED REQUIREMENTS

- A. Examine Contract Documents for requirements that affect work of this Section. Other Specification Sections that directly relate to work of this Section include, but are not limited to:
 - 1. CONTRACT FORM; Agreement between City and Contractor.
 - 2. GENERAL CONDITIONS and SUPPLEMENTS AND AMENDMENTS TO THE GENERAL CONDITIONS: Conditions of the Contract; methods of determining cost or credit to Authority resulting from changes in Work made on a time and material basis, and Contractor's claims for additional costs.
 - 3. Section 01027, APPLICATION FOR PAYMENT.
 - 4. Section 01300, SUBMITTALS.
 - 5. Section 01600, MATERIAL AND EQUIPMENT: Substitutions.
 - 6. Section 01700, CONTRACT CLOSEOUT.

1.4 DEFINITIONS

- A. Change Order: See GENERAL CONDITIONS.

- B. Construction Change Directive: A written order to the Contractor, signed by City and Owner which amends the Contract Documents as described, and authorizes Contractor to proceed with a change which affects the Contract Sum or the Contract Time, for inclusion in a subsequent Change Order.
- C. Consultant's Supplemental Instructions: A written order, instructions, or interpretations, signed by Consultant making minor changes in the Work not involving a change in Contract Sum or Contract Time.
- D. Proposal Request: A request to the Contractor, signed by the City, for submission of an itemized quotation for changes in the Contract Sum or Contract Time. This is not a Change Order or a direction to proceed with the Work.

1.5 PRELIMINARY PROCEDURES

- A. The City may initiate change by instructing the Contractor to submit a Proposal Request, which shall include:
 - 1. Detailed description of the Change, Products, and location of the change in the Project.
 - 2. Supplementary or revised Drawings and Specifications.
 - 3. The projected time span for making the change, and a specific statement as to whether overtime work is authorized.
 - 4. Such request is for information only and is not an instruction to execute the changes nor to stop Work in progress.
- B. The City may clarify the Contract Documents by submitting Submittal Instructions to the Contractor, which shall include:
 - 1. Detailed description of the Work, Products, and location to which the instruction applies.
 - 2. Supplementary or revised Drawings and Specifications.
 - 3. Such request is for information only and is not an instruction to execute the changes nor to stop Work in progress.
- C. Contractor may initiate changes by submitting a Change Order Proposal in written form to City, containing:
 - 1. Description of the proposed changes.
 - 2. Statement of the reason for making the changes.
 - 3. State of the effect on the Contract Sum and the Contract Time.
 - 4. Statement of the effect on the work of separate contractors.

5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. The City shall issue a Construction Change Directive for Contractor to proceed with work he/she regards as a change for inclusion in a Change Order.
- B. Authorization will describe the change in the Work (both additions and deletions) with attachments of revised Contract Documents to define details of the change.
- C. The Contractor shall sign and date the Construction Change Directive to indicate agreement with the terms therein.
- D. If not in agreement, the Contractor shall return The Construction Change Directive unsigned and proceed with the work.

1.7 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump-sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow City to evaluate the quotation.
- B. Upon request by the City, provide additional data to support time and cost computations including, but not limited to:
 1. Labor required (include labor burden calculation for each category of labor).
 2. Equipment required.
 3. Products required.
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
 4. Insurance and bonds.
 5. Credit for work deleted from Contract, similarly documented.
 6. Overhead and profit, as negotiated.
 7. Justification for any change in Contract Time including comparison with original schedule.
- C. Support each claim for additional costs with documentation as required for a lump-sum proposal, plus additional information:
 1. Dates and times work was performed, and by whom.
 2. Time record, summary of hours worked, and hourly rates paid.
 3. Receipts and invoices for:
 - a. Equipment used, listing dates and times of use.
 - b. Products used, listing quantities.
 - c. Subcontracts.

D. Document requests for substitutions for Products as specified in Section 01600 - MATERIAL AND EQUIPMENT.

E. All cost computations shall be correct.

1.8 PREPARATION OF CHANGE ORDERS

A. The City will prepare each Change Order.

B. Form: City Change Order form.

C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.

1.9 UNIT PRICE CHANGE ORDER

A. Content of Change Orders will be based on, either:

1. City's definition of the scope of the required changes.
2. Contractor's Proposal for a change.
3. Survey of completed Work.

B. The amounts of the Unit Prices to be:

1. Those stated in the Agreement.
2. Those mutually agreed upon between City and Contractor.

C. When quantities of each of the items affected by the Change Order can be determined prior to start of the Work:

1. The City shall sign and date the Change Directive as authorization for Contractor to proceed with the changes.
2. Contractor shall sign and date the Change Order to indicate agreement with the terms therein.

D. When quantities of the items cannot be determined prior to start of the Work:

1. City will issue a Construction Change Directive directing Contractor to proceed with the change on the basis of Unit Prices, and will cite the applicable Unit Prices and reasonable estimate of quantities.
2. At completion of the change, City will determine the cost of such work based on the unit prices and quantities used.
 - a. Contractor shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
3. The City shall sign and date the Change Directive to establish the change in Contract Sum and in Contract Time.

4. City and Contractor will sign and date the Change Order to indicate their agreement with the terms therein.

1.10 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Sum.
- B. Periodically revise the Construction Progress Schedule to reflect each change in Contract Time.
 1. Revise sub-schedules to show changes for other items of work affected by the changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

- END OF SECTION -

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black apply to the work of this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of Work, including:
 - 1. Progress schedules.
 - 2. Submittal schedule.
 - 3. Shop drawings.
 - 4. Product data.
 - 5. Samples.
 - 6. Progress reports.
 - 7. Construction photographs.
- B. Administrative Submittals: Refer to requirements specified in other Division 1 Specification Sections, and other Contract Documents, for administrative submittals, including:
 - 1. Permits.
 - 2. Applications for payment.
 - 3. Insurance certificates.
 - 4. List of subcontractors.
- C. Related Documents:
 - 1. Refer to individual Specification Sections for specific submittals required under those Sections and for further details and descriptions of the requirements.

1.3 RELATED REQUIREMENTS

- A. Examine Contract Documents for requirements that affect Work of this Section. Other Specification Sections that directly relate to Work of this Section include, but are not limited to:
 - 1. GENERAL CONDITIONS and SUPPLEMENTS AND AMENDMENTS TO THE GENERAL CONDITIONS; Conditions of the Contract.

2. Section 01010, SUMMARY OF WORK.
3. Section 01600, MATERIAL AND EQUIPMENT.
4. Section 01700, CONTRACT CLOSE-OUT; Close-out submittals, including operating and maintenance instructions and instructions of Authority's personnel.

1.4 SUBMITTAL PROCEDURES

- A. Coordination of Submittals: Coordinate timing of submittals with construction activities. Transmit submittals well enough in advance of performance of Work to avoid delays. Coordinate submittals of related elements of Work.
 1. City may reject, or withhold action on submittals requiring coordination with other submittals until related submittals are received.
- B. Processing of Submittals: Allow sufficient review time to ensure installation will not be delayed because of time required to process submittals. Minimum processing times are as follows:
 1. Review by City's Office Only: Allow ten business days for review and processing.
 2. Reprocessing of Submittals: For submittals not approved initially, allow ten business days for review and reprocessing of submittals by City.
 3. No extension of Contract Time will be authorized due to failure to transmit submittals sufficiently in advance of scheduled performance of Work.
- C. Contractor's Preparation of Submittals: Place permanent label or title block on each submittal for identification. Indicate Project Name, Project Number, Specification Section number and title, date of submittal, name and Address of Contractor, name and address of subcontractor and/or supplier, name of manufacturer, and detail reference.
- D. Comply with progress schedule for submittals related to Work progress.
- E. After City reviews submittal, revise and resubmit as required. Identify changes made since previous submittal.
- F. Distribute copies of reviewed submittals to subcontractors and all other concerned persons. Instruct recipients to promptly report inability to comply with provisions.

1.5 PRODUCT DATA

- A. Definition: Product data includes manufacturer's standard published literature, such as installation instructions, catalog cuts, color charts, rough-in diagrams, and wiring diagrams. When product data must be prepared specifically because standard published data is not suitable for use, submit as shop drawing.

- B. Preparation: Mark each copy of product data to show applicable choices and options. Where published product data includes information on several products and choices, mark copies to clearly indicate information applicable to this Project.
- C. Do not submit product data until compliance with requirements of Contract Documents has been confirmed.
- D. Submittal Quantities: Submit product data in following quantities:
 - 1. Submit four copies.
- E. Installer Copy: Verify that installer of Work possesses a current copy of Designer-approved product data prior to installation.

1.6 DISTRIBUTION BY CONTRACTOR

Distribution: When submittal is marked "APPROVED", or "APPROVED AS NOTED", make prints and copies and distribute to subcontractors, suppliers, fabricators, and other parties requiring information from submittal for proper coordination and performance of Work. Print copies of shop drawings from approved reproducible only.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

- END OF SECTION -

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies construction facilities and temporary controls, including, but not limited to:
1. Temporary utilities.
 2. Temporary construction and support facilities.
 3. Temporary signage.
 4. Security and protection of facilities.
 5. Protection for plantings, landscaping, sitework and similar items.
 6. Traffic Regulations.
- B. Comply with the instructions of the City.

1.3 RELATED REQUIREMENTS

- A. Examine Contract Documents for requirements that affect the Work of this Section.

1.4 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
1. American National Standards Institute (ANSI):
A10 Safety Requirements for Construction and Demolition
 2. National Electrical Contractors Association (NECA):
NJG-6 Temporary Job Utilities and Services
 3. National Fire Protection Association (NFPA):
70 National Electrical Code
241 Building Construction and Demolition Operations

4. U.S. Department of Commerce (USDC):

PS 1 Plywood

PS 20 American Softwood Lumber Standard

1.5 SUBMITTALS

Schedule: Submit a schedule indicating implementation and termination of each temporary utility within fifteen days of date established for Commencement of the Work.

1.6 QUALITY ASSURANCE

- A. Comply with requirements of authorities having jurisdiction, codes, utility companies, OSHA, and industry standards including, but not limiting to those listed above under Par. References.
- B. Electric Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70.
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test temporary utilities prior to use. Obtain required certifications and permits.

1.7 PROJECT CONDITIONS

- A. Utilities: Arrange with the City, for the use of permanent service whenever possible. See paragraph 2.2 below.
- B. Conditions of Use: Maintain temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload temporary facilities. Do not allow hazardous, dangerous, or unsanitary conditions to develop on site.
- C. Protection of Property in Occupied Units: The Contractor shall be responsible for providing proper protection against damage, loss, or theft, any personal property or belongings in occupied buildings and individual units during construction under the work of this Contract.
- D. The Contractor shall be responsible for providing protection for building surfaces, components to remain, newly installed work, plantings, walkways, pavements, curbs, landscaping, site work and similar items. Damages to these and similar items resulting from the work under this project shall be repaired or replaced to the satisfaction of the Owner.
- E. The General Contractor shall supply all staging in excess of 16 feet in height including swing staging required for window lintels and associated work. The General Contractor shall also coordinate the relocation of the swing staging for the efficient progress of the work required to be completed from the swing staging. The swing staging shall be ventilated and dust tight for the surface preparation work.

- F. Sub-Contractors shall supply portable ladders as required to complete their work scope. Sub-Contractors shall also supply any staging less than 16 feet in height.
- G. Each Sub-Contractor shall supply and arrange for the removal of rubbish receptacles for the debris resulting from their work.
- H. Sub-Contractors and the General Contractor shall confer to discuss the orderly operation of all shared staging to be supplied and operated by the General Contractor.
- I. Comply with the requirements of the City.

PART 2 - PRODUCTS

2.1 MATERIALS - GENERAL

- A. Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.2 TEMPORARY UTILITIES

- A. Scope: Temporary utility work includes, but is not limited to:
 - 1. Water service and distribution.
 - 2. Electric power and light.
- B. Temporary Water Service and Distribution: Make arrangements with City and Owner for hookup locations. Provide piping and hoses for construction purposes, including water for drinking. Install branch piping with taps located so water is available through hoses throughout construction.
- C. Temporary Electric Power and Light: Electric service is available at Project sites. Arrange with City and Owner for hookup locations.
 - 1. Provide circuit and branch wiring, with area distribution boxes located so power and lighting is available throughout construction by use of construction-type power cords.
 - 2. Provide adequate artificial lighting where natural light is not adequate for work, and for areas accessible to public.
 - 3. Work shall meet applicable requirements of Ohio Electrical Code.

2.3 SECURITY AND PROTECTION FACILITIES

- A. Scope: Security and protection facilities includes, but is not limited to:
1. Temporary fire protection.
 2. Barricades, warning signs, lights.
 3. Temporary flagmen and traffic control.
 4. Temporary separation of access routes.
 5. Temporary site control (construction) fence.
 6. Security procedures.
 7. Protection of property and furnishings in occupied units.
- B. Temporary Fire Protection: Provide and maintain suitable fire protection equipment and services. Ascertain and comply with requirements of Project insurance carrier, the City of Columbus Fire Department and the Ohio State Fire Marshal. Permanent fire protection system may be activated to meet these requirements.
1. Store combustible materials in containers in fire-safe locations.
 2. Provide appropriate type and quantity of portable fire extinguishers and locate as required by the Columbus Fire Department.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes.
- C. Barricades, Warning Signs, and Lights: Provide and maintain barricades, warning signs, warning lights, railings, walkways, and the like. Paint signs and barricades with appropriate colors, graphics, and warnings to inform public and job-site personnel of hazards.
- D. Security Procedures: Secure project against unauthorized entry at all times. Provide secure, locked, temporary entrances to prevent vandalism, theft, and similar violations of security.
1. Storage: Provide secure, locked facilities for areas where materials and equipment are stored.
 2. In the event that special security arrangements have to be made, the costs of such security must be paid by the Contractor. Coordinate with City and Owner.
- E. Responsibility for Vandalism: Contractor is responsible for costs related to repair vandalized work.

PART 3 - EXECUTION

3.1 MAINTENANCE, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit waste and abuse.
- B. Maintenance: Maintain temporary facilities in operating condition; repair damages immediately upon discovery. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour per day basis. Comply with requirements of City.
- C. Termination and Removal: Unless otherwise requested by City, remove each temporary facility when no longer useful, or when replaced by permanent facility. Clean and renovate permanent facilities that have been used during construction period, including:
 - 1. Replace air filters and clean inside of ductwork and housings.
 - 2. Replace worn parts.
 - 3. Replace lamps.

- END OF SECTION -

SECTION 01600
MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.

1.3 RELATED REQUIREMENTS

- A. Examine Contract Documents for requirements that affect work of this Section.

1.4 MATERIAL AND EQUIPMENT INCORPORATED INTO THE WORK

- A. Conform to applicable specifications and standards.
- B. Comply with size, make, type and quality specified, or as specifically approved in writing by the City.
- C. Manufactured and Fabricated Products:
 - 1. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - 2. Manufacture like parts of duplicate units to standard size and gages, to be interchangeable.
 - 3. Two or more items of the same kind shall be identical, by the same manufacturer.
 - 4. Products shall be suitable for service conditions.
 - 5. Equipment capacities, sizes, and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
- D. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

1.5 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.6 MANUFACTURERS' INSTRUCTIONS

- A. When work is specified to comply with manufacturers' instructions, submit copies of said instructions, as specified in Section 01300 - SUBMITTALS, distribute copies to persons involved, and maintain one set in field office.
- B. Perform work in accordance with details of instructions and specified requirements. Should a conflict exist between Specifications and manufacturer's instructions, consult with City.

1.7 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.
- B. Transport Products by methods to avoid Product damage; deliver in undamaged and dry condition in manufacturer's unopened containers or packaging.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling or damage.
- D. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and products are undamaged.

1.8 STORAGE AND PROTECTION

- A. Store Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated Products, place on sloped supports above ground. Cover Products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Arrange storage to provide access for inspection. Periodically inspect to assure Products are undamaged and are maintained under required conditions.
- D. After installation, provide coverings to protect Products from damage from traffic and construction operations, remove when no longer needed.

1.9 PRODUCT OPTIONS

- A. Within 5 days after date of Contract, submit complete list of major Products proposed, with name of manufacturer, trade name, and model.
- B. Options:
 - 1. Products specified only by reference standard: Any Product meeting that standard.
 - 2. Products specified by naming several manufacturers: Products of any named manufacturer meeting Specifications.
 - 3. Products specified by naming one or more manufacturers and "or equal": Submit a request for substitution for any manufacturer not specifically named.
 - 4. Products specified by naming only one manufacturer: No option.

1.10 MATERIAL SUBSTITUTIONS

- A. Where products or materials are specified by a single manufacturer's name, trade name, or catalog reference, no substitution will be allowed. Proprietary items will have City's prior approval.
- B. When the words "or approved equal" is used, an item shall be considered equal to the item so named or described if in the opinion of the City:
 - 1. It is at least equal in quality, durability, appearance, strength and design; including compliance with applicable specifications and compatibility with physical space allocations provided for the item;
 - 2. It performs at least equally the function imposed by the general design for the work.
- C. Where more than one product or material is specified, the choice of these shall be optional with the Contractor.
- D. Should the Contractor, after the award of the Contract, wish to use any products or materials other than those specified, he shall request written permission of the City. His request shall name and adequately describe (including shop drawings) the proposed substitutions, furnish any information requested by the City, and state what difference, if any, will be made in the Contract price, including the cost of changes in the Work, for such substitutions should they be accepted. Upon receipt of complete information from the Contractor, the City will consider all aspects of the proposed substitution and advise the Contractor in writing approving or disapproving the substitution. The principal reasons for approval or disapproval of the substitution will be enumerated by the City. Disapproval of the substitution shall not be cause for an increase in Contract price or a delay in schedule.
- E. Request constitutes a representation that Contractor:
 - 1. Has investigated proposed Product and determined that it meets or exceeds, in all respects, specified Product.

2. Will provide the same warranty for substitution as for specified Product.
 3. Will coordinate installation and make other changes which may be required for Work to be complete in all respects.
 4. Waives claims for additional costs which may subsequently become apparent.
- F. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.
- G. City will determine acceptability of proposed substitution, and will notify Contractor of acceptance or rejection in writing within a reasonable time.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

- END OF SECTION -

SECTION 02090

LEAD-BASED PAINT ABATEMENT

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.
- B. The work of this section shall be performed by the Deleading Contractor as stated herein. Related work as specified shall also be the responsibility of the Deleading Contractor. The Deleading Contractor is responsible for the coordination of the work of this section with that of all other sections and the requirements of the Contract Documents.
- C. Work shall be carried out in sequential phases as identified in Section 1.13 Coordination. As a Contract requirement, any reasonable delay caused by this requirement will not constitute a basis for claim against the City or Owner.
- D. At no time will the City permit storage of debris generated from abatement activities to be stored inside buildings and any storage of materials will be subject to Owner's approval. Such approval will not be unreasonably denied.
- E. The working hours for this project are set forth in Division 1, General Requirements.
- F. The City or Owner shall not incur any additional costs due to negligence or regulatory requirements imposed upon this project due to the General Contractor or Deleading Contractor failing to abide by the requirements of the specifications and applicable regulations.
- G. At no time shall exterior deleading work be performed while workers are deleading or performing preparation of interior dwelling unit critical barriers, or shall any workers be allowed inside the dwelling units except for the limited workers and supervisors performing preparation of window and door polyethylene barriers. These two sets of work crews shall remain separate and work independently of each other.

1.2 SCOPE OF WORK

- A. The general items of work under this Section are as listed below. The specific scope of work which is attached for each dwelling unit, common area and building shall be agreed between the Owner, City and Contractor as described in Section 1.8 - Related Documents and shall originate from the lead inspection report provided to the Contractor by the City. Deleading Contractor shall perform the following according to the requirements of this section.

1. All abatement procedures must comply with the HUD Guidelines for Lead-Based Paint and the Columbus Register of Historic Properties Architectural Guidelines, as applicable.
2. Perform pre-cleaning and placement of isolation barriers as stated in 3.2.
3. Perform Component Removal of all items and components listed on the Scope of Work Attachment on the interior and exterior of the building according to methods of this section.
4. Perform Paint Removal of all items and components listed on the Scope of Work Attachment on the building interiors and exteriors according to methods of this section.
5. Perform Component Enclosure of all items and components listed on the Scope of Work Attachment on the interior and exterior of the building according to methods of this section and related sections.
6. Perform Surface Preparation to remove all loose and flaking, cracked, chipped and checked paint from the entire building component identified for abatement on the Scope of Work Attachment according to the methods of this section.
7. Perform abatement cleanup of interior and exterior surfaces, covered ground surfaces, and polyethylene barriers, according to the requirements of this section.
8. Field verify the measurement, quantity, size and function of each component identified for abatement in the Abatement Order.
9. Dispose of all waste generated according to 3.11.

B. Scope of Work Attachments

1. Refer to attached Scope of Work for the individual, room by room abatement scope of work for each apartment to be abated.
2. Abatement Terms: The following work is included in the use of the terms identified below and in the Scope of Work Attachment of this Section. Work of other sections is also included in these terms and it is the responsibility of the General Contractor to coordinate the combined work effort to complete the work of this section and that of related sections.
 - a. *Remove* refers to the removal of specified components in the scope of work.
 - b. *Replace with like kind* and *Replace to match existing* refers to the installation of new material to match the measurements, form and function of the original component/item removed under the work of this section. Refer also to related sections.
 - c. *Paint Stabilization* refers to removing all loose and non-intact paint to a paintable surface and the repair of any damage to the surface to be painted.

- d. *Patch and repair* and *Repair* refers to activities to create a smooth, paintable surface for painting and refinishing.

C. Surface Preparation

1. Prior to sanding of all components, Deleading Contractor shall allow sufficient time for components to dry completely. If and where used, caustic paste shall be neutralized according to manufacturer's specifications. All areas must be sanded and cleaned prior to priming by the Deleading Contractor. This will provide a clean smooth surface that is ready to paint. **Prior to the release of each work area, every prepared surface must be completely ready to receive a paint coating. All sanding and chemical neutralization must be completed and no additional preparation should be necessary in order to coat the surface.** Contractor shall take care not to damage surfaces during paint removal operations. All damage shall be repaired to City's satisfaction at no additional cost to the Owner. The Consultant will be on-site to inspect all areas prior to priming, and will release areas as necessary. It is the intent of this section to complete surface preparation for the protection of other trades involved in the final coating process.
- D. Clean-up and Disposal of all visible paint chips on the ground within twenty (20) feet from the foundation of the building. This includes all existing paint chips on the ground prior to commencement of the work as well as all paint chips resulting from abatement activities. Refer to Part 3.9 for specific requirements.
- E. Decontamination and clean-up of all abatement areas following abatement activities.
- F. Performance of any other work or activities required by this Section, applicable regulations, or as necessary to perform a complete job to the satisfaction of the Owner and City.

1.3 SPECIAL CONSIDERATIONS

- A. During all methods of exterior abatement, Contractor shall cover window openings below and to the side of exterior work as follows:
 1. Window and door coverings shall be polyethylene sheeting installed the same day as abatement is to begin on that face of the building.
 2. Polyethylene sheeting shall be pre-fabricated and pre-measured to ensure intact protection.
 3. All coverings shall be taped at the seams and secured against water leakage, vandalism, and unwarranted removal during that day's work. Cover all attached components to completely seal window and door opening.

4. Where windows or doors are to be removed, the Deleading Contractor shall seal all openings with two layers of six mil polyethylene sheeting. Where windows or doors are to be removed within six (6) feet of a standing surface (i.e. porch floors, roof and ground), window openings shall be sealed with a 3/4" sheet of exterior grade plywood and securely attached to prevent unauthorized entry.
- B. Alternative methods (other than are specified herein) shall be presented to the City for their review and approval. All aspects of lead-based paint abatement health and safety and protection shall be included in the proposed alternative methods.
- C. For the work of this section, Deleading Contractor shall field verify existing conditions, quantities of components, measurements and exact locations of items.

1.4 DEFINITIONS

- A. **Abatement:** The processes used to control lead-based paint and lead dust removal in and on buildings.
- B. **Action Level:** A concentration of lead above 30 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) as a time weighted average (TWA) for more than 30 days per year.
- C. **Area Monitoring:** Sampling of lead concentrations within the abatement work area and outside the work area which is representative of the airborne concentrations of lead which may reach the breathing zone.
- D. **City:** Shall refer to the City of Columbus, Ohio and its designated, authorized representatives.
- E. **Clean Room:** An uncontaminated change room directly adjacent to the work area having facilities for storage of employees' personal clothing and uncontaminated work clothes, materials and equipment provided when the airborne exposure to lead is above the PEL.
- F. **Consultant:** Refers to firm employed by the City to oversee the Project.
- G. **Containment Barrier:** An airtight barrier, usually constructed with six-mil polyethylene sheeting and duct tape surrounding and sealing the outer perimeter of the work area which includes the decontamination area forming a contained work area.
- H. **Decontamination Area:** A contained area adjacent to or connected to the abatement work area and consisting of an equipment room, shower area, and clean room which is used for decontamination of workers, materials and equipment.
- I. **HEPA Filter Equipment:** High efficiency particulate air (HEPA) filtered vacuuming or exhaust ventilation equipment with a UL 586 filter system. Filters shall be of 99.97 percent efficiency for retaining 0.3 micrometer diameter particles.
- J. **Inspector, Lead Inspector:** Person designated as responsible for clearance inspections and daily compliance monitoring. Performs inspections and other functions representing the City and Owner.

- K. Lead Permissible Exposure Limit (PEL): 50 µg/m³ of air, based upon an 8-hour time weighted average.
- L. Local Exhaust Ventilation System: A pressure differential system utilizing HEPA filtration capable of maintaining a lower air pressure inside of the work area and a constant air flow from adjacent areas into the work area and exhausting that air outside the work area.
- M. Occupied Area: Any area adjacent to the work area which is occupied or potentially accessible by unprotected employees, workers, or the public during any time abatement activities are performed.
- N. Owner: Refers to property owner of abatement project.
- O. Prior Experience: Experience required of the Deleading Contractor and its employees and Contractors on lead abatement projects of similar magnitude and scope to ensure capability of performing the abatement in a satisfactory manner. Similarities shall be in areas related to material composition, project size, number of employees and the engineering work practices and personal protection controls required.
- P. Replace: To remove, dispose, furnish and install.
- Q. Sample Location: Area or place where an air or wipe sample is taken.
- R. Time Weighted Average (TWA): The TWA is an 8-hour time weighted average for the test of the concentration of lead for worker exposure.
- S. Wet Cleaning: The process of eliminating lead contamination from building surfaces, equipment and other objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as lead contaminated wastes.
- T. Work Area: A lead control area consisting of designated rooms, spaces or areas of the project in which lead abatement actions are to undertaken or which may be contaminated as a result of such abatement actions. A contained work area is a work area which has been sealed and equipped with a decontamination area for personnel and equipment. A non-contained work area is an isolated or controlled-access work area which has no plastic sheeting or other containment barriers erected, such as a building exterior.

1.5 QUALITY ASSURANCE

- A. The City has retained a Consultant for the purpose of project management during LBP abatement. The Consultant will represent the City in all phases of the lead-based paint abatement project at the discretion of the City. The Contractor will regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly but not limited to approval of work areas, review of monitoring results, completion of the various segments of work, final completion of the lead-based paint abatement, submission of data and daily field punchlist items.

B. Qualifications of Deleading Contractor

1. Contractor performing the work of this section (“Contractor”) shall be a Contractor licensed to perform deleading operations in State of Ohio. Contractor shall submit license number and proof of licensure.
2. The following Deleading Contractor submittals shall be submitted with the General Contractor's Bid:
 - a. Deleader Contractor's valid license to perform deleading.
 - b. Deleading Contractor's Supervisors’ licenses and training course.
 - c. Deleader Worker licenses and training course.
 - d. Medical monitoring information for licensed supervisors and deleader workers including, as required by OSHA 29 CFR 1926.62, blood lead testing results and pulmonary function tests (PFT).
 - e. Proposed Environmental Protection Agency (EPA)-licensed hazardous waste treatment or disposal facility or recycling facility approved by the EPA for lead waste material recycling.
 - f. Previous Work Experience: Project references and project information providing that Deleading Sub-Contractor has successfully completed at least three deleading valued at a minimum of \$30,000 for each project. Credentials must be approved by City before award can be made to General Contractor.

C. Insurance Requirements: Contractor shall possess and maintain throughout the project, insurance in the kinds and amounts as required in the General Conditions and meeting the following additional requirements and limits:

1. The Deleading Contractor shall purchase and maintain, at his/her own expense, all insurance required by the City, and all insurance required by the applicable laws of Ohio.
2. The Deleading Contractor shall purchase and maintain such insurance as will protect him/her from claims under the Workman's Compensation Acts and from claims for damages because of bodily injury, including death and all property damages including, without limitation to, damage to the buildings and adjoining properties to the site of construction which might arise from and during operations under any Contract, whether such operations be by himself/herself or by any subcontractor or anyone directly or indirectly employed by either of them.
3. Statutory Workman’s Compensation and Employer’s Liability

The Contractor shall provide insurance for the payment of compensation and the furnishing of other benefits under the Workman's Compensation Law for Ohio.

4. Comprehensive General Liability Insurance

Minimum bodily injury limits of \$100,000 per person and \$300,000 per accident, and \$300,000 aggregate during any twelve month period, shall include the following:

- a. Public Liability (bodily injury and property damage)
- b. Independent Contractor's Protective Liability
- c. All Risk Insurance - Covering all contractor equipment with provision of waiver of Subrogation against the Owner.
- d. Comprehensive All Risk Motor Vehicle Liability Insurance - Minimum bodily injury limits of \$100,000 per person, per accident, and property damage limit of \$300,000 per accident.

5. Excess Pollution Liability Insurance \$1,000,000.00 each occ.
for "Lead Abatement Operations" \$1,000,000.00 aggregate

1.6 SUBMITTALS

A. The Deleading Contractor shall provide four (4) copies of the following submittal(s) to the City prior to start the work of this section. Refer to Section 01300 for submittal procedures.

- 1. Copies of all notifications, permits, applications, licenses and like documents required by Federal, State, or local regulations obtained or submitted in proper fashion.
- 2. Copies of written medical opinions and blood testing results of workers to be utilized on the project, as performed by an occupational physician or medical doctor and appropriate blood laboratory, as applicable.
- 3. Record of successful respirator fit testing performed by a qualified individual within the previous 12 months, for each employee to be used on this project with the employee's name and social security number with each record.
- 4. Employer's Lead Compliance Program as required by 29 CFR 1926.62, including proposed respiratory protection program and medical monitoring for all employees throughout all phases of the job, including make, model and NIOSH approval numbers of respirators to be used; worker orientation plan; written description of all proposed procedures, methods, or equipment to be utilized, including those that may differ from the Contract Specifications. In all instances, Deleading Contractor must comply with all applicable federal, state and local regulations.

5. Written description, for City's review and acceptance, of all proposed procedures, methods, or equipment to be utilized that differ from the Contract Specifications, including manufacturers' specifications on any equipment not specified for use by Section 02090; in all instances, Deleading Contractor must comply with all applicable federal, state and local regulations.
6. Chain of Command of responsibility at work site including Deleading supervisors, foremen, and competent person, their names, resumes and certificates of training.
7. Material Safety Data Sheets on potentially hazardous materials to be used on the project.
8. Name, address, and ID number of the hazardous waste hauler, waste transfer route, and proposed disposal site.
9. Name, address, and ID number of the proposed construction debris site.
10. List of total number of all supervisors and workers intended to be assigned to the project.
11. The name and address of Deleading Contractor's Industrial Hygiene Sub-Consultant, personal air monitoring and waste disposal lead testing laboratory(s) including certification(s) of AIHA accreditation for lead analysis, listing of relevant experience in air and debris lead analysis, and presentation of a documented Quality Assurance and Quality Control Program.

No work of the project will be allowed to begin until the Pre-Job Submittals as listed herein are approved by the City. Any delay caused by the General Contractor and/or Deleading Contractor's refusal to submit this documentation in a timely fashion does not constitute a change from the contract completion date.

- B. The Contractor shall submit to the City, the following submittals during the job:
1. Results from personal air samples.
 2. Results from TCLP testing.
 3. Medical certificates and fit test records 24 hours in advance of any new employee being assigned to work on the project.
 4. A status report on the number of buildings or units started, number of buildings completed and overall progress schedule.
- C. The Deleading Contractor is required to submit to the General Contractor and City the following bound information prior to approval for final payment and retainage and as part of punchlist prior to project close-out:
1. Copies of manifests and receipts acknowledging disposal of all lead waste material from the project showing delivery date, quantity, and appropriate signature of landfill's authorized representative,

2. A notarized copy of the entry-exit logbook, representing each day of work at a site,
3. All personal monitoring results,
4. All TCLP testing results.

1.7 NOTIFICATIONS

- A. The Deleading Contractor shall make if applicable, in proper and timely fashion, all necessary notifications to relevant Federal, State, and local authorities and shall obtain and comply with the provisions of all permits or applications required by the work specified, as well as make all required submittals required under those auspices. The Deleading Contractor shall indemnify the City and Consultant from, and pay for all claims resulting from failure to adhere to these provisions. The costs for all permits, applications, and the like, are to be assumed by the Deleading Contractor.

1.8 RELATED DOCUMENTS

- A. Contract Documents and Division 1, General Requirements shall be part of this Section. Related sections include:

Division 1

Section 05580 - ALUMINUM SHEET METAL AND ACCESSORIES

3. Section 06200 - FINISH CARPENTRY AND MILLWORK
4. Section 08100 - METAL DOORS AND FRAMES
5. Section 08200 - WOOD DOORS
6. Section 08630 - VINYL WINDOWS
7. Section 09210 - GYPSUM DRYWALL AND VENEER PLASTER ASSEMBLIES
8. Section 09900 - PAINTING

- B. Examine all other Sections of the Specifications for requirements affecting the work of this Section.
- C. Lead paint inspection reports as furnished by City shall be a part of the work of this Section. The components for abatement were taken from recommended items for abatement as reported to the City from its hired consultants.
- D. The following documents are made applicable and a part of this section:

1. Code of Federal Regulations (CFR) Publications:

29 CFR 1910 	General Industry
29 CFR 1926.200 	Signs, Signals and Barricades
29 CFR 1926.55 	Gases, Vapors, Fumes, Dusts and Mists
29 CFR 1926.57 	Ventilation

29 CFR 1926.62 	Lead in Construction
29 CFR Subpart T -	Demolition
40 CFR 61 Subpart A 	General Provisions
40 CFR 61.152 	Standard for Waste Manufacturing, Demolition, Renovation, Spraying, and Fabricating Operations.
40 CFR 241 -	Guidelines for the Land Disposal of Solid Wastes
40 CFR 257 -	Criteria for Classification of Solid Waste
40 CFR 261 and 262 -	Waste Disposal Facilities and Practices

2. United States Department of Housing and Urban Development:

“Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing,” dated June 1995, revised 1997 (HUD Guidelines)

3. American National Standards Institute (ANSI) Publications:

29.2-79 Fundamentals Governing the Design and Operation of Local Exhaust Systems

288.2-80 Practices for Respiratory Protection

4. National Institute of Occupational Safety and Health (NIOSH) Publications:

Manual of Analytical Methods, 4th Ed.

5. Underwriters Laboratories, Inc. (UL) Publications:

Fire Resistance Directory

586-77 (R 1982) Test Performance of High Efficiency Particulate, Air Filter Units

1.9 CLEANING

- A. Maintain the work site in a neat and orderly manner at all times, so as not to interrupt or infringe upon the work of other trades.
- B. Perform all final cleaning of abatement work areas as required by 3.05 and HUD Guidelines to the approval of the Lead Inspector. Upon completion of work in any given area, Deleading Contractor shall remove all material and equipment associated with the work not necessary to complete other phases of the work in that area.
- C. Comply with all requirements for final clearance and release of a work area as described in this Section and required by the HUD Guidelines, including dust wipe sampling, prior to take down of polyethylene and area clean-up.
- D. Daily Clean-Up
 1. Thirty (30) minutes prior to the end of each work day, all abatement work areas must be cleaned of all debris and the work area vacuumed with a HEPA vacuum. Under no circumstances will clean-up or removal of critical barriers be permitted to commence when active lead paint abatement work is in progress. All interior surfaces in the work area(s) shall also be cleaned.
 2. Cleaning of areas adjacent to the work area(s) will be required if visible debris generated during the work contaminates interior areas adjacent to the work areas and building exteriors. It is at the discretion of the Lead Inspector to determine the extent of cleaning. Such cleaning shall include a thorough HEPA vacuuming of all affected surfaces, as determined by Owner or Lead Inspector, as well as TSP wash down, and repeated HEPA vacuuming of the surfaces once dry. These surfaces will be wipe-tested to verify that the lead content is below the following thresholds: 40 $\mu\text{g}/\text{ft}^2$ for floors, 250 $\mu\text{g}/\text{ft}^2$ for window sills, and 400 $\mu\text{g}/\text{ft}^2$ for window troughs (wells). If results are higher than the thresholds, Deleading Contractor is responsible for providing additional clean-up services until acceptable results are obtained. Deleading Contractor shall be responsible for all costs associated with this additional testing, including laboratory and Lead Inspector costs.
 3. It is the prerogative of the City to test wherever deemed necessary and the Deleading Contractor is responsible for meeting and correcting any deficiencies discovered which do not meet the current applicable regulations and requirements of these specifications.
 4. If there is a breach in any "critical barrier", the Deleading Contractor shall clean the entire area exposed as described in this section. These areas shall have lead dust wipe collected to verify compliance with specified clearance levels. The cost of this additional testing shall be the responsibility of the Deleading Contractor.

1.10 COORDINATION

- A. Extend full cooperation to Owner in all matters involving the use of Owner's facilities. At no time shall Deleading Contractor cause or allow to be caused conditions that may cause risk or hazard to the general public or conditions that might impair safe use of the facility.
- B. Coordinate the work of this section with that of all other trades. Phasing and scheduling of this project will be subject to the approval of the City and Owner. The work of this Section shall be scheduled and performed so as not to impede the progress of the project as a whole. Work shall not proceed in any area without the express consent of the Owner. The Deleading Contractor shall be available within 24 hours notice for additional work if after acceptance of the work it is found that full abatement was not achieved from the initial work effort as determined by the City and Owner. Coordinate resident notification.
- C. The proposed schedule for the work in this Section shall show the time involved from start to finish of abatement operations, including preparation, removal, clean-up, Consultant's and/or Lead Inspector's inspections and testing, and de-mobilization portions of the job. At no time shall work in units or area be started which cannot be completed by the end of the work shift, including HEPA-TSP-HEPA cleaning, all required inspections, removal of critical barriers at all doors and windows, and securing of the area.
- D. Prime coat paint and replacement of components removed shall be the responsibility of the Deleading Contractor as described in the specifications and drawings. Coordination relative to lead abatement shall be as follows:
 - 1. Replacement of components will occur as part of the lead abatement process provided that all components that required paint removal are inspected prior to repainting.
 - 2. No painting or covering shall occur on components where paint was removed or scraped until the Lead Inspector has provided an abatement re-inspection and approved painting activities.
- E. Inspections by Lead Inspector: The Lead Inspector may perform pre-abatement and post-abatement inspections during the work of this section, as described below.
 - 1. Pre-Abatement Inspection: At the completion of work area preparation, including pre-cleaning, decontamination unit set-up, and critical barriers and prior to the start of abatement.
 - 2. During Abatement: Prior to the commencement of a proposed alternative method of abatement than specified.
 - 3. Post-Abatement Inspection: At the completion of abatement and final cleaning, prior to clearance and wipe sampling or removal of any critical barriers and decontamination unit from the work area.

4. Waste Removal Inspection: Prior to removal of hazardous waste from the site, City and Lead Inspector will inspect the quantity and type.

1.11 CODES AND STANDARDS

- A. All work shall conform to the standards set by applicable Federal, State and local laws, regulations, ordinances, and guidelines in such form in which they exist at the time of the work on the contract and as may be required by subsequent regulations.
- B. This project is subject to compliance with the recommendations and requirements of the "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" dated June 1995 revised 1997, the Historic Specifications: Exterior Rehab Specs by Randy Black and the Columbus Register of Historic Properties Architectural Guidelines.
- C. In addition to any detailed requirements of the Specification, the Deleading Contractor and General Contractor shall at their own cost and expense comply with all laws, ordinances, rules and regulations of Federal, State, Regional and Local Authorities regarding handling and storing of lead waste material.
- D. All regulations and requirements of by other governing agencies in their most current version are applicable throughout this project. Where there is a conflict between this Specification and the cited State, Federal, or local regulations, the more restrictive or stringent requirements shall prevail.

This Section refers to many requirements found in these references, but in no way is it intended to cite or reiterate all provisions therein or elsewhere. It is the Deleading Contractor's responsibility to know, understand, and abide by all such regulations and common practices.

1.12 FEES, PERMITS & LICENSES

- A. The Deleading Contractor shall pay all licensing fees, royalties, and other costs necessary for the use of any copyrighted or patented product, design, invention, or process in the performance of the work specified in Section 02090. The Deleading Contractor shall be solely responsible for costs, damages, or losses resulting from any infringement of these patent rights or copyrights. The Deleading Contractor shall hold the City and the Owner harmless from any costs, damages, and losses resulting from any infringement of these patent rights or copyrights.
- B. Deleading Contractor shall be responsible for costs for all licensing requirements and notification requirements, and all other related fees to perform the work in this Section.

1.13 SUBSTITUTION OF MATERIALS OR METHODS

- A. City and Owner approval is required for all modifications to methods, procedures, and design which may be proposed by the Deleading Contractor. Any such modifications or substitutions to methods, procedures, or design shall comply with applicable regulations. Submit the proposed modification or substitution in accordance with the requirements of the General Conditions and The Contract Documents, prior to planned commencement of proposed modification, for review and approval

- B. Unless requests for modification or substitution are made in accordance with the above instructions and the instruction of the General Conditions, supported by sufficient proof of equality, the Deleading Contractor will be required to furnish the specifically named or designed items, methods or procedures designated in this Section.
- C. If the modification or substitution necessitates changes or additional work, same shall be provided and the Deleading Contractor shall assume the cost and the entire responsibility thereto.
- D. The City's permission to make such substitution shall not relieve the Deleading Contractor from full responsibility for the work.

1.14 STRUCTURAL SUPPORT

- A. Contractor shall support all structures, such as those supported by columns, joists, and overhangs, where abatement procedures result in the removal of these supports. The supports installed shall sufficiently uphold the structure until General Contractor provides permanent support replacement.
- B. Where removal of a component has an effect on the structural integrity of the dwelling unit, Deleading Contractor shall inform the Owner and City prior to commencement of work. City may request additional support be given or a change in the work process implemented.

1.15 EMERGENCY PRECAUTIONS

- A. The Contractor shall establish emergency and fire exits from the work area.
- B. When an injury occurs, the Contractor shall stop work until the injured person has been removed from the work area.

PART 2.0 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

All material and equipment proposed to be used on this project shall be subject to the acceptance of the Authority and Consultant.

- A. Polyethylene sheeting, minimum thickness of six (6)-mil, fire retardant;
- B. Plastic bags, minimum thickness of six (6)-mil;
- C. High Quality Duct Tape;
- D. Lead Warning Signs, as described in the HUD Guidelines and OSHA;
- E. Spray adhesive, fire retardant;
- F. Personal Protective Equipment, NIOSH approved respirators and filters;

- G. HEPA vacuums;
- H. Trisodium-Phosphate (TSP), product data;
- I. Other materials, tools and equipment necessary for lead based paint abatement;
- J. Cloth Tarpaulins; and
- K. Caustic Paste, where applicable, not containing methylene chloride and/or flammable materials

2.2 PROTECTIVE CLOTHING

- A. Coveralls (whole body protective coverings): Disposable full-body coverall and disposable head covers shall be worn by all workers in the work area. Sleeves shall be secured at the wrist and pant legs at the ankle with tape. In heat-stress conditions, breathable clothing, such as cotton coveralls, shall be provided. Where non-disposable coveralls are provided, these coveralls shall be cleaned after each wearing. Cleaning of coveralls and other non-disposable clothing shall be in accordance to the provisions for cleaning in 29 CFR 1910.1025 and 29 CFR 1926.62 .
- B. Boots: Work boots with nonskid soles shall be worn by all workers and where required by OSHA, safety boots (steel toe or steel toe and shank) shall be worn. Provide boots at no cost to the workers.
- C. Gloves: Provide disposable plastic or rubber work gloves to the workers and require that they be worn at all times while in the work area. Cloth or other types of gloves may be worn inside the plastic or rubber gloves or as otherwise determined by the Consultant, but shall not be used alone. Secure sleeves at the wrist. Do not remove gloves from the work area, and dispose of as contaminated waste at the end of the work.
- D. Hard Hats: Provide head protectives (hard hats) as required by OSHA for all workers and require that these be worn. Provide spares for visitors. Protective plastic strap suspension hats shall be used. Thoroughly clean, decontaminate and bag hats before removing them from the work area at the end of the work.
- E. Eye Protection: Fog-proof goggles for personnel engaged in abatement operations will be worn when the use of a full face respirator is not required.
- F. Work Clothing: Cloth work clothes to wear under the disposable protective coveralls and foot coverings shall be provided.
- G. Other items: Whatever other items of protective clothing and safety equipment are required, shall be provided by the Contractor, including but not limited to, goggles, heavy gloves, safety shoes, hard hats and additional layers of disposable clothing for low temperature conditions.

H. Materials

1. Polyethylene Sheeting: Flame resistant polyethylene film in the largest size possible to minimize seams, and six-mil thick, shall be provided. Frosted, clear or black film may be used. Reinforced sheeting may be required when contained area is exposed to outside.
2. Pumps and Filters: High volume sampling pumps, low volume air sampling pumps, and filter cassettes shall be provided to carry out the air monitoring program.
3. Hazardous Waste Storage Containers: Containers shall be Department of Transportation approved carbon steel 55-gallon drum containers and in accordance with 49 CFR -178 and -179.

PART 3.0 - EXECUTION

3.1 GENERAL

A. Approvals and Inspection

All temporary facilities, work procedures, equipment, materials, services, and agreements must strictly adhere to and meet this Section along with EPA, OSHA, regulations and recommendations as well as federal, state, and local regulations. Where there exists overlap of these regulations, the most stringent one applies. All work performed by the Deleading Contractor is further subject to approval of the City.

B. Damage and Repairs to the Work site

1. Component removal shall be performed without damage to the building, including, but not limited to, structural members, ceilings, pipes, walls, or light fixtures or exterior fixtures and components. The Deleading Contractor shall provide protection of these items and materials as part of the work area preparation as specified in Sections 3.2 and 3.3. Where lead paint abatement activity causes damage, the Deleading Contractor shall patch, repair, replace or otherwise restore or replace the damaged items to like-new condition, with similar or better materials, at no additional cost to the City. This includes repair or repainting to original condition of surfaces damaged during component removal as described herein, prior to the commencement of replacement activities by the General Contractor or his trades.
2. Damage not needing repair includes damage to fixtures being removed. Deleading Contractor shall confirm with the General Contractor, the components not needing repair of damage prior to any abatement work, and receive final confirmation from City.

C. Isolated Work Areas

All lead work areas shall remain isolated from all other workers of the project and remain inaccessible to the public. Deleading Contractor shall monitor the access to the lead abatement work areas.

D. Environmental Monitoring - Consultant's Lead Inspector

1. Lead Inspector may perform clean area air monitoring and/or wipe sampling and analysis for all phases of the work in this Section.
2. During removal, air, wipe, and generated waste samples may be collected by the Lead Inspector outside critical barriers in the work area, in the clean room, in areas adjacent to the clean room and inside the removal areas.
3. Any adjustment, tampering, and/or deliberate interference with Lead Inspector air monitoring equipment by the Contractor's personnel will not be tolerated. Furthermore, the Deleading Contractor may be held liable for prosecution under applicable laws and regulations for attempting to falsify test results.

E. Personnel Sampling- Deleading Contractor

1. Perform personal air sampling during all lead paint abatement work to determine worker exposure limits. The results of such sampling shall be posted, provided to individual workers, and submitted to the City as described herein.
2. Provide personnel sampling to check personal exposure levels. Representative sampling shall be taken for the duration of the work shift or for eight hours, whichever is less. Personal samples need not be taken for repeated working conditions if working conditions remain unchanged, but must be taken every time there is a change in the removal operation, either in terms of the location or the type of work. Sampling will be used to determine eight-hour Time-Weighted-Averages (TWA). Personal sampling shall be as outlined in OSHA standard 29 CFR 1926.62.
3. Air sampling results shall be transmitted to the City and individual workers available at the job site in written form no more than forty-eight (48) hours after the completion of a sampling cycle. The reporting document shall list each sample's result, sampling time and date, personnel monitored and their social security numbers, flow rate, sample duration, sample yield, cassette size, and analysts' name and company, and shall include an interpretation of the results. Air sample analysis results will be reported in micrograms/cubic meter ($\mu\text{g}/\text{m}^3$).
4. The Deleading Contractor's testing lab shall be American Industrial Hygiene Association (AIHA) accredited for analysis of metals. Deleading Contractor shall submit for City's review and acceptance the name and address of the laboratory, certification(s) of AIHA accreditation for metal analysis, listing of relevant experience in air lead analysis, and presentation of a documented Quality Assurance and Quality Control program.

5. Air monitoring frequency will be established in accordance with the requirements set forth in 29 CFR 1926.62.

F. Work Review

1. The Consultant's Lead Inspector may review the Contractor's work practices prior to the start of and during all lead-based paint abatement related work and will report any violations of Section 02090 to the Deleading Contractor, Consultant, and City. If the Deleading Contractor fails to correct deficiencies within 24 hours, the Lead Inspector will request that work be stopped and the City will be contacted to intervene. Lead Inspector will stop the work at any time due to violation of regulations and violation of specification requirements.
2. Upon notification from the Deleading Contractor's Supervisor that a work area has been fully prepared for abatement activity to commence, the Lead Inspector may review the work area critical barriers and work area preparations before work begins.

G. Inspections

1. In addition to various daily inspections of the lead work area and abatement practices, the Lead Inspector may make the following inspections during each phase of removal:
 - a. Pre-abatement barrier completion
 - b. Completion of abatement and clean-up
 - c. Daily clean-up
 - d. Daily abatement activities
 - e. Final clean-up
2. For exterior abatement, window removal and exterior door, and door jamb removal, the Lead Inspector may perform wipe testing as a function of approving of the dwelling unit or common space for reoccupancy.
3. Reoccupancy and final clearance inspections must be requested by the Deleading Contractor for the inspections to be performed by the Lead Inspector. Inspection shall be to the Lead Inspector's satisfaction before work may begin for next phase of work, or an area accepted. Failure on the part of the Contractor to obtain the Lead Inspector's approval before proceeding to the next scheduled phase is regarded as a violation of this Section. In the event of this occurring, Lead Inspector will request work be stopped and the City and General Contractor will be contacted to intervene.
4. Lead Inspector will sign-off on each inspection.

H. Respirators and Worker Protection

1. Personal protection, in the form of disposable coveralls and NIOSH approved respirators, is required for all workers, supervisors, and visitors entering the work area during the removal and cleaning operations.

2. Each worker shall be supplied with a minimum of two (2) complete disposable uniforms every day. Removal workers shall not be limited to two (2) uniforms, and the Deleading Contractor will be required to supply additional uniforms as is necessary. Under no circumstances will anyone entering the removal area be allowed to reuse a contaminated uniform. In addition to uniforms for the workers, the Deleading Contractor shall also supply uniforms for the Lead Inspector and other personnel who are authorized to inspect the worksite.
3. Work clothes shall consist of disposable full-body coveralls, head covers, gloves, boot or shoe covers, and eye protection.
4. Supply workers and supervisory personnel with NIOSH approved respirators and HEPA filters. Respiratory protection shall be implemented for all work performed under this Section unless Lead Inspector approves lesser requirements. The respirators shall be sanitized and maintained according to the manufacturer's specifications. Disposable respirators shall not be considered acceptable under any circumstances. Maintain on site a sufficient supply of HEPA filters to allow workers and supervisory personnel to change contaminated filters when needed. The Contractor is solely responsible for means and methods used and for compliance with applicable regulations.
5. Comply with all OSHA requirements of worker medical examinations for approval to wear respiratory protection.
6. Blood monitoring and medical surveillance of workers shall occur as follows:
 - a. Periodic medical exam and blood monitoring shall occur within at least two months prior to the start of the work of this contract, for all workers and supervisors.
 - b. All workers on this project shall have blood tests performed after a maximum two months into the work of this contract. Workers shall be removed from the work site as soon as three blood sample tests average 25 micrograms of lead per deciliter of whole blood ($\mu\text{g}/\text{dl}$) or a single test averages 30 $\mu\text{g}/\text{dl}$ or above.
 - c. All workers and supervisors shall have indicated prior to the start of work, a blood lead level of below 30 $\mu\text{g}/\text{dl}$.
 - d. More frequent medical exams are required upon notification that a worker is pregnant, a worker requests medical attention, a worker shows signs of difficulty in breathing during respirator fit test or use, or as appropriate for workers removed from the work due to lead exposure.
 - e. Worker shall not be sent back to perform deleading work until three blood tests average below 25 $\mu\text{g}/\text{dl}$ over a two-week period.

I. Work Procedures

In order to avoid possible exposure to dangerous levels of lead and to prevent possible contamination of dwelling units, work shall follow the general guidelines listed below:

1. At no time shall a worker performing the work of this Section enter the dwelling unit during exterior component removal,
2. Before leaving the area of work, the worker shall remove all gross contamination, debris and dust from the coveralls by HEPA vacuuming,
3. All equipment used by the workers for exterior abatement shall never be used in the interior of the units or shall be thoroughly decontaminated before being used. The exterior area shall be cleaned of all visible debris and disposable materials daily,
4. All persons leaving the work area must remove their personal protective equipment before leaving the containment. Coveralls shall be removed "inside out" to minimize the dispersal of lead dust and bagged immediately,
5. At the completion of work at each exterior work area, Contractor shall perform cleaning of the entire work area and building surfaces by the use of HEPA vacuuming. The cleaning is termed "Post-Abatement Cleaning".
6. At no time shall exterior component removal work on upper floors be performed until all lower floor critical barriers are secured as stated in this Section or shall any workers be allowed inside the dwelling units during removal. Preparation work of this section shall occur continuously until finished before any exterior removal can begin on that building face.

J. Security

1. The General Contractor will provide specific access as required during the project to the Deleading Contractor and personnel assigned to the project. The Deleading Contractor will be responsible for the security of each building or portion thereof involved in the abatement project. It will also be the Deleading Contractor's responsibility to allow only authorized personnel into the work area, and to secure all assigned entrances and exits at the end of the work day.
2. Maintain a bound log book in which any person entering or leaving the lead abatement work area must sign and enter the date and time.
3. Use of waste containers on site shall be controlled under the following requirements:
 - a. Location of waste containers on site shall be coordinated with the General Contractor, subject to Owner's approval.
 - b. The waste containers lined with two layers of six- mil polyethylene sheeting shall be solid enclosed containers and locked and secured at all times.

- c. Deleading Contractor shall comply with all federal, state and local regulations and ordinances regarding lead waste storage.
- d. Waste storage containers shall not be removed from the site without prior notice and approval by the City.

3.2 OCCUPANT PROTECTION

A. General:

- 1. During the course of abatement activities, the protection of the building occupants and their belongings shall be the responsibility of both the tenant and the Deleading Contractor. Relocation of occupants and the use of engineering controls shall be employed where necessary throughout the project.

B. Deleading Contractor Responsibilities

- 1. Deleading Contractor shall ensure that the tenants' belongings have been moved from the immediate area of work. The Contractor shall cover tenant belongings as described in this section.
- 2. Deleading Contractor shall adhere to all provisions and regulations pertaining to the work of this section.
- 3. Deleading Contractor shall be responsible to provide and maintain all signs, barriers and engineering controls required by regulation and specified herein.
- 4. Deleading Contractor shall be responsible to cover and protect tenant belongings that remain in the work area as noted in item 3.2 (B)(1) above.

Deleading Contractor shall be responsible for all costs resulting from damage caused to tenant possessions during abatement work.

3.3 PRE-ABATEMENT REQUIREMENTS

A. General

- 1. Prior to the commencement of any abatement procedures, the work area critical barriers and entrance shall be sealed as described in this section. Deleading Contractor shall be responsible for moving furniture, including curtains. Residents are responsible for moving small personal objects. Deleading Contractor shall move objects back at end of each work day. All HVAC equipment or units shall be shut down prior to commencement of any pre-cleaning.
- 2. Deleading Contractor shall perform pre-cleaning of the work area's horizontal surfaces, including sills, wells, floors and baseboards, prior to sealing with polyethylene sheeting. Pre-cleaning shall be performed by HEPA vacuuming surfaces.

3. Deleading Contractor shall seal floors of work area with two independent layers of six-mil polyethylene sheeting. All seams in the polyethylene sheeting shall be overlapped a minimum of four feet and sealed with duct tape. All remaining immovable objects not to be abated shall be covered and sealed airtight with one layer of six-mil polyethylene sheeting. Work area barriers and isolation shall be as specified herein.
4. Preliminary testing may be performed at the discretion of City.
5. The poly barriers shall not be removed until after all debris, dust and chips are vacuumed up from the exterior.
6. Signs shall be posted at all approaches to the work area warning that deleading work is being conducted in the vicinity. The signs shall read:

**WARNING:
LEAD PAINT REMOVAL HAZARD
UNAUTHORIZED ENTRY PROHIBITED**

**NO SMOKING EATING OR DRINKING
ALLOWED IN THE WORK AREA**

Signs shall be in bold lettering not smaller than two inches tall.

7. Maintain polyethylene barriers, as long as needed for the safe and proper completion of the work. Any breeches in the work area barriers shall be corrected immediately and as necessary during the workday with such breeches reported immediately to the City. Work will not be allowed to commence until all barriers are in place and acceptable to the City.
8. All debris must be properly bagged and removed from work areas daily.
9. The Deleading Contractor shall install two independent layers of six-mil polyethylene sheeting on the floor. Tread guards on plasticized stairways should be added to prevent slipping. Polyethylene shall be secured with waterproof tape and industrial size staples where applicable. All joints must be taped. Any remaining immovable objects such as cabinets, appliances, etc. shall be covered with one layer of six-mil polyethylene, and have joints taped. Rooms not being abated are to be sealed at door openings with two layers of six-mil polyethylene sheeting.
10. Clean Area: The Deleading Contractor shall select a clean area outside the abatement and decontamination unit areas for workers to change into protective equipment. This area shall contain warm water hand washing facilities (potable water), clean cloths, storage for a HEPA vacuum, and respirator storage space. Table, chairs and a rest facility shall also be available at this location. Contaminated equipment or personnel shall not be permitted in this area. The floors and walls shall be covered with six-mil polyethylene sheeting.

11. Deleading Contractor shall comply with proper notification requirements of this section prior to commencement of work.
- B. Barriers and Isolation Areas – Interior Lead Abatement: For all abatement activities identified as interior lead abatement, Deleading Contractor shall comply with the following:
1. The Deleading Contractor shall construct and maintain suitable polyethylene barriers within the building to isolate the work area. Polyethylene barriers, termed "critical barriers," shall be located at the entrance to the work area and at all points of egress from the work area to adjacent spaces or outside the building. Polyethylene barriers shall be of sufficient size and strength to prevent the migration of dust from the work area and the inadvertent entry into the work area. The barriers shall be erected at all doorways, or other open entrances to the work area and shall be constructed of 6-mil polyethylene taped on all four sides completely covering the entrance.
 2. The entrance to the work area shall be sealed off by taping two layers of six-mil polyethylene sheeting to the entrance doorway. One sheet shall be taped on all four sides covering the entrance and slit vertically down the center to allow workers to pass through. The second layer of sheeting shall be taped over the top of the entrance and hang down to fully cover the first layer of slit poly in such a manner as to allow air to only flow into the contained work area from other indoor areas. The second layer of polyethylene sheeting shall act as an airlock in the event the work area ventilation should shut down temporarily.
 3. Signs shall be posted at all approaches to the work area warning that deleading work is being conducted in the vicinity. Signs shall be in bold lettering not smaller than two inches tall.
 4. Deleading Contractor shall place two independent layers of six-mil polyethylene sheeting on the floor of the work area to remain in place until work is completed and area is deemed clean by the Lead Inspector. Refer to 3.5 for additional final cleaning requirements.
 5. Deleading Contractor shall maintain polyethylene barriers, and a clean area as long as needed for the safe and proper completion of the work. Any breeches in the work area barriers shall be corrected by the Deleading Contractor at the beginning of each work day and as necessary during the workday with such breeches reported immediately to the City. Work will not be allowed to commence until all barriers are in place and acceptable to the City.
 6. Prior to the commencement of any abatement procedures, notification requirements must be met, required signs shall be posted and movable objects shall be moved a minimum of four feet from the perimeter walls of the room.
 7. In vacated area, barriers shall not be removed until the work areas are thoroughly cleaned as specified in this Section, all debris has been properly bagged and removed from work areas in accordance with provisions detailed herein.

8. At the City's approval, Deleading Contractor may utilize a portable mini-isolation chamber to create an isolated work area around single components to be removed. This chamber shall still be equipped with an adjacent clean room, and become an isolated work area sealed at all seams to where it is attached to adjacent surfaces. It shall also satisfy all requirements for a work area and satisfy all clearance criteria, as identified in this section.
- C. Pre-Abatement Requirements – Exterior Abatement
1. Exterior abatement may require the use of ladders and walking/working surfaces. Deleading Contractor shall include the use and cost of these materials within the bid submitted and as part of the work of this section. Also, this equipment shall be used to create an enclosed work area where any dust generating methods will be employed, including component removal.
 2. Pre-abatement work shall be performed prior to any abatement or component removal commences.
 3. Signs shall be posted at all approaches to the work area warning that deleading work is being conducted in the vicinity. Signs shall be in bold lettering not smaller than two inches tall.
 4. Maintain barriers, as long as needed for the safe and proper completion of the work. Any breeches in the work area barriers shall be corrected immediately and as necessary during the workday with such breeches reported immediately to the City. Work will not be allowed to commence until all barriers are in place and acceptable to the City.
 5. Window and door barriers shall not be removed until the exterior surfaces of the window or door opening and plywood sheeting are thoroughly cleaned of all visible debris and vacuumed with a HEPA vacuum. Also, all debris shall be properly bagged and removed from work areas in accordance with provisions detailed herein.
 6. Coverings:
 - a. Place polyethylene or tarpaulin coverings a minimum of 15 feet from building perimeter covering all ground surfaces. Tarp or polyethylene shall be weighted at corners and sides elevated to prevent wind from moving it. Deleading Contractor shall be responsible for any damage to existing shrubs, bushes, grass and landscaping.
 - b. Plants and Ground: The ground and any plants or shrubs in the area in which exterior deleading is to occur shall be covered with a waterproof canvas tarp, and weighted at all edges so as to prevent blowing. Such covering shall cover from the side of the structure to the ground beyond totally covering the plants. The covering shall be taped or otherwise attached to the structure.

- i. The waterproof canvas tarp shall always be placed in a manner that traps all debris and water. This is best accomplished by elevating the edges.
 - ii. The waterproof canvas tarp shall be properly disposed or thoroughly cleaned by HEPA vacuum.
 - iii. Any loose debris which has fallen and was not caught by the canvas must be cleaned up immediately.
7. The polyethylene barriers termed "critical barriers" for the abatement at all windows shall consist of the following:
 - a. Pre-Clean all accessible window surfaces with a HEPA-equipped vacuum.
 - b. Seal window with two layers of six-mil-polyethylene sheeting.
 - c. There shall be no cavity in the polyethylene sheeting created that would allow lead dust to accumulate, which cannot be removed with HEPA vacuuming. This shall allow for removal of this polyethylene sheeting from the exterior of the building, without the generation of lead dust, once the cleanup is complete.
 - d. The second layer of polyethylene sheeting shall be applied over the first layer and sealed directly to the inner face of the cut tape lip and window sill and casing.
 - e. This sealing of windows shall be done from the interior prior to the beginning of any exterior work.
8. When abating windows all windows below and beside must be closed and covered with polyethylene sheeting from the exterior unless they are prepared with polyethylene sheeting on the inside face of the window as described above.
9. The critical barriers/"cocoon work areas" for abatement at entry door systems shall consist of the following:
 - a. After pre-cleaning activities of HEPA vacuuming floor and surfaces to be abated, seal with duct tape two layers of polyethylene sheeting over a 4'x4' floor area extending in from the entrance doorway. This floor sheeting shall extend a minimum of six inches up the adjacent wall.
 - b. Remove the entrance door systems as described in this section.
 - c. Construct a mini-containment chamber with a double layer of six mil polyethylene sheeting to isolate the inside door frame from the interior of the unit.

- d. Seal mini-containment chamber to the interior wall a minimum of six inches from the interior door casing. Seal walls of the chamber to the floor poly. Cover ceiling with one layer of six mil poly. A prefabricated air-tight containment system may be used if approved by City.
- e. Allow sufficient clearance around the door frame and casing to permit workers adequate access to remove the components without breaching the containment system.
- f. Floor polyethylene sheeting shall remain in place during door, door casing and jamb replacement and abatement.

3.4 COMPONENT REMOVAL METHODS - GENERAL

- A. Execution of component removal shall follow methods specified in this section.
- B. Pre-cleaning and preparation of component removal work areas shall be performed by placing required critical barriers as identified in Sections 3.1 and 3.2.
- C. The component shall be removed as described herein, wrapped in two layers of six-mil polyethylene sheeting, labeled, and then stored for disposal according to this specification.
- D. A thorough cleaning of adjoining fixtures shall be performed to include removal of all visible debris and dust from where component was removed by the use of a HEPA vacuum.
- E. Care shall be taken to avoid damage to adjacent surfaces during the removal of components.
- F. Damage to surfaces adjacent to the components removed shall be repaired or replaced at no additional cost to the Owner or City. All repairs shall be coordinated with the Owner and City as described in this specification.
- G. All clean-up procedures for each described method below shall be completed as described in 3.9. Also, clean-up shall occur daily, and occur in conjunction with the generation of any debris or dust.
- H. Disposal of all components removed shall be performed in accordance with 3.11.
- I. Installation of components as a result of the work of this contract shall be re-installed to their original location by the Contractor. Refer to related Sections.

3.5 PAINT REMOVAL

- A. Paint Removal shall include the removal of paint from components identified to be abated in the Scope of Work Attachment. Paint removal shall follow the below listed requirements:

1. Paint removal shall occur to remove all visible paint down to the bare substrate.
2. If the paint removal process damages the component, Contractor shall repair damaged surface during the abatement process, under full work area preparation as identified in the specification.
3. The following methods are prohibited for use in lead paint removal on this project:
 - a. torch or flame burning;
 - b. dry abrasive blasting using sand, grit or any other particulate,
 - c. on-site use of methylene chloride or solutions containing methylene chloride,
 - d. machine sanding.
4. Contractor shall seek City approval for the use of chemical strippers/caustic paste on this project. Any use of chemical strippers/caustic paste shall be in complete conformance to manufacturers' recommended procedures and requirements and the procedures of this specification. Worker protection shall be increased to include chemical resistant, non-permeable gloves and face shields, an eyewash station and a suitable and unrestricted wash area in the event of inadvertent exposure. Protect all floors and adjacent painted surfaces. Any damage to these surfaces will be repaired or the damaged material replaced at no cost to the Owner or City.
5. All paint chips, slurry, waste, and debris generated from paint removal shall be removed immediately upon generation during the work.
6. Paint removal shall occur only when proper barriers and protection are in place and approval has been given regarding barrier set-up and methods of abatement.
7. Paint removal occurring at trim and woodwork shall not cause damage to existing wood or trim components. Any damage shall be repaired.
8. In all cases of paint removal, Contractor shall wait to paint the abated materials until after receiving a visual inspection and approval from the licensed inspector performing the abatement re-inspection.

B. Chemical Paint Removal Procedures

1. General: Chemical stripper application and use shall be in accordance with manufacturer's instructions. Prior to beginning the application, all accumulated dust, dirt, and visible oil and grease shall be removed with a five to ten percent TSP and water solution.
2. Protection of substrate during dwell time: Contractor shall construct a temporary enclosure to protect the component involved in the chemical stripping process. Specifically, Contractor shall perform the following to allow for the appropriate dwell time, protection of the component and non-accessibility of the area overnight in the occupied dwelling unit:

- a. Apply chemical stripper as described herein.
 - b. Should overnight dwell time be required the Contractor should construct a suitable enclosure/barrier of plywood to surround all surfaces with chemical stripper prior to the end of the work shift. This barrier shall be constructed to eliminate occupant tampering during the overnight dwell time.
 - c. The base of the barrier/enclosure shall be sealed from the inside with solid plastic and sealed to the barrier to eliminate run-off of the stripper beyond the enclosure.
 - d. Immediately at the start of the next day's work shift, disassemble the enclosure and remove the stripper as prescribed by the manufacturer.
3. Paint Removal - Acceptable Product: The Deleading Contractor shall use the approved stripping agent, which may require multiple applications depending on a variety of circumstances. When this type of method is used, care should be taken to avoid drying the agent. It may become necessary to lightly mist over area with water to keep it moist. Surfaces that come in contact with the stripping agents used in this methodology during washing or neutralizing shall be completely cleaned before the waste dries.
- a. In addition to standardized work area preparation, to protect surrounding areas, polyethylene sheeting shall be placed flush to the surrounding walls for a firm seal to avoid leakage of waste below the polyethylene sheeting, and the joint shall be caulked. The Deleading Contractor may place absorbent pads or material below the surface being abated and/or place waterproof duct tape on the surface adjacent to that being abated, to prevent damage to the adjacent wall or floor surface. The Deleading Contractor is responsible for repairing any adjacent surfaces harmed by the chemical removal process. This includes contamination of these surfaces by chemical residue.
 - b. Dwell time shall be as specified by the chemical stripper manufacturer, or as shown by experience, whichever is applicable. The Deleading Contractor shall run a series of test patches to determine the optimal amount of time for the chemical to work on a particular component.
 - c. Removal of chemical stripper after dwell time shall be performed by scraping the waste off the substrate onto the paper, using a metal scraper. Application process shall be repeated if, in the opinion of the City, complete removal of the paint is not attained. At no time shall dry scraping be used.
 - d. Once removal of paint from the abated surface is complete, clean-up procedures shall then follow and include wash-down of surface and neutralization as required by manufacturer.

- e. Once the neutralizing process is complete, the surface shall undergo normal clean-up procedures of HEPA vacuuming, TSP wash and repeated HEPA vacuuming.
- f. All worker protection equipment as specified shall be left within the work area during all phases of the work. This equipment may be transferred between work areas using double six-mil polyethylene bags to prevent contamination of clean areas.
- g. All accumulated debris resulting from removal by chemical stripper shall be treated as hazardous, unless proven otherwise, and shall be properly stored and disposed of according to EPA, DOT and all other applicable federal, state and local regulations.

3.6 REMOVAL OF COMPONENTS FOR OFF-SITE STRIPPING

- A. Removal of components and trim shall be limited to those identified in the Scope of Work Attachment and as agreed with the City, in accordance with the unit process. Components for off site stripping shall be sent to an off-site EPA-licensed dipping facility, as approved by the City, and the paint stripped. All required neutralization to the substrate shall occur to ready the substrate for painting or finishing. Reinstallation shall be completed by the Deleading Contractor or his/her Sub-Contractors.
- B. Any damage to adjacent surfaces due to component removal shall be repaired and restored with similar or better materials by the Deleading Contractor to the approval of the City.
- C. The components shall be removed according to this prescribed sequence:
 - 1. Score paint and caulk lines to the walls adjoining the component to be removed with razor knife. Removal of components shall not damage existing plaster and paint beyond reasonable expectation.
 - 2. Carefully pry trim from substrate and remove.
 - 3. Any components or pieces of the component and/or trim assembly that are damaged or break during the removal process shall be replaced by the Deleading Contractor with equal items of same material.
 - 4. Fill damaged spaces with plaster and repair to a smooth finish. Repair of damage shall be at the approval of the City.
 - 5. Send the components, protected and marked for reinstallation, to the dipping facility where the paint shall be removed.

- D. Coordination shall exist between the removal of radiators/radiator covers for off-site stripping and the installation of temporary enclosures to protect the tenants in the unit. The Deleading Contractor shall be responsible for installation of a temporary cover (i.e. wood covers) at each location where a radiator/radiator cover is removed for off-site abatement. The temporary cover shall be installed securely and shall be perforated to allow for heat transfer to the Apartment. In addition, the cover shall meet all current fire safety and building codes for such installation.

3.7 ENCLOSURE SYSTEMS

- A. Enclosure methods, as identified in this section, shall be used to enclose the components identified in the Scope of Work Attachment.
- B. Preparation of enclosure work area shall be as described in Sections 3.1 and 3.2 and comply with the HUD Guidelines and the Columbus Register of Historic Properties Architectural Guide.
- C. Enclosure refers to processes that make lead paint inaccessible by covering painted surfaces. Examples of enclosure materials are 1/4" luan sealed to the surface and face nailed, aluminum covering, drywall or wood trim.
- D. Upon completion of abatement area preparation, painted surfaces that have peeling or flaking shall be made intact by wet scraping.

3.8 SURFACE PREPARATION

- A. General: Surface preparation shall include the removal of all loose and flaking, chipped and checking, and cracked paint and will include feathering the edges where intact surface ends. Paint chips shall be collected as they are generated from surface preparation. Surfaces shall be prepared for painting by the Deleading Contractor to allow the painter to perform the work of Section 09900 with no additional surface prep in the form of scraping, feathering, deglossing, or sanding.
- B. All surface preparation shall be completed as an abatement work item in accordance with the requirements of this section and the regulations. This shall include all work area preparation, use of trained and qualified abatement workers, cleaning procedures, and passing clearance criteria.

3.9 CLEAN-UP

- A. Removal of Barriers and Final Clean-up Procedures:
 - 1. All applicable requirements of the HUD Guidelines apply to the performance and order of work of this section.

2. Removal of barrier polyethylene sheeting shall begin from upper levels and be folded in upon itself to prevent escape of dust or debris into the unit. Removal of floor polyethylene sheeting shall begin at the corners and folded into the middle to contain the dust or residue. All collected polyethylene sheeting shall be placed in six-mil polyethylene bags for proper disposal as described in this Specification.
3. Once the polyethylene is removed, final cleaning shall be a thorough HEPA vacuuming of all surfaces, starting at the ceilings, proceeding down the walls and including windows, doors and floor. The floor shall be vacuumed last, beginning at the farthest corners from the entrance to the work area.
4. Special attention shall be given to personal hygiene and the cleaning of supplies and/or equipment. All mop heads, sponges and rags shall be replaced or changed daily at a minimum.
5. Replacement components shall be installed immediately upon completion of final cleaning as per the specification.
6. At completion of work within each unit, dust furniture and surfaces affected by construction activity. Mop floors and vacuum rugs as needed to leave the units as clean as they were prior to commencement of construction work.
7. Final clearance wipe testing will be performed after the final clean-up has been completed and all surfaces are dry, and the area has passed a visual inspection by the Lead Inspector. Unless EPA regulations establish different clearance levels, the following HUD clearance standards should be used, based on wipe sampling:

40 $\mu\text{g}/\text{ft}^2$ for floors
250 $\mu\text{g}/\text{ft}^2$ for interior window sills
400 $\mu\text{g}/\text{ft}^2$ for window troughs and exterior concrete or other rough surfaces
8. Should laboratory results indicate that the wipe test clearance level is exceeded, the Deleading Contractor shall reclean the affected area, at no additional cost to Owner or City, utilizing the methods specified in this section. Deleading Contractor shall pay for all additional cleaning and additional testing until the clearance level is achieved. Retesting will then be performed to verify compliance with the mandated levels. Refer to the HUD General Conditions and Division 1.
9. In addition, all costs associated with all relocation fees including housing, meals, transportation, medical expenses, and special needs which arise as a result of failure of the visual inspection and/or clearance dust wipe sampling shall be borne by the Deleading Contractor until the apartment unit passes.
10. The cost of aforementioned additional testing, inspection and/or relocation fees shall be paid for by the Deleading Contractor by subtracting these costs from the Contractor's payment requisition.

3.11 DISPOSAL OF WASTE MATERIAL

A. General

1. The Contractor shall contact the regional EPA, state, and local authorities to determine lead-based paint debris disposal requirements. The requirements of Resource Conservation and Recovery Act (RCRA) shall be complied with as well as applicable state solid waste plan requirements. During the actual abatement, the Deleading Contractor shall not leave debris on the property, incinerate debris, dump waste by the road or in an unauthorized dumpster, or introduce lead-contaminated water into storm (will not be flushed down yard inlet or street drain) or sanitary sewers (will not be flushed down toilet or other household drain.)
2. The following components to be abated and disposed under this contract are considered hazardous waste and shall be disposed as hazardous waste in accordance with RCRA regulation:
 - a. All paint chips generated
 - b. All chemical stripper residue, slag and waste

3. Testing of Materials:

The following materials, individually and at a minimum, shall be representatively tested according to the TCLP testing procedure of RCRA by the Contractor, and results made available to the City to determine whether or not they are to be considered hazardous waste disposal:

- a. waste water,
 - b. dust from HEPA filters and from damp sweeping,
 - c. plastic sheets, duct tape, or tape used to cover floors and disposable work clothes and respirator filters,
- rags, sponges, mops, HEPA filters, respirator cartridges, scrapers, and other materials used for testing, abatement, and clean up.
All exterior painted wood components removed.
All interior painted components removed.

4. In order to determine whether the above generated wastes are classified as nonhazardous solid or hazardous waste as defined under RCRA, the Toxicity Characteristic Leachate Procedure (TCLP) must be performed. Representative samples shall be required of all material to be disposed. Representative sampling shall be at a minimum, one sample of each component or material type to be disposed.
 - a. All testing results above the TCLP regulatory limits of 5.0 milligrams/Liter (mg/L) lead shall be disposed of as hazardous material in accordance with Article C of this section. The cost for testing and proper disposal of items listed in 1-3 above shall be included in the Contractor's Unit Price for this project.

5. Contractor shall submit written manifest to the City and Owner prior to removing any waste from site and shall submit completed manifest to the City and Owner after waste is disposed at the approved landfill. Waste shall be removed from the site in a timely manner.
 6. Contractor shall assist the Owner in applying for and receiving the EPA Identification Number for Hazardous Waste Generator.
 7. Alternatives to Hazardous Waste Disposal, including recycling or reclamation, of materials to be disposed as hazardous waste shall be permitted only with documentation assuring these processes are in compliance with applicable EPA regulations, and based upon the City's written approval.
- B. Disposal of Non-Hazardous Contaminated Solid Waste
1. Contractor shall contain and properly dispose of all non-hazardous waste.
 2. Contractor shall HEPA vacuum the exterior of all liquid waste containers prior to removing the waste containers from the work area, and wet wipe the containers to ensure that there is no residual contamination. Containers shall then be moved out of the work area into the designated storage area.
 3. Contractor shall carefully place the containers into the truck or dumpster used for disposal.
 4. Contractor shall ensure that all waste is transported in covered vehicles to a landfill, or lined landfill, if available, in accordance with applicable EPA regulations.
 5. Contractor shall submit to the City for approval, the waste transfer procedure and route, and shall comply with all DOT regulations concerning hazardous and non-hazardous waste removal and transportation. If a waste sub-contractor is utilized for the disposal procedure, Deleading Contractor shall submit for the City's approval, the sub-contractor qualifications to perform the work as specified in this Specification. Contractor shall be responsible for all actions of any sub-contractor as pertaining to waste removal transport and disposal under this Section.
- C. Disposal of Hazardous Waste
1. Contractor and all subcontractors utilized shall be required to comply with the RCRA and with all applicable federal, state and local regulations.
 2. Contractor shall place chemical stripper residues in drums made out of materials that cannot be dissolved or corroded by chemicals. Caustic and acid waste must be segregated from each other and cannot be stored in the same containers. Hazardous waste cannot be stored on-site without approval of the Owner.
 3. Liquid hazardous waste shall be appropriately drummed and sealed for disposal.

4. Waste Containers: Contractor will comply with EPA and DOT regulations for containers. Contractor shall contact state and local authorities to determine their criteria for containers, with such information presented to City. The more stringent regulation shall apply.
 5. Waste Transportation: If the Contractor is not a certified hazardous waste transporter a contract shall be entered into with a certified transporter to move the waste who shall be at the approval of the City. Contractor shall require the certified hazardous waste transport to follow RCRA and DOT regulations.
- D. Cost of Waste Disposal
1. All costs associated with waste disposal shall be included in the Contractor's Unit Prices for Hazardous and Non-hazardous waste.
 2. In the event that any item identified as hazardous waste included in the Contractor's Unit Price and identified in item A.2. of this section is determined to be classified as non-hazardous waste, either through regulation changes or representative testing by Contractor or City, the City shall receive a credit to the contract in the amount equal to the cost of the proper disposal of that waste as hazardous waste minus the cost of disposal as non-hazardous waste. Any and all administration of scheduling, cost identification and other activities involved in waste disposal shall be included in the Unit Prices for Hazardous and Non-hazardous waste.
 3. Contractor must supply all manifests. No payment for disposal until all documentation is received and approved by the City.
- E. Waste Reduction

Contractor may utilize waste reduction procedures and techniques to reduce the volume of bulk materials disposed as hazardous waste provided the following:

1. All costs for waste reduction are included in Contractor's Unit Price.
2. All waste reduction procedures shall be in compliance with EPA and OSHA regulations and requirements.
3. All aspects of Hazard Communication and OSHA 29 CFR 1926.62 shall be followed. Provide Health and Safety Plan and employee medical information if different from abatement personnel.

- END OF SECTION -

SECTION 05580

ALUMINUM SHEET METAL AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.
- B. Related Sections:
 - 02090 Lead-Based Paint Abatement
 - 07460 Vinyl Siding
 - 07901 Joint Sealers

1.3 SUBMITTALS

- A. Refer to the General Conditions of the Contract.

1.4 PROJECT/SITE CONDITIONS

- A. *Field Measurements:* Check actual dimensions of other construction by accurate field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the work.

PART 2 - PRODUCTS

2.1 MATERIALS

Metal Flashing

1. 0.027 in. mill finish sheet aluminum
2. Job cut to size and configurations required

Aluminum Break Metal

1. *General:* Provide aluminum sheet metals selected for their surface flatness, smoothness and freedom from surface blemishes where exposed to view. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, stains, discoloration or other imperfections.
2. *Alloy and Temper:* Provide 3105-H26 aluminum sheer (minimum tensile strength: 26,000 psi, minimum yield strength: 22,000 psi) or equivalent. Comply with ASTM B209.
3. Aluminum sheet metal to have nominal thickness of 0.024 inches.
4. Finish of aluminum sheet metal to be two coats of acrylic baked enamel, as provided by manufacturer, with corrosion inhibiting primer and thermosetting top coat to achieve a minimum DFT of 2.0 mils.

Sealants: Where related sections call for sealant or adhesive, comply with requirements of Section 07901 - Joint Sealants.

Fasteners:

1. Fasteners are to be of the same basic metal and alloy as fastened metal, unless otherwise indicated. Do not use metal that is corrosive or incompatible with metals joined.
2. Provide concealed fasteners for interconnection of sheet metal fabrications, and for their attachment to other work, except where exposed fasteners are unavoidable or are the standard fastening method.
3. Where exposed nailing of trim and casing wrap is unavoidable, provide color matched trim nails from the same manufacturer as aluminum sheet.
4. *Acceptable Manufacturers:* Provide fasteners manufactured by same supplier as aluminum sheet.

Fabrication

1. Fabricate sheet metal to comply with requirements indicated for design, dimensions, materials, joinery and performance.

PART 3.0 - EXECUTION

3.1 INSPECTION

- A. Examine all substrates on which the work is to be applied. Ensure that casings and trim are solid and suitable to receive fasteners.

3.2 INSTALLATION

General

1. All dimensions shall be field verified prior to fabrication of any covering materials.
2. Material damaged during installation shall be replaced. Only minor scratches and abrasions to be touched up.
3. All breaks shall be neat and true with no face nailing, proper back sealing, and all ends neatly tucked with no substrate exposed to the weather.
4. Cutting and patching of casing, trim and jambs, removal and replacement of rotted wood, providing and installing flashing, and all other items required for a neat and workmanlike appearance shall be a part of this work.
5. Conceal fasteners where possible; otherwise, locate where they will be as inconspicuous as possible. Size fasteners to support closures and trim, with fasteners spaced to prevent buckling or waviness in finished surfaces.

- END OF SECTION -

SECTION 06200

FINISH CARPENTRY AND MILLWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

This Section specifies administrative and procedural requirements for materials and equipment used for the Project.

Coordinate work with that of work of this contract.

Related Sections:

02090 Lead-Based Paint Abatement

09900 Painting

1.3 SCOPE

The work of this section consists of all finish carpentry and mill work, and includes, but is not limited to the replacement of components removed or to be enclosed as part of lead paint abatement. Such materials shall match type, form, function, dimensions and materials of original material removed.

Architectural Wood Work Institute (AWI) "Quality Standards".

All installed materials shall be painted according to the Section 09900 - Painting of this specification.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

<http://www.theotherpaper.com/topfinder.html>

Finish carpentry work and miscellaneous items not mentioned or described shall be furnished and/or installed in accordance with the intent of the drawings and specifications and as required to complete the work.

PART 2 – PRODUCTS

2.1 MATERIALS

Window and Door Trim

1. White wood, #1 Poplar.

Note: Casings to match existing profile.

Other trim shall match existing material type removed.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Back-prime woodwork on all surfaces with one coat of wood primer. Schedule delivery to allow time for application and drying of back-prime coat before installation of woodwork.

3.2 INSTALLATION

Install plumb, level, true and straight with no distortions. Shim as required using concealed shims.

Cut to fit. Where woodwork abuts other finished work, scribe and cut for accurate fit.

Distribute defects allowed in the quality grade specified to the best overall advantage when installing.

1. Trim and Moldings: Install in single, unjointed lengths for openings. Cope at returns and miter at corners.
2. Attach securely in place with uniform joints, providing for thermal and building movements.
3. Nailing: Blind nail where exposed. Use fine finishing nails where exposed. Set exposed nail heads for filling.
4. Anchoring: Secure woodwork to blocking built-in or directly attached to substrates.

3.3 ADJUST AND CLEAN

Repair damaged or defective work as directed.

Clean exposed interior and exterior surfaces.

Clean shop finished woodwork, touch-up finish as required, and remove and refinish damaged or soiled areas of finish.

Fill all nail holes; sand smooth.

Caulk all joints.

- end of section -

SECTION 06403

REPAIR OF LEAD PAINTED SUBSTRATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.
- B. This section requires repair of the following lead-based painted substrates in the areas indicated.
 - 1. Wood trim.
 - 2. Plaster walls and ceilings.
 - 3. Other components identified as containing Lead-Based Paint to be repaired.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS:

Gypsum Wallboard: Sized to match existing thickness; Type: Regular, unless indicated

Joint Compound: Powder or ready-mixed vinyl

Wood Filler: Epoxy or latex based

PART 3 - EXECUTION

3.1 GENERAL

Mist damaged area with wet detergent wash solution. Using a utility knife, score paint around to be removed. Include entire area of patch.

Remove paint from area to be patched with scraper or utility knife. Mist area during scraping operations.

Do not allow paint chips, debris or dust to accumulate. Pick up with wet paper towel and place in disposal bag.

Carefully remove loose paint at edges. Remove damaged sections of substrate place in disposal bag.

Prepare area for new patching materials.

1. **Gypsum Board:** Cut out area of damaged wallboard. Replace with new section. Finish edges with joint compound and dry wall tape. Do not sand compound; sanding will disturb lead-based paint unless a large area of paint is removed. Use wet sponge or lightly wet sand joint compound.
2. **Plaster:** Prepare area in accordance with gypsum board above. Mix compatible plaster materials and fill area to be patched. Use wet sponge or lightly wet sand new plaster.
3. **Wood Trim:** Remove damaged area and fill void with wood filler or epoxy. Finish and lightly wet sand filler.

- END OF SECTION -

SECTION 07460

VINYL SIDING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.
- B. This section includes the following:
 - 1. Vinyl siding, soffits and accessories (the siding system)
 - 2. Other accessories furnished or required by the siding system manufacturer
 - a. Section 05580 - Aluminum Sheet Metal
 - b. Section 07901 - Joint Sealants
 - c. Section 02090 - Lead-Based Paint Abatement

1.3 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 General Requirements.

Product data for each type of product specified, including details of construction relative to materials, dimensions of individual components, profiles, textures and colors.

Installer References: Project name and Owner name, address and telephone, for at least five projects completed by the Siding Installer as indicated in Quality Assurance.

Samples for initial selection purposes in form of manufacturer's sample finishes showing full range of colors, profiles and textures available.

1.4 QUALITY ASSURANCE

Single-Source Responsibility for Siding and Accessories: Obtain each color, grade, finish, type and variety of siding and related accessories from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

Installer Qualifications: Engage an Installer who has not less than three years experience completing vinyl siding applications similar in material, design and extent to that indicated for project and that has resulted in construction with a record of successful in-service performance on at least five other similar applications.

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver materials to Project site in manufacturer's unopened bundles or containers with labels intact.

Handle and store materials at Project site to prevent water damage, staining or other physical damage. Comply with manufacturer's recommendations for job site storage, handling and protection.

1. Store vinyl products horizontally on a flat surface in a protected location.
2. Do not store in a location where ambient temperature may exceed 120°F.
3. Store all products in their original containers and packaging.

Protect plastic insulation as follows:

1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver plastic insulating materials to project site ahead of installation time.
3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.6 PROJECT CONDITIONS

- A. Weather Conditions: Proceed with siding installation only when existing and forecasted weather conditions will permit siding to be installed in compliance with manufacturer's recommendations and when substrate is completely dry.
- B. Temperature: Do not fabricate or install any work when the ambient temperature is less than 40°F.
- C. Coordination: The Installer/Fabricator for work of this Section shall coordinate requirements, materials and sequencing with other trades.

1.7 WARRANTIES

- A. Special Project Warranty: Submit a written warranty, executed by manufacturer, agreeing to repair or replace siding that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to:

1. Deterioration of siding beyond normal weathering
 2. Cracking, crazing or blistering of siding finish
 3. Deformation, buckling or warping of siding panels
 4. Siding deterioration or any other failure to perform as specified in manufacturer's product literature.
- B. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the Contractor under the Contract Documents.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements and the limitation contained in the "Quality Assurance" article, manufacturers offering vinyl siding and related products which may be incorporated in the Work include, but are not limited to, the following:

1. Alcoa Building Products, Div. Stolle Corp.
2. Certain Teed Corp., Vinyl Building Products Group
3. Georgia-Pacific Corp.
4. Wolverine Technologies, Inc.

Accessories: Accessory siding products complying with the requirements of the Contract Documents may be provided by any manufacturer acceptable to and approved by the siding system manufacturer.

2.2 VINYL CLAPBOARD SIDING

Formed Vinyl Siding: Solid vinyl siding and accessories fabricated by extrusion from a polyvinyl chloride compound complying with ASTM D 3679, and as follows:

1. Exposure: 8-inch exposure in double 4-inch style
2. Thickness: .040 inches

Colors, Textures and Patterns: Provide siding with the following requirements:

1. Provide selections to Owner from manufacturer's full range of standard colors, textures and patterns for vinyl siding indicated. Assume five siding colors for project, in addition to Owner's selected color for trim units.

2.3 VINYL ACCESSORIES

Siding Accessories, General: Solid soffit panels, ventilating soffit panels, corner posts, starter strips, J channels, trim and other items as indicated on drawings, matching type of siding selected, and as follows:

1. Exterior Building Corner Trim: For use with vinyl siding, three piece vinyl system consisting of $\frac{3}{4}$ inch J-channels and 6 $\frac{1}{2}$ inch exposed faces fluted corner unit. Corner unit shall be riveted to the J channels after installation.

Acceptable Product: "FMOP Fluted Outside Corner," Mastic or equal

2. Exterior Corner Trim at Cantilevered Areas:

Acceptable Product: "Outside Corner Post BP5PLA," Wolverine or equal

3. Interior Corner Trim:

Acceptable Product: "Inside Corner Post IC34LP," Wolverine or equal

4. J channel trim at openings interfacing with vinyl siding: Aluminum extrusions as manufactured by composite siding manufacturer

Fasteners: Non-corrosive aluminum siding nails or coated screws, in sufficient length to penetrate minimum of 1 inch into substrate. Provide pre-finished fasteners in color to match siding where face nailing is unavoidable.

Sealants: Comply with requirements of Section 07901

Finish: Siding manufacturer's standard finish

Expanding Foam: For filling open bottom ends of vertical corner trim, foam-in-place expanding foam

2.4 AIR INFILTRATION BARRIER

Polyethylene sheet, 0.0061 inch thick, formed by spinning continuous strands of fine high density polyethylene interconnected fibers and bonding them together by heat and pressure; with a moisture vapor transmission rate of 400 grams/sq. meter/24 hrs. per ASTM E 96, procedure B; flame spread and smoke developed ratings of 5 and 10 per ASTM E84

Products: Subject to compliance with requirements, provide one of the following:

1. "AMO-Wrap," Amoco Foam Products Co.
2. "Tyvek Housewrap," Fibers Department, DuPont Company

PART 3 - EXECUTION

3.1 EXAMINATION

Examine substrates for compliance with requirements for substrates, installation tolerances, and other conditions affecting performance of siding. Do not proceed with installation until unsatisfactory conditions have been corrected.

Beginning siding installation on building constitutes acceptance of substrate conditions.

3.2 PREPARATION

Clean substrates of projections and substances detrimental to application.

Coordinate installation with flashing and other adjoining construction to ensure proper sequencing.

Immediately prior to beginning installation, inspect siding system components for damage, deterioration, marring or soiling. Discard units not conforming to requirements.

3.3 AIR INFILTRATION BARRIER INSTALLATION

General: Comply with manufacturer's instructions applicable to products and application indicated. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation.

3.4 SIDING INSTALLATION SYSTEM - GENERAL

After placement of air infiltration barrier, install siding as follows.

Comply with siding manufacturer's installation instructions and recommendations. Center nails in elongated nailing slots without bidding siding to allow for thermal movement. Install trim and accessories in accordance with manufacturer's recommendations. Overlap butt joints to shed water away from direction of prevailing wind. Isolate dissimilar metals.

1. Accurately measure and cut all pieces to fit. Scribe to fit at penetrations and abutting construction.

If fasteners do not "take" because of deterioration of, or voids in, existing substrate, install a new fastener in the immediate adjacent siding slot.

2. Notify Owner of any condition where fasteners cannot be securely installed within the indicated spacing.

Cutting: When cutting siding panels, cut into face side and through back side. Discard units where cuts are ragged.

Install siding and trim in longest possible lengths; do not use trimmings or cut pieces for continuous runs.

1. Check panels for level and horizontal position prior to fastening. Maintain uniform vertical dimensions and level coursing at all horizontal siding.

Fasten through center of elongated nailing slots at 16 inches on center unless otherwise indicated, making sure fastener seats tightly but without binding or buckling siding.

1. Horizontal Securement: To secure panels in place and prevent horizontal shifting, install two fasteners in the fastener slot nearest the center of the panel, one at each side of elongated hole, to allow for thermal expansion in either direction.

Joints: Make provisions for thermal expansion in siding system. Install lap joints in siding panels.

1. At locations where siding abuts other construction, corner trims or penetrations, cut siding pieces 1/8 inch short of abutment for expansion.
2. Do not butt join panels in running joints.
3. Stagger end joints in uniform "step" pattern, spaced at least 24 inches horizontally and vertically.

Fasten siding at 8 inches on center for first 24 inches at all exterior corners and for first 48 inches at all roof gable ends.

Soffits: Install soffit panels and trim as indicated. Nail or screw soffit panels to structural substrate at 16 inches on center to prevent shifting or dislodging.

Sealant: Install sealant at the perimeter of the siding system abutting other construction; penetrations in the siding system; other locations indicated on drawings; and wherever required to create a weather-tight installation.

3.5 TRIM

General: Install trim, setting plumb and level in true alignment. Cut to lengths required.

1. Where indicated, install trims on 1/4 inch spacers or insulation board. Temporarily secure spacers to substrate and fasten trim extrusions through spacers to sheathing, taking precautions to prevent movement during attachment.

Secure trim through siding to board sheathing using specified fasteners at 16 inches on center. Fasten both legs of corner trim, alternating fastener spacing at each leg.

J Trim: Install J trim units as indicated on drawings. Make provisions to weep moisture which accumulates in horizontal J channel. Leave 1/8 inch joints at trim ends for thermal expansion.

Install trim in maximum lengths available without joints; do not piece together shorter lengths.

1. Corner Joints: Where identical trim extrusions meet at corners, create joint by mitering extrusions. Leave 1/32" gaps for thermal expansion at mitered corners.

Install corner posts and other trim before installing adjacent siding.

Fill open bottom ends of corner posts with expanding foam insulation or aluminum closures to prevent insect penetration. Install as required to conceal from view.

3.6 ADJUSTING

Inspect system components for proper fit and dimensional uniformity. Adjust, repair or replace components not complying with requirements.

Replace damaged siding materials with new materials complying with specified requirements.

3.7 CLEANING

Clean finished surfaces as recommended by siding manufacturer, and maintain in a clean condition during construction.

- END OF SECTION -

SECTION 07901
JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.
- B. This section includes joint sealants for the following locations:
1. Exterior joints in vertical surfaces and non-traffic horizontal surfaces as indicated below:
 - a. Exterior Wood Trim Joints: Wood to wood, wood to metal, wood to brick, wood to siding material.
 - b. As required for proper installation of new doors and exterior trim.
 - c. Joints between existing trim wrapped in aluminum break metal and existing siding, singles and/or brick.
 2. Interior joints in vertical surfaces and horizontal non-traffic surfaces as indicated below:
 - a. Perimeter joints between interior wall surfaces and frames of interior doors and other replaced interior trim as required.

1.3 PERFORMANCE REQUIREMENTS

Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each difference product required.

Warranty-Guarantee: Provide a written five year warranty-guarantee on labor and materials.

Environmental Conditions: Do not proceed with installation of joint sealants under the following condition: *When ambient and/or substrate temperature and weather conditions are outside the limits permitted by joint sealant manufacturer.*

Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.

Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS - GENERAL

A. Compatibility: Provide joint sealants, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience. Color to be agreed between Owner and contractor.

2.2 LATEX JOINT SEALANTS - INTERIOR JOINTS ONLY

A. Acrylic-Emulsion Sealant: Manufacturer's standard, one part, non-sag, mildew-resistant, acrylic-emulsion sealant complying with ASM C 834, formulated to be paintable and recommended for exposed applications on interior and on protected exterior locations involving joint movement of not more than plus or minus five percent.

2.3 ELASTOMERIC JOINT SEALANTS - EXTERIOR LOCATIONS AND ALUMINUM SHEET METAL

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealant of base polymer indicated that complies with ASTM C 920 requirements, including those requirements referencing ASTM C 920 classifications for type, grade, class and use.

2.4 GENERAL BUILDING SEALANT - EXTERIOR LOCATIONS

A. Provide manufacturer's standard, one part, non-sag, low modulus silicone rubber sealant complying with requirements for TT-S-001543, Class A.

2.5 MISCELLANEOUS MATERIALS

Primer: As recommended by joint sealant manufacturer.

Cleaners for Nonporous Surfaces: Use only as acceptable to manufacturers of sealant backing materials, free of oily residues or other substances capable of staining or harming.

Joint sealant backing (backer rod): Provide material and type that are non-staining, are compatible with joint fillers, and are approved for application by the sealant manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

Remove existing caulking, paint, etc.

Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer.

Prime joint substrates where indicated or where recommended by joint sealant manufacturer.

3.2 INSTALLATION OF JOINT SEALANTS

General: Comply with joint sealant manufacturer's printed installation instruction applicable to products and applications indicated, except where more stringent requirements apply.

Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions indicated.

3.3 CLEANING

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

3.4 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated sealants immediately so that installations with repaired areas are indistinguishable from original work.

- END OF SECTION -

SECTION 08100

METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.
- B. Related Sections:
 - 20290 - Lead-Based Paint Abatement
 - 09900 - Painting

1.3 SCOPE

- A. Perform all work required to complete the work of this section as indicated. Such work includes, but is not limited to, the following:
 - 1. Exterior and interior steel hollow metal doors.
 - 2. Exterior and steel rated and unrated insulated hollow metal door frames.
 - 3. Hardware preparation.

1.4 RELATED WORK AND REFERENCE STANDARDS

SDI-100: Recommended Specifications – Standard Steel Doors and Frames of Steel Door Institute.

Underwriters' Laboratories (UL) and Factory Mutual (FM) as applicable to fire rates hollow metal doors and frames.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURES

Benchmark, Inc.

Fenestra Corporation

Steelcraft Manufacturing, Co.

Sized to fit field conditions

2.2 HOLLOW METAL DOORS - PRE-FINISHED, FACTORY PRIMED AND PAINTED; NO FIELD PAINTING

Steel Sheets: Hot dipped galvanized conforming to ASTM A526, G60 Zinc Coating.

Grade and Model: Grade II, heavy duty, Model 1, all flush (hollow steel), rated.

Primer: Rust-inhibiting primer paint suitable as a base of specified finish paint.

2.3 HOLLOW METAL FRAMES - PRE-FINISHED FACTORY PRIMED AND PAINTED; NO FIELD PAINTING

Materials and Fabrication: SDI-100.

Frames: Adjustable, hot-dipped galvanized, shop prime painted, 16 gauge. frame closure piece constructed of 22 gauge sized for conditions as verified in field.

2.4 FIRE RATINGS

A. Fabrication of materials in accordance with UL and FM requirements. Place UL labels where visible when frames are installed in position. Comply with City ordinance or Code for Required Fire Ratings.

2.5 FABRICATION

Edge Clearances:

1. 1/8 inch – between doors and frames at head and jambs.
2. 1/4 inch – at sill thresholds; maximum

Preparation for Hardware: Reinforce, drill and tap doors and frames.

Phosphate-treat surfaces and apply one shop coat of rust inhibiting primer.

2.6 SHOP PAINTING - PRE-FINISHED STEEL DOORS AND FRAMES

Clean, treat and paint exposed surfaces of steel door and frame units, including galvanized surfaces.

Clean steel surfaces of mill scale, rust, oil, grease, dirt and other foreign materials before application of paint.

Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.

Apply finish coat to doors indicated as pre-finished by electrostatically spraying and baking, to produce 1.25 mil DFT.

Color: As selected by Owner.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Remove existing doors and frames only once all materials have been assembled and work can be completed on new door and frame installation on same working day.
- B. Erect frames plumb and square with a maximum diagonal distortion of 1/16 inch. Securely brace to prevent movement before and during construction of adjacent walls. Anchor bottom of frames to floors with expansion bolts or power fasteners. Secure to blocking lag bolted to adjoining construction as indicated and specified. Set sill and threshold in mastic bed.
- C. Install finish hardware. Follow manufacturer's instructions.
- D. Touch up primer coat where required after installation.
- E. Labeled frames shall be installed in accordance with NFPA Pamphlet No. 80.

- END OF SECTION -

SECTION 08630
VINYL WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.
- B. Coordinate work with that of all trades affecting or affected by work of this contract. Cooperate with such contractors to assure the steady progress of the work.

1.3 QUALIFICATIONS

- A. The Contractor shall provide copies of the independent laboratory tests that certify that the proposed product meets or exceeds the DH-R45 as specified herein and shall show continuing compliance by affixing the AAMA Certification label and the NFRC label.

1.4 SCOPE OF WORK

- A. Perform all work required to complete the work of this Section as specified herein.
- B. The work of this Section consists of all windows and related items as specified herein, and includes, but is not limited to, the following:
 - 1. Furnish and install complete, with all trim, panning, locks, screens and accessories, and replacement windows. Work includes, but is not limited to windows removed under Section 02090 - Lead Based Paint Abatement. This includes:
 - Vinyl Sash to match existing
 - Tempered glass or wired where required by Code
 - Screens where existing is damaged

2. Furnish and install complete new sashes where indicated in this section. Windows shall be fabricated in sizes, configuration, and profiles shown. Windows shall include all trim flashing, locks, and accessories required for a complete installation, including nailing fin if required. This shall include all jamb and sill extensions required for proper installation, and panning in profiles shown. Install tempered or wired glass where required by Code.

3. The work of replacement windows, without limiting the generality thereof, shall include:
 - a. Window parts removal as listed in the Scope of Work Attachment and performed under Section 02090 – Lead-Based Paint Abatement.
 - b. Removal of other existing work and restoration thereof, as required for the installation and operation of the new units.
 - c. Installation shall include, but shall not be limited to, the following:
 - i. Removal from the site and legal disposal of all removed materials, debris, packaging, banding, and all other surplus materials and equipment.
 - ii. Provide new factory glazed, solid vinyl sash windows, types as specified herein or as scheduled on Drawings, together with necessary mullions, panning trim, expanders, operating hardware, installation hardware, and all other accessories for complete installation.
 - iii. Treated wood blocking, fillers, and nailers as required for secure installation.
 - iv. Fiberglass insulation, between window frames and adjacent construction.
 - v. Sealing of all joints within each window assembly.
 - vi. Sealing of entire exterior perimeter of window units after installation.
 - vii. Field coordination with work of other trades.
 - viii. Interior trim shall be as required to restore interior window openings to “as new” condition.

1.5 QUALITY ASSURANCE

- A. **Standards:** Except as otherwise indicated, requirements for Vinyl sash windows, terminology, and standards of performance and fabrication workmanship are those specified and recommended in ANSI/AAMA 101-93, and applicable general recommendations published by AAMA, NFRC, and ASTM.
- B. **Performance and Testing:** Except as otherwise indicated, comply with air infiltration tests, water resistance tests, and applicable load tests specified in ANSI/AAMA 101-93 for type and classification of window units required in each case. Except as otherwise indicated comply with thermal properties as specified by NFRC 100-91 testing.
- C. **Specific Performance Requirements**
 - 1. **Air Infiltration Test:** With the sash in a closed and locked position, the window shall be subjected to an air infiltration test in accordance with ASTM E283-91. Air infiltration shall not exceed 0.34 cubic feet per minute per foot of crack length when tested at a pressure of 25 mph.
 - 2. **Water Resistance Test:** The glazed unit shall be mounted in its vertical position continuously supported around the perimeter, and the sash placed in the fully closed and locked position, the window unit shall be subjected to a water resistance test in accordance with ASTM E331. When a static pressure of 9.00 pounds per square foot has been stabilized, five gallons of water per square foot of window area shall be applied to the exterior face of the unit for a period of 15 minutes. No water shall pass the interior face of the window frame and there shall be no leakage as defined in the test method.
 - 3. **Uniform Structural Load Test:** A minimum exterior and interior uniform load of 75 pounds per square foot shall be applied to the entire outside surface of the test unit. This test load shall be applied to the entire outside surface of the test unit. This test load shall be maintained for a period of 10 seconds. At the conclusion of tests, there shall be no glass breakage, permanent damage of fasteners, hardware parts, support arms, actuating mechanisms, nor any other damage causing the window to be inoperable. There shall be no permanent deformation of any frame in excess of 0.4 percent of its span.
 - 4. **Condensation Resistance Factor:** The window shall be tested in accordance with AAMA 1502 standards and tests of thermal performance, and shall have a condensation resistance factor of no less than 44.
 - 5. **Energy Rating Factor:** The window unit shall be tested in accordance with NFRC 100-91 for non-solar heat flow through the window assembly, and shall have a U-factor of no more than 0.44.
 - 6. **Sealed Insulating Glass Units:** The window unit shall be tested in accordance with ASTM E773 and ASTM E774 for unit construction, and shall have a Class CBA rating.

1.6 SUBMITTALS

- A. General: Provide submittals in compliance with the following:
1. Product Data: Submit manufacturer's specifications, recommendations, and standard details for Vinyl sash window units, including certified test laboratory reports as necessary to show compliance with requirements.
 2. Show Drawing: Submit shop drawings, including location floor plans or exterior wall elevations showing all window openings, typical unit elevations at $\frac{3}{4}$ inch scale, and full size detail sections of every typical composite member. Show anchors, hardware, operators, and other components not included in manufacturer's standard data. Include glazing details and standards for factory glazed units.
 3. Verification Samples: Operating sample of each window type specified illustrating fabrication, hardware, glazing, screen, and finish.

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Store and handle windows, mullions, panels, hardware, and all appurtenant items in strict compliance with the manufacturer's instructions.
- B. Protect units adequately against damage from the elements, construction activities, and other hazards before, during, and after installation.

1.8 SPECIAL PROJECT WARRANTIES

- A. Manufacturer's Warranties: Submit written warranties from window manufacturer for the following:
1. Windows: Windows furnished are certified as fully warranted against defects in material or workmanship under normal use and services for a period of one (1) year from the date of Project Close-out.
 2. Glass: Glass shall be warranted from visual obstruction due to internal moisture for a period of five (5) years.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Named products are specified herein only to illustrate the quality required and not to exclude products from other manufacturers. Windows shall be manufactured by:

1. Accu-Weld, Series 3000
2. Alside, Model 3001
3. Harvey, Classic Welded
4. Simonton, Series 5500
5. City-approved equal

2.2 MATERIALS

- A. All Vinyl sash extrusions shall be 100% virgin polyWood sash chloride (PVC) and have a nominal wall thickness of 0.065 inches.
- B. Fasteners: Aluminum, stainless steel, or other materials warranted by manufacturer to be non-corrosive and compatible with window members, trim, hardware, anchors, and other components of window units.

Do not use exposed fasteners on exterior except where unavoidable for application of hardware.

2.3 FABRICATION AND ACCESSORIES

- A. General: Provide manufacturer's standard fabrication and accessories that comply with specifications indicated standards, except to extent more specific or more stringent requirements are indicated. Include complete system for assembly of components and anchorage of window units and prepare complete pre-glazing at factory.
- B. Window Members: All window members, including muntin bars, shall be of 100% virgin polyWood sash chloride (PVC).
 1. Main frame and sash members shall have a nominal thickness of not less than 0.065 inches.
 2. Sash frame shall be miter cut and fused.
- C. Hardware: Hardware having component parts that are exposed shall be aluminum, stainless steel, or other non-corrosive materials compatible with aluminum. Cadmium or zinc-plated steel, where used, must be in accordance with ASTM Specification A165 or A164.

Cam locks

 2. Tilt latches
- D. Balances: Balances of appropriate size and capacity to hold both top and bottom sash stationary in any open position shall be used. Sash balances shall be easily accessible and replaceable in the field.

E. Glazing:

1. All units (except insulated panels as required for installation) shall be pre-glazed at the factory with insulated glass as follows:
 - a. All units shall be constructed to an overall minimum thickness of 5/8 inch with two sheets of DSB 1/8 inch as size and loading require.
 - b. All insulated glass units shall be tested, certified, and carry the respective IGCC-CBA level certification number on the glass spacer or permanently labeled on the glass.
2. All units shall be marine (wrap-around) glazed to allow for glass replacement without the use of special tools.
3. Where required by code, the glazing shall be labeled as tempered.

F. Weather Protection:

1. Provide means of drainage in the form of weeps for water and condensation that may accumulate in members of window units.
2. Weather-stripping: Provide sliding weather-stripping or double hung sash.

- G. Screens: Screens on operating vents shall be supplied for all windows. Screen frames are to be extruded aluminum sections with corners mitered and crimped with corner gussets. Screening fabric shall be aluminum mesh retained in screen frames with Vinyl sash spines that permit easy replacement.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Do not remove existing windows until new replacement is available and ready for immediate installation. Do not leave any openings uncovered at end of working day, during wind-driven precipitation, or during excessively cold weather.
- B. Remove existing work carefully, avoid damage to existing work that is to remain.
- C. Perform all other operations as necessary to prepare existing and new openings for proper installation and operation of new units.

3.2 DISPOSAL

- A. Existing windows and other materials removed from site become the property of the Contractor who shall promptly remove same and legally dispose of at no additional cost to the Owner.
- B. Comply with all applicable laws, rules, and regulations as specified herein, and in Section 02090 - Lead Based Paint Abatement.

3.3 INSTALLATION

- A. Comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators, and other components of work.
- B. Set units plumb, level, and true to line, without warp or crack of frames or sash. Anchor securely in place.
- C. Wedge fiberglass insulation between frames of new window units and construction to remain, or between frames and new blocking as applicable. Remove existing sash counterbalance, cord, and hardware as required. Fill cavity with insulation. Compress fiberglass to 50 percent or less of original thickness.
- D. Seal units following installation and as required to provide weather-tight system as specified in Section 07901, Joint Sealants.

3.4 ADJUST AND CLEAN

- A. Adjust operating sash and hardware to provide tight fit at contact points and at weather-stripping, for smooth operation and weather-tight closure. Verify operating force complies with limits as set by Code for elderly or accessible housing.
- B. Clean Vinyl sash surfaces promptly after installation of windows, exercising care to avoid damage to finish. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and moving parts.
- C. Clean glass promptly after installation of windows. Remove glazing and sealant compound, dirt, and other substances.
- D. Initiate all protection and other precautions required to ensure that window units will be without damage or deterioration (other than normal weathering) at time of acceptance.
- E. Provide training and instruction of owner's maintenance personnel in the operation, replacement of unit parts, and in the monitoring and detection of window assembly performance.
- F. Provide owner's maintenance personnel spare parts or maintaining the window unit due to typical wear and use.

- G. Send to City, with copy to Owner, written recommendations for maintenance and protection of windows following Substantial Completion and Project Close-out.

- END OF SECTION -

SECTION 08700

HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.

1.3 SCOPE

- A. Perform all work required to complete the work of this section as indicated. Such work includes, but is not limited to, the following:
 - 1. Hardware for new hollow metal doors and frames.
 - 2. Aluminum thresholds and weather-stripping.
 - 3. Hardware for new interior and exterior wood doors and frames.

1.4 SUBMITTALS

- A. Receive Owner approval on hardware selection.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Provide items of the Hardware Set selected by Owner to match existing material and function.
 - 1. Butts and Hinges:
 - Bommer Industries, Inc.
 - Hager Hinge Co.
 - Stanley hardware, Div. Stanley Works.
 - Or equal approved by Owner.

2. Cylinders, Locksets, Latchsets, and Deadbolts:

Best Lock Corp.
Sargent Manufacturing Company.
Schlage Lock, Div. of Ingersoll-Rand Door Hardware Group.
Yale Security Inc.
Or equal approved by Owner.
3. Door Closers:
Norton Door Closers, Charlotte, NC
Corbin/Russwin, Berlin, CT
LCN, Princeton, IL
Or equal approved by Owner.
4. Weather-stripping, Thresholds, and Sweeps:
 - a. Hager.
 - b. Glynn Johnson.
 - c. National Guard Products.
 - d. Or equal approved by Owner.
5. Door Stops, Mail Slots, Door Viewers, and Protective Plates:
 - a. Ives.
 - b. Glynn Johnson.
 - c. Rockwood.
 - d. Or equal approved by Owner.

2.2 HINGES

Templates: Provide only template-produced units.

Pins: Steel for steel hinges and stainless steel for non-ferrous hinges; non-removable pins for exterior doors; and non-rising pins for interior doors.

Tips: Flat button and matching plug, finished to match leaves.

Material and Finish: Stainless steel.

Hinges Per Door: Three hinges, as per manufacturer's recommendations.

The width of the hinges shall be sufficient to clear all trims.

2.3 LOCKS, LOCKSETS, AND BOLTS

- A. Cylinder Locksets: Provide locksets that conform to the following ANSI/BHMA standards:

1. Apartment Doors: Heavy-duty residential grade, A156.2, Series 4000, Grade 2.
2. Common Area Doors: Extra heavy-duty commercial grade, A156.2, Series 4000, Grade 1.
3. Deadbolts: Provide residential grade locks/latches that conform to ANSI/BHMA standard A156.5, Series B100, Grade 3.
4. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.
5. Lock Throw: Provide ½-inch minimum throw of latch for bored and pre-assembled types of locks. Provide 1-inch minimum throw for all dead bolts.

2.4 THRESHOLDS, WEATHER-STRIPPING AND SWEEPS

Furnish and install weather-stripping at all doors.

Aluminum Thresholds:

1. Material: Extruded aluminum, smooth commercial mill finish, grooved tread, low profile.

Weather-stripping and Sweeps: Provide units with extruded aluminum bodies, predrilled for screw attachment to door and frame, with flexible neoprene inserts. Sweeps shall be brush type.

PART 3 - EXECUTION

2.1 INSTALLATION

- A. Install hardware and weather-stripping in accordance with manufacturer's installation instructions using proper templates.
- B. Install fire rated hardware in accordance with NFPA 80.
- C. Do not install surface mounted items until finishes have been completed on the substrate.
- D. Drill and counter-sink units that are not factory prepared for anchorage fasteners.
- E. Mount hardware units as indicated in DHI "Recommended Locations for Builder's Hardware for Standard Steel Doors and Frames" and WDHS.3, whichever is applicable.
- F. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- G. Screw thresholds to substrate with No. 10 or larger stainless steel screws of the proper type for permanent anchorage of threshold. Set threshold in full bed of butyl sealant.

- END OF SECTION -

SECTION 09210

GYPSUM DRYWALL AND VENEER PLASTER ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.
- B. This Section includes the following types of gypsum board construction:
 - 1. New gypsum board assemblies screw-attached to wood framing and furring members, at new walls and ceilings.
- C. This Section includes the following types of one-component veneer plaster construction:
 - 1. Patching existing plaster finishes over new gypsum base where identified on the Scope of Work Attachment and where disturbed by other construction operations.

Specified Applications:

- 1. Repairs to existing wall surfaces requiring new base shall be gypsum base with plaster finish floated to feather into existing adjacent sound plaster.

Terminology: References throughout this section to gypsum board shall also refer to gypsum base (for veneer plaster finish) unless indicated otherwise.

1.3 SUBMITTALS

- A. Product data from manufacturers for each type of product specified.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.

- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle gypsum boards to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.5 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for application and finishing gypsum board and plaster to comply with ASTM C 840 for gypsum board, ASTM C 843 for veneer plaster, and manufacturer's recommendations.
- B. Minimum Room Temperatures: Maintain not less than 50°F (4°C) for 48 hours prior to application and continuously thereafter until drying is complete.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:
 - 1. Domtar Gypsum Co.
 - 2. Georgia-Pacific Corp.
 - 3. Gold Bond Building Products Div., National Gypsum Co.
 - 4. United States Gypsum Co.

2.2 GYPSUM BOARD

- A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end joints, ASTM C 36, and as follows:
 - 1. Type: Regular, unless otherwise indicated.
 - 2. Edges: Tapered.
 - 3. Thickness: ½ inch, unless otherwise indicated.
 - 4. Thickness: 5/8 inch where indicated.
- B. Water-Resistant Gypsum Backing Board: ASTM C 630, and as follows:
 - 1. Type: Regular, unless otherwise indicated.
 - 2. Thickness: ½ inch or 5/8 inch as indicated.

- C. Gypsum Base for Veneer Plaster: ASTM C 588, of types and thicknesses indicated below; with square or tapered long edges as standard with manufacturer; and as follows:
 - 1. Type: Regular, unless otherwise indicated.
 - 2. Thickness: ½ inch, or as required in multiple layer thicknesses to match existing wall plaster depth.
 - 3. Acceptable products:
 - a. “Dens-Cote Plaster Base”; Georgia-Pacific Corp.
 - b. “Tapered Edge Kal-Kore Regular;” Gold Bond Building Products.
 - c. “IMPERIAL Gypsum Base”; United States Gypsum Co.

2.3 TRIM ACCESSORIES

- A. Cornerbead and Edge Trim for Interior Installation: Provide corner beads, edge trim and control joints which comply with ASTM C 1047 and requirements indicated below:
 - 1. Material: Formed metal or metal combined with paper, sheet steel zinc-coated by hot-dip process, for screw attachment.
 - 2. Edge trim shapes indicated below by reference to designations of Fig. 1 in ASTM C 1047:
 - a. “L” Bead, for screw attachment and flat finish, unless otherwise indicated.

2.4 GYPSUM BOARD JOINT TREATMENT MATERIALS

- A. General: Provide materials complying with ASTM C 475, ASTM C 840, and recommendations of manufacturer of both gypsum board and joint treatment materials for the application indicated.
- B. Joint Tape: Paper reinforcing tape, unless otherwise indicated.
- C. Drying-Type Joint Compounds: Factory-prepackages vinyl-based products complying with the following requirements for formulation and intended use.
 - 1. Ready-Mix Formulation: Factory-premixed product.
 - 2. All-purpose compound formulated for use as both taping and topping compound.

2.5 VENEER PLASTER JOINT REINFORCING MATERIALS

- A. General: Provide joint reinforcing materials indicated which comply with joint strength requirements of ASTM C 587 and are acceptable to veneer plaster manufacturer for application indicated.
- B. Joint Tape: Open-weave glass fiber fabric.
- C. Embedding Material for Joint Tape: As recommended by veneer plaster manufacturer for use with joint tape material indicated.
- D. Available Products: Subject to compliance with requirements, joint reinforcing materials which may be incorporated in the Work include, but are not limited to, the following:
 - 1. Glass Fiber Joint Tape:
 - a. “Kal-Mesh”; Gold Bond Building Products Div., National Gypsum Co.
 - b. “IMPERIAL Tape”; United States Gypsum Co.
 - 2. Embedding Material for Glass Fiber Tape:
 - a. Dens-Cote”; Georgia-Pacific Corp.
 - b. Kal-Cote Base Plaster”; Gold Bond Building Products Div.
 - c. “Uni-Kal Plaster”; Gold Bond Building Products Div.
 - d. “IMPERIAL Basecoat”; United States Gypsum Co.
 - e. “DIAMOND Interior Finish”; United States Gypsum Co.

2.6 VENEER PLASTER MATERIALS

- A. One-Component Veneer Plaster: ASTM C 587, manufacturer’s standard, one-component, ready-mixed veneer plaster containing mill-mixed fine silica sand and having a compressive strength of 3,000 psi per ASTM C 472, for application directly over gypsum base without use of a separate base coat material.
- B. Available Products: Subject to compliance with requirements, veneer plasters which may be incorporated in the Work include, but are not limited to, the following:
 - 1. “Dens-Cote”; Georgia-Pacific Corp.
 - 2. Uni-Kal Plaster”; Gold Bond Building Products Div.
 - 3. “IMPERIAL Finish”; United States Gypsum Co.
 - 4. “DIAMOND Interior Finish”; United States Gypsum Co.

2.7 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum drywall construction that comply with referenced standards and the recommendations of the manufacturer of the gypsum board.
- B. Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal door frames.
- C. Fastening Adhesive for Wood: ASTM C 557.
- D. Gypsum Board Screws: ASTM C 1002, 1 ¼ inches, unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which drywall and plaster construction attaches or abuts, preset hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 APPLICATION AND FINISHING OF GYPSUM BOARD

- A. Gypsum Board Application and Finishing Standard: Install and finish gypsum board and base to comply with ASTM C 840 and ASTM C 844, as applicable.
- B. Erection Tolerance for Gypsum Base: No more than 1/16 inch offsets between planes of gypsum base faces, and between gypsum base face and existing adjacent wall surfaces.
- C. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
- D. Install ceiling boards across framing in the manner which minimizes the number of end-butt joints, and which avoids end joints in the central area of each ceiling. Stagger end joints at least 24 inches.
- E. Install wall/partition boards in manner that minimizes the number of end-butt joints or avoids them entirely where possible. At finish walls higher than the maximum available gypsum board dimension, install boards horizontally with end joints staggered over studs.
- F. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place.

- G. Locate either edge or end joints over supports, except in horizontal applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
- H. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.
- I. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.3 METHODS OF GYPSUM BOARD APPLICATION

- A. Single-Layer Application: Install gypsum wallboard as follows:
 - 1. On ceilings apply gypsum board prior to wall/partition board application to the greatest extent possible.
 - 2. On partitions/walls apply gypsum board vertically (parallel to framing) unless otherwise indicated, and provide sheet lengths that will minimize end joints.
- B. Wall Tile Base: Where drywall is base for thin-set ceramic tile and similar rigid applied wall finishes, install water-resistant gypsum backing board to comply with ASTM C 840 and recommendations of gypsum board manufacturer.
- C. Single-Layer Fastening Methods: Apply gypsum boards to supports with screws.

3.4 INSTALLATION OF DRYWALL TRIM ACCESSORIES

- A. General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges to comply with manufacturer's recommendations.
- B. Install corner beads at external corners.
- C. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed. Provide type with face flange to receive joint compound or plaster as appropriate.
 - 1. Install "LC" bead where drywall construction is tightly abutted to other.
 - 2. Install "L" bead where edge trim can only be installed after gypsum board is installed.

3.5 FINISHING OF DRYWALL

- A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for decoration.
- B. Prefill open joints and rounded or beveled edges, if any, using setting-type joint compound.
- C. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
- D. Finish interior gypsum wallboard by applying all-purpose joint compound in 3 coats (not including prefill of openings in base), and sand between coats and after last coat.
- E. Water-Resistant Gypsum Backing Board Base for Ceramic Tile: Comply with ASTM C 840 and manufacturer's recommendations for treatment of joints behind tile.

3.6 VENEER PLASTERING

- A. Reinforce interior angles and flat joints in gypsum base with joint tape and embedding material to comply with referenced gypsum veneer plaster application standard and with veneer plaster manufacturer's recommendations.
- B. Mixing Plaster: Mechanically mix veneer plaster materials to comply with referenced veneer plaster application standard and with recommendations of veneer plaster manufacturer.
- C. Gypsum Veneer Plaster Application Standard: Apply gypsum veneer plaster to comply with ASTM C 843 and veneer plaster manufacturer's directions.
- D. Concealed Surfaces: Omit veneer plaster in the following areas where plaster will be concealed from view in completed Work, but do not omit veneer plaster behind cabinets, furniture, furnishings and similar removable items.
- E. Provide smooth-trowel finish.
- F. Grounds: Where frames and other units in the veneer plastering act as grounds (not including trim accessories) for flush plastering, groove finish coat at juncture with the other work.

3.7 REPAIR OF EXISTING FINISHES

- A. General: Repair construction damage to existing plaster wall finishes indicated to remain throughout. Standard for determining acceptable surfaces shall be based on visual inspection in normal lighting conditions from a distance of 5 feet; surface defects that, in the opinion of the City or Owner, are highly noticeable under this condition shall be repaired.
- B. Install new gypsum base or plaster fill at deep cracks, voids, and locations that cannot be successfully skimmed without treatment. Skim coat areas to be repaired in accordance specified requirements, filling voids, imperfections, and feathering in to existing finishes. Final surface shall be smooth with no variation in plane, surface, or finish.

3.8 CLEANING AND PROTECTION

- A. Remove temporary coverings used to protect other work.
- B. Remove plaster spillage promptly from door frames, windows and other adjoining work. Repair surfaces that have been damaged by plastering work.
- C. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall construction being without damage or deterioration at time of Substantial Completion.

- END OF SECTION -

SECTION 09900

PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All of the Contract Documents, including the Contract Form, General Conditions, and Supplements and Amendments to General Conditions, other Sections of Division 1 - General Requirements, the Columbus Register of Historic Properties Architectural Guidelines, and the Historic Specifications: Exterior Rehab Specs by Randy Black.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for materials and equipment used for the Project.
- B. Related sections:
1. 02090 Lead-Based Paint Abatement
 2. 06200 Finish Carpentry and Millwork
 3. 06403 Repair of Lead-Based Painted Substrates
 4. 07901 Joint Sealants
 5. 08100 Metal doors and Frames
 6. 08700 Hardware
 7. 09210 Gypsum Drywall and Plaster Veneer Assemblies
- C. This section includes surface preparation and painting of exposed interior and exterior items and surfaces.
1. Surface preparation, priming and finish coats specified in this section are in addition to surface treatments specified under other sections.
- D. 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, request Owner to provide color schedule.
1. Painting includes field painting (1 coat prime and back prime, 2 finish coats) lead-based painted surfaces, substrates from which lead-based paint has been removed, replaced (new) components, and building surfaces that were included in a hazard reduction work area.
- E. Painting is not required on pre-finished items, finished metal surfaces, concealed surfaces, operating parts or labels.

1.3 SUBMITTALS

- A. Product data for each paint system specified, including block fillers and primers.
 - 1. Provide the manufacturer's technical information including 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.

1.4 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°F (7°C). 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.

1.5 JOB CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50°F (10°C) and 90°F (32°C).
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45°F (7°C) and 95°F (35°C).
- C. Do not apply paint in snow, rain, fog or mist, or when the relative humidity exceeds 85 percent, or at temperatures less than 5°F (3°C) above the dew point, 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.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- A. Subject to compliance with requirements, provide products of one of the following:
 1. Devoe and Raynolds Co. (Devoe).
 2. Fuller O'Brien (Fuller).
 3. The Glidden Company (Glidden).
 4. Benjamin Moore and Co. (Moore).
 5. PPG Industries, Pittsburgh Paints (PPG).
 6. Pratt and Lambert (P&L).
 7. The Sherwin-Williams Company (S-W).

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 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:** Match colors indicated by reference to the manufacturer's standard color designations.

2.4 PRIMERS

A. **Primers:** Provide the manufacturer's recommended factory-formulated primers that are compatible with the substrate and finish coats indicated.

B. **Products:** Subject to compliance with requirements, provide one of the following:

1. **Exterior Primer Coating:** Exterior, alkyd wood primer.

Devoe: 1102 All-Weather Alkyd House Paint Primer.

Fuller: 220-23 Exterior Wood and Masonry Primer.

Glidden: 1951 Spread Gel-Flo Base Coat.

Moore: Moorwhite Primer #100.

PPG: 1-70 or 1-870 Sun Proof Exterior Wood Primer

P&L: Permalize Exterior Primer.

S-W: A-100 Exterior ALKYD wood primer Y24W20.

2. **Concrete and Masonry Primers:** Interior, flat, latex-based paint.

Devoe: 51701 Wonder-Prime Interior All Purpose Latex Primer Sealer & Vapor Barrier.

Fuller: 202-XX Interior – Exterior Acrylic Latex Wall Paint.

Glidden: 5300 Ultra-Hide Flat Wall Paint.

Moore: Moore's Latex Quick-Dry Prime Seal #201.

PPG: 80 Line Wallhide Flat Latex Paint.

P&L: Vapex Latex Flat Wall Finish.

S-W: ProMar 200 Latex Flat B30W200.

3. **New Plaster Primers:** Interior, flat, latex-based paint.

Devoe:	51701 Wonder-Prime Interior All Purpose Latex Primer Sealer & Vapor Barrier.
Fuller:	Interior Latex Enamel Undercoater.
Glidden:	5019 PVA Primer Sealer.
Moore:	Moore's Latex Quick-Dry Prime Seal #201.
PPG:	80 Line Wallhide Flat Latex Paint.
P&L:	Vapex Latex Flat Wall Finish.
S-W:	Wall and Wood Primer B49W2.

4. **Gypsum Drywall Primer:** White, interior, latex-based paint.

Devoe:	50801 Wonder-Tones Latex Primer and Sealer.
Fuller:	Pro-Tech Interior Latex Wall Primer and Sealer.
Glidden:	5019 PVA Primer.
Moore:	Moore's Latex Quick-Dry Prime Seal #201.
PPG:	6-2 Quick-Dry Latex Primer Sealer.
P&L:	Latex Wall Primer Z30001.
S-W:	ProMar 200 Latex Wall Primer B28W200.

5. **Exterior Primer Coating:** Exterior, alkyd wood primer.

Devoe:	1102 All-Weather Alkyd House Paint Primer.
Fuller:	2200-23 Exterior Wood and Masonry Primer.
Glidden:	1951 Spread Gel-Flo Base Coat.
Moore:	Moorwhite Primer #100.
PPG:	1-70 or 1-870 Sun-Proof Exterior Wood Primer.
P&L:	Permalize Exterior Primer.
S-W:	A-100 Exterior Alkyd Wood Primer Y24W20.

6. **Ferrous Metal Primers:** Synthetic, quick-drying, rust-inhibiting primers.

Devoe:	13101 Mirrolac Cover Up Rust Penetrating Primer.
Fuller:	621-04 Blox-Rust Alkyd Metal Primer.
Glidden:	5210 Glid-Guard Universal Fast-Dry Metal Primer.
Moore:	IronClad Retardo Rust-Inhibitive Paint #163.
PPG:	6-208 Red Inhibitive Metal Primer.
P&L:	Effecto Rust-Inhibiting Primer.
S-W:	Kem Kromik Metal Primer B50N2/B50W1.

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.

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.
 - 1. Provide barrier coats over incompatible primers or remove and re-prime. Notify architect in writing about anticipated problems using the specified finish-coat material with substrates primed by others.

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.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
- C. **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.
- D. **Minimum Coating Thickness:** Apply materials no thinner than the manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

3.4 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.

3.5 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.

- END OF SECTION -