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**Lucas Metropolitan Housing Authority
Lead Hazard Elimination**

Various Properties

TPA Commission No. 19082
May 2022

Prepared for:

Lucas Metropolitan Housing Authority
435 Nebraska Ave
Toledo, Ohio 43604

201 Belmont Ave
Toledo, Ohio 43604

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SECTION 01 01 00

SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.
- B. This section includes:
 - 1. Outline Scope of Work
 - 2. Contractor's use of site and premises
 - 3. Work sequence

1.2 BID PACKAGE SUMMARY

This section includes a brief description of the proposed work. It is issued as a guide to aid the bidders in understanding of the scope of work, but shall not be considered as being all inclusive or limited to the scope of work described in the contract documents. All bidders shall base bids on Scope of Work identified in the project drawings and project manual. Work consists of all supervision, labor, materials, equipment, transportation, verification of existing conditions, cutting and patching, removals, etc., as required to eliminate lead hazards and restore or replace lead containing components.

A. Base Bid Item 1.0 – Birmingham Terrace – Various Units

- 1. Removal of existing Lead Based Paint on existing steel/concrete stair structures.
- 2. Removal and replacement of resilient stair treads/nosings. Steel and concrete stair structure to remain.
- 3. Removal of existing Lead Based Paint on existing wall corner guards at top and bottom of stairs.
- 4. Removal and replacement of bathtubs and surrounds including valve kits and replacement shower heads. Remove drywall and/or plaster and replace with drywall as required.
- 5. Removal and replacement of bathroom vanity, lavatory, and faucets.
- 6. Removal and replacement of toilet room accessories as indicted (Including but not limited to: curtain rods, towel bars, toilet paper dispensers, mirror/medicine cabinets).
- 7. Removal and replacement of restroom flooring and rubber wall base. Asbestos abatement of floor tile mastic.
- 8. Interior painting of restroom walls, casing, and ceilings in restrooms.

9. Clearance testing will be provided by others. Air monitoring will be provided by others.
10. Painting of existing steel stair structures (treads/risers/stringers). Painting of corner guards. Painting of adjacent walls as needed/indicated.
11. Removal and replacement of rubber wall base and resilient flooring as required for work.
12. Thorough cleaning of interior surfaces at areas affected by work.
13. Inclusion of "attic stock" materials as identified on the drawings.
14. Provide allowance for replacement of (7) exterior natural gas caps at various location to be verified in field.

B. Deduct Alternates – Birmingham Terrace – Various Units (deduct the cost to provide all labor, materials, and equipment to furnish and install items specified)

1. Deduct the cost to replace all vanities, lavatories, and lavatory faucets throughout the complex.
2. Deduct the cost to replace all toilet room accessories as indicted (curtain rods, towel bars, toilet paper dispensers, mirror/medicine cabinets) throughout the complex.
3. Deduct the cost to replace all shower heads and valve kits throughout the complex.
4. Deduct the cost to replace all toilet room resilient wall base, and resilient flooring. Deduct the cost to paint toilet room walls, casings, and ceilings.

C. Base Bid Item 2.0 – Pulley Homes – Various Units

1. Removal and replacement of existing exterior wall louvers at specified locations. Include new insect screens and wood casing/trims. Existing louver framing contains Lead Based Paint.
2. Prep and paint existing steel lintels at exterior masonry openings. Existing lintels contain lead based paint.
3. Removal and replacement of existing exterior soffits at locations indicated on drawings. Include all required trims, flashings, and blocking as detailed for complete installation.
4. Inclusion of "attic stock" materials as identified on the drawings.

- D. Owner reserves the right of first refusal on all salvage. Contractor shall coordinate with the Maintenance Supervisor for the collection of any materials they may wish to reserve for the maintenance of other properties.

1.3 CONTRACTOR USE OF SITES AND PREMISES

During construction, Contractor will have limited use of the site around the unit, and full access to the unit itself. Contractor's use of premises is limited only by Owner's right to perform work or employ other contractors on portions of Project and as follows:

- A. Contractor shall coordinate work with the Owner.

- B. The Contractor shall be restricted to the Owner's property, and to areas in the immediate vicinity of the work, unless otherwise authorized or approved by the Owner. Reference drawings for the areas of work.
- C. Time restrictions for performing exterior work shall conform to LMHA requirements. Owner, and/or Owner's Tenants, will occupy the properties during construction. Perform construction only during normal working hours (8:30 AM to 5 PM, Monday thru Friday, other than holidays), unless otherwise agreed to in advance by the Owner.
- D. Contractor shall provide Owner access to buildings as required for LMHA to function.
- E. Work shall progress in a manor from unit to unit in an order directly related to the owners capability to temporarily relocate tenants for a period of one week considering the nature of the work. The contractor shall be in constant coordination with the owner to develop said schedule to maximize construction efficiency and minimize disruption to tenants.
- F. The site will be kept clean and swept daily.
- G. It is the Contractor's responsibility to provide proper protection from damage to the Owner's property or the Tenants possessions. Liability for failure to do so will be solely the responsibility of the Contractor. All work is to be performed in a manner which will cause minimal discomfort and inconvenience to the Owner or the Owner's Tenants.
- H. Isolation of Work Areas in Occupied Facilities: Contractor shall prevent dust, fumes, and odors from entering occupied areas.

1.4 WORK SEQUENCES

- A. Construction work shall accommodate Owner's occupancy requirements. During the construction period coordinate construction schedule and operation with Owner.

1.5 OCCUPANCY REQUIREMENTS

- A. Contractor shall cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- B. Schedule the work to accommodate this requirement.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 01 90

CONTRACT CONSIDERATIONS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contingency allowance.
- B. Schedule of Values.
- C. Application for Payment.
- D. Change procedures.

1.2 RELATED SECTIONS

- A. All sections.

1.3 CONTINGENCY ALLOWANCE

- A. Not Included.

1.4 SCHEDULE OF VALUES

- A. Submit typed schedule on **HUD-51000 series documents**
- B. Submit the Schedule of Values to the Architect at the earliest possible date but no later than 7 days before the date scheduled for submittal of the initial Applications for Payment.
- C. Format: Utilize *Master List of Items* numbering system as shown on HUD Form 51000. Identify site mobilization, bonds and insurance, and other pertinent information.
- D. Include separately from each line item, a directly proportional amount of Contractor's overhead and profit.
- E. Revise schedule to list approved Change Orders, with each Application For Payment.

1.5 APPLICATIONS FOR PAYMENT

- A. Submit three copies of each application on **HUD-51000 series documents**

or an approved equal.

- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: Monthly.
- D. Waiver of Lien: Include with each Application for Payment except the first Waiver of Lien for payments associated with previous work.

1.6 CHANGE PROCEDURES

- A. The Architect/Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by HUD-5370.
- B. The Architect/Engineer may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications. Contractor will prepare and submit an estimate with 15 days and will include a revised project schedule.
- C. The Contractor may propose a change by submitting request for change to the Architect/Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 60 00.
- D. Stipulated Sum/Price Change Order: Based on Proposal Request or Bulletin and Contractor's fixed maximum price quotation or Contractor's request for a Change Order as approved by Architect/Engineer.
- E. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect/Engineer will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
- F. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- G. Change Order Forms: **HUD Form 51002** – Schedule of Change Orders.
- E. Execution of Change Orders: The Owner will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

2. PART 2 PRODUCTS

Not Used

3. PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 02 70

APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing each prime contractor's Applications for Payment.
 - 1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
 - 1. Schedules: The Contractor's Construction Schedule and Submittal Schedule are specified in Division 1 Section "Submittals."

1.3 SCHEDULE OF VALUES

- A. Coordination: Prime Contractor for the demolition contract shall coordinate preparation of its Schedule of Values for the Work with preparation of the Project Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - a. Contractor's Construction Schedule.
 - b. Application for Payment forms, including Continuation Sheets.
 - c. List of subcontractors.
 - d. List of principal suppliers and fabricators.
 - 2. Submit the Schedule of Values to the Architect at the earliest possible date but no later than 7 days before the date scheduled for submittal of the initial Applications for Payment.

- B. Format and Content: Utilize *Master List of Items* numbering system as shown on HUD Form 51000. Provide at least one line item for each Division as outlined on the *Bid Breakdown Sheet by Division*.
1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of the Architect.
 - c. Contractor's name and address.
 - d. Date of submittal.
 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed as found on HUD form 51000:
 - a. Item No (1)
 - b. Description of Item (2)
 - c. Quantity (3)
 - d. Unit of Measure (4)
 - e. Unit Price in Place (5)
 - f. Amount of Sub-Item (6)
 - g. Amount of Principal Item (7)
 - 1) Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Break principal subcontract amounts down into several line items.
 4. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
 5. Provide HUD Forms 51004 and 51004 where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing, if required.
 6. Provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 7. Margins of Cost: Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for

Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.

- a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at the Contractor's option.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment-Application Times: Provided that an Application for Payment is received by the Architect not later than the 25th day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the 15th date of the following month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the owner not later than Thirty (30) days after the Architect receives the Application for Payment. Federal, State, or Local laws may require payment withing a certain period of time.
- C. Payment-Application Forms: Use the **HUD-51000 series documents**.
- D. Application Preparation: Complete every entry on the form. Include execution by a person authorized to sign legal documents on behalf of the Contractor. The Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to the Architect by a method ensuring receipt within 24 hours. One copy shall be complete, including waivers of lien and similar attachments, when required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect.
- F. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics liens from subcontractors, sub-subcontractors and suppliers for the construction period covered by the previous application.

1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.
- G. Initial Application for Payment: Administrative actions and submittals include the following: (items shall be prepared for review at the Pre-Construction meeting or before if noted below)
1. List of subcontractors.
 2. List of principal suppliers.
 3. Schedule of Values.
 4. Contractor's Construction Schedule. (within 10 days of NTP)
 5. Schedule of principal products and anticipated submittals. (within 10 days of NTP)
 6. Copies of authorizations and licenses from governing authorities for performance of the Work.
 7. Certificates of insurance and insurance policies.
 8. Performance and payment bonds.
 9. Data needed to acquire the Owner's insurance.
 10. Permits.
- H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 2. Administrative actions and submittals that shall precede or coincide with this application include:
 - a. Occupancy permits and similar approvals.
 - b. Warranties (guarantees) and maintenance agreements.
 - c. Test records.
 - d. Maintenance instructions.
 - e. Final site cleaning.
 - f. Application for reduction of retainage and consent of surety.
 - g. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.

- I. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
 1. Completion of Project closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Ensure that unsettled claims will be settled.
 4. Ensure that incomplete Work is not accepted and will be completed without undue delay.
 5. Transmittal of required Project construction records to the Owner.
 6. Proof that taxes, fees, and similar obligations were paid.
 7. Removal of temporary facilities and services.
 8. Removal of surplus materials, rubbish, and similar elements.
 9. Final Payroll Reports/Certification and Supporting Documents
 10. Final Wage Payment Affidavit
 11. Contractor's Release and Certification
 12. Return keys and fobs to Maintenance Supervisor
 13. Entry lock cylinders turned over to Property Management
 14. Tools, spare parts, maintenance, and extra product material in quantities specified
 15. Startup testing of systems and instruction of Property Management employees on the operation of new equipment and maintenance
 16. Remove all temporary facilities and utilities
 17. Notification for insurance changeover
 18. Utility changeover (when applicable)

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 03 00

ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

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

1.3 DEFINITIONS

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

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

1.4 PROCEDURES

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

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

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

- C. Execute accepted alternates under the same conditions as other Work of this Contract.
- D. Schedule: A "Schedule of Alternates" is included in the drawings, bid form, and specification section 01 01 00 Summary of Work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES (See drawings, Bid Form, and Section 01 01 00)

END OF SECTION

SECTION 01 03 50

MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.
 - 1. Prime Contract: Provisions of this Section apply to the work of prime contractor.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Contract Considerations" for procedural requirements governing the handling and processing of allowances.
 - 2. Division 1 Section "Submittals" for requirements for the Contractor's Construction Schedule.
 - 3. Division 1 Section "Applications for Payment" for administrative procedures governing Applications for Payment.

1.3 MINOR CHANGES IN THE WORK

- A. The Architect/Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or Contract Time.

1.4 CHANGE ORDER PROPOSAL REQUESTS

- A. The Architect/Engineer will issue a detailed description of proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal requests issued by the Architect/Engineer are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.

2. Within 10 days of receipt of a proposal request, submit an estimate of cost necessary to execute the change to the Architect/Engineer for the Owner's review.
 - a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

1.5 CHANGE ORDER PRICING GUIDELINES

- A. For each change, the Contractor shall furnish a detailed, written Proposal itemized according to these Pricing Guidelines. Any Subcontractor or Material Supplier pricing shall also be itemized according to these Pricing Guidelines. In order to expedite the review and approval process, all Proposals shall be prepared in the categories and in the order listed below. These Pricing Guidelines are intended to establish the maximum amount which the Owner will pay for any Change Order, including without limitation all amounts for interference, delay, hindrance or disruption of the Work. A Change Order may provide that the Owner may pay less than the amount established by these Pricing Guidelines if an equitable amount is negotiated between the Construction Manager and the Contractor.
- B. LABOR: All field labor shall be priced at the current base rate being paid by the Contractor for such labor on the Project, or if such labor has not been previously employed on the Project, the base rate currently being paid by the Contractor on projects in the same locality, excluding fringe benefits. The payroll is to be based on straight time only and is to include number of hours and rate of pay for each classification of worker. If overtime is approved, list only the straight time portion in this item; overhead and profit will not be permitted on the cost of any premium time costs or shift work premiums.
- C. FRINGES: All established payroll taxes, assessments and fringe benefits on the labor in Paragraph 1.5.B. This may include, without limitation, FICA, Federal and State Unemployment, Health and Welfare, Pension Funds, Workers' Compensation and Apprentice Fund. Each of the fringes is to be a separate line item.
- D. EQUIPMENT RENTALS: All charges for certain non-owned heavy or specialized equipment at up to 100 percent of the documented rental cost. No rental charges will be allowed for hand tools, minor equipment, simple scaffolds, etc. Downtime due to repairs, maintenance and weather delays will not be allowed.

- E. OWNED EQUIPMENT: All charges for certain owned, heavy or specialized equipment at up to 100 percent of the cost listed by the Associated Equipment Dealers Blue Book. No recovery will be allowed for hand tools, minor equipment, simple scaffolds, etc. The longest period of time that the equipment is to be required for the Work will be the basis for the pricing. Downtime due to repairs, maintenance and weather delays will not be allowed.
- F. TRUCKING: A reasonable delivery charge or per-mile trucking charge for delivery of required materials or equipment. Charges for use of a pick-up truck will not be allowed.
- G. OVERHEAD: Overhead on items in Paragraph 1.5.B, C., D., E., and F., up to 10 percent, which shall include all costs required to schedule the work and coordinate with the Contractors.
 - 1. Overhead includes, without limitation, telephone, telephone charges, facsimile, telegrams, postage, photos, photocopying, hand tools, simple scaffolds (one level high), tool breakage, tool repairs, tool replacement, tool blades, tool bits, home office estimating and expediting, home office clerical and accounting support, home office labor (management, supervision, engineering*), legal services, travel and parking expenses.
 - 2. *An exception from Paragraph 1.5.G.1., is allowed for shop or engineering labor for steel fabricators, sheet metal fabricators and sprinkler system fabricators. Recovery for such matters will be allowed under Paragraph 1.5.B. and C.
- H. MATERIALS
 - 1. All materials purchased by the Contractor and incorporated into the changed Work, showing costs, quantities, or Unit Prices of all items, as appropriate. Reimbursement of material costs shall only be allowed in the amount of the Contractor's actual cost, including any and all discounts, rebates or related credits.
 - 2. One-third (33 percent) of the cost of reusable materials for each use, such as formwork lumber, shoring or temporary enclosures.
- I. PROFIT: Profit on items in Paragraphs 1.5, Items B., C., D., E., F., G., and H, up to 5 percent.
- J. SUBCONTRACTOR: The reasonable cost of all labor and material provided by a Subcontractor whose pricing is included and which complies with these Pricing Guidelines.
- K. CONTRACTOR MARK-UP ON SUBCONTRACTOR: Mark-up on items in Paragraph 1.5.J. up to 5 percent.

- L. MISCELLANEOUS: The following items are allowable at the cost of the Work, with no overhead or profit.
 - 1. The cost of extending the Bond and the cost of extending liability, property damage, builder's risk or specialty coverage insurance.
 - 2. The premium portion only for approved overtime (labor and fringes). The straight time portion is included in Paragraphs 1.5.B. and 1.5.C.
 - 3. Fees for permits, licenses, inspections, tests, etc.
 - 4. When requested by the Contractor and approved in writing by the Owner due to special circumstances, reimbursement will be paid for overnight lodging, travel and food in an amount not to exceed the Owner's travel guidelines.

- M. Costs which will not be reimbursed for Change Order Work include the following:
 - 1. Employee Profit Sharing Plans: Regardless of how defined or described, the Contractor will pay these charges from Contractor profit and will not be reimbursed.
 - 2. Voluntary Employee Deductions: Examples are United Way and U.S. Savings Bonds, etc.

- N. State sales tax shall be allowed on items as defined by Paragraph 1.6.

1.6 TAXES

- A. Only those materials which ultimately become a part of the completed structure or improvement which constitutes the Project will be exempt from State sales tax as provided in Section 5739.02, ORC, and State use tax as provided in Section 5741.01, ORC.

- B. The purchase, lease or rental of material, equipment, parts or expendable items such as form lumber, tools, oils, greases and fuels, which are used in connection with the Work, are subject to the application of State sales tax and State use tax.

1.7 ALLOWANCES

- A. Allowance Adjustment: For allowance-cost adjustment, base each Change Order Proposal on the difference between the actual purchase amount and the allowance, multiplied by the final measurement of work-in-place. Where applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in the purchase amount only where indicated as part of the allowance.
 - 2. When requested, prepare explanations and documentation to substantiate the margins claimed.

1.8 CONSTRUCTION CHANGE DIRECTIVE

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

1.9 CHANGE ORDER PROCEDURES

- A. Upon the Owner's approval of a Proposal Request, the Architect/Engineer will issue a Change Order for signatures of the Owner and the Contractor.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 20 00

PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:
 - 1. Preconstruction conferences.
 - 2. Progress meetings.
 - 3. Coordination meetings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" for submitting the Contractor's Construction Schedule.

1.3 PRECONSTRUCTION CONFERENCE

- A. The Owner will schedule a preconstruction conference before starting construction, at a time after execution of the Agreement. The conference will be held at the Project Site or another convenient location. The purpose of the meeting will be to review responsibilities and personnel assignments.
- B. Attendees: Authorized representatives of the Owner, Architect/Engineer, and their consultants; the Contractors and their superintendents; major subcontractors; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

- C. Agenda: Discuss items of significance that could affect progress, including the following:
1. Tentative construction schedule.
 2. Critical work sequencing.
 3. Designation of responsible personnel.
 4. Procedures for processing field decisions and Change Orders.
 5. Procedures for processing Applications for Payment.
 6. Distribution of Contract Documents.
 7. Submittal of Shop Drawings, Product Data, and Samples.
 8. Preparation of record documents.
 9. Use of the premises.
 10. Parking availability.
 11. Office, work, and storage areas.
 12. Equipment deliveries and priorities.
 13. Safety procedures.
 14. First aid.
 15. Security.
 16. Housekeeping.
 17. Working hours.

1.4 PROGRESS MEETINGS

- A. The Owner and the Architect will schedule and conduct progress meetings at the Project Site at regular intervals. Scheduled meeting dates will be determined at a Preconstruction Conference. The job progress meetings will be facilitated by the Architect/Engineer.
- B. Attendees: In addition to representatives of the Owner and the Architect/Engineer, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.
1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of each entity present, including the following:
 - a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Status of submittals.
 - e. Deliveries.
 - f. Off-site fabrication problems.
 - g. Access.
 - h. Site utilization.
 - i. Temporary facilities and services.
 - j. Hours of work.
 - k. Hazards and risks.
 - l. Housekeeping.
 - m. Quality and work standards.
 - n. Change Orders.
 - o. Documentation of information for payment requests.

D. Reporting: The Architect/Engineer will distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1. Schedule Updating: Revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

1.5 COORDINATION MEETINGS

- A. Conduct project coordination meetings at weekly intervals convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 27 00

UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
 - 1. Division 1 Section "Contract Considerations or Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

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

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead and profit.
- B. Measurement and Payment" Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

List of Unit Prices: A list of required unit prices is also included on the Bid Proposal Form.

1. Aluminum Gutter and Gutter Guard Replacement

Provide cost to be added or deducted from the contract amount for additional amounts of 0.032 (min) aluminum gutter and powder coated galvanized steel screen gutter guard including all accessories required for a complete installation on new fascia.

Unit Price \$_____/LF

2. Fascia and Sub-Fascia Replacement

Provide cost to be added or deducted from the contract amount for additional or unused amounts of wood 2x6 subfascia and .024 (min.) aluminum fascia cover. Cost to include eave and/or rake edge conditions as indicated for a complete installation.

Unit Price \$_____/LF

3. Soffit Replacement

Provide cost to be added or deducted from the contract amount for additional or unused amounts of vinyl soffit. Cost to include all trims/channels, and blocking as indicated for a complete installation.

Unit Price \$_____/SF

4. Louver Replacement

Provide cost to be added or deducted from the contract amount for additional or unused amounts of new wall louver units. Cost to include all framing, shims/sealant, and trims as indicated for a complete installation.

Unit Price \$_____/EA

5. Vanity and Lavatory Replacement

Provide cost to be added or deducted from the contract amount for additional or unused replacement of vanities, lavatories, and faucets. Cost to include blocking, components, and plumbing as indicated for a complete installation.

Unit Price \$_____/EA

6. Toilet Room Accessory Replacement

Provide cost to be added or deducted from the contract amount for additional or unused "Toilet Room Accessory Packages" per toilet room. Cost to include (1) curtain rod, (2) towel bars, (1) toilet paper dispenser, (1) medicine cabinet and any required wall blocking and finishing as indicated for a complete installation.

Unit Price \$_____/EA

7. Shower Head Replacement

Provide cost to be added or deducted from the contract amount for additional or unused replacement shower heads and valve kits. Cost to include (1) installed replacement shower head and valve kit as indicated for a complete installation.

Unit Price \$_____/EA

8. Finish Replacement in Toilet Rooms

Provide cost to be added or deducted from the contract amount for additional or unused "Toilet Room Finish Packages" per toilet room. Cost to include resilient flooring, rubber wall base, and painting of walls, casing, and ceilings as indicated for a complete installation.

Unit Price \$_____/EA

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01 30 00

SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Submittal schedule.
 - 3. Daily construction reports.
- B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Permits.
 - 2. Applications for Payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. List of subcontractors.
 - 6. Certified Payroll and associated documents.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Applications for Payment" specifies requirements for submittal of the Schedule of Values.
 - 2. Division 1 Section "Coordination" specifies requirements governing preparation and submittal of required Coordination Drawings.
 - 3. Division 1 Section "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.
 - 4. Division 1 Section "Quality Control" specifies requirements for submittal of inspection and test reports.
 - 5. Division 1 Section "Contract Closeout" specifies requirements for submittal of Project Record Documents and warranties at project closeout.

1.3 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
 - 1. Preparation of Coordination Drawings is specified in Division 1 Section "Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 - 1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the work to permit processing, including resubmittals.
 - 2. Identify deviations from the Contract Documents on submittals.
 - 3. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections, deviations, and field dimensions.
- B. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the prime Contractor to the Architect/Engineer using a transmittal form. The Architect/Engineer will not accept submittals received from sources other than the prime Contractors.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: The Contractor shall prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 15 days after the date established for "Commencement of the Work" or "Notice to Proceed."

1.6 DAILY CONSTRUCTION REPORTS

- A. Prepare a weekly construction report recording the following information concerning events at the site, and submit copies to the Architect/Engineer at weekly intervals:
 - 1. List of subcontractors at the site.
 - 2. Approximate count of personnel at the site.
 - 3. High and low temperatures, general weather conditions.
 - 4. Accidents and unusual events.
 - 5. Stoppages, delays, shortages, and losses.
 - 6. Orders and requests of governing authorities.
 - 7. Change Orders received, implemented.

8. Services connected, disconnected.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 34 00

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittal of Shop Drawings, Product Data, Samples, and other miscellaneous quality-control submittals.
- B. Shop Drawings include, but are not limited to, the following:
 - 1. Fabrication drawings.
 - 2. Installation drawings.
 - 3. Setting diagrams.
 - 4. Shopwork manufacturing instructions.
 - 5. Schedules.
 - a. Standard information prepared without specific reference to the Project is not Shop Drawings.
- C. Product Data include, but are not limited to, the following:
 - 1. Manufacturer's product specifications.
 - 2. Manufacturer's installation instructions.
 - 3. Standard color charts.
 - 4. Catalog cuts.
 - 5. Roughing-in diagrams and templates.
 - 6. Standard wiring diagrams.
 - 7. Printed performance curves.
 - 8. Operational range diagrams.
 - 9. Mill reports.
 - 10. Standard product operating and maintenance manuals.
- D. Samples include, but are not limited to, the following:
 - 1. Partial Sections of manufactured or fabricated components.
 - 2. Small cuts or containers of materials.
 - 3. Swatches showing color, texture, and pattern.
 - 4. Color range sets.

5. Field samples.
- E. Quality-control submittals include, but are not limited to, the following:
1. Design data.
 2. Certifications.
 3. Manufacturer's instructions.
 4. Manufacturer's field reports.
- F. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
1. Permits.
 2. Applications for payment.
 3. Performance and payment bonds.
 4. Insurance certificates.
 5. Listing of subcontractors.
 6. Certified Payroll and associated documents.
- G. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 1 Section "Coordination" specifies requirements governing preparation and submittal of required Coordination Drawings.
 2. Division 1 Section "Schedules and Reports" specifies requirements for submittal of required schedules and reports, including the Submittal Schedule.
 3. Division 1 Section "Quality Control" specifies requirements for submittal of inspection and test reports.
 4. Division 1 Section "Contract Closeout" specifies requirements for submittal of Project Record Documents, including copies of final Shop Drawings, at project closeout.

1.3 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
1. Preparation of Coordination Drawings is specified in Division 1 Section "Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal to the Architect/Engineer sufficiently in advance of scheduled performance of related construction activities to avoid delay.
1. Coordinate each submittal with other submittals and related activities that require sequential activity including:
 - a. Testing.
 - b. Purchasing.
 - c. Fabrication.
 - d. Delivery.
 2. Coordinate transmittal of different types of submittals for the same element of the Work and different elements of related parts of the Work to avoid delay in processing because of the Architect/Engineer's need to review submittals concurrently for coordination.
 - a. The Architect/Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are forthcoming.
 3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
 - a. Allow 2 weeks for the Architect/Engineer's initial review of each submittal. Allow additional time if the Architect/Engineer must delay processing to permit coordination with subsequent submittals. The Architect/Engineer will advise the Contractor when a submittal being processed must be delayed for coordination.
 - b. Where necessary to provide an intermediate submittal, process the intermediate submittal in the same manner as the initial submittal.
 - c. Allow 2 weeks for reprocessing each submittal.
 - d. The Architect/Engineer will not authorize an extension of time because of the Contractor's failure to transmit submittals to the Architect/Engineer sufficiently in advance of the Work to permit processing.
- B. Contractors Review: Submittals shall clearly indicate contractors and subcontractors review of the information submitted.
1. Supplier, fabricator, subcontractor, and contractor's identification of their review and concurrence that the submittal meets the requirements of the contract documents shall be clearly indicated on each sheet.

2. Submittals that have not been so identified and/or submittals that have major or multiple discrepancies with contract documents will be returned without further review.
 - C. Submittal Preparation: Place a permanent label or title block on each submittal for identification.
 1. Indicate name of the firm or entity that prepared each submittal on the label or title block.
 - D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect/Engineer and to other destinations by use of a transmittal form. The Architect/Engineer will return submittals received from sources other than the Contractor.
 1. Record relevant information and requests for data on the transmittal form. On the form, or an attached separate sheet, record deviations from requirements of the Contract Documents, including minor variations and limitations.
 2. Include the Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- 1.5 SHOP DRAWINGS
- A. Submit newly prepared information, drawn accurately to scale. Do not reproduce Contract Documents or copy standard printed information as the basis of Shop Drawings.
 1. Include the following information on Shop Drawings:
 - a. Dimensions.
 - b. Identification of products and materials included.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 2. Submit Coordination Drawings where required for integration of different construction elements. Show construction sequences and relationships of separate components where necessary to avoid conflicts in utilization of the space available.
 3. Highlight, encircle, or otherwise indicate deviations from the Contract Documents on the Shop Drawings.
 4. Do not allow Shop Drawing copies that do not contain an appropriate final stamp or other marking indicating the action taken by the Architect/Engineer to be used in construction.
 5. Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).

6. Submittal: Submit one correctable, translucent, reproducible print and three blue- or black-line print for the Architect/Engineer's review. The Architect/Engineer will return the reproducible print and two copies.
 - a. The Contractor shall mark up and retain one copy of the returned reproducible as a "Record Document."

1.6 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Mark each copy to show which choices and options are applicable to the Project.
 1. Where Product Data includes information on several similar products, some of which are not required for use on the Project, mark copies clearly to indicate which products are applicable.
 2. Where Product Data must be specially prepared for required products, materials, or systems because standard printed data are not suitable for use, submit as Shop Drawings not Product Data.
 3. Include the following information in Product Data:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with recognized trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 4. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- B. Submittals: Submit 2 copies of each required Product Data submittal. Submit 2 additional copies where copies are required for maintenance manuals. The Architect/Engineer will retain one copy and will return the other marked with the action taken and corrections or modifications required.
 1. Unless the Architect/Engineer observes noncompliance with provisions of the Contract Documents, the submittal may serve as the final submittal.
- C. Distribution: Furnish copies of final Product Data submittal to the manufacturers, subcontractors, suppliers, fabricators, installers, governing authorities and others as required for performance of the construction activities. Show distribution on transmittal forms.
 1. Do not proceed with installation of materials, products, and systems until a copy of Product Data applicable to the installation is in the Installer's possession.

2. Do not permit use of unmarked copies of Product Data in connection with construction.

1.7 SAMPLES

- A. Submit full-size, fully fabricated Samples, cured and finished in the manner specified, and physically identical with the material or product proposed for use.
- B. Submittals: Except for Samples intended to illustrate assembly details, workmanship, fabrication techniques, connections, operation, and other characteristics, submit 3 sets of Samples. One set will be returned marked with the action taken.
 1. Maintain sets of Samples, as returned by the Architect/Engineer, at the Project Site, available for quality-control comparisons throughout the course of construction activity.
 2. Unless the Architect/Engineer observes noncompliance with provisions of the Contract Documents, the submittal may serve as the final submittal.
 3. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- C. Distribution of Samples: Distribute additional sets of Samples to the subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities, and others as required for performance of the Work. Show distribution on transmittal forms.
- D. Field samples specified in individual Specification Sections are special types of Samples. Comply with Sample submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.8 QUALITY ASSURANCE SUBMITTALS

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

1.9 ARCHITECT/ENGINEER'S ACTION

- A. Except for submittals for the record or for information, where action and return of submittals is required, the Architect/Engineer will review each submittal, mark to indicate the action taken, and return.
1. Compliance with specified characteristics is the Contractor's responsibility and not considered part of the Architect/Engineer's review and indication of action taken.
- B. Action Stamp: The Architect/Engineer will stamp each submittal with a uniform, action stamp. The Architect/Engineer will mark the stamp appropriately to indicate the action taken.
1. Architect/Engineer review portion of the review stamp shall be interpreted as follows:
- | <u>Comment</u> | <u>Meaning</u> |
|---------------------|-----------------------------|
| No Exceptions Taken | Acceptance for Construction |
| Note Markings | Incorporate Corrections |
| Rejected | Not Acceptable |
| Comments Attached | Incorporate Comments |
2. Response required of Contractor portion of the review stamp shall be interpreted as follows:
- | <u>Comment</u> | <u>Meaning</u> |
|----------------|---------------------------|
| Process | Proceed with Construction |
3. Other Action: Where a submittal is for information or record purposes or special processing or other activity, the Architect/Engineer will return the submittal marked "Action Not Required."
- C. Unsolicited Submittals: The Architect/Engineer will return unsolicited submittals to the sender without action.
- D. Incomplete or Inaccurate Submittals: The Architect/Engineer will return submittals that do not comply with contract requirements including, but not limited to, requirements of this section.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01 40 00

QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Architect/Engineer.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Architect/Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
- B. Owner Responsibilities: Where quality control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- C. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
 - 1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.
- D. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel.
- E. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Architect/Engineer and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.
 - 1. The agency shall notify the Architect/Engineer and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.

3. The agency shall not perform any construction duties of the Contractor.

- F. Coordination: Coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1.4 SUBMITTALS

- A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Architect/Engineer. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION

SECTION 01 50 10

TEMPORARY FACILITIES & CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Water service and distribution.
 - 2. Temporary electric power.
 - 3. Telephone service.
 - 4. Sanitary facilities, including drinking water.
 - 5. Storm and sanitary sewer.
- C. Support facilities include, but are not limited to, the following:
 - 1. Dewatering facilities and drains.
 - 2. Waste disposal services.
 - 3. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
 - 1. Temporary fire protection.
 - 2. Barricades, warning signs, and lights.
 - 3. Sidewalk bridge or enclosure fence for the site.
 - 4. Environmental protection.

1.3 DIVISION OF RESPONSIBILITIES

- A. General: These Specifications assigns the Prime Contractor specific responsibilities for certain temporary facilities used at the site.
- B. Prime Contractor is responsible for the following:
 - 1. Installation, operation, maintenance, and removal of each temporary facility usually considered as its own normal construction activity, as well as the costs and use charges associated with each facility.

2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
3. Its own storage and fabrication sheds (as required).
4. Collection and disposal of its own hazardous, dangerous, unsanitary, or other harmful waste material.
5. Secure lockup of its own tools, materials, and equipment.
6. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
7. Temporary telephone service.
8. Temporary toilets, including disposable supplies.
9. General collection and disposal of wastes.
10. Barricades, warning signs, and lights.
11. Security enclosure and lockup.
12. Environmental protection.
13. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to the Owner or the Architect/Engineer. The Architect/Engineer will not accept a Prime Contractor's cost or use charges for temporary services or facilities as a basis of claim for an adjustment in the Contract Sum or the Contract Time.
- B. Water Service: Use water from the Owner's existing water system without metering and without payment of use charges.
- C. Electric Power Service: Use of electricity from Owner's existing system without metering or payment.
- D. Owner may terminate privilege of existing building heat, power, or water if abuse or excessive use by the contractor exists.

1.5 SUBMITTALS

Not used.

1.6 QUALITY ASSURANCE

- A. Regulations: Prime Contractor shall comply with industry standards and with applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
 1. Building code requirements.
 2. Health and safety regulations.
 3. Utility company regulations.
 4. Police, fire department and rescue squad rules.
 5. Environmental protection regulations.

- B. Standards: Prime Contractor shall comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
 - 1. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

1.7 PROJECT CONDITIONS

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Each Prime Contractor shall provide new materials. If acceptable to the Architect/Engineer, undamaged, previously used materials in serviceable condition may be used. Provide materials suitable for use intended.

2.2 EQUIPMENT

- A. General: Each Prime Contractor shall provide new equipment. If acceptable to the Architect/Engineer, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- C. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. If existing toilet facilities in the building are operational during construction, contractor may use these facilities.
- D. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
 - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Prime Contractor shall provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. Sanitary facilities include temporary toilets and wash facilities. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
 - 1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
- B. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
 - 1. Provide separate facilities for male and female personnel.
- C. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Architect/Engineer.

- B. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- C. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
 - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- D. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities and good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
- C. Termination and Removal: Unless the Architect/Engineer requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION

SECTION 01 60 00

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" specifies requirements for submittal of the Contractor's Construction Schedule and the Submittal Schedule.

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - a. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
 - 2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
 - 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.4 SUBMITTALS

- A. Product List: Prepare a list showing products specified in tabular form acceptable to the Architect/Engineer. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
1. Coordinate product list with the Contractor's Construction Schedule and the Schedule of Submittals.
 2. Form: Prepare product list with information on each item tabulated under the following column headings:
 - a. Related Specification Section number.
 - b. Generic name used in Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 3. Initial Submittal: Within 15 days after date of commencement of the Work, submit 3 copies of an initial product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 - a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.
 4. Completed List: Within 30 days after date of commencement of the Work, submit 3 copies of the completed product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 5. Architect/Engineer's Action: The Architect/Engineer will respond in writing to Contractor within 1 week of receipt of the completed product list. No response within this period constitutes no objection to listed manufacturers or products but does not constitute a waiver of the requirement that products comply with Contract Documents. The Architect/Engineer's response will include a list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.5 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

SECTION 01 70 00

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including HUD-5370 General Conditions for Construction Contracts – Public Housing Programs, HUD-92554M Supplementary Conditions, and Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project record document submittal.
 - 3. Submittal of warranties.
 - 4. Final cleaning.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
 - a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - 2. Advise the Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.

4. Obtain and submit releases enabling the Owner unrestricted use of the work. Include occupancy permits and similar releases.
 5. Submit record drawings, damage or settlement surveys, property surveys, and similar final record information.
 6. Deliver spare parts and similar items.
 7. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.
 8. Discontinue and remove temporary facilities from the site, construction tools, and similar elements.
 9. Complete final cleanup requirements.
- B. Inspection Procedures: On receipt of a request for inspection, the Architect/Engineer will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect/Engineer will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
1. The Architect/Engineer will repeat inspection when requested and assured that the Work is substantially complete.
 2. Results of the completed inspection will form the basis of requirements for final acceptance.
 3. Cost and Architect/Engineer fees for multiple or extensive inspections due to incomplete or faulty work by the Contractor may be deducted from the contractor's contract.

1.4 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Architect/Engineer's final inspection list of items to be completed or corrected, endorsed and dated by the Architect/Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect/Engineer.
 4. Submit consent of surety to final payment.
 5. Submit a final liquidated damages settlement statement.
 6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

- B. Reinspection Procedure: The Architect/Engineer will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect/Engineer.
 - 1. Upon completion of reinspection, the Architect/Engineer will prepare a certificate of final acceptance. If the Work is incomplete, the Architect/Engineer will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
 - 2. If necessary, reinspection will be repeated.
 - 3. Cost and Architect/Engineer fees for multiple or extensive inspections due to incomplete or faulty work by the Contractor may be deducted from the contractor's contract.

1.5 RECORD DOCUMENT SUBMITTALS

- A. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 - 1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
 - 2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
 - 3. Note related change-order numbers where applicable.
 - 4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
- B. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.
 - 1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
 - 2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
 - 3. Note related record drawing information and Product Data.
 - 4. Upon completion of the Work, submit record Specifications to the Architect/Engineer for the Owner's records.

- C. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.
 - 1. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site and from the manufacturer's installation instructions and recommendations.
 - 2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
 - 3. Upon completion of markup, submit complete set of record Product Data to the Architect/Engineer for the Owner's records.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

3.2 FINAL CLEANING

- A. General: The General Conditions require general cleaning during construction. Regular site cleaning is included in Division 1 Section "Construction Facilities and Temporary Controls."
- B. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

END OF SECTION

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

1.2 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Appliances including but not limited to refrigerators and ranges. Coordinate with owner on a per unit basis.
- C. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of selective demolition activities with starting and ending dates for each activity.
- C. Pre-demolition photographs or video.
- D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.

1.5 CLOSEOUT SUBMITTALS

- A. Inventory of items that have been removed and salvaged.

1.6 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.7 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is expected that hazardous materials will be encountered in the Work. Reference Section 02 82 00.
 - 1. If suspected hazardous materials not identified in Section 02 82 00 are encountered, immediately notify Architect and Owner.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.
- G. Arrange selective demolition schedule so as not to interfere with Owner's operations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
- C. Inventory and record the condition of items to be removed and salvaged.

3.2 PREPARATION

- A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Arrange to shut off utilities with utility companies.
 - 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.4 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
- C. Remove temporary barricades and protections where hazards no longer exist.
- D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

3.5 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools

- designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 4. Maintain fire watch during and for at least 2 hours after flame-cutting operations.
 5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 6. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Removed and Salvaged Items:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner.
 5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.6 CLEANING

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 02 82 00 - ASBESTOS ABATEMENT

1.1 SECTION INCLUDES

- A. General
- B. Supplementary Conditions, Asbestos Abatement
- C. Project Identification and Scope of Work, Asbestos Abatement
- D. Asbestos Abatement Technical Specifications
- E. Asbestos Work Area Photographs

1.2 GENERAL

- A. This work is subject to the provisions of the Contract Document as they pertain to and affect the work specified in this section.

1.3 SUPPLEMENTARY CONDITIONS, ASBESTOS ABATEMENT

- A. REQUIREMENTS: Refer to the Instructions to Bidders, General Conditions, and the Specifications. The following requirements of the Supplementary Conditions, Asbestos Abatement, when not in agreement, take precedent over the requirements of Instructions to Bidders and General Conditions which are a part of this Contract.
- B. ABATEMENT CONTRACTOR QUALIFICATIONS: To demonstrate qualifications to perform the Work, the abatement contractor must be prepared to submit within five days of Owner's request written evidence of the following:
 - 1. Evidence of current status as an Ohio EPA Asbestos Abatement Contractor.
 - 2. Evidence of required insurance coverage.
- C. SITE SECURITY
 - 1. During Asbestos Abatement activities, the Contractor is responsible for fencing, barricades, signs, and warnings such that a reasonable person would be aware that they should not enter the regulated area or the work site.
- D. EMPLOYEE CONDUCT
 - 1. All of the Contractor's employees shall abide by Federal, State, and Local laws while on the work site.
 - 2. Employees of the Contractor are restricted to only those areas of the building directly impacted by the project.

E. PROJECT COORDINATION

1. No other Contractors will be allowed in the asbestos work area until the removal is completed.
2. The Asbestos Contractor shall coordinate with the Owner, Architect, and Consultant the work schedule and staging of the work areas.

F. STOP WORK ORDER

1. The Owner or Owner's Representative is authorized to issue a "Stop Work Order" to the Contractor at any time it is determined that the Contractors work practices have compromised (or may compromise) the health and/or safety of any individual or the Owner's facility; or if the work is persistently and substantially in violation of the Specifications.

1.4 PROJECT IDENTIFICATION, SUMMARY, AND WORK COVERED UNDER THIS SECTION

A. PROJECT NAME: Lead Hazard Elimination Project

PROJECT LOCATIONS: **Pulley Homes – various addresses**
Toledo, OH 43608

Birmingham Terrace – various addresses
1-93 Birmingham Terrace
94-113 Knox Street
Toledo, OH 43605

ASBESTOS PROJECT DESIGNER: Brumbaugh-Herrick, Inc.
7920 N. Woodbridge Rd.
Monclova, OH 43542
419-382-9574
Contact: Brett Brumbaugh
Asbestos Project Designer
Certifications: AHES #ES3488, AHPD #PD60095
E-mail: brett@brumbaugh-herrick.com

PROJECT OWNER: Lucas Metro Housing Authority (LMHA)
201 Belmont Avenue
Toledo, OH 43604
Contact: Craig Bartley

B. SCOPE OF WORK, ASBESTOS ABATEMENT ACTIVITIES:

Provide all labor and material for the asbestos abatement of materials affected by the lead hazard abatement project for the LMHA. All abatement work shall be in accordance with current OSHA and Ohio EPA asbestos requirements in accordance with the applicable OSHA work practices for each type of material. Measurements, locations, and quantities are approximate and Contractor is to field verify all information prior to submitting a Bid.

ASBESTOS ABATEMENT SCOPE OF WORK	LOCATIONS	ESTIMATED QUANTITY
Remove exterior asbestos cement board soffits	Exterior soffits on 25 housing units (1 st and 2 nd floors) Pulley Homes	~4,680 square feet
Remove floor tile and mastic	Bathrooms Birmingham Terrace	~2,875 square feet

1.5 ASBESTOS ABATEMENT

A. GENERAL REQUIREMENTS

1. Potential Asbestos Hazard

- a. The disturbance or dislocation of asbestos-containing materials may cause asbestos fibers to be released into the building's atmosphere, thereby creating a potential health hazard to workers and building occupants. Apprise all workers, supervisory personnel, subcontractors and consultants who will be at the jobsite of the seriousness of the hazard and of proper work procedures which must be followed.
- b. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb, or otherwise function in the immediate vicinity of any identified asbestos-containing materials, take appropriate continuous measures as necessary to protect all building occupants from the potential hazard of exposure to airborne asbestos. Such measures shall include the procedures and methods described herein, and compliance with regulations of applicable federal, state and local agencies.

2. Asbestos Abatement Work, Contractor Use of Premises
 - a. Water, both hot and cold, will be available to the contractor. Sewer facilities to receive properly filtered project waste water will be available. Electric power, 110V, is available for Contractor use. Contractor shall be prepared for the possible temporary interruption of electrical service and either pull power for a nearby unit or use generator
 - b. Contractor employees are forbidden from smoking on the premises.

3. Clean-up
 - a. Contractor or Sub-contractor shall remove from the project site all his waste materials and rubbish resulting from his/her operations. If Contractor fails to clean up within seven (7) days after completion, the Owner may do so and the cost thereof shall be charged to the Contractor as a deduction in the contract price.

4. Electrical Safety
 - a. The importance of electrical safety cannot be overemphasized. It is a project requirement that all electrical equipment be powered from circuits that are ground fault circuit interrupter (GFCI or GFI) protected at their source, which must be outside any negative pressure regulated area. Ground fault circuit interrupters are to be supplied by the Contractor.

5. Fire Safety
 - a. The contractor is to abide by the OSHA fire safety requirements as outlined in 29CFR:1926.24, 1926.150 and 151.

6. Protection of the Work
 - a. The Contractor is responsible for restoring the work area and auxiliary areas utilized during the project to conditions equal to or better than original. Any excessive damages caused by the Contractor during the performance of the project (paint damage, water damage, broken glass) shall be repaired by the Contractor at no additional cost to the Owner.

7. Site Security

- a. During asbestos abatement activities, the Contractor is responsible for such barricades, signs and warnings such that a reasonable person would be aware that they should not enter regulated areas.

B. PROJECT COORDINATION

1. Related Documents

- a. Drawings, general provisions of the Contract, including General and Supplementary Conditions, and other Specification sections apply to the work of this section.

2. Description of Work

- a. Minimum administrative and supervisory requirements necessary for coordination of work on the project include but are not necessarily limited to the following:

- 1). Supervisory personnel
- 2). Special reports
- 3). Contingency plan
- 4). Submittals

3. Administrative and Supervisory Personnel

- a. Provide a General Superintendent who is experienced in the administration and supervision of asbestos abatement projects including regulations, work practices, protective measures for building and personnel, disposal practices, etc. This person must have had at least two years' experience in asbestos abatement work. This person must meet the 29 CFR 1926.1001 qualifications as Competent Person and the Ohio EPA qualifications as an Asbestos Supervisor.

4. Special Reports

- a. In addition to routine reporting, provide Reports of Unusual Events whenever an event of unusual and significant nature occurs at the site. These are events such as rupture of temporary enclosures, bursting of a water line, etc. Prepare and submit a special report listing the chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. When such events are known or predictable in advance, advise Consultant in advance at the earliest opportunity.

- b. Prepare and submit Accident Reports for significant accidents at the work site and anywhere else project work is in progress. Record and document data and actions; comply with industry standards. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

5. Contingency Plan

- a. Prepare a Contingency Plan for emergencies including fire, accident, power failure, negative air system failure, supplied air system failure, or any other event that may require modification or abridgment of decontamination or work area isolation procedures. Include in the plan specific procedures for decontamination or work area isolation. List the telephone numbers and locations of the emergency services, including but not limited to fire, ambulance, doctor, hospital, police, power company and telephone company. Note that nothing in this specification should impede safe exiting or providing adequate medical attention in the event of an emergency.
- b. Post the Contingency Plan in the clean room of the Personnel Decontamination Unit.

6. Notifications

- a. Notify other entities at the Project Site of the nature of the asbestos abatement activities, location of asbestos containing materials, and requirements relative to asbestos set forth in these specifications and applicable regulations.

7. Permits and Licenses

- a. Contractor is responsible for obtaining such permits as necessary to conduct the work.

8. Submittals Before the Start of Work

- a. Submit the following to the Consultant for review and approval:
 - 1). Evidence of satisfactory completion of required training and satisfactory physical exams for all workers for this project.
 - 2). The Action Plan

- 3). The Contingency Plan
 - 4). Copies of Regulatory Notifications (to be submitted to Consultant prior to the start date)
- b. No work shall begin until these submittals are returned by Consultant, with written authorization to proceed.

1.6 CODES AND REGULATIONS

A. Description of the Work

1. This section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specification. This section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work.

B. Codes & Regulations

1. General Applicability of Codes, Regulations, and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the Contract documents, all applicable codes, regulations, and standards have the same force and effect (and are made part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.
2. Contractor Responsibility: The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site.
3. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and local regulations. The Contractor shall hold the Owner and Owner's Representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health, or other regulation on the part of himself, his employees, or his subcontractors.
4. Federal Requirements which govern asbestos abatement work or the hauling and disposal of asbestos waste materials include but are not limited to:

- a. Occupational Safety and Health Administration:
 - 1). 29 CFR 1910 - General Industry Standards
 - 2). 29 CFR 1926 - Construction Industry Standards
 - 3). Especially:
 - a). 29 CFR 1910.20 - Access to Employee Exposure Medical Records
 - b). 29 CFR 1910.134 - Respiratory Protection
 - c). 29 CFR 1910.145 - Specifications for Accident Prevention, Signs and Tags
 - d). 29 CFR 1910.1200 - Hazard Communication
 - e). 29 CFR 1926.1101 - Asbestos Standard for Construction (final rules)
- b. Environmental Protection Agency:
 - 1). 40 CFR 61, Subpart A - National Emission Standard for Hazardous Air Pollutants (NESHAPS)
 - 2). 40 CFR 61, Subpart M - NESHAPS Asbestos Regulation
 - 3). 40 CFR 763, Subpart E - Asbestos-Containing Materials in Schools
- c. Department of Transportation:
 - 1). 49 CFR 107, et seq. - Hazardous Material Regulations
 - 2). 49 CFR 171-180 - Hazardous Material Regulations
- d. State Requirements which govern asbestos abatement work or the hauling and disposal of asbestos waste materials include but are not limited to:
 - 1). Ohio EPA regulations as issued in the Ohio Administrative Code and the Ohio Revised Code.

C. Standards

- 1. Standards which govern asbestos abatement work or hauling and disposal of asbestos waste materials include but are not limited to:
 - a. Compressed Gas Association

- 1). Compressed Air for Human Respiration - Pamphlet G-7
 - 2). Commodity Specification for Air - Specification G-7.1
 - b. American National Standards Institute
 - 1). American National Standard Practice for Respiratory Protection - ANSI Z88.2-1980
- D. Notices, State and Local Agencies
1. Notifications: Ohio EPA Notification (10-day)
 2. Licenses: Maintain current licenses as required for the removal, transporting, disposal, or other regulated activity relative to the work of this Contract.
 3. Posting: Post certification cards of all workers and the Supervisor at the site during work hours.

1.7 ABATEMENT ACTIVITY WORK CLOSE-OUT

- A. Description of Requirements
1. This section describes the submissions that will be required from the Contractor before the Work will be considered complete. Requirements for final cleanup, after work area clearance has been achieved, are described.
- B. Prerequisites to Substantial Completion
1. Submit the following:
 - a. A copy of the Contractor's project log book, including daily log form and sign in sheets.
 - b. A set of red-lined prints of Contract drawings, to show where the installed work differs substantially from the work as originally shown.
 - c. A complete set of copies of Reports of Unusual Events and Accident Reports.
 - d. A record of each Contractor employee working on the project *including* a completed Worker Qualification Form, a copy of the most recent physical examination, Ohio Asbestos Worker or Supervisor Certification Card, AHERA

approved training certificates (initial and most recent refresher), and the most recent respirator fit test.

- e. A complete set of landfill receipts and EPA Waste Manifest forms for each load of asbestos containing waste.
- f. Copies of any and all regulatory agency notifications, inquiries, complaints, warrants, or any other communications relating to the project from governmental agencies.
- g. Complete set of Contractor's personal air monitoring records for the project.

2. Complete the following:

- a. Final cleanup requirements & repair or touch-up as necessary.
- b. Restoration of Owner's utilities to the condition in which they were received.

3. Inspection Procedures:

- a. Upon receipt of Contractor's Request for Inspection, Owner's Representative will either advise the Contractor of unfulfilled prerequisites or proceed with the inspection. Following initial inspection, Owner's Representative will either prepare the Certificate of Substantial Completion, or will advise the Contractor of work which must be performed before the certificate will be issued (the punch list). The Owner's Representative will repeat the inspection when requested and when assured that the Work has been substantially completed.

C. Final Cleanup Requirements

- 1. Clean exposed hard-surfaced finishes affected by the work to a dirt-free condition, free of dust, stains, films, and similar distracting substances.
- 2. Clean the Project Site, including yards and grounds, of litter and foreign substances left during the course of this work.

D. Prerequisites for Final Acceptance

- 1. Complete the following before requesting the Owner's Representative's final inspection for Certification of Final Acceptance, and final payment as required by the General Conditions. List known exceptions, if any, in the request.

- a. Submit the final payment request with final releases and supporting documentation not previously submitted and accepted.
- b. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
- c. Submit waivers of lien from every entity (including Contractor) who could lawfully and possibly file a lien arising out of the Contract and related to work covered by the payment. Owner reserves the right to designate which entities involved in the work must submit waivers.
- d. Submit a certified copy of the Owner's Representative's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
- e. Reinspection Procedure: The Owner's Representative will reinspect the Work upon receipt of the Contractor's notice that the work, including punch-list items resulting from earlier inspections, has been completed, except for those items whose completion has been delayed because of circumstances that are acceptable to the Owner's Representative.
- f. Upon completion of reinspection, the Owner's Representative will either prepare a Certificate of Final Acceptance, or will advise the Contractor of work that is incomplete or of obligations that have not been fulfilled, but are required for final acceptance.
- g. If necessary, the reinspection procedure will be repeated.

1.8 ABATEMENT PROCEDURES

A. Related Documents

1. Drawings, general provisions of the Contract, including General and Supplementary Conditions, and other Specification sections apply to the work of this section.

B. Description of Requirements

1. This section describes the procedures that will be used for determining the acceptability of the Work as determined by:
 - a. Adherence to OSHA work procedures,
 - b. Final visual inspection

2. All abatement work must be done in accordance with the OSHA asbestos standard 29 CFR 1926.1101 for Class 1 and Class 2 asbestos materials.

C. Release Criteria

1. There are three criteria for acceptability of this removal work. They are:
 - a. The work procedures meet the requirements.
 - b. The Visual Inspection is satisfactory.
2. If any of these requirements are not met the Contractor shall reclean as necessary to achieve the required results.

1.9 ISOLATION AREAS

A. Description of Requirements

1. The Contractor shall set up the work area isolation/decontamination facilities in accordance with current OSHA regulations.
2. Class 2 or Class 1 Areas <25 lf or 10 sf of ACM
 - a. The Contractor shall set up the work area isolation/decontamination facilities consisting of one equipment room as follows:
 - 1). The equipment room or area shall be adjacent to the regulated area for the decontamination of employees and their equipment which is contaminated with asbestos and shall consist of an area covered with an impermeable drop cloth on the floor.
 - 2). The equipment area shall be of sufficient size as to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area as determined by visible accumulations of dust or debris.
 - 3). The disposable work clothing shall be cleaned with a HEPA vacuum before it is removed, then placed immediately in a proper disposal bag and wetted with amended water.
 - 4). All equipment and surfaces of containers filled with ACM shall be cleaned prior to removing them from the equipment room or area.

- 5). The competent person shall ensure that all employees enter and exit the regulated area through the equipment room or area.
3. Class 1 Areas > 25 lf or 10 sf of ACM
 - a. A summary of the requirements is as follows:
 - 1). The equipment room shall be an area of sufficient size so as to accommodate at least one worker (allowing enough room to remove protective clothing), a 6-mil disposal bag and container, and any equipment which the Contractor wishes to store when not in use.
 - 2). The wash room shall have two curtained doorways of opaque polyethylene film, one to the work area and one to the uncontaminated area. At least one shower with shower head supplied with hot and cold water or warm water shall be installed in this room for personnel decontamination. This room shall also be equipped with high pressure, low volume sprays to be used for the decontamination of disposal containers and equipment. The wash room shall be constructed so that all waste water is collected and pumped through a five (5) micron filter system.
 - 3). Filtrate shall be disposed of as contaminated waste. From the filter, wastewater shall be drained off in any conventional manner to a sanitary wastewater system. Careful attention shall be paid to the construction of the shower to ensure that it is watertight. No leakage shall be permitted. The Contractor shall supply and maintain soap, shampoo and disposable towels at all times in the shower area.
 - 4). The clean room shall be of sufficient size to accommodate at least one worker, towels for the workers, and storage for street clothing. The clean room shall be in the uncontaminated area.
 - b. If the work area isolation structure fails to prevent air flow out of the work area during personnel or equipment movement through the isolation structure, additional air locks shall be installed until air flow is eliminated.

- B. Construction of Work Area Isolation Structures:
1. The wash room shall be constructed of 6 mil polyethylene and suitable framing so as to make it as airtight as possible. Where joining separate sheets of polyethylene is necessary, taping alone shall not be sufficient. The sheets of polyethylene shall be overlapped at least 3 inches and joined with an unbroken line of adhesive in such a manner as to prohibit air movement; tape shall then be used to further seal the joint on both the inside and outside of the chamber.
 2. Work area isolation structure shall be constructed to prohibit passers-by from casually observing activities within the work area isolation structure or dressing areas in the uncontaminated area. The clean room and equipment room shall be constructed to permit workers to privately dress and undress.
 3. Other work area isolation systems shall be considered as long as they maintain the intended integrity of this system. Any proposed changes must be submitted in writing (with drawings) prior to commencement of work and must be approved in writing.
- C. Maintenance of Isolation Systems and Barriers:
1. Ensure that barriers are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.
 2. Visually inspect all enclosures at the beginning of each work period, and intermittently thereafter.
 3. Smoke test methods may be used by the Owner's Representative to test work areas from the time a negative pressure is first established until final clearance tests are accepted. The Contractor is required by OSHA to conduct smoke testing of the containment area at least twice daily.
 4. The negative pressure shall be maintained 24 hours a day, 7 days per week. At no time shall the Contractor allow air to flow from the work area (including periods when asbestos hazard abatement work is not in progress) except through an AFD exhausting HEPA-filtered air outside the building.
 5. The Contractor shall provide local exhaust and ventilation within the work area with the flow of air away from the workers.

6. Local Exhaust and Ventilation (LEV) means to extract contaminated air from the immediate vicinity of the workers with uncontaminated air, so as to reduce the worker's exposure to concentrations of airborne fiber during the work.

1.10 EMERGENCY PROTECTION

A. Description of Requirements:

1. Prepare a contingency plan for emergencies including fire, accident, power failure, negative pressure system failure, supplied air system failure, or any other event that may require modification or abridgment of decontamination or work area isolation procedures. Include in plan specific procedures for decontamination or work area isolation. Note that nothing in this plan should impede safe exiting or providing of adequate medical attention in the event of an emergency.
2. The Contractor shall establish emergency and fire entrances and exits to work areas. All emergency entrances shall be equipped with two (2) full sets of protective clothing and respirators at all times. The Contractor shall mark all exits from the work area so that they are readily visible in the event of an emergency.
3. Local medical emergency personnel, both ambulance crews and hospital emergency room staff, shall be notified prior to commencement of asbestos hazard abatement operations as to the possibility of having to handle contaminated or injured workers and shall be advised on safe decontamination.
4. The Contractor shall be prepared to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated without delay for decontamination. When an injury occurs, the Contractor shall stop work and implement fiber reduction techniques (e.g., wetting asbestos-containing materials) until the injured person has been removed from the work area.
5. Before the Contractor begins stripping of the asbestos containing material, the local police and fire department shall be notified as to the dangers of entering the work areas and they shall be invited to attend an informal training program to be conducted by the Contractor which will provide information regarding asbestos hazard abatement activities, decontamination practices, etc. The Contractor shall make every effort to help these agencies form plans of action should their personnel need to enter contaminated areas, and assist during emergency procedures.

6. The Contractor shall post in the clean room the numbers and locations of emergency services including but not limited to fire, ambulance, doctor, hospital, police, power company, and telephone company.

1.11 FACILITY PROTECTION

A. Description of Requirements

1. The Contractor shall comply with OSHA and EPA regulations concerning signs and labeling.

B. Facility Protection

1. Existing facilities and functions in adjacent areas may remain in use throughout the asbestos hazard abatement process. All existing services to these adjacent areas shall be maintained throughout this period. All existing fire protection and alarm systems, both within and without the work area, shall be maintained in proper working order throughout the asbestos hazard abatement project.
2. Protect all existing furniture and equipment, existing building finishes that are to remain, and existing systems and functions from damage during asbestos hazard abatement work. Extra precautions are to be taken in protecting: doors and trim, fire protection equipment, equipment and controls, etc. Any damage to building, services, finishes and/or equipment shall be remedied by the Contractor at his cost.
3. In the event that any area of the building or any area outside the building is contaminated by Contractor activities (except the isolated work areas after asbestos hazard abatement work commences and the disposal landfill), the Contractor shall bear all expenses for determination of the contamination and necessary decontamination as determined by the Owner.

1.12 DISPOSAL OF ASBESTOS-CONTAINING WASTE MATERIALS

A. Description of Requirements

1. Comply with the multiple codes and regulations which apply to this work.

B. Submittals

1. In addition to the submittals required by regulation, provide to Owners Representative:

- a. Prior to the start of work, a copy of the EPA or State asbestos landfill permit.

C. Removal Activities

1. Actual configuration of disposal containers will comply with local EPA District and/or landfill requirements, but as a minimum disposal containers shall be two 6-mil polyethylene bags (one inside the other, both separately sealed).
2. All polyethylene film, tape, cleaning material, and all other disposable material or items used in the work area shall be treated as contaminated waste.
3. As disposal containers are filled, they shall be sealed and moved to a staging area adjacent to the work area isolation structure. The Contractor shall remove waste materials from within the work area on a regular basis, and not permit accumulation of disposal containers to obstruct work progress or building exit ways.
4. Disposal containers may be temporarily stored at the site, outside the work area, if secured in a van-type or semi-trailer truck that is completely and securely lined with polyethylene film, including a curtained doorway at the opening. A similarly sealed, enclosed and locked container is also acceptable.
5. Disposal containers shall not be loaded so as to make handling unduly difficult or unsafe, or threaten the integrity of the container, polyethylene barriers or building structures.
6. Warning labels, having waterproof print and permanent adhesive, shall be affixed to the sides of the disposal containers (unless the containers have pre-printed labels). Warning labels shall be conspicuous and legible, and they shall be in accordance with EPA, OSHA and DOT regulations. All disposal bags or containers shall also have the Generator name, address, etc. in accordance with current NESHAP regulations.
7. All waste disposal containers shall be decontaminated and removed from the work area before final clean-up is started and the isolation barrier is taken down.

1.13 CONTINGENCY PLAN

A. Plan Submittals:

1. Prepare a Contingency Plan for emergencies including fire, accident, power failure, negative air system failure, supplied air system failure, or any other event that may require modification or abridgment of decontamination or work area isolation procedures. Include in the plan specific procedures for decontamination or work area isolation. List the telephone numbers and locations of the emergency services, including but not limited to fire, ambulance, doctor, hospital, police, power company and telephone company. Note that nothing in this specification should impede safe exiting or providing adequate medical attention in the event of an emergency. Post the Contingency Plan in the Clean Room or on the job site.

B. Notifications

1. Notify other entities at the Project Site of the nature of the asbestos abatement activities, location of asbestos containing materials, and requirements relative to asbestos set forth in these specifications and applicable regulations.

1.14 FORMS

A. Description of Requirements:

1. Pursuant to good recordkeeping, final documentation, and job management, the Owner's Representative requires the attached forms to be utilized as necessary during the Project.

B. Explanation:

1. Waiver of Liability Form to be completed for each person entering the work area not employed by the Contractor or the Owner's Representative.
2. Certification of Visual Inspection Form to be completed by the Contractor's Competent Person and the Owner's Representative to verify each cleared area.
3. Daily Inspection Form to be completed by Owner's Field Representative each day for each site.

4. Worker Qualification Form to be submitted for each Contractor employee working on the site. (Contractor's Form with same information may be substituted.) The form *must* be accompanied by a copy of the most recent physical examination, Asbestos Worker or Asbestos Hazard Abatement Specialist Card, AHERA approved training certificates (initial and most recent refresher), and most recent respirator fit test.
5. Contractor Personal Air Sampling Form to be submitted with final documents. (Contractor's form with same information may be substituted.)
6. Contractor Personal Air Sample Log form to be submitted with final documents. (Contractor's form with same information may be substituted.)
7. Waste Shipment Record (Ohio EPA) to be completed for each load of asbestos material.

ASBESTOS WORKER QUALIFICATION FORM

EMPLOYEE NAME: _____

EMPLOYEE ADDRESS: _____

NAMES OF PERSONS TO CONTACT IN AN EMERGENCY (2 REQUIRED)

Name _____ Relationship _____ Phone _____
Name _____ Relationship _____ Phone _____

MEDICAL EXAMINATION & PULMONARY FUNCTION TEST:

Latest Physical Date _____
Provider _____

ASBESTOS TRAINING PROGRAMS ATTENDED:

Initial Course Provider _____ Date _____
Refresher Course Provider _____ Date _____

EXPERIENCE AND DATES OF ASBESTOS-RELATED WORK:

Project _____ Date _____
Project _____ Date _____
Project _____ Date _____

Do you now have, or have you had, any respiratory problems? YES NO
Have you worked in the past with asbestos or fiberglass type materials? YES NO

This project involves the handling, removal, and disposal of asbestos from the building. Asbestos is considered a health hazard.

I certify that my statements and answers are true and that I am familiar with all applicable OSHA, EPA, and State regulations concerning the handling, removal, and disposal of friable asbestos-containing material.

EMPLOYEE SIGNATURE _____ DATE _____

I certify that the above information is true, to the best of my knowledge, and that this worker has had the necessary medical examination and training required for asbestos abatement work.

EMPLOYER SIGNATURE _____ DATE _____

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME: _____ DATE: _____

PROJECT ADDRESS: _____

CONTRACTOR'S NAME: _____

Working with asbestos can be dangerous. Inhaling asbestos fibers has been linked with various types of cancer. If you smoke and inhale asbestos fibers, the chance that you will develop lung cancer is greater than that of the non-smoking public.

Your employer's Contract with the Owner for the above referenced project requires that:

- 1) You be supplied with the proper respirator and be trained in its use;
- 2) You be trained in safe work practices and in the use of equipment found on the job;
- 3) You receive a medical examination. These things have been done at no cost to you.

RESPIRATORY PROTECTION: You must have been trained in the proper use of respirators and informed of the type of respirator to be used on the above referenced project. You must be given access to a copy of the written respiratory protection program issued by your employer. You must be equipped, at no cost, with the respirator to be used on the above project.

TRAINING COURSE: You must have been trained in the dangers inherent in handling asbestos and breathing asbestos dust, and in proper work procedures, and in personal and area protective measures. The topics covered in the course must have included the following:

- Physical characteristics of asbestos
- Health hazards associated with asbestos
- Respiratory protection
- Use of protective equipment
- Pressure Differential Systems
- Work practices including hands-on or on-the job training
- Personal Decontamination procedures
- Air monitoring, personal and area

MEDICAL EXAMINATION: You must have had a medical examination within the past 12 months at no cost to you. This examination must have included: health history and pulmonary function tests, and may have included an evaluation of a chest X-ray.

By signing this document, you are acknowledging only that the Owner of the building you are about to work in has advised you of your rights to training and protection relative to your employer, the Contractor.

Signature _____ SSN (last 4) _____

Printed Name _____

CERTIFICATION OF FINAL VISUAL INSPECTION for ASBESTOS ABATEMENT PROJECTS

OWNER: **Lucas Metro Housing Authority**

BUILDING: _____

CONTRACTOR'S REPRESENTATIVE CERTIFICATION

In accordance with the project specifications, the Contractor's Representative hereby certifies that they have visually inspected the entire asbestos work area including all applicable surfaces (pipes, ledges, walls, ceilings, floors, decon unit, poly, etc.) and have found no visible dust, debris, or residue.

NAME: _____ DATE: _____

SIGNATURE: _____

COMPANY: _____

OWNER'S REPRESENTATIVE CERTIFICATION

The Owner's Representative hereby certifies that they have conducted a final visual inspection of the work area at the request of the Contractor's Representative, and verifies that this inspection has been thorough and, to the best of their knowledge and belief, the Contractor's certification above is a true and honest one.

NAME: _____ DATE: _____

SIGNATURE: _____

Ohio EPA

Recommended Asbestos Medical Examination Determination

Information to the Examining Physician: Please complete this form in order to assist the employer to comply with the Chapter 3710 of the Ohio Revised Code. This chapter requires that licensed asbestos hazard abatement contractors possess a worker protection program consistent with the requirements of the United States Occupational Safety and Health Administration Asbestos Construction Standard 29 CFR 1926.1101.

Name of Individual Examined: _____

Employer: _____

Home Address of Individual: _____

Date of Examination: _____

Based upon the results of my examination of the above-named individual, I hereby declare that he or she (check and complete as necessary);

	Is physically able to perform work as required by OSHA 29 CFR 1926.1101 and wear a negative pressure respirator.
	Is physically able to perform work as required by OSHA 29 CFR 1926.1101 and wear a negative pressure respirator under the following limitations: _____
	Is not physically able to perform work as required by OSHA 29 CFR 1926.1101 and wear a negative pressure respirator.

Name of Medical Facility: _____

Address of Medical Facility: _____

Telephone Number of Medical Facility: _____

Printed Name of Examining Physician: _____

Signature of Examining Physician: _____

PHOTOGRAPHS OF ASBESTOS MATERIALS

<p>Photo 1 Transite cement soffit</p>	
<p>Photo 2 Transite cement soffit</p>	
<p>Photo 3 Transite cement soffit</p>	

SECTION 02 83 33

LEAD BASED PAINT ABATEMENT

1.0 GENERAL - SCOPE OF WORK

The work specified herein is lead-based paint (LBP) abatement and demolition which is to be performed by competent persons trained, knowledgeable and licensed in the techniques of LBP abatement, demolition, and the handling and disposal of LBP and/or LBP contaminated materials. The LBP abatement and demolition shall be performed by Contractors who comply with all applicable federal, state and local regulations, and are capable of, and willing to, perform the work pursuant to this specification. All LBP abatement and demolition will be performed in accordance with HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (2012 Edition).

1.01 Summary of Work

Property/Site	LBP Scope of Work							
	Replace Bathtubs	Replace Vent/Louver Frame	Stabilize Lintels	Remove and Replace Soffits	Replace Rubber Stair Treads. Strip Paint and Stabilize Existing Stair Components	Strip Paint and Stabilize Corner Guards	Remove Parking Stall Paint and Replace	Remove Misc. Site Paint and Replace
Pulley Homes		X	X	X				
Birmingham Terrace	X				X	X		

Site 1: Pulley Homes (see drawings for additional information)

SCOPE OF WORK	LOCATIONS	QUANTITY
Stabilize Vents and Louver Frames (interior and exterior)	Exhaust vents & frames	19 units
Stabilize Exterior Metal Lintels in masonry walls	Exterior windows	1,494 lf in 47 units
Remove exterior wood, metal, and asbestos cement board soffits	Exterior soffits	8,864 square feet

- **Note: See asbestos abatement spec 02 82 00 for requirements for cement board removal**

Included in scope of work: Remove Existing Vent/Louver Assembly & Casings, New Vent/Louver Assembly, New Clip Angles, New Casing, Finish - Paint/Caulking, Stabilize Finish on Existing Lintels, Finish – Paint, and Temporary Closures & Protection, Remove soffits and replace.

Site 2: Birmingham Terrace (see drawings for additional information)

SCOPE OF WORK	LOCATIONS	QUANTITY
Remove LBP on metal concrete stair parts and landings; remove/replace vinyl stair treads and adhesive; repaint all stairs	Stairs to 2 nd floor	98 (1 per stair unit)
Remove LBP on metal corner guards and repaint to match existing	Corner guards in living rooms	+/- 196 corner guards (2 per stair unit, field verify)
Remove existing bathtubs; replace as indicated	Bathrooms	113 (1 per unit)

Included in scope of work: Remove Resilient Treads/Nosings/Adhesive, Repair Concrete Steps (25% of surface), Rubber Stair Treads, Flooring Attic Stock, Strip Paint on Risers & Stringers and repaint to match existing, Strip paint on corner guards and repaint to match existing.

1.1 EXPERIENCE AND WORKMANSHIP

- 1.1.1 The Contractor performing the LBP abatement and demolition work shall use workers and supervisors accredited pursuant to the Ohio Department of Health LBP regulations and shall have a minimum of one (1) year of experience and a minimum of three (3) LBP removal projects or abatement work on projects similar in scope and size. Submit proof with bid.
- 1.1.2 The Contractor performing this work MUST be familiar with all applicable regulations covering LBP removal work. This includes all permits, licenses, and certificates required to perform this type of hazardous work and related disposal requirements.
- 1.1.3 The Contractor shall attend a Pre-Job Start Meeting as scheduled by the OWNER/ARCHITECT. Prior to this meeting the Contractor shall provide all of the following submittals:
 - 1.1.3.1 Preparation of work area;
 - 1.1.3.2 Personal protective equipment including respiratory protection and protective clothing;
 - 1.1.3.3 Employees who will participate in the project, including delineation of experience, training, and assigned responsibilities during the project;
 - 1.1.3.4 Decontamination procedures for personnel, work area and equipment;
 - 1.1.3.5 Abatement methods and procedures to be utilized;
 - 1.1.3.6 Contractor required air monitoring procedures;
 - 1.1.3.7 Procedures for handling and disposal of lead waste materials;
 - 1.1.3.8 Procedures for final decontamination and cleanup;
 - 1.1.3.9 A sequence of work and performance schedule;
 - 1.1.3.10 Emergency procedures; and
 - 1.1.3.11 The Contractor will designate a person(s) with all the necessary and required qualifications to administer First Aid, CPR and any related assistance required.

1.2 DEFINITIONS

For the purposes of these Specifications, the following definitions apply.

Abatement means any measure designed to eliminate lead paint hazards in accordance with established standards and laws. Abatement strategies include: removal of lead-based paint (LBP); enclosure of LBP; encapsulation of LBP (with a product that has been shown to meet established standards for a minimum of twenty years); replacement of building components coated with LBP; removal of lead contaminated dust; removal of covering of lead contaminated soil with a durable covering (not grass or sod, which are considered Interim Controls); as well as all preparation, cleanup, disposal, post-abatement clearance testing, record keeping, and monitoring.

Action Level (AL) 30 micrograms per cubic meter of air (30Fg/m³), which is expressed as an 8-hour time-weighted average.

Abatement Supervisor (AS) means an accredited Lead-based Paint Supervisor and shall have at least one year's experience on LBP abatement projects.

Amended Water means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate the surface coating.

Biological Monitoring is the medical evaluation of an individual, including the analysis of a person's blood to determine the level of lead contamination in the body. Biological monitoring for lead abatement work as described herein shall be directed by a licensed physician.

Certified Industrial Hygienist is a person Certified by the American Board of Industrial Hygiene (ABIH).

Clean Room is the area of a worker decontamination facility used for donning protective equipment and storing street clothes.

Containment means a system, process, or barrier used to contain lead hazards inside a work area such as described in "Guidelines for the Evaluation and Control of Lead-Based Hazards in Housing" U. S. Department of Housing and Urban Development, June 1995, Chapter 8, "Containment and Barrier Systems" Tables; 8.1,8.2, and 8.3, or "Guide for Containing Debris Generated During Paint Removal Operations", Steel Structures Painting Council, SSPC Publication No. 96-12, 1996.

Contractor as used in these Specifications refers to the "Lead Abatement Contractor" who will perform work under contract.

Employee means any person employed or hired by an employer in any lawful employment.

Elevated Blood Lead Level means a blood lead concentration equal to or greater than that which a qualified physician and/or relevant legal requirements deem unsafe or unhealthy.

Encapsulation means any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate.

Enclosure means covering surfaces and sealing or caulking with durable materials so as to prevent or control chalking, peeling, flaking or other deterioration of substances containing lead, so that it does not become or remain airborne or surface-accessible.

General Contractor refers to the Contractor responsible for coordination of all general construction work and who is licensed as a general contractor by the State Contractors' Licensing Board.

High Efficiency Particulate Air (HEPA) Filter means a type of filtering system capable of filtering out particles of 0.3 microns or greater diameter from a body of air at 99.97% efficiency or greater.

Intact Painted Surface means a defect-free surface with no loose, peeling, chipping, or flaking paint. Painted surfaces must be free from crumbling, cracking, or falling materials and/or plaster and must not have holes in them. Intact surfaces are not damaged in any way.

Lead-based refers to paints, glazes, and other surface coatings that contain an amount of lead equal to, or in excess of one milligram per square centimeter ($1.0\text{mg}/\text{cm}^2$) or more than half of one percent (0.5%) by weight or five thousand parts per million (5000 ppm).

Lead-containing refers to the coatings noted in 1.2.15 that contain an amount of lead in excess of 0.06% by weight.

PEL means Permissible Exposure Limit, which is 50 micrograms per cubic meter of air ($50\text{Fg}/\text{m}^3$) expressed as an 8-hour time-weighted average.

Qualified Lead Abatement Contractor refers to a Contractor capable of providing a properly trained and equipped work force for lead abatement work. The supervisors and workers must be accredited pursuant to State Laws and Regulations and shall have a minimum of one (1) year of experience, a minimum of three (3) LBP removal projects or abatement work on projects similar in scope and size.

RCRA means Resource Conservation and Recovery Act.

Subcontractor refers of a Contractor who performs work directly for the Contractor.

SSWP means site specific work plan provided by the Lead Abatement Contractor.

TCLP means Toxicity Characteristic Leachate Procedure which is the Federal sample analysis for determining the hazard characteristic of a waste generated at a lead abatement site and is the acceptance criteria for Class I waste disposal facilities. The regulatory level is five milligrams per liter (5 mg/l).

Work Area means an area where lead-based paint or presumed lead-based paint is disturbed, or abatement is conducted.

1.3 STANDARDS AND GUIDELINES

- 1.3.1 The current issue of each document shall govern. Where conflict among requirements or within these specifications exist, the more stringent requirements shall apply.
- 1.3.2 General Applicability of Codes, Regulations, and Standards: Except to the extent that more explicit or more stringent requirements are written directly into the specification, all applicable codes, regulations, and standards have the same force and effect (and are made part of the specification by reference) as if copied directly into the specification, or as if published copies are bound herewith.

1.3.3 Contractor Responsibility: The Contractor shall assume full responsibility and liability for compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling, disposal and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of all personnel as required by the applicable federal, state, and local requirements. Include in site specific work plan.
In addition, the Contractor will be responsible for obtaining all local permits and paying all fees prior to beginning work. Copies of permits must be submitted to OWNER/ARCHITECT prior to start of work and must be posted at the project site. Include in site specific work plan.

1.3.4 OCCUPATIONAL SAFETY AND HEALTH ACT

1.3.4.1 The Contractor shall strictly adhere to the provisions of Federal OSHA Section 1926.62, Lead in Construction,

1.3.4.2 The Contractor shall be responsible for enforcing compliance with standards and these specifications with his/her employees.

1.3.4.3 The Contractor shall comply with the Federal Environmental Protection Regulations pertaining to handling and disposal of lead-containing materials as well as the State of Ohio and any local governmental agencies which have been delegated responsibility for the administration and enforcement of federal regulations including but not limited to:

Occupational Safety and Health Administration

29 CFR 1910 General Industry Standards

29 CFR 1910.1025 Lead Standard for General Industry

29 CFR 1910.134 Respiratory Protection

29 CFR 1910.1200 Hazard Communication

29 CFR 1910.245 Specifications for Accident Prevention

29 CFR 1926 Construction Industry Standards

29 CFR 1926.62 Construction Industry Lead Standard

Environmental Protection Agency

40 CFR Part 261 United States Environmental Protection Agency

Department of Housing and Urban Development

24 CFR Parts 35, 36, 37 HUD Lead- Based Paint Regulations

HUD Guidelines for the Evaluation and Control of Lead- Based Paint Hazards in Housing.

1.3.4.5 The Contractor shall comply with all requirements of the waste disposal site identified in the approved site-specific work plan (SSWP).

1.3.5 OTHER REQUIREMENTS

1.3.5.1 American National Standards Institute (ANSI) - ANSI Z9.2. Fundamentals Governing the Design and Operation of Local Exhaust Systems.

1.3.5.2 The Contractor shall comply with said regulations, requirements, and standards (noted above) and require and be directly responsible for compliance therewith on the part of his agents, employees, materialmen and Subcontractors; and shall directly receive and be responsible for all citations, assessments, fines or penalties which may be incurred by reason of his agents, employees, materialmen, or Subcontractors failing to so comply.

1.3.5.3 The Contractor shall indemnify OWNER/ARCHITECT and their representatives and save from any and all losses, costs and expenses, including fines, judgments, and reasonable attorney's fees incurred by OWNER/ARCHITECT by reason of negligence on the part of the Contractor in exposing his employees, OWNER/ARCHITECT personnel, visitors, and/or in the proper or accepted procedures dealing with lead abatement and/or violation of such laws, ordinances, and regulations, which are currently in effect by the Contractor or his Subcontractors.

1.4 DAMAGES

1.4.1 The Contractor shall protect all components that are to remain from damage caused by this work. Damaged areas shall be repaired or replaced at the Contractors' expense.

1.5 SUBMITTALS AND NOTICES

Include in the SSWP the Following.

1.5.1 Proof to OWNER/ARCHITECT that all required permits, site locations, and arrangements for transport and disposal of lead-based materials and wastes and the like have been obtained including, but not limited to, the following:

1.5.1.1 The name and appropriate certification/licenses of the hazardous material transport firm.

- 1.5.1.2 The name and appropriate certification/licenses of the waste disposal facility.
- 1.5.2 A description of the schedule for LBP demolition and removal phasing and construction of the decontamination system(s), waste load-out area(s), and containment area(s) used to isolate the functional space(s) in compliance with this specification and applicable regulations. These requirements shall be met by submission of shop drawings on which each of these areas are clearly identified.
- 1.5.3 Certifications documenting that employee information and training for lead exposure has been completed for Contractor's personnel and other affected subcontractors' personnel.
- 1.5.4 The Contractor shall also submit the following:
 - 1.5.4.1 Work schedule.
 - 1.5.4.2 Method of application and materials to be used.
 - 1.5.4.3 Submit various manufacturers' information (including MSDS) and type and brands of materials for workers' protection.
 - 1.5.4.4 Copies of all certifications of disposal as designated by OWNER/ARCHITECT.

1.6 AIR MONITORING

- 1.6.1 Initial Determination
 - 1.6.1.1 The Owner shall conduct an initial determination of the worker lead exposures as required by the OSHA Construction Lead Standard.
 - 1.6.1.2 All Contractor and subcontractor employee categories shall be included in the exposure monitoring and shall be representative of a full shift including at least one sample for each job classification in each work area either for each shift or for the shift with the highest exposure level. Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead.
 - 1.6.1.3 The duration of air monitoring shall be sufficient to provide a statistical confidence (95% upper confidence limit) that no employees are exposed above the lead AL or PEL.

- 1.6.1.4 The results of the initial determination shall be used to establish the degree of engineering (barriers, two-stage, or three-stage containment), administrative and respiratory protection controls.
- 1.6.1.5 The results of the initial determination shall be reviewed and approved by OWNER/ARCHITECT or designee.
- 1.6.4.1 Portable low-flow pumps will be used to draw a known volume of air through a 37-millimeter (mm) diameter, 0.8-micron MCE filter. Samples will be analyzed pursuant to the NIOSH 7300 method to yield a weight-per-unit volume (mg/m³).
- 1.6.4.2 Air flow volumes will be calibrated utilizing a field rotameter which will be calibrated with a primary standard such as a frictionless piston (soap film bubble burette).
- 1.6.4.3 All samples will be analyzed for lead by a Laboratory which is accredited by the American Industrial Hygiene Association (AIHA) and by the AIHA's Environmental Lead Laboratory Accreditation Program (ELLAP).
- 1.6.5 Air Monitoring Data
 - 1.6.5.1 Air monitoring samples shall be delivered to the laboratory for analysis at the completion of each work day with a service category request for the laboratory to return sample results within 24 hours.

1.7 SPECIAL RECORDS

- 1.7.1 The Contractor shall provide in the SSWP the name and address of the Sub-Contractor (s), if any, responsible for the demolition, the abrasive blasting and clean-up work.
- 1.7.2 The starting and completion dates of the abatement work shall be documented by the contractor. The contractor shall submit a work schedule including start/completion dates to OWNER/ARCHITECT.
- 1.7.3 A summary of the techniques used to comply with these regulations shall be submitted by the contractor in the SSWP.

- 1.7.4 The Contractor shall submit for information and records, copies of all records indicating that the renovation work has been performed in compliance with lead paint abatement requirements, such as daily logs, marked drawings/blueprints et. al.

1.8 SITE SECURITY

- 1.8.1 Contractor shall provide security so that only authorized personnel may enter the work site. All hazardous waste containers including LBP and asbestos waste shall be located within the work site, be enclosed and locked at all times when personnel are not present to oversee the material, i.e., hazardous waste dumpster. All containers of hazardous materials shall be clearly labeled as containing hazardous materials with signs in both English and Spanish.
- 1.8.2 The LBP abatement and demolition work area are to be restricted only to authorized, trained and protected personnel. These may include the Contractor's employees, employees of subcontractors, owner employees and representatives, state and local inspectors, and any other designated individuals. A list of authorized personnel shall be established prior to job start and posted in the clean room of the worker decontamination facility and in the Contractor's office.
- 1.8.3 Entry into the work area by unauthorized individuals shall be reported immediately to OWNER/ARCHITECT by the Contractor.
- 1.8.4 A log book shall be maintained in the clean room area of the worker decontamination system. Anyone who enters the LBP abatement work area must record name, affiliation, time in, and time out for each entry.
- 1.8.5 Access to the work area shall be through a worker decontamination system(s) located at the work site. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from the work area. The only exceptions to this rule are the waste load-out area which shall be sealed except during the removal of containerized lead waste from the work area, and emergency exits in case of fire or accident. If two- or three-stage containment areas are required, emergency exits shall not be locked from the inside; however, they shall be sealed with polyethylene sheeting and taped until needed.
- 1.8.6 Contractor shall have control of site security during operations in order to protect work efforts and equipment.

- 1.8.7 During the course of the entire LBP portion of the project, the Contractor shall have an Abatement Supervisor (AS) on site, during abatement operations. The AS shall be State licensed and shall have had at least one year's experience with a minimum of three LBP abatement projects. During those phases of lead abatement involving removal of materials and during those periods of time when the work requires negative air units, the Contractor shall also have an individual on site to both maintain security and maintain the negative air units.

1.9 EMERGENCY PLANNING (Address in SSWP).

- 1.9.1 Emergency planning and procedures shall be developed by the Contractor.
- 1.9.2 Emergency procedures shall be in written form and prominently posted. All employees must read and sign these procedures to acknowledge receipt and understanding of work site layout, location of emergency exits and emergency procedures.
- 1.9.3 Emergency planning shall include written notification of police, fire and emergency medical personnel of planned lead abatement activities, work schedule and layout of work area, particularly barriers that may affect response capabilities.
- 1.9.4 Emergency planning shall include considerations of fires, explosions, toxic atmospheres, electrical hazards, loss of electrical power, slips, trips and falls, confined spaces and heat related injuries. Written procedures shall be developed and employee training in procedures shall be provided.
- 1.9.5 Employees shall be trained in evacuation procedures in the event of workplace emergencies.
- 1.9.5.1 For non-life-threatening situations, employees injured or otherwise incapacitated shall decontaminate following normal procedures before exiting the workplace to obtain proper medical treatment.
- 1.9.5.2 For life-threatening injury or illness, worker decontamination shall take least priority. After taking measures to stabilize the injured worker, he/she shall be removed from the workplace and proper medical treatment secured.
- 1.9.5.3 In the event that evacuation procedures are required, the Contractor shall notify ambulance, paramedic personnel, the medical facility and any other required persons that the injured individual(s) is or may be contaminated with lead.

- 1.9.6 Emergency telephone numbers of all emergency response personnel shall be prominently posted in the clean room/change area and Contractor's office, along with the location of the nearest telephone.
- 1.9.7 The Contractor shall provide an emergency eyewash in the change room of the decontamination unit(s). The eyewash shall be capable of a minimum of fifteen (15) minutes of water flow.

1.10 PRE-CONSTRUCTION MEETING

- 1.10.1 After approval of the SSWP the Contractor shall attend a pre-construction job meeting at a time agreed upon by the Contractor, and OWNER/ARCHITECT.
- 1.10.2 At this meeting, the Contractor and supervisory personnel who will provide on-site direction of the lead abatement activities must attend and be prepared to discuss:
 - 1.10.2.1 Preparation of work area.
 - 1.10.2.2 Protection of occupied building areas.
 - 1.10.2.3 Personal protective equipment including respiratory protection and protective clothing.
 - 1.10.2.4 Employees who will participate in the project, including delineation of experience, training, and assigned responsibilities during the project.
 - 1.10.2.5 Decontamination procedures for personnel, work area and equipment.
 - 1.10.2.6 Lead abatement methods and procedures to be utilized.
 - 1.10.2.7 Required air monitoring procedures.
 - 1.10.2.8 Procedures for handling and disposing of waste materials.
 - 1.10.2.9 Procedures for final decontamination and clean-up.

1.11 CONSTRUCTION MEETINGS

1.11.1 The Contractor shall attend construction meetings that may include representatives of OWNER/ARCHITECT, the lead contractor, and the demolition contractor.

2.0 PRODUCTS**2.1 GENERAL**

2.1.1 All materials, tools, and equipment listed herein required shall be provided by the contractor.

2.2 MATERIALS AND SUPPLIES

2.2.1 Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer, the brand name, and labeling as required by the OSHA Hazard Communication Standard.

2.2.2 Store all materials that are subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.

2.2.3 Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with lead shall be disposed of in accordance with the applicable regulations.

2.2.4 Polyethylene Sheeting - 6 mil thickness, unless otherwise specified, in sizes to minimize the frequency of joints.

2.2.5 Tape - Capable of sealing joints of adjacent sheets of plastic sheets and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under dry and wet conditions, including use of amended water, chemical removers, or removal encapsulates.

2.2.6 Surfactant (wetting agent) - Detergent solution.

2.2.7 Chemical Remover - Suitable to aid in removal of lead; to be approved by the OWNER/ARCHITECT.

2.2.8 Warning Labels and Signs - As required by OSHA Regulations. All warning signs provided for this project must be in both English and Spanish.

- 2.2.9 Encapsulant - Product shall have UL approval and be certified by the manufacturer to be compatible for lead painted surfaces and painting over when dry.
- 2.2.10 Other Materials - Provide all other materials as may be specified in drawings; also, other materials such as lumber, nails, and hardware, which may be required to construct and dismantle the decontamination area and the barriers that isolate the work area.

2.3 TOOLS AND EQUIPMENT

- 2.3.1 Provide suitable tools for lead paint removal.
- 2.3.2 Negative Air Pressure System - Whenever a two or three-stage containment is required, a negative pressure must be established in the work area by means of a local exhaust system. The equipment shall exhaust through a three- (or more) stage HEPA filtration system to the outside of the work area. The equipment shall be in operation for 24 hours per day until decontamination and final clean-up of the work area is completed. The system shall comply with the following:
- 2.3.2.1 Filtration equipment shall be in compliance with ANSI Z9.2, Local Exhaust Ventilation.
- 2.3.2.2 Provide, maintain, and monitor per containment the pressure differential between the work area and the building outside of the work area with a monitoring device incorporating a continuous recorder (e.g., strip chart). Continuously maintain the work area at an air pressure that is lower than that in any surrounding space in the building, or at any location in the immediate proximity outside of the building. This pressure differential, when measured across any physical or critical barrier, must be capable of maintaining a minimum pressure differential of minus 0.02-inch water gauge in the work area relative to adjacent areas.
- 2.3.3 Negative air pressure system units shall be employed in sufficient quantity to provide 4 air changes per hour in the workplace.
- 2.3.4 Water Filtration System - Water used for showering in the decontamination area and any other lead-contaminated water must be filtered prior to disposal into the existing sewer system. The system shall at a minimum contain a 3-stage filtering system with a 5.0-micron filter. The filtration system shall be adequate to meet the lead discharge limitations of the local publicly-owned treatment works.

- 2.3.5 Half-face air purifying respirator with canisters containing HEPA filters, and NIOSH approval for lead dust and fume.
- 2.3.6 Type "C" supplied air system or powered air purifying respirators (PAPR), if required by virtue of exposures.
- 2.3.7 Temporary electrical cords and outlets shall be of an approved type and connected to a source of power outside of the work area and protected by a ground fault circuit interrupter (GFCI) as directed by OWNER/ARCHITECT.
- 2.3.8 Temporary Electrical Panels - Provide temporary electrical panels sized, properly grounded and equipped to accommodate all electrical equipment and lighting required for lead abatement work.

2.4 PERSONNEL REQUIREMENTS

2.4.1 Training:

- 2.4.1.1 Any worker entering an area known to contain lead-based paint for the purpose of removing or disturbing lead-based paint must have successfully completed training in Worker Lead-Based Paint Abatement Health and Safety.
- 2.4.1.2 In addition, lead abatement workers shall have, at a minimum, 3 days training. Lead abatement supervisors shall have, at a minimum, 5 days training. Such training shall have been conducted by a training provider accredited by the Ohio Department of Public Health.
- 2.4.1.3 Evidence of completion of the training required by 2.4.1.2 shall be on site prior to an individual's initial entry into the work area.

2.4.2 Biological Monitoring: All LBP workers must have initial (not greater than 30 days prior to the worker starting on the project) blood lead level (BLL) and zinc protoporphyrin (ZPP) screening determined by the whole blood lead method, utilizing vena-puncture technique. In addition, the Contractor shall have a physical performed for each employee by a physician who understands the requirements of the OSHA lead standards.

2.4.3 Employees who are exposed or may be exposed at or above the AL for more than 30 days in any consecutive 12 months, shall have BLL and ZPP testing performed at minimum every 2 months for the first 6 months, and every 6 months thereafter.

- 2.4.4 For OWNER/ARCHITECT projects lasting 30 days or longer, the LBP workers shall have follow-up BLL testing done every 30 days.
- 2.4.5 A worker will be removed from the job if his blood lead level is 50 µg/100 deciliter (dl) or greater. The Contractor shall be responsible for medical surveillance and record keeping.
- 2.4.6 Respiratory Protection:
- 2.4.6.1 It is anticipated that the minimum respiratory protection required for this project is a negative pressure, half mask, air purifying respirator, equipped with HEPA filters for airborne lead levels not in excess of 0.5 mg/m³ (10 X PEL). However, for abrasive blasting activities a Powered Air Purifying Respirator (PAPR) will be required until air monitoring allows for down grading of respiratory protection. Contractors will base bids on these types of respirators.
- 2.4.6.2 In the event air monitoring results exceed the protection factor for negative pressure, half mask, air purifying respirators the following protection will be required:
- Full facepiece air purifying respirator, with HEPA filters for airborne lead levels not in excess of 2.5 mg/m³ (50 X PEL).
 - Pressure demand, full facepiece, supplied air respirators for airborne lead concentrations expected to meet or exceed 50 mg/m³ (1000 X PEL).
- 2.4.6.3 All workers inside the LBP abatement work area will wear the proper respirator for the lead concentration generated. Contractors will base their bids on proper respirator for the lead concentration generated.
- 2.4.6.4 Workers must be properly trained in the care, use, and maintenance of respirators. The Contractor will require that a fit test is performed on these workers and passed not less than one (1) month before they enter the work area.
- 2.4.6.5 Respirators will not be removed until the worker enters the washing area (or equivalent) of the decontamination chamber.

2.4.7 Personal Protective Equipment:

- 2.4.7.1 Workers will wear full body disposable suits with hoods and booties. A TYVEK or similar type of suit may be worn. Suits will continue to be worn inside the work area after the area passes pre-lead abatement inspection and shall remain in use until the area passes final clearance.
- 2.4.7.2 Goggles or safety glasses with side shields shall be worn while on site at all times.
- 2.4.7.3 Additional respiratory protection by supplemental filters, such as organic vapor cartridges, may be needed when handling some removal and/or coating products. Consult the MSDS's and obtain the proper filters as necessary.
- 2.4.7.4 During abrasive blasting operations, a launderable cloth full body suit with hood and booties shall be worn. At the conclusion of this work the coveralls are to be HEPA vacuumed and stored in a plastic bag. They may be re-used until they are ready to launder and/or the end of the project. The contractor may either launder or dispose of the cloth coveralls in accordance with regulatory requirements and these specifications. All other personal protective equipment and personal hygiene practice requirements in these specifications remain applicable.

2.4.8 Personal Hygiene Practices:

- 2.4.8.1 The Contractor shall enforce and follow good personal hygiene practices during lead abatement. These practices will include, but not be limited to, the following:
- 2.4.8.2 No eating, drinking, smoking, chewing gum or tobacco, or applying of cosmetics in work area. The Contractor will provide a clean space, separated from the work area, for these activities.
- 2.4.8.3 All workers must wash hands and face upon leaving the work area for breaks and lunch and shall shower at the end of the work shift. Wash facilities will be provided by the Contractor consisting of, at minimum, running potable water, towels, and a HEPA vacuum. Upon leaving the work area, each worker will remove and dispose of work suit, wash and dry face and hands, and HEPA vacuum clothes that were worn under the disposable suits in the work area.

- 2.4.8.4 The decontamination unit (shower, change room, et. al.) may be located so that it is not contiguous with the work area. In this case, workers shall wear two full body disposal suits, as required in 2.4.4.1, while in the work area. Upon leaving the work area the outside suit shall be HEPA vacuumed and then removed. Then, while still wearing the inside suit and respirator, the worker will proceed directly to the decontamination unit, wash face and hands and clean the exterior of the respirator. Then the inside suit may be removed. The respirator must be removed in the shower room. The interior and exterior of the respirator must be cleaned, filters must be taped or discarded. The respirator must be placed in a clean poly bag and stored in the clean room of the decontamination unit.
- 2.4.8.5 Disposable clothing such as TYVEK suits and other personal protective equipment (PPE) must be donned prior to entering work area. A clean room will be provided for workers to put on suits and other personal protective equipment and to store their street clothes. Disposable suits shall be used once, then properly discarded.
- 2.4.8.6 A lavatory facility must be provided and located in the immediate vicinity of work area. The eating and drinking area, clean room, and the lavatory facility must be maintained in a clean and orderly fashion at all times. The Contractor will provide portable lavatories when needed and disinfect them daily. Workers must HEPA vacuum their suits and wash face and hands prior to entering the lavatory or eating/drinking area.
- 2.4.8.7 If air monitoring data shows that employee exposure to airborne lead exceeds $50 \mu\text{g}/\text{m}^3$, the following conditions apply:
- Street clothes cannot be worn into containment. Workers must wear nylon shorts, TYVEK shorts, or proceed under full shower conditions with no cloths under the disposable suit.
 - Showers must be provided. Shower water must pass through at least a 5.0-micron filter before returning to the public waste system, and the effluent discharge lead concentrations must not exceed the levels stipulated by the local POTW. The shower water shall be contained in 55-gallon drums and be tested for lead content before proper disposal.
 - All workers must shower upon leaving work area.

- Three-stage decontamination unit must be established consisting of equipment room and airlock; shower and airlock; and a clean room.

3.0 EXECUTION

3.1 WORK SCHEDULE (Include in SSWP)

- 3.1.1 The work is to be carried out diligently to completion. The Contractor shall furnish to OWNER/ARCHITECT a schedule identifying anticipated starting and completion dates for each removal phase which includes all lead operations.

3.2 PREPARATION OF WORK AREA

- 3.2.1 The Contractor performing the LBP abatement and demolition shall perform this work in conjunction with various phases of the project identified during the pre-bid job walk or subsequent construction meetings. One layer of 6 mil thick plastic shall be used to protect the floor. All overlaps and seams shall be taped. The contractor is responsible for ensuring the removal of all existing movable, i. e. trash, furniture and fixtures, etc.
- 3.2.2 Work Area: Preparation of the work area is dependent upon the type of lead abatement planned and the expected/experienced concentrations of airborne lead within the containment (employee exposure monitoring) and exterior to the containment (area monitoring). Three levels of engineering controls and work area preparation are anticipated:
- 3.2.2.1 Plastic Barriers - Air monitoring results less than the AL. Single-layer of six (6) mil polyethylene plastic with Z-flap at entry/egress points and signs to identify the lead abatement area and required entry authorizations. This control level is anticipated primarily for lead abatement via demolition of the walls within the building after paint stabilization has occurred (i.e. removal by scraping of loose paint chips).
- 3.2.2.2 Two-Stage Containment - Air monitoring results are greater than the AL, but less than the PEL. Complete physical containment with two-layers of ten (10) mil plastic on wall, airlocks, clean and equipment rooms and negative air pressure system. This control level may be required for on-site removal methods such as abrasive blasting and on-site LBP removal with chemicals.

- 3.2.2.3 Three-Stage Containment - Air monitoring results above the PEL. Full three-stage containment with two-layer plastic, airlocks, negative air pressure system, dirty/equipment rooms, showers, and clean/change room. This control level may be required for extensive on-site, dry removal methods (this type of containment is not anticipated during this project unless the contractors are unwilling to meet the requirements of these specifications).
- 3.2.2.4 Shower - Shower facilities are required.
- 3.2.2.5 The number, sequence and types of containments shall be identified in the work plan.
- 3.2.2.6 Shut down of electrical power: When and where required, provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements. Provide safety lighting and ground fault interrupter circuits as a power source for electrical equipment. Existing power to the building shall be shut off at the source.
- 3.2.3 Minimum Lighting: The Contractor shall establish minimum lighting requirements as follows: a minimum of 20 foot-candles in the general work area and a minimum of 50 foot-candles on working surfaces where removal and/or detailing is taking place.
- 3.2.4 Signage: The Contractor shall post signs immediately outside all entrances and exits to the work area.
- 3.2.4.1 The Contractor shall keep the signs posted.
- 3.2.4.2 The Contractor shall insure that the required sign meets the following description:
- The sign is at least 20" by 14" and states the date and place of the lead abatement project;
- The sign includes the phrase, "Warning, Lead Work Area, Poison No Smoking, Eating or Drinking" in bold lettering at least two inches high.

3.2.5 TWO AND THREE-STAGE CONTAINMENTS ONLY

- 3.2.5.1 Shut down and isolate (by means of one layer of 6 mil plastic sheeting) heating, cooling and ventilating air systems to prevent contamination and lead dust dispersal to other areas of the structure. During the work, vents or openings within the work area shall be sealed with tape and plastic sheeting.
- 3.2.5.2 Seal off all openings, including but not limited to corridors, doorways, skylights, ducts, grilles, or diffuser openings and any other penetrations of the work areas, with two layers of 6 mil plastic sheeting sealed with tape. Doorways and corridors that will not be used for passage during work must be sealed with 6 mil plastic barriers.
- 3.2.5.3 Build airlocks at entrances to and exits from the work area. Airlocks should be built in a manner that allows for in-flow air. Make-up air, if required, shall be admitted through specially constructed vents which prevent contaminated air from leaving the work area.
- 3.2.5.4 Establish a negative air pressure system which produces 4 air changes per hour in the work area and maintains a pressure differential of minus 0.02-inch water gauge between the inside and outside of the work area. The location and identification of each individual negative air unit shall be provided to OWNER/ARCHITECT for each work area. Identification (for example, labels) shall be clearly visible in the work area and at the unit's exhaust location.

- 3.2.6 Maintain emergency and fire exits from the work areas, and/or establish adequately marked alternative exits satisfactory to OWNER/ARCHITECT.

3.3 LBP DEMOLITION AND ABATEMENT SHALL NOT COMMENCE UNTIL:

- 3.3.1 The LBP Work Plan, and all required submittals and notices listed in section 1.5 of this document as well as training, respirator program, respirator fit-test results, proof of medical exams, and MSDS's have been reviewed and approved by OWNER/ARCHITECT or designee.
- 3.3.2 Arrangements have been made for disposal of waste at sites acceptable to the OWNER/ARCHITECT.
- 3.3.3 Arrangements have been made for containing and/or disposing of waste water resulting from showering and other LBP abatement activities.

- 3.3.4 Work areas, decontamination enclosure system, and waste load-out area are effectively segregated.
- 3.3.5 Tools, equipment, and material waste receptacles are on-site.
- 3.3.6 All respirators are on-site and fully operative.
- 3.3.7 A visitor and employee log-in/log-out system is in place at the job site. All persons entering the site will be required to sign in and sign out. Bound, pre-paginated ledgers shall be employed for the sign-in, sign-out system.
- 3.3.8 Should any Presumed Asbestos Containing Material (PACM) be identified, the work activities shall cease in the effected area and the materials shall be sampled and analyzed for asbestos content.

3.4 ENCLOSURE AND WASTE LOAD-OUT AREA

- 3.4.1 If two or three-stage containments are required, construct a worker decontamination enclosure system contiguous to the work area, described as follows:
 - 3.4.1.1 An equipment room with two doorways, one to the work area and one to the shower room.
 - 3.4.1.2 A shower room with two doorways, one to the equipment room and one to the clean room. The shower room shall contain at least one shower with hot and cold water. Careful attention shall be paid to the shower enclosure to ensure against leaking of any kind. Ensure a supply of soap and shampoo is available at all times in the shower room. Clean and dry towels shall be available for employees and owner-authorized visitors and personnel. A three-stage water filtration system must be employed prior to release of shower water into the local sewage system.
 - 3.4.1.3 A clean room with one doorway into the shower and one entrance or exit to non-contaminated areas of the building or outside. The clean room shall have sufficient space for storage of the workers' street clothes, towels and other non-contaminated items. Individual lockers shall be available to workers within the clean room. Workers shall change clothes (i.e., dress and undress) within the clean room exclusively. If additional space is required for changing clothes, the Contractor will be required to construct modesty rooms (if inside the building, use black polyethylene sheeting, if outside the building, use ½" plywood).

- 3.4.1.4 The worker decontamination enclosure system shall be of rigid construction, preferably movable, and shall exist independent of the facility but contiguous to the work area (i.e., building facilities such as toilets, sinks, and shower shall not be used in constructing the decontamination enclosure system). If the entire facility is built on-site, it shall be constructed of ½" plywood, 2" x 4" studs and fully lined with two layers of 6 mil polyethylene sheeting. Toilet facilities for workers shall be located within the decontamination enclosure system accessible through either the equipment room or shower room.
- 3.4.1.5 The worker decontamination area shall be under negative air at all times; sufficient quantities of make-up air will also be provided for by the Contractor.
- 3.4.1.6 Construct a waste load-out wash down station contiguous to the equipment room or work area. The waste load-out area shall be constructed of ½" plywood, 2" x 4" studs, and fully lined with two layers of 6 mil polyethylene sheeting or as approved by OWNER/ARCHITECT or its designee.
- 3.4.2 If two or three-stage containments are required, move all materials or equipment from the work area through the equipment decontamination room according to the following sequence:
- 3.4.2.1 Airlocks shall be established at the entrance of the waste load-out area and a separate negative air machine shall be utilized exclusively for this waste load-out area.
- 3.4.2.2 Access to the waste load-out area shall only be through the work area through a separate airlock between the work area and the wash down station.
- 3.4.2.3 At the waste load-out station, thoroughly wet clean contaminated equipment, sealed polyethylene bags or metal drums and pass them into wash room. Once inside the washroom, again wet clean and place sealed metal drums, polyethylene bags or equipment into a second layer of 6 mil polyethylene sheeting or bag. All workers in this decontamination facility shall be required to wear full protective clothing and appropriate respiratory protection.

3.4.2.4 All double-bagged waste shall be transported to dumpster by sealed, portable containers. The dumpster and portable container shall be fully lined (exclusive of ceiling) with one layer of 6 mil polyethylene sheeting. Dumpster and portable containers shall be leak tight and tested by the Contractor.

3.4.3 LBP components shall be transported to the waste dumpster, to the extent feasible, in carts to prevent the loss/spreading of LBP paint chips. If pallet- type or flat bed conveyances, etc., are used, the path from the work area to the dumpster shall be demarked with warning tape, covered with a layer of 10 mil plastic if feasible, and cleaned with a HEPA vacuum to ensure that any paint chips are cleaned up.

3.5 MAINTENANCE OF ENCLOSURE SYSTEM

3.5.1 Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

3.5.2 Visually inspect enclosures and negative air units at the beginning of each work period or shift. Details of the inspections are to be included in the Contractor's daily log.

3.5.3 Use smoke methods to test effectiveness of barriers and the negative air pressure system when directed by the OWNER/ARCHITECT.

3.6 CLEAN-UP PROCEDURES

3.6.1 General: When active lead abatement work is taking place, there shall be continuous, ongoing cleanup to reduce the accumulation of debris, and the work site shall be cleaned at the end of each day's activities. Prior to beginning lead control, all stored materials or equipment shall be either removed to a "clean room" or wrapped in polyethylene prior to start of the lead abatement work. A separate, secured area within the containment space shall be designated for storage of debris until it can be properly disposed of according to the contract documents. The lead abatement area shall be secured to prevent entry by any persons after termination of the workday. Disposable supplies such as mop heads, sponges, and rags shall be replaced regularly and disposed of according to the *LBP Specifications*. Durable equipment, such as power and hand tools, generators, and vehicles shall be cleaned monthly. All equipment shall be cleaned by HEPA vacuuming and detergent washing. No equipment shall be removed from the work area until it has been cleaned.

- 3.6.2 All clean-up procedures, as described herein, will be completed before the removal of the 6 mil. thick area containment plastic sheeting on vents, as well as doorways to the outside.
- 3.6.3 Clean-Up Methods and Equipment: Areas in which lead abatement operations have been completed shall be cleaned, starting at the ceilings and working down to the floors, by vacuum cleaning using a high efficiency particulate air (HEPA) vacuum, followed by a wet cleaning with a general all purpose cleaner or a cleaner made specifically for lead. After spraying the surface, a wet and dry HEPA vacuum shall be used to vacuum the water from the surface.
- 3.6.4 High Efficiency Particulate Air (HEPA) Vacuum: The Contractor will obtain training in the use of the HEPA vacuum from the manufacturer prior to use. The Contractor shall obtain HEPA vacuum attachments, such as various sized brushes, crevice tools, and angular tools to be used for varied application, and service the HEPA vacuum routinely to assure proper operation. Caution shall be taken any time the HEPA is opened for filter replacement or debris removal. Operators shall wear a full set of protective clothing and equipment, including respirators, when using the HEPA vacuuming equipment. Prior to leaving the work area and while in storage each HEPA vacuum must have all orifices sealed with duct tape and vacuum related tools must be cleaned and bagged.
- 3.6.5 Wet Cleaning with a General All-Purpose Cleaner: The Contractor shall prepare and use either an all-purpose cleaning detergent or a cleaning agent made specifically for lead according to the manufacturer's recommended coverage. Detergent solutions should be replaced after each individual area has been washed unless the Contractor has used a garden spray application and vacuumed the surface. The waste water from cleanup shall be contained and disposed of according to the contract document.
- 3.6.6 Removal of Plastic Sheeting: The plastic sheeting covering the floors, window openings and ground shall be sprayed, picked up and HEPA-vacuumed prior to removal. The plastic sheeting shall be carefully folded from the corners and ends toward the middle and placed into a double 4 mil or single 6 mil plastic bag and sealed. Bags shall be stored in the designated area and disposed of according to the specifications.
- 3.6.7 Triple Clean: The entire area shall be HEPA-vacuumed, washed, and HEPA-vacuumed again. No dry sweeping is allowed. After this cleaning, any surfaces requiring painting such as plaster walls, or plaster ceilings shall be sealed or primed with an approved product. The lead related final cleaning may be combined with the final asbestos clean up procedures

- 3.6.8 Cleanup and Inspection After Abatement. The Contractor shall begin final cleanup no less than 24 hours (unless notified otherwise) after final clearance and all materials, equipment, debris and plastic sheeting have been removed. The entire area shall be HEPA-vacuumed, washed with a cleaning agent, and HEPA-vacuumed, washed with a cleaning agent, and then HEPA-vacuumed again. No dry sweeping is allowed. OWNER/ARCHITECT will then visually inspect the entire area to ensure that all abated surfaces have been primed, painted, or sealed. All disposal supplies used during cleanup, such as mop heads, sponges, etc., shall be disposed of according to the specifications.

3.7 DISPOSAL OF WASTE MATERIAL (Include in SSWP)

- 3.7.1 The Contractor shall contact the regional EPA, state, and local authorities to determine LBP debris disposal requirements. RCRA requirements shall be complied with as well as applicable state hazardous waste and solid waste and OWNER/ARCHITECT requirements. During the actual lead abatement, the Contractor shall not leave debris at the facility or nearby property, incinerate debris, dump waste by the road or in an unauthorized dumpster, or introduce lead-contaminated water into storm water (will not be flushed down yard inlet or street drain) or sanitary sewers (will not be flushed down toilet or other household drain).
- 3.7.2 The presumptions and reservations in 3.9.3 and 3.9.4 govern the classification of the waste, except for waste material not listed therein.
- 3.7.3 Presumed non-hazardous waste. The following categories of waste material are presumed to be non-hazardous without STLC or TCLP testing.
- Intact painted building materials.
 - HEPA vacuumed disposable work clothes and cleaned respirator filters.
 - Filtered wash water.
 - Wet wiped or HEPA vacuumed plastic sheeting and tape used to protect surfaces.
- 3.7.4 Presumed hazardous waste.
- The following categories of waste materials are presumed to be hazardous without STLC or TCLP testing.
- Abrasive blasting materials.
 - Paint chips.

- HEPA vacuum debris and filters, dust from air filters, and paint dust.
- Unfiltered liquid waste.
- Sludge from chemical stripping.
- Rags, sponges, mops, scrapers, and other such materials used for abatement and cleanup.
- Non-impervious work gloves.

3.7.5 Hazardous Solid Waste: The Contractor shall place lead-based paint chips, debris, and lead dust, etc., in double (4-mil) or single (6-mil) polyethylene bags that are air-tight and puncture-resistant and place them in 55-gallon metal drums provided by the Contractor.

Other types of substrate that do not fit into plastic bags will be wrapped in 6 mil poly and labeled "DANGER, LEAD DUST."

3.7.6 The Contractor will place all disposable materials, such as work gloves sponges, mop heads, filters, disposable clothing, and brooms in double (4-mil) or single (6-mil) plastic bags and in 55-gallon metal drums provided by the Contractor.

3.7.7 The Contractor shall clean surfaces and equipment and remove debris. The Contractor shall then remove plastic sheeting and tape from covered surfaces. Prior to removing the plastic sheeting, the Contractor shall lightly mist the sheeting with amended water in order to keep dust down and fold inward into tight small bundles to bag for disposal. The Contractor shall place all plastic sheeting in double (4-mil) or single (6-mil) thick plastic bags and seal them.

3.7.8 The Contractor shall bag and seal vacuum bags and filters in double (4-mil) or single (6-mil) thick plastic bags and place them in 55-gallon metal drums provided by the Contractor.

3.7.9 The Contractor shall place all contaminated clothing or clothing covers used during lead abatement and cleanup in plastic bags for disposal prior to leaving the equipment room and place them in 55-gallon metal drums provided by the Contractor.

3.7.10 The Contractor shall place solvent residues and residues from strippers in properly lined labeled drums made out of materials that cannot be dissolved or corroded by chemicals. Solvents, caustics, and acid waste must be segregated and not stored in the same containers with LBP waste but must be stored in appropriate disposal drums provided by the Contractor.

- 3.7.11 The Contractor shall contain and properly dispose of all liquid waste, including lead-dust contaminated wash water.
- 3.7.12 The Contractor shall HEPA-vacuum the exterior of all liquid waste containers prior to removing the waste containers from the work area and shall wet wipe the containers to ensure that there is no residual contamination. Containers should then be moved out of the work area into the designated storage area.
- 3.7.13 The Contractor shall carefully place the containers into the truck or dumpster used for transportation.
- 3.7.14 The Contractor shall ensure that all waste is transported in covered vehicles to an OWNER/ARCHITECT approved disposal site.
- 3.7.15 If the Contractor, with OWNER/ARCHITECT approval, subcontracts the removal of the LBP waste, he shall ensure that the company removing the waste material adequately covers all loads so that no dust or debris is released.
- 3.7.16 Disposal of Hazardous Waste (as determined by 3.9.3, 3.9.4, or STLC testing). The Contractor will be required to comply with OWNER/ARCHITECT directives concerning all hazardous waste disposal. All disposal costs associated with the wastes are to be borne by the LBP abatement contractor.
- 3.7.17 Waste Containers: The Contractor will comply with EPA and DOT regulations for containers. The Contractor shall contact OWNER/ARCHITECT, the state, local authorities and the disposal site to determine their criteria for containers. The more stringent requirements shall apply. All disposal costs associated with the wastes are to be borne by the LBP abatement contractor.
- 3.7.18 The waste containers shall be removed from the site and transported to the waste disposal site when full or within 5 days of the conclusion of abatement work.
- 3.7.19 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. This transporter must be approved by OWNER/ARCHITECT. The Contractor shall require the certified hazardous waste transporter to follow all applicable Federal, State, and Local regulations.

- 3.7.20 Recyclables: The recipient of recyclable materials containing lead paint shall be informed in writing of the presence of the lead paint prior to transporting them.

4.0 LBP ABATEMENT METHODS (Include in SSWP)

4.1 GENERAL

The alternatives covered in this section are included for awareness in the event they may be necessary and available for the contractor to use. Methods that do not generate dust or fume shall be proposed in the SSWP.

4.2 ABRASIVE REMOVERS - MACHINE SANDER

4.2.1 Machine Sanding Equipment

- 4.2.1.1 Sanders shall be of the dual action, rotary action, orbital or straight-line system type, capable of being fitted with a HEPA dust pick-up system.

- 4.2.1.2 Air compressors utilized to operate this equipment shall be designed to continuously provide 90 to 110 psi or as recommended by the manufacturer.

4.2.2 Execution

- 4.2.2.1 Sanding shall only be done on flat surfaces which allow the HEPA dust collection hood to come into tight contact with the surface being sanded. Surfaces to be sanded shall be wide enough to allow maximum efficiency of the HEPA dust collection system.

- 4.2.2.2 All lead-based paint shall be removed down to the bare substrate surface. In cases in which some pigment may remain embedded in wood grain and similar porous substrate, care shall be taken to avoid damage to the substrate with the sanding machine. If the pigment cannot be removed without damaging the substrate, the Contractor shall notify OWNER/ARCHITECT for further instructions.

4.3 DEMOLITION OF INTACT WALLS

- 4.3.1 The demolition of intact drywall systems will be done in such a manner to control the spread of dust and liquid effluent created during the process.

4.3.1.1 Normal demolition activities that may be utilized by the contractor to demolish the wall systems include, but are not limited to, manual demolition, Bobcat, sawing, etc.

4.3.2 Execution

4.3.2.1 The demolition of the wall systems shall be done wet such that dust control measures are utilized to control the spread of dust and lead dust into various areas of the building which may or may not be directly involved in LBP demolition.

4.3.2.2 The paint chips and dust with paint chips generated during this type of work shall be collected and disposed as hazardous waste.

4.4 HEAT GUN REMOVERS

4.4.1 Heat Blower Gun Equipment. Electrically-operated heat-blower gun shall be a flameless electrical paint softener type. Heat-blower shall have electronically controlled temperature settings to allow usage below a temperature of 700 degrees Fahrenheit. Heat-blower shall be GFI type (non-grounded) 120V, AC application. Heat-blower shall be equipped with various nozzles to cover all common applications (cone, fan, glass protector, spoon reflector, etc.).

4.4.2 Execution

4.4.2.1 The hot air stream from the heat-blower gun shall be directed at the painted surface and the paint allowed to blister and soften. Considerable lead is volatilized from lead-based paint and lead fumes are released at approximately 700 degrees Fahrenheit. Heat-blower shall not be operated above 700 degrees Fahrenheit and respiratory protection is required for all persons in the work area.

4.4.2.2 Softened paint shall be removed down to the substrate surface as completely as possible by scraping and/or brushing. In cases where some pigment may remain embedded in plaster and similar porous substrate, care shall be taken to avoid damage to the substrate with the scraping or brushing. If the pigment cannot be removed without damaging the substrate, the Contractor shall notify OWNER/ARCHITECT for further instructions.

4.5 ON-SITE CHEMICAL REMOVERS

4.5.1 Chemical Stripping Removers

4.5.1.1 **Chemical removers shall contain no methylene chloride products.** Chemical removers shall be compatible with, and not harmful to the substrate to which that they are applied. Chemical removers used on masonry surfaces shall contain anti-stain formulation that inhibits discoloration of stone, granite, brick, and other masonry construction.

4.5.2 Chemical Stripping Agent Neutralizer

4.5.2.1 Chemical stripping agent neutralizers may be used on exterior surfaces only. Neutralizers shall be compatible with and not harmful to the substrate that they are applied to. Neutralizers shall be compatible with the stripping agent that has been applied to the surface substrate.

4.5.2.2 Execution. Chemical stripping agents and neutralizers shall be applied in accordance with the recommendations of the manufacturer. Care must be taken to adhere to all health/safety code and other specification section requirements. Stripping agents shall not be allowed to penetrate plaster or substrates. The softened paint shall be removed by scraping or wire brush.

4.6 VACUUM BLASTING REMOVERS

4.6.1 Vacuum Blasting Equipment and Abrasive Media

4.6.1.1 Blasters shall be of full containment vacuum type, designed in full compliance with all codes that govern abrasive blasting the removal and handling of hazardous materials. The machine shall automatically clean dust and contaminants from the used abrasive by a dust separator before reuse of abrasive. All machine air filters shall be automatically cleaned during operations. The machine shall automatically load the dust and contaminants into approved disposable bags during operations. The machine shall be equipped with brush type blast heads for a wide range of flat, curved, and other shaped surfaces.

4.6.1.2 Blasting media shall be non-toxic and conform to the recommendations and specifications of the vacuum blasting machine manufacturer.

4.6.2 Execution

- 4.6.2.1 Blasting shall be done on flat and shaped surfaces that are compatible with the available blast heads as provided by the equipment manufacturer. Blast heads shall come into contact with the surfaces being blasted to provide maximum containment of dust and debris created by the blasting operation.
- 4.6.2.2 All lead-based paint shall be removed down to the bare substrate. In some cases, in which pigment may remain embedded in porous materials, care shall be taken not to damage the substrate with the blasting operation. If pigments cannot be removed without damaging the substrate, the Contractor shall notify OWNER/ARCHITECT for further instructions.
- 4.6.2.3 Blasting operations shall be performed by workers who are properly trained in the use of the blasting equipment being utilized.
- 4.6.2.4 All work shall be in compliance with this Section, all other applicable specification sections, and all health and safety codes.

4.7 ABRASIVE BLASTING

- 4.7.1 Abrasive Blasting Equipment and Abrasive Media
 - 4.7.1.1 Blasters shall be designed in full compliance with all codes that govern abrasive blasting and the removal and handling of hazardous materials.
 - 4.7.1.2 Blasting media shall be non-toxic and conform to the recommendations and specifications of the blasting machine manufacturer.
- 4.7.2 Execution
 - 4.7.2.1 The abrasive blasting shall be done within the approved containment.
 - 4.7.2.2 All lead-based paint shall be removed down to the bare substrate. Care shall be taken not to damage the substrate with the blasting operation. If pigments cannot be removed without damaging the substrate, the Contractor shall notify OWNER/ARCHITECT.

- 4.7.2.3 Blasting operations shall be performed by workers who are properly trained in the use of the blasting equipment being utilized.
- 4.7.2.4 All work shall be in compliance with this Section, all other applicable specification sections, and all health and safety codes.
- 4.7.2.5 Work shall be stopped and the area cleaned if visible emissions of dust are observed outside the contained area.

4.8 HEPA VACUUM POWER TOOL CLEANING

- 4.8.1 Power tool cleaning involves the use of an air compressor to power the sanding, impacting (needle gun), grinding, or brushing equipment in order to remove all paint, rust, and mill scale on metal and irregular surfaces. When surfaces are flat and the tool is used properly, dust generation is minimal. However, dust will escape in areas of complex configuration when an adequate seal between the tool and the surface cannot be maintained.
- 4.8.2 Containment shall consist of a tarp or wind screen to isolate the work area and ground covering of 10 mil plastic.
- 4.8.3 Execution
 - 4.8.3.1 Select the proper shroud for the shape of the surface to be treated. Attach tool to HEPA vacuum. Worker fatigue may cause the shroud to lose contact with the surface and may cause a significant amount of dust and chips to be emitted if this occurs. All debris shall be cleaned up as soon as possible to avoid tracking material out of the work area.

4.9 REMOVAL AND REPLACEMENT

- 4.9.1 **Materials.** All substrates that are removed for future replacement shall be reviewed and approved by the OWNER/ARCHITECT. Substrates include plaster trim, plaster walls/ceilings, wood door trim, wood window trim, wood base, wood chair/crown moldings, and exterior components. No historical architectural elements can be removed without prior written consent by the OWNER/ARCHITECT. A written plan for removal of substrate shall be submitted prior to the start of work for any removal.
- 4.9.2 Execution

- 4.9.2.1 Care shall be taken to avoid damage to adjacent areas during the removal of substrate to be replaced.

5.0 CLEARANCE CRITERIA (VISUAL & WIPE SAMPLING)

- 5.1.1 After the lead paint abatement, clean-up and waste removal, the Contractor shall notify the Architect who has contracted the services of a State Certified Risk Assessor (Consultant) to perform a final visual inspection and clearance wipe sampling to the degree of cleanliness of the affected areas. After the area has passed the visual inspection the Consultant shall conduct wipe tests in accordance with the HUD and State of Ohio requirements. The wipe testing shall be repeated after all further construction activities have been completed and before area re-occupancy.
- 5.1.2 The wipe tests shall conform to Table 10.1 in the HUD LBP 1995 Guidelines. Samples will be analyzed by a qualified laboratory utilizing the EPA 6010 method.
- 5.1.3 The number of wipe clearance tests in each housing complex shall be in accordance with HUD Table 7.3 for Multi-family developments with the anticipated number of wipe clearances which will be randomly selected as follows:
- A. Birmingham Terrace: 26 units
 - B. Northern Heights: 25 units
 - C. Pulley Homes: 21 units
- 5.1.4 The test results indicating that the lead dust levels in the tested areas are below those allowable by the regulatory agencies. The following levels (not to exceed) apply:
- 5.1.4.1 Floors: <10 micrograms per square foot.
 - 5.1.4.2 Interior Horizontal Window Sills: <100 micrograms per square foot.
 - 5.1.4.3 Window Troughs: <100 micrograms per square foot.
- 5.1.5 If the test results indicate higher levels, the Contractor shall repeat the clean-up procedure as described in 3.6.8 and retesting for dust shall be conducted at the Contractor's expense by the Consultant until the area is tested and found to contain an acceptable level of lead dust.

END OF SECTION

SECTION 06 10 00

MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. Provide rough carpentry complete as indicated on Drawings, as specified, and as required for proper completion of the Work; including, but not limited to items listed below:
 - 1. Framing, equipment bases and supports.
 - 2. Wood blocking, backing, furring, cants, and nailers.
 - 3. Plywood wall and roof panels.

1.3 DEFINITIONS

- A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise indicated.
- B. Exposed Framing: Dimension lumber not concealed by other construction.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NELMA - Northeastern Lumber Manufacturers Association.
 - 2. NLGA - National Lumber Grades Authority.
 - 3. RIS - Redwood Inspection Service.
 - 4. SPIB - Southern Pine Inspection Bureau.
 - 5. WCLIB - West Coast Lumber Inspection Bureau.
 - 6. WWPA - Western Wood Products Association.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Fire-Retardant-Treated Wood: Obtain each type of fire-retardant-treated wood product through one source from a single producer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
- B. Factory mark each piece of lumber with grade stamp of grading agency.
- C. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by grading agency.
- D. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
- E. Provide dressed lumber, S4S, unless otherwise indicated.
- F. Provide dry lumber with 15 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and one of the following:
 - a. Chromated copper arsenate (CCA).
 - b. Ammoniacal copper zinc arsenate (ACZA).
 - c. Ammoniacal, or amine, copper quat (ACQ).
 - d. Copper bis (dimethyldithiocarbamate) (CDDC).
 - e. Ammoniacal copper citrate (CC).
 - f. Copper azole, Type A (CBA-A).
 - g. Oxine copper (copper-8-quinolinolate) in a light petroleum solvent.

2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry material after treatment to a maximum moisture content of 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece, or omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat all rough carpentry, unless otherwise indicated. Treat items indicated on Drawings, and the following:
1. Wood framing, nailers, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 3. Wood framing members less than 18 inches (460 mm) above grade.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including the following:
1. Framing.
 2. Blocking.
 3. Nailers.
 4. Furring.
 5. Grounds.
- B. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
1. Mixed southern pine, No. 2 grade; SPIB.
 2. Hem-fir or Hem-fir (north), Construction or 2 Common grade; NLGA, WCLIB, or WWPA.
 3. Spruce-pine-fir (south) or Spruce-pine-fir, Construction or 2 Common grade; NELMA, NLGA, WCLIB, or WWPA.
 4. Eastern softwoods, No. 2 Common grade; NELMA.
 5. Northern species, No. 2 Common grade; NLGA.
 6. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

2.4 PLYWOOD WALL AND ROOF PANELS

- A. Plywood Wall Panels: DOC PS 1-09, PS 2-04, Exterior Grade, OSB, APA approved, in thickness indicated or, if not indicated, not less than 7/16 inch (12.7 mm) thick.
- B. Plywood Roof Panels: DOC PS 1-09, PS 2-04, Exterior Grade, T&G OSB, APA approved, in thickness indicated or, if not indicated, not less than 5/8 inch (12.7 mm) thick.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: CABO NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- F. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M).
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.
- H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

2.6 MISCELLANEOUS MATERIALS

- A. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- C. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. CABO NER-272 for power-driven fasteners.
 - 2. Published requirements of metal framing anchor manufacturer.
 - 3. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in the Uniform Building Code.
 - 4. Table 2305.2, "Fastening Schedule," in the BOCA National Building Code.
 - 5. Table 2306.1, "Fastening Schedule," in the Standard Building Code.
 - 6. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in the International One- and Two-Family Dwelling Code.
- E. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
- F. Use finishing nails for exposed work, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3.2 WOOD FURRING GROUNDS, SLEEPER, BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.
- D. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.01 SCOPE

- A. This Section includes rough carpentry.

1.02 QUALITY ASSURANCE

- A. Rough carpentry work shall be performed in accordance with "National Design Specification", National Forest Products Association and the governing general building code.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be stored minimum of 6-inch above ground and shall be covered with weatherproof membrane.
- B. Materials shall not be stored in wet, damp, or high humidity areas.

PART 2 PRODUCTS

2.01 DIMENSION LUMBER

- A. Lumber shall be manufactured in accordance with U.S. PS 20. Each piece of lumber shall be grade stamped by agency certified by Board of Review of American Lumber Standards Committee.
- B. Boards (up to 1-inch nominal thickness) shall be WWPA No. 3 Common or WCLIB Standard Grade, or better.
- C. Light Framing (2 by 2 through 4 by 4) - Unless shown otherwise light framing shall be Standard & Better or Stud Grade of any commercial softwood species.
- D. Joists and Planks (2 by 6 through 4 by 16) - Unless shown otherwise joists and planks shall be No. 2 grade or better of Spruce-Pine-Fir (SPF), or any other commercial softwood species with the following minimum mechanical properties:
 - Allowable Beading Stress, F_b = 750 psi
 - Modulus of Elasticity, E = 1,200,000 psi
- E. Pressure treated wood and wood indicated on drawings as Southern Yellow Pine (SYP) shall have the following values:
 - Allowable Beading Stress, F_b = 750 psi
 - Modulus of Elasticity, E = 1,400,000 psi
- F. Lumber 2-inch and less in thickness shall be seasoned to moisture content of 19 percent or less with indication of "S-Dry" on grade stamp. Lumber

thicker than 2-inch may be shipped green with indication of "S-Grn" on grade stamp.

2.02 PLYWOOD AND SHEATHING

- A. Plywood shall be manufactured in accordance with U.S. PS 1 and APA PRP-108. Oriented Strand Board (OSB) shall be manufactured in accordance with APA PRP-108. Each panel shall be identified with appropriate trademark of American Plywood Association (APA).
- B. Panels which have edge or surface permanently exposed to weather shall be classed Exterior.
- C. Roof Sheathing - APA Rated Plywood or OSB Sheathing, Exterior.
- D. Wall Sheathing - APA Rated Plywood or OSB Sheathing, Exterior.
- E. Plywood Siding - Douglas-Fir or Southern-Pine, APA Texture 1-11.
- F. Soffit - APA A-C Plywood, Exterior.

2.03 FIRE-RETARDANT TREATMENT

- A. Lumber and sheathing used in construction of fire partitions, non-bearing partitions, and roof construction including beams, trusses, framing, and decking shall be fire-retardant-treated.
- B. Fire-retardant-treated wood shall be pressure impregnated in accordance with AWPA C20 and C27. Fire-retardant-treated wood, when tested in accordance with ASTM E84, shall not have flame spread rating greater than 25 when test is continued for period of 30 minutes, and shall show no evidence of significant progressive combustion. Flame front shall not progress more than 10-1/2-feet beyond centerline of burner during test.
- C. Fire-retardant treated wood shall be dried to moisture content of 19 percent maximum for lumber and 15 percent maximum for plywood.
- D. Fire-retardant treated wood shall bear identification of approved testing agency. Identification shall show performance rating of material.

2.04 PRESERVATIVE TREATMENT

- A. Pressure-treated wood shall be treated with water-borne salt preservatives in accordance with AWPA C1, C2, and C9.
- B. Wood used in the following locations shall be pressure-treated for above-ground use:
 - 1. Wood framing and sheathing which rests on exterior foundation walls and are less than 8-inch from exposed earth.
 - 2. Sills on concrete slabs in direct contact with earth.
 - 3. Wood siding less than 6-inch from earth on exterior of building.
 - 4. Wood curbing and nailers on roofs.
 - 5. Other locations shown on Drawings.

- C. Wood used in the following locations shall be pressure-treated for ground-contact:
 - 1. Wood in contact with ground.
 - 2. Wood columns and posts embedded in concrete.
- D. When pressure-treated wood is used in enclosed locations where drying in service cannot readily occur, such wood shall be re-dried to maximum moisture content of 19 percent before being covered with insulation, sheathing, finish, or other materials.
- E. Pressure-treated wood shall bear quality mark of American Wood Preservers Bureau (AWPB).

2.05 HARDWARE

- A. Panel Clips - Extruded aluminum alloy 6063-T6.
- B. Joist Hangers - 16 gage, ASTM A526 galvanized steel with load capacity indicated on drawings, unless otherwise indicated on drawings.
- C. Metal framing anchors, metal bracing, nailing clips and other metal connectors shall be 16 gage galvanized steel, unless otherwise indicated on drawings.
- D. Fasteners:
 - 1. Bolts - ASTM A307 or ASTM F593.
 - 2. Lag Screws - ANSI/ASME B18.2.1.
 - 3. Wood Screws - ANSI/ASME B18.6.1.
 - 4. Nails - Common wire nails or spikes unless indicated otherwise.
 - 5. Fasteners exposed to weather shall be hot-dipped galvanized or stainless steel.
 - 6. Fasteners exposed to treated wood preservatives shall be stainless steel or shall have "Z-Max" galvanize coating by Simpson Strong-tie Connectors or engineered approved equal.

PART 3 EXECUTION

3.01 GENERAL

- A. Rough carpentry shall be accurately laid-out, cut and fit. Rough carpentry material shall be rigidly anchored and connected in accordance with governing building code.
- B. Blocking and grounds for support of finish materials, fixtures, trim and hardware shall be provided. Blocking and grounds shall be securely anchored to other construction.

3.02 WOOD FRAME CONSTRUCTION

- A. Joists, rafters, and trusses shall be centered (plus 1-inch) over wall studs, unless splices in top plates occur over studs.

- B. Joist hangers shall be nailed with barbed-shank nails in accordance with manufacturer's instructions.
- C. Attic, and roof framing shall be braced by bridging at 8-foot maximum spacings and at intermediate supports. Bridging shall consist of 2 by 4 lumber double-nailed at each end.
- D. Metal framing anchors, metal bracing, nailing clips and other metal connectors shall be installed as shown on Drawings.
- E. Corner posts of walls shall be braced in each direction by 1 by 4 continuous diagonal braces let into studs, metal strap bracing, or full sized vertical panels of plywood or OSB sheathing.
- F. Opening framing - Unless shown otherwise, openings in stud walls shall be framed as follows:
 - Spans to 4-feet: 2-2x6 header, single cripple stud.
 - Spans 4-feet to 6-feet: 2-2x8 header, double cripple stud.
 - Spans 6-feet to 8-feet: 2-2x10 header, double cripple stud.
- G. Sheathing:
 - 1. Sheathing shall be installed with long dimension spanning across two or more supports allowing 1/8-inch gap at panel ends. Panels shall be staggered.
 - 2. Edges of roof sheathing shall be supported with panel clips or lumber blocking.

3.03 CUTTING AND NOTCHING

- A. Notches in joist, rafters, or beams shall conform to the following:
 - 1. Notch depth shall be less than 1/6 depth of member.
 - 2. Notch length shall be less than 1/3 depth of member.
 - 3. Notch shall not be located in middle third of span.
- B. Holes bored into joists, rafters, or beams shall conform to the following:
 - 1. Hole shall not be closer than 2-inch to top or bottom of member.
 - 2. Hole shall not be closer than 2-inch to notch.
 - 3. Hole diameter shall not exceed 1/3 depth of member.
- C. Notches or holes in studs shall not exceed 1/3 depth of stud unless adequate reinforcement is furnished.

END OF SECTION

SECTION 06 20 23

FINISH CARPENTRY

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Finish carpentry items, other than shop prefabricated casework.
- B. Hardware and attachment accessories.

1.2 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

1.3 RELATED SECTIONS

- A. Finished Carpentry used in conjunction with Wood and Plastics but not limited to:
Section 06 05 60 – Plastic Laminate
Section 06 41 13 – Wood Veneer Faced Architectural Cabinets
- B. Finished carpentry used in conjunction with Finishes but not limited to:
Section 09 91 23 – Interior Painting

1.4 REFERENCES

- A. ANSI A135.4 Basic Hardboard.
- B. ANSI A208.1 Mat Formed Wood Particleboard.
- C. ASTM E84 Test Method for Surface Burning Characteristics of Building Materials.
- D. AWI Quality Standards.
- E. AWPA (American Wood Preservers Association) C2 Lumber, Timbers, Bridge Ties and Mine Ties Preservative Treatment by Pressure Processes.
- F. AWPA (American Wood Preservers Association) C20 Structural Lumber Fire Retardant Treatment by Pressure Process.
- G. BHMA A156.9 Cabinet Hardware.
- H. FS MMM A 130 Adhesive, Contact.
- I. HPMA (Hardwood Plywood Manufacturer's Association) HP American Standard for Hardwood and Decorative Plywood.

- J. NEMA (National Electric Manufacturers Association) LD3 High Pressure Decorative Laminates.
- K. NHLA (National Hardwood Lumber Association).
- L. NWWDA (National Wood Window and Door Association) I.S.4 Water Repellant Preservative Treatment for Millwork.
- M. PS 1 Construction and Industrial Plywood.
- N. PS 20 American Softwood Lumber Standard.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories, to a minimum scale of 1 1/2 inch to 1 ft.
- C. Product Data: Provide data on fire retardant treatment materials and application instructions.
- D. Provide instructions for attachment hardware, finish hardware.
- E. Samples: Submit two samples of finish plywood, 12x12 inch size illustrating wood grain and specified finish.
- F. Submit two samples of wood trim 12 inch long.
- G. Samples: Submit two 12x12 inch size samples, illustrating plastic laminate finish.
- H. Samples: Submit two samples of drawer pulls, hinges and accessories, illustrating hardware finish.
- I. Samples: Submit two samples for every milling profile of southern yellow pine siding.

1.6 QUALITY ASSURANCE

- A. Perform work in accordance with AWI Custom quality. NHLA.

1.7 QUALIFICATIONS

- A. Fabricator: Company specializing in fabricating the products specified in this section with minimum three years experience.

1.8 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire retardant requirements.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Protect work from moisture damage.

1.10 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings instructed by the manufacturer.

1.11 COORDINATION

- A. Coordinate work under provisions of Section 01 03 90.
- B. Coordinate the work with plumbing and electrical rough in, installation of associated and adjacent components, and other specialties, equipment or furnishings.

PART 2 - PRODUCTS

2.1 LUMBER MATERIALS

- A. Softwood Lumber: PS 20; Graded in accordance with AWI Premium; species, quarter sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.
 - 1. Southern Yellow Pine Tongue and Groove Wood Deck (2 by 6) – Unless otherwise shown planks shall be No. 2 grade or better of Southern Yellow Pine (SYP), with the following minimum mechanical properties:
 - a. Allowable bending stress: $F_b = 1,400$ psi
 - b. Modulus of Elasticity: $E = 1,600,000$ PSI
- B. Hardwood Lumber: Graded in accordance with AWI Premium; species, quarter sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

2.2 SHEET MATERIALS

- A. Softwood Plywood: PS 1 Grade C D; Graded in accordance with AWI Premium; veneer core; face species cut.
- B. Prefinished Paneling: face species, cut, grain, prefinished real hardwood or softwood veneered plywood, V cut vertical joint scoring; 1/4 inch thick.

- C. Wood Particleboard: ANSI A208.1 Type 1 AWI standard, composed of wood chips, medium density, made with high waterproof resin binders; of grade to suit application; sanded faces.

Fines-Face Multi-Fiber Mfg. by. Georgia Pacific

- D. Hardboard: ANSI A135.4; Pressed wood fiber with resin binder, tempered grade, 1/4 inch thick, smooth two sides;

PL-90 Mfg. by. Georgia Pacific

- E. Pegboard: Pressed wood fiber with resin binder, tempered grade; 1/4 inch thick with 9/32 inch diameter holes at 1 inch on center;

Perfo-Round Mfg. by: Georgia Pacific

2.3 ADHESIVE

- A. Adhesive: Type recommended by laminate manufacturer to suit application.

2.4 FASTENERS

- A. Fasteners: Of size and type to suit application; standard finish in concealed locations and hardware finish in exposed locations.
- B. Concealed Joint Fasteners: Threaded steel.

2.5 ACCESSORIES

- A. Lumber for Shimming, Blocking,: Softwood lumber species.
- B. Plastic Edge Trim: Extruded flat shaped; smooth finish; self locking serrated tongue; of width to match component thickness; color as selected.
- C. Glass: Type, as specified in Section 08800.
- D. Primer: Alkyd primer sealer type.
- E. Wood Filler: Oil base, tinted to match surface finish color.

2.6 WOOD TREATMENT PROCESSES

- A. Wood Preservative (Pressure Treatment): AWPA and AWPB percent retainage treatment for; above ground 0.25, ground and fresh water contact 0.40, marine applications 2.50, and foundation and other structural systems 0.60;

Wolmanized Mfg. By: Hickson Corp.

CCA Mfg. By: Hoover Treated Wood Products

B. Wood Repellant Preservative Treatment by Dipping Method: AWPA and AWPB percent retainage treatment for; above ground 0.25, ground and fresh water contact 0.40, marine applications 2.50, and foundation and other structural systems 0.60;

C. Wood Preservative (Surface Application): Clear;

Thompsons Waterseal Mfg.By: E.A. Thompson Co.

Duck's Back Mfg.By: Masterchem Industries

2.7 SHOP TREATMENT OF WOOD MATERIALS

A. Shop dip or brush apply treatment to wood materials requiring UL fire rating or preservatives to concealed wood blocking.

B. Provide UL approved identification on fire retardant treated material.

C. Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.

D. Re-dry wood after pressure treatment to maximum 19 percent moisture content.

2.8 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. On items to receive transparent finishes, use wood filler which matches surrounding surfaces and of types recommended for applied finishes.

D. Seal, stain and varnish exposed to view surfaces. Brush apply only.

E. Seal, stain and varnish semi exposed to view surfaces. Brush apply only.

F. Seal surfaces in contact with cementitious materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.2 INSTALLATION

A. Install work in accordance with AWI Premium Quality Standard.

- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- D. Install components and trim with screws, bolts with blind fasteners at 12 inch on center.
- E. Install prefinished paneling with full bed contact adhesive applied to concrete substrate or nails to wood frame.
- F. Install hardware in accordance with the manufacturer's instructions.

3.3 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment in accordance with manufacturer's instructions.
- B. Brush apply two coats of preservative treatment on wood in contact with cementitious materials and roofing and related metal flashings. Treat site sawn cuts.
- C. Allow preservative to dry prior to erecting members.

3.4 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Before installation, seal surfaces of items or assemblies to be in contact with cementitious materials.

3.5 ERECTION TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

SECTION 07 46 33

PLASTIC SIDING AND SOFFIT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes vinyl siding and soffit.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For vinyl siding and soffit including related accessories.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For vinyl siding Installer.
- B. Product certificates.
- C. Research/evaluation reports.
- D. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
 - 1. Build mockup of typical wall area as shown on Drawings.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Provide standard lifetime warranty on products, transferable to new owners.

PART 2 - PRODUCTS

2.1 VINYL SIDING – not used

- A. Vinyl Siding: Integrally colored product complying with ASTM D3679.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. CertainTeed Corporation; Saint-Gobain North America.
- B. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.
- C. Horizontal Pattern: 8-inch exposure in plain, double, 4-inch board style or match existing in conditions that require partial repair.
- D. Texture: Wood grain or match existing in conditions that require partial repair.
- E. Minimum Nominal Thickness: 0.040 inch
- F. Minimum Profile Depth (Butt Thickness): 1/2 inch.
- G. Nailing Hem: Double thickness.
- H. Finish: Wood-grain print with clear protective coating containing not less than 70 percent PVDF.
- I. Colors: As selected by Architect from manufacturer's full range of colors.

2.2 VINYL SOFFIT

- A. Vinyl Soffit: Integrally colored product complying with ASTM D4477.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. CertainTeed Corporation; Saint-Gobain North America.
- B. Vinyl Siding Certification Program: Provide products that are listed in VSI's list of certified products.
- C. Design: Triple 3-1/3 inch InvisiVent soffit – Invisibly Vented; matte finish
- D. Width: 10 inches plus or minus .062 inch.
- E. Length: 12 feet plus or minus .025 inch.
- F. Ventilation: >10.0" N.F.A. / sq. ft.
- G. Average Thickness: 0.044 inch.
- H. Exposure: 3-1/3 inches single nailing hem.
- I. Maximum Warp (per 2 panels): 0.250 inch.
- J. Colors: As selected by Owner/Architect from manufacturer's full range of colors.

2.3 ACCESSORIES

- A. Siding and Soffit Accessories, General: Provide starter strips, edge trim, outside and inside corner caps, J-Channel, F-Channel, H-Bar, and other items as recommended by siding manufacturer for building configuration.
 - 1. Provide accessories made from same material as and matching color and texture of adjacent siding or soffit unless otherwise indicated.
- B. Vinyl Accessories: Integrally colored vinyl accessories complying with ASTM D3679 except for wind-load resistance.
 - 1. Texture: Smooth or Wood grain – verify and match existing conditions.
- C. Colors for Decorative Accessories: As selected by Architect from manufacturer's full range of colors or Match adjacent siding.

- D. Flashing: Provide aluminum flashing complying with Section 076200 "Sheet Metal Flashing and Trim" at window and door heads and where indicated.
 - 1. Finish for Aluminum Flashing: Factory-prime coating.
- E. Fasteners:
 - 1. For fastening to wood, use siding nails of sufficient length to penetrate a minimum of 1 inch into substrate.
 - 2. For fastening to metal, use ribbed bugle-head screws of sufficient length to penetrate a minimum of 1/4 inch, or three screw-threads, into substrate.
 - 3. For fastening vinyl, use aluminum fasteners. Where fasteners are exposed to view, use prefinished aluminum fasteners in color to match item being fastened.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
 - 1. Center nails in elongated nailing slots without binding siding to allow for thermal movement.
- B. Install vinyl siding and soffit and related accessories according to ASTM D4756.
 - 1. Install fasteners for horizontal vinyl siding no more than 16 inches o.c.
 - 2. Install fasteners for vertical vinyl siding no more than 12 inches o.c.
- C. Install joint sealants as specified in Section 07 92 00 "Joint Sealants" and to produce a weathertight installation.

3.2 ADJUSTING AND CLEANING

- A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
- B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Silicone joint sealants.
 - 2. Non-staining silicone joint sealants.
 - 3. Urethane joint sealants.
 - 4. Immersible joint sealants.
 - 5. Mildew-resistant joint sealants.
 - 6. Latex joint sealants.

1.2 PREINSTALLATION MEETINGS

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

1.3 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product.
- B. Samples: For each kind and color of joint sealant required.
- C. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

- A. Product test reports.
- B. Preconstruction laboratory test reports.
- C. Preconstruction field-adhesion-test reports.
- D. Field-adhesion-test reports.
- E. Sample warranties.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.6 PRECONSTRUCTION TESTING

- A. Preconstruction Laboratory Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Adhesion Testing: Use ASTM C 794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Compatibility Testing: Use ASTM C 1087 to determine sealant compatibility when in contact with glazing and gasket materials.
 - 3. Stain Testing: Use ASTM C 1248 to determine stain potential of sealant when in contact with stone and masonry substrates.
- B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.7 WARRANTY

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

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

- A. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 50, NT: Single-component, non-sag, plus 50 percent and minus 50 percent movement capability, non-traffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Corning Corporation.
 - b. GE Construction Sealants; Momentive Performance Materials Inc.
 - c. Sika Corporation.

- B. Silicone, S, NS, 25, NT: Single-component, non-sag, plus 25 percent and minus 25 percent movement capability, non-traffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Corning Corporation.
 - b. GE Construction Sealants; Momentive Performance Materials Inc.
 - c. Sherwin-Williams Company (The).

2.3 NONSTAINING SILICONE JOINT SEALANTS

- A. Non-staining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.

- B. Silicone, Non-staining, S, NS, 50, NT: Non-staining, single-component, non-sag, plus 50 percent and minus 50 percent movement capability, non-traffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. May National Associates, Inc.; a subsidiary of Sika Corporation.
 - b. Pecora Corporation.
 - c. Tremco Incorporated.

2.4 URETHANE JOINT SEALANTS

- A. Urethane, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and non-traffic-use, urethane joint sealant; ASTM C 920, Type S, Grade P, Class 25, Uses T and NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Pecora Corporation.
 - b. Polymeric Systems, Inc.
 - c. Sherwin-Williams Company (The).

- B. Urethane, M, P, 50, T, NT: Multicomponent, pourable, plus 50 percent and minus 50 percent movement capability, traffic- and non-traffic-use, urethane joint sealant; ASTM C 920, Type M, Grade P, Class 50, Uses T and NT.
 - a. Pecora Corporation.
 - b. Polymeric Systems, Inc.
 - c. Sherwin-Williams Company >

2.5 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
- B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, non-sag, plus 25 percent and minus 25 percent movement capability, non-traffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. GE Construction Sealants; Momentive Performance Materials Inc.
 - b. May National Associates, Inc.; a subsidiary of Sika Corporation.
 - c. Tremco Incorporated.

2.6 JOINT-SEALANT BACKING

- A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corporation-Construction Systems.
 - b. Construction Foam Products; a division of Nomaco, Inc.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

- C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove laitance and form-release agents from concrete.
 - 2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

3.2 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
- C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

- E. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.3 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform 10 tests for the first 1000 feet (300 m) of joint length for each kind of sealant and joint substrate.
 - 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
- B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.4 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Tile control and expansion joints.
 - c. Joints between different materials listed above.
 - d. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Urethane, M, P, 50, T, NT.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces subject to water immersion.
 - 1. Joint Locations:
 - a. Joints in pedestrian plazas.
 - b. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Urethane, immersible, S, P, 25, T, NT, I.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- C. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces.
 - 1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Joints between plant-precaster architectural concrete units.
 - c. Control and expansion joints in unit masonry.
 - d. Joints in dimension stone cladding.
 - e. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Silicone, non-staining, S, NS, 50, NT.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- D. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Control and expansion joints in tile flooring.
 - c. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Urethane, S, P, 25, T, NT.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- E. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces.
 - 1. Joint Locations:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Tile control and expansion joints.
 - c. Vertical joints on exposed surfaces of unit masonry and concrete walls.
 - d. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Urethane, S, NS, 25, NT.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- F. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces not subject to significant movement.
 - 1. Joint Locations:
 - a. Control joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
 - c. Other joints as indicated on Drawings.
 - 2. Joint Sealant: Acrylic latex.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- G. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces.

1. Joint Locations:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Tile control and expansion joints where indicated.
 - c. Other joints as indicated on Drawings.
 2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- H. Joint-Sealant Application: Concealed mastics.
1. Joint Locations:
 - a. Aluminum thresholds.
 - b. Sill plates.
 - c. Other joints as indicated on Drawings.
 2. Joint Sealant: Butyl-rubber based.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION

SECTION 09 29 00

GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
 - 2. Exterior gypsum board for ceilings and soffits.
 - 3. Tile backing panels.

1.2 ACTION SUBMITTALS

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Gypsum Wallboard: ASTM C 1396/C 1396M.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Gypsum.
 - b. CertainTeed Corporation.

- c. National Gypsum Company.
 - d. United States Gypsum Company.
2. Thickness: 5/8 inch (15.9 mm).
3. Long Edges: Tapered.

- B. Gypsum Board, Type X: ASTM C 1396/C 1396M.
 1. Thickness: 5/8 inch (15.9 mm).
 2. Long Edges: Tapered.

- C. Flexible Gypsum Board: ASTM C 1396/C 1396M. Manufactured to bend to fit radii and to be more flexible than standard regular-type gypsum board of same thickness.
 1. Thickness: 1/4 inch (6.4 mm).
 2. Long Edges: Tapered.

- D. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
 1. Thickness: 1/2 inch (12.7 mm). (Permitted at members spaced max. 16" o.c. only)
 2. Long Edges: Tapered.

- E. Foil-Backed Gypsum Board: ASTM C 1396/C 1396M.
 1. Core: As indicated on Drawings.
 2. Long Edges: Tapered.

- F. Abuse-Resistant Gypsum Board: ASTM C 1629/C 1629M.
 1. Core: As indicated on Drawings.
 2. Surface Abrasion: Meets or exceeds Level 1 requirements.
 3. Surface Indentation: Meets or exceeds Level 1 requirements.
 4. Single-Drop Soft-Body Impact: Meets or exceeds Level 1 requirements.
 5. Long Edges: Tapered.
 6. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

- G. Impact-Resistant Gypsum Board: ASTM C 1629/C 1629M.
 1. Core: As indicated on Drawings.
 2. Surface Abrasion: Meets or exceeds Level 1 requirements.
 3. Surface Indentation: Meets or exceeds Level 1 requirements.
 4. Single-Drop Soft-Body Impact: Meets or exceeds Level 1 requirements.
 5. Hard-Body Impact: Meets or exceeds Level 1 requirements according to test in Annex A1.
 6. Long Edges: Tapered.
 7. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

- H. Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.
 1. Core: As indicated.
 2. Long Edges: Tapered.

3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
4. Thickness: As required by fire-resistance-rated assembly indicated on Drawings.
5. Long Edges: Tapered.

2.4 EXTERIOR GYPSUM BOARD FOR CEILINGS AND SOFFITS

- A. Exterior Gypsum Soffit Board: ASTM C 1396/C 1396M, with manufacturer's standard edges.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Gypsum.
 - b. CertainTeed Corporation.
 - c. National Gypsum Company.
 - d. United States Gypsum Company.
 2. Core: 5/8 inch (15.9 mm), Type X.
- B. Glass-Mat Gypsum Sheathing Board: ASTM C 1177/C 1177M, with fiberglass mat laminated to both sides and with manufacturer's standard edges.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Georgia-Pacific Building Products.
 - c. National Gypsum Company.
 - d. United States Gypsum Company.
 2. Core: As indicated.

2.5 TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with manufacturer's standard edges.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Georgia-Pacific Building Products.
 - c. National Gypsum Company.
 2. Core: 5/8 inch (15.9 mm), Type X.
 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
- B. Cementitious Backer Units: ANSI A118.9 and ASTM C 1288 or ASTM C 1325, with manufacturer's standard edges.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. CertainTeed Corporation.
- b. James Hardie Building Products, Inc.
- c. National Gypsum Company.
- d. United States Gypsum Company.
2. Thickness: As indicated.
3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.6 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
 2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. L-Bead: L-shaped; exposed long flange receives joint compound.
 - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - f. Expansion (control) joint.
 - g. Curved-Edge Cornerbead: With notched or flexible flanges.
- B. Exterior Trim: ASTM C 1047.
 1. Material: Hot-dip galvanized-steel sheet, plastic, or rolled zinc.
 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening.

2.7 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 1. Interior Gypsum Board: Paper.
 2. Exterior Gypsum Soffit Board: Paper.
 3. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
 4. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.

2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.

D. Joint Compound for Exterior Applications:

1. Exterior Gypsum Soffit Board: Use setting-type taping compound and setting-type, sandable topping compound.
2. Glass-Mat Gypsum Sheathing Board: As recommended by sheathing board manufacturer.

E. Joint Compound for Tile Backing Panels:

1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
2. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.8 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- D. Sound-Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- E. Acoustical Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Hilti, Inc.
 - b. Specified Technologies, Inc.
 - c. United States Gypsum Company.
- F. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."
- G. Vapor Retarder: As specified in Section 072600 "Vapor Retarders."

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS

- A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- B. Comply with ASTM C 840.
- C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- D. For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- E. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - 2. Level 2: Panels that are substrate for tile.
 - 3. Level 3: Where indicated on Drawings.
 - 4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
 - 5. Level 5: Where indicated on Drawings.
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
- H. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.

- I. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.2 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION

SECTION 09 65 13

RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Resilient base.
 - 2. Resilient stair accessories.
 - 3. Resilient molding accessories.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.

PART 2 - PRODUCTS

2.1 THERMOPLASTIC-RUBBER BASE

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1.
 - 2. Armstrong World Industries, Inc.
 - 3. Burke Mercer Flooring Products, Division of Burke Industries Inc.
 - 4. Flexco.
 - 5. Johnsonite; A Tarkett Company.
 - 6. Nora Systems, Inc.
 - 7. Roppe Corporation, USA.
 - 8. VPI Corporation.
- B. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).
 - 1. Group: II (layered).
- C. Thickness: 0.125 inch.
- D. Height: As indicated in the finish schedule.

- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Preformed.
- G. Inside Corners: Job formed or preformed.
- H. Colors: As selected by Architect from full range of industry colors.

2.2 RUBBER STAIR ACCESSORIES

- A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Flexco.
 - 2. Johnsonite; A Tarkett Company.
 - 3. Nora Systems, Inc.
 - 4. Roppe Corporation, USA.
 - 5. VPI Corporation.
 - 6. Or approved equal
- C. Stair Treads: ASTM F 2169.
 - 1. Type: TS (rubber, vulcanized thermoset).
 - 2. Class: 2 (pattern; diamond).
 - 3. Group: 1 (embedded abrasive strips)
 - 4. Nosing Style: To fit stair nosing profile.
 - 5. Nosing Height: To fit stair nosing profile. Verify with field conditions.
 - 6. Thickness: 1/4 inch and tapered to back edge.
 - 7. Size: Lengths and depths to fit each stair tread in one piece.
- D. Separate Risers: Smooth, flat; in height that fully covers substrate; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.
 - 1. Style: Coved toe, 7 inches high by length matching treads.
 - 2. Thickness: 0.125 inch.
- E. Stringers: Height and length after cutting to fit risers and treads and to cover stair stringers; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.
 - 1. Thickness: Manufacturer's standard.
- F. Colors and Patterns: As selected by Architect from full range of industry colors.

2.3 RUBBER MOLDING ACCESSORY

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Roppe Corporation, USA.
 - 2. VPI Corporation.
 - 3. Johnsonite; a Tarkett Company.
 - 4. Or approved equal.
- B. Description: Rubber stair-tread nosing carpet edge for glue-down applications nosing for carpet nosing for resilient flooring reducer strip for resilient flooring joiner for tile and carpet transition strips.
- C. Profile and Dimensions: As indicated Selected from manufacturer range of profile.
- D. Locations: As required by project conditions.
- E. Colors and Patterns: As selected by Architect from full range of industry colors

2.4 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
- C. Stair-Tread Nose Filler: Two-part epoxy compound recommended by resilient stair-tread manufacturer to fill nosing substrates that do not conform to tread contours.
- D. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
 3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
 4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:
 - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
 - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient products until they are the same temperature as the space where they are to be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.

- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.
- H. Job-Formed Corners:
 - 1. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Miter or cope corners to minimize open joints.

3.3 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Stair Accessories:
 - 1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
 - 2. Tightly adhere to substrates throughout length of each piece.
 - 3. For treads installed as separate, equal-length units, install to produce a flush joint between units.
- C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Floor Polish: Remove soil, visible adhesive, and surface blemishes from resilient stair treads before applying liquid floor polish.
 - 1. Apply number of coats as required by manufacturer.
- C. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION

SECTION 09 65 19
RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Solid vinyl floor tile.
 - 2. Vinyl composition floor tile.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 - 1. Show details of special patterns.
- C. Samples: Full-size units of each color and pattern of floor tile required.

1.3 CLOSEOUT SUBMITTALS

- A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 SOLID VINYL FLOOR TILE – LVT-1

- A. Manufacturers:
 - 1. Mohawk Glue Down LVT Aladdin Parish
 - 2. Approved equal

- B. Thickness: Standard thickness per product indicated.
- C. Size: Standard size per product indicated.
- D. Colors and Patterns: Owner to Select from full range of manufacturers offerings

2.3 Vinyl Composition Tile – VCT - 1

- A. Manufacturers:
 - 1. Armstrong Standard
 - 2. Approved equal
- B. Collection: Excelon
- C. Surface: Imperial Texture
- D. Size: 12"x12" nominal or match exist.
- E. Thickness: Standard thickness per product indicated.
- F. Colors and Patterns: Owner to Select from full range of manufacturers offerings

2.4 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
- C. Finish per manufacturer's instructions.
 - 1. Install polish after installation of VCT per manufacturer written instructions.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:
 - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
 - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.
- C. Access Flooring Panels: Remove protective film of oil or other coating using method recommended by access flooring manufacturer.
- D. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- E. Do not install floor tiles until they are the same temperature as the space where they are to be installed.
- F. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.2 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 1. Lay tiles in pattern indicated.
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 1. Lay tiles in pattern of colors and sizes indicated.

- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- H. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.3 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
- B. Finish as instructed by the manufacturer.
 - 1. Install polish after installation of VCT per manufacturer written instructions.
- C. Cover floor tile until Substantial Completion.

END OF SECTION

SECTION 09 91 13

EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and the application of paint systems on exterior substrates.
 - 1. Concrete.
 - 2. Clay masonry.
 - 3. Concrete masonry units (CMU).
 - 4. Steel.
 - 5. Galvanized metal.
 - 6. Aluminum (not anodized or otherwise coated).
 - 7. Wood.
 - 8. Exterior portland cement plaster (stucco).
 - 9. Exterior gypsum board.
- B. Related Requirements:
 - 1. See Structural Drawings for shop priming of metal substrates with primers specified in this Section.
 - 2. Section 099123 "Interior Painting" for surface preparation and the application of paint systems on interior substrates.

1.2 DEFINITIONS

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523, a matte flat finish.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523, a high-side sheen flat, velvet-like finish.
- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523, an eggshell finish.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523, a satin-like finish.
- E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523, a semi-gloss finish.
- F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523, a gloss finish.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.
 - 3. VOC content.

1.4 CLOSEOUT SUBMITTALS

- A. Coating Maintenance Manual: Provide coating maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

- a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
- b. Other Items: Architect will designate items or areas required.
2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacture's label with the following information:
 1. Product name and type (description).
 2. Batch date.
 3. Color number.
 4. VOC content.
 5. Environmental handling requirements.
 6. Surface preparation requirements.
 7. Application instructions.
- B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work. Abatement will take place prior to painting.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.
- D. Hazardous Materials: Hazardous materials including lead paint may be present in buildings and structures to be painted. A report on the presence of known hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
 1. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified.
 2. Perform preparation for painting of substrates known to include lead paint in accordance with EPA Renovation, Repair and Painting Rule and additional requirements of authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Sherwin-Williams Company products indicated or comparable product from one of the following:
 1. Benjamin Moore & Co.
 2. Glidden Professional, Division of PPG Architectural Finishes, Inc.
 3. PPG Architectural Finishes, Inc.
 4. Sherwin-Williams
 5. Or approved equal.
- B. Source Limitations: Obtain paint materials from single source from single listed manufacturer.
 1. Manufacturer's designations listed on a separate color schedule are for color reference only and do not indicate prior approval.

2.2 PAINT, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Material Compatibility:
 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.
- D. Colors: As selected by Architect from manufacturer's full range Match Architect's samples.
 1. 60 percent of surface area will be painted with deep tones.

2.3 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 2. Testing agency will perform tests for compliance with product requirements.
 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
 - 1. Report, in writing, conditions that may affect application, appearance, or performance of paint.

- B. Substrate Conditions:
 - 1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - a. Concrete: 12 percent.
 - b. Masonry (Clay and CMU): 12 percent.
 - c. Wood: 15 percent.
 - d. Portland Cement Plaster: 12 percent.
 - e. Gypsum Board: 12 percent.
 - 2. Portland Cement Plaster Substrates: Verify that plaster is fully cured.
 - 3. Exterior Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

- C. Proceed with coating application only after unsatisfactory conditions have been corrected; application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity

of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.
 - 1. SSPC-SP 2, "Hand Tool Cleaning."
 - 2. SSPC-SP 3, "Power Tool Cleaning."
 - 3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
 - 4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
 - 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Plastic Trim Fabrication Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.

4. Paint entire exposed surface of window frames and sashes.
 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
1. Paint the following work where exposed to view:
 - a. Equipment, including panelboards and switch gear.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Tanks that do not have factory-applied final finishes.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
1. Contractor shall touch up and restore painted surfaces damaged by testing.
 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

- A. Concrete, Clay Masonry, Portland Cement Plaster (Stucco), Cementitious Siding, Non-traffic Surfaces:
 - 1. Latex System:
 - a. Prime Coat: Primer sealer, latex, exterior, MPI #3: S-W Loxon Concrete & Masonry Primer Sealer, A24W8300, at 8.0 mils wet, 3.2 mils dry.
 - b. Prime Coat: Latex, exterior, matching topcoat.
 - c. Intermediate Coat: Latex, exterior, matching topcoat.
 - d. Topcoat: Latex, exterior, low-sheen, (Gloss Level 3-4), MPI #15: S-W A-100 Exterior Latex Low Sheen, A12 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
 - 2. Latex Aggregate/Latex System:
 - a. Prime Coat: Block Filler, Latex, Interior/Exterior, MPI #4: S-W Loxon Block Surfacer, A24W200, at 50 to 100 sq ft/gal.
 - b. Topcoat: Latex, exterior flat, (Gloss Level 1), MPI #42, fine medium coarse texture: S-W UltraCrete Textured Masonry Topcoat, A44-800 Series, at 50 to 80 sq ft/gal.
- B. CMU Substrates:
 - 1. Latex System:
 - a. Block Filler: Block filler, latex, interior/exterior: S-W PrepRite Block Filler, B25W25, at 75 to 125 sq. ft. per gal.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Latex, exterior, low-sheen, (Gloss Level 3-4), MPI #15: S-W A-100 Exterior Latex Low Sheen, A12 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
- C. Ferrous Metal, Galvanized-Metal, and Aluminum Substrates:
 - 1. Water-Based Light Industrial Coating System:

- a. Prime Coat: Primer, water-based, anti-corrosive for metal, MPI #107: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, 5.0 to 10.0 mils wet, 2.0 to 4.0 mils dry.
 - b. Prime Coat: Shop primer specified in Section where substrate is specified.
 - c. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
 - d. Topcoat: Light industrial coating, exterior, water based, semi-gloss, (Gloss Level 5), MPI #163: S-W Pro Industrial Acrylic Semi-Gloss Coating, B66-650 Series, at 2.5 to 4.0 mils dry, per coat.
- D. Wood Substrates: Including exposed wood items not indicated to receive shop-applied finish.
- 1. Latex System:
 - a. Prime Coat: Primer, latex for exterior wood, MPI #6.
 - a. Intermediate Coat: Latex, exterior, matching topcoat.
 - b. Topcoat: Latex, exterior, semi-gloss, (Gloss Level 5), MPI #11: S-W Solo Acrylic Semi-Gloss, A76 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
- E. Exterior Gypsum Board Substrates:
- 1. Latex System:
 - a. Prime Coat: Primer, bonding, water-based, MPI #3: S-W PrepRite ProBlock Latex Primer/Sealer.
 - b. Prime Coat: Latex, exterior, matching topcoat.
 - c. Intermediate Coat: Latex, exterior, matching topcoat.
 - d. Topcoat: Latex, exterior, semi-gloss, (Gloss Level 5), MPI #11: S-W Solo Acrylic Semi-Gloss, A76 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
- F. Exterior Insulation Finish Systems (EIFS):
- 1. Latex System:
 - a. First Coat: Latex, exterior, matching topcoat.
 - b. Topcoat: Latex, exterior, low-sheen, (Gloss Level 3-4), MPI #15: S-W A-100 Exterior Latex Low Sheen, A12 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

END OF SECTION

SECTION 09 91 23

INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on interior substrates to include the following:

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Cast iron.
6. Galvanized metal.
7. Aluminum (not anodized or otherwise coated).
8. Wood.
9. Gypsum board.
10. Plaster.
11. Spray-textured ceilings.
12. Cotton or canvas insulation covering.
13. ASJ insulation covering.

1.2 DEFINITIONS

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523, a matte flat finish.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523, a high-side sheen flat, velvet-like finish.

- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523, an eggshell finish.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523, a satin-like finish.
- E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523, a semi-gloss finish.
- F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523, a gloss finish.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.
 - 3. VOC content.

1.4 CLOSEOUT SUBMITTALS

- A. Coating Maintenance Manual: Provide coating maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacturer's label with the following information:
 - 1. Product name and type (description).
 - 2. Batch date.
 - 3. Color number.
 - 4. VOC content.
 - 5. Environmental handling requirements.
 - 6. Surface preparation requirements.
 - 7. Application instructions.
- B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg. F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg. F above the dew point; or to damp or wet surfaces.
- C. Lead Paint: It is not expected that lead paint will be encountered in the Work.
 - 1. If suspected lead paint is encountered, do not disturb; immediately notify Architect and Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Specification Product: Subject to compliance with requirements, provide from one of the following:
 - 1. Benjamin Moore & Co. Sherwin Williams
 - 2. Sherwin Williams
 - 3. Duron, Inc.
 - 4. Glidden Professional, Division of PPG Architectural Finishes, Inc.
 - 5. PPG Architectural Finishes, Inc.
 - 6. Pratt & Lambert.
 - 7. Or approved equal.
- B. Source Limitations: Obtain paint materials from single source from single listed manufacturer.
 - 1. Manufacturer's designations listed on a separate color schedule are for color reference only and do not indicate prior approval.

2.2 PAINT, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

- C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 1. Flat Paints and Coatings: 50 g/L.
 - 2. Nonflat Paints and Coatings: 150 g/L.
 - 3. Dry-Fog Coatings: 400 g/L.
 - 4. Primers, Sealers, and Undercoaters: 200 g/L.
 - 5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
 - 6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
 - 7. Pretreatment Wash Primers: 420 g/L.
 - 8. Floor Coatings: 100 g/L.
 - 9. Shellacs, Clear: 730 g/L.
 - 10. Shellacs, Pigmented: 550 g/L.
- D. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. Colors: As selected by Architect from manufacturer's full range and to match Architect's samples.
 - 1. 30 percent of surface area will be painted with deep tones.

2.3 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.

2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
 1. Report, in writing, conditions that may affect application, appearance, or performance of paint.
- B. Substrate Conditions:
 1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - a. Concrete: 12 percent.
 - b. Masonry (Clay and CMU): 12 percent.
 - c. Wood: 15 percent.
 - d. Gypsum Board: 12 percent.
 - e. Plaster: 12 percent.
 2. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
 3. Plaster Substrates: Verify that plaster is fully cured.
 4. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.

- C. Proceed with coating application only after unsatisfactory conditions have been corrected; application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
 - 1. Concrete Floors: Remove oil, dust, grease, dirt, and other foreign materials. Comply with SSPC-SP-13/NACE 6 or ICRI 03732.
- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 - 1. SSPC-SP 2, "Hand Tool Cleaning."
 - 2. SSPC-SP 3, "Power Tool Cleaning."
 - 3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
 - 4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
 - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in equipment rooms:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Tanks that do not have factory-applied final finishes.
 - h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - 2. Paint the following work where exposed in occupied spaces:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - h. Other items as directed by Architect.
 - 3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Pedestrian Traffic Surfaces:
 1. Concrete Stain System (Water-based):
 - a. First Coat: Low-luster opaque finish: S-W H&C Concrete Stain Solid Color Water Based, at 100 to 200 sq. ft. per gal.
 - b. Second Coat: Low-luster opaque finish: S-W H&C Concrete Stain Solid Color Water Based, at 100 to 200 sq. ft. per gal.
- B. CMU Substrates:
 1. Water-Based Acrylic System for Dry Locations:
 - a. Block Filler: Block filler, latex, interior/exterior, MPI #4: S-W PrepRite Block Filler, B25W25, at 75 to 125 sq. ft. per gal.
 - b. Intermediate Coat: Acrylic, interior/exterior, matching topcoat.
 - c. Topcoat: Acrylic, interior/exterior, MPI #155: S-W B66W1561 Pro Industrial Multi-Surface Acrylic, at 4.0 mils wet, 1.5 mils dry, per coat.

2. Epoxy System for Wet Locations:
 - a. Block Filler: Block filler, epoxy, interior/exterior, MPI #116: S-W Kem Cati-Coat HS Epoxy Filler/Sealer, B42W400, at xx to xxx sq. ft. per gal.
 - b. Intermediate Coat: Latex, exterior, matching topcoat.
 - c. Topcoat: Epoxy, semi-gloss, interior/exterior, MPI #177: S-W Macropoxy 646 Fast Cure Epoxy, B58W610, at 7 to 14 mils wet, 5 to 10 mils dry.

- C. Metal Substrates (Aluminum, Steel, Galvanized Steel):
 1. Water-Based Light Industrial Coating System:
 - a. Prime Coat: Primer, water-based, anti-corrosive for metal, MPI #107: S-W Pro Industrial Pro-Cryl Universal Primer, B66W310 Series, 5.0 to 10.0 mils wet, 2.0 to 4.0 mils dry.
 - b. Prime Coat: Shop primer specified in Section where substrate is specified.
 - c. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
 - d. Topcoat: Light industrial coating, exterior, water based, semi-gloss, (Gloss Level 5), MPI #154: S-W Sher-Cryl HPA High Performace Acrylic Semi-Gloss Coating, B66W351 Series, at 2.5 to 4.0 mils dry, per coat.

- D. Wood Substrates: Including exposed wood items not indicated to receive shop-applied finish.
 1. Polyurethane Semi-Transparent Stain System:
 - a. Prime Coat: Polyurethane, exterior, water based, semi-transparent stain, MPI #16: S-W Woodscapes Exterior Polyurethane Semi-Transparent Stain, A15T5, at 100-200 SF/gal for rough/porous, 350 SF/gal for smooth.
 - b. Topcoat: Polyurethane, exterior, water based, semi-transparent stain, MPI #16: S-W Woodscapes Exterior Polyurethane Semi-Transparent Stain, A15T5, at 100-200 SF/gal for rough/porous, 350 SF/gal for smooth.

 2. Latex System:
 - a. Prime Coat: Primer sealer, latex, interior, MPI #39: S-W PrepRite ProBlock Primer Sealer, B51-620 Series, at 4.0 mils wet, 1.4 mils dry.
 - b. Intermediate Coat: Latex, interior, matching topcoat.
 - a. Topcoat: Latex, interior, eggshell, (Gloss Level 3), MPI #52 X-Green/#145 X-Green: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils wet, 1.7 mils dry, per coat.

- b. Topcoat: Latex, interior, semi-gloss, (Gloss Level 4), MPI #43 X-Green: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils wet, 1.6 mils dry, per coat.
 - c. Topcoat: Latex, interior, gloss, (Gloss Level 5), MPI #54: S-W ProMar 200 Latex Gloss, B11-2200 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
- E. Gypsum Board, Plaster and Spray-Texture Ceiling Substrates:
- 1. Latex System:
 - a. Prime Coat: Primer, latex, interior, MPI #149 X-Green: S-W ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils wet, 1.5 mils dry.
 - b. Intermediate Coat: Latex, interior, matching topcoat.
 - c. Topcoat: Latex, interior, flat, (Gloss Level 1), MPI #53 X-Green/#143 X-Green: S-W ProMar 200 Zero VOC Latex Flat, B30-2600 Series, at 4.0 mils wet, 1.6 mils dry, per coat.
 - d. Topcoat: Latex, interior, low sheen, (Gloss Level 2), MPI #44 X-Green/#144 X-Green: S-W ProMar 200 Zero VOC Latex Low Sheen Enamel, B24-2600 Series, at 4.0 mils wet, 1.6 mils dry, per coat.
 - e. Topcoat: Latex, interior, eggshell, (Gloss Level 3), MPI #52 X-Green/#145 X-Green: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils wet, 1.7 mils dry, per coat.
 - f. Topcoat: Latex, interior, semi-gloss, (Gloss Level 4), MPI #43 X-Green: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils wet, 1.6 mils dry, per coat.
 - g. Topcoat: Latex, interior, gloss, (Gloss Level 5), MPI #54: S-W ProMar 200 Latex Gloss, B11-2200 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
 - 2. Water-Based Light Industrial Coating System:
 - a. Prime Coat: Primer sealer, latex, interior, MPI #50 X-Green: S-W ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils wet, 1.5 mils dry.
 - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, interior, water based, eggshell, (Gloss Level 3), MPI #151: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45-151 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
 - d. Topcoat: Light industrial coating, interior, water based, semi-gloss, (Gloss Level 5), MPI #153: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46-151 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

END OF SECTION

SECTION 10 28 00

TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Washroom accessories.
 - 2. Custodial accessories.

1.2 ACTION SUBMITTALS

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

1.3 INFORMATIONAL SUBMITTALS

- A. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.

1.5 WARRANTY

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 WASHROOM ACCESSORIES

- A. Toilet Tissue (Roll) Dispenser:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
 - d. Brey-Krause Mfg.

- B. Grab Bars: As indicated on Drawings.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. American Specialties, Inc.-Model #: 3100 Series
 - b. Bobrick Washroom Equipment, Inc.-Model #: B-5806 X (length of bar – see drawings)
 - c. Bradley Corporation.-Model #: 832 Series
 - 2. Mounting: Flanges with concealed fasteners.
 - 3. Material: Stainless steel, 0.05 inch thick.
 - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
 - 4. Outside Diameter: 1-1/4 inches.
 - 5. Configuration and Length: As indicated on Drawings.

- C. Mirror Units and Recessed Medicine Cabinets: As indicated on Drawings.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
 - d. Brey-Krause Mfg.

- D. Shower Curtain Rods: As indicated on Drawings.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
 - d. Brey-Krause Mfg.

- E. Towel Bars: As indicated on Drawings.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
 - d. Brey-Krause Mfg.

- F. Shower Bench: As indicated on Drawings.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
 - d. Brey-Krause Mfg.
 - e. Drive Medical

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F 446.

END OF SECTION

SECTION 12 32 13

MANUFACTURED WOOD CASEWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wood casework.
 - 2. Casework hardware and accessories.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at the Project site or other location as specified by the owner.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. HUD Severe Use Criteria Compliance.
- C. Shop Drawings: For wood-veneer-faced casework.
- D. Samples: For casework and hardware finishes.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For casework manufacturer and Installer.
- B. Sample warranty.
- C. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Quality Standard Compliance Certificates.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.7 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of casework that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 1. CampbellRhea.
 2. CIF Laboratory Solutions.
 3. Kewaunee Scientific Corporation.
 4. Smart Cabinetry.
 5. TMI Systems Design Corporation.
 6. Tru Cabinetry.
 7. Tru-Wood Cabinetry
 8. Advanta Cabinets

2.2 GENERAL REQUIREMENTS FOR CASEWORK

- A. Quality Standard: Unless otherwise indicated, **comply with "HUD Severe Use," HUD Section 42, HUD Section 8, and USDA RHS Public Housing Projects for grades of casework indicated for construction, finishes, installation, and other requirements.**
- B. Product Designations:
 1. Manufacturer Reference: Drawings indicate sizes, configurations, and finish materials of manufactured wood casework by referencing designated manufacturer's catalog numbers. Other manufacturers' casework of similar sizes and door and drawer configurations, of same finish materials, and complying with the Specifications may be considered.

2.3 WOOD CASEWORK

- A. Design: Frameless cabinet construction with the following door and drawer-front style:
 1. Lipped overlay with radiused wood edges and full-width, recessed finger pulls machined into faces of doors and drawers.
 2. Reveal overlay with recessed finger pulls machined into faces of doors and drawers.
 3. Flush overlay.
- B. Wood Species: White Birch or as selected by Architect from casework manufacturer's full range.
 1. Wood Stain Colors and Finishes: White, or as selected by Architect from casework manufacturer's full range.
- C. Face Veneer Cut: Plain sliced/plain sawn.

- D. Grain Direction:
 - 1. Doors: Vertical with continuous vertical matching.
 - 2. Drawer Fronts: Vertical with continuous vertical matching.
 - 3. Face Frame Members: Lengthwise.
 - 4. End Panels: Vertical.
 - 5. Bottoms and Tops of Units: Side to side.
 - 6. Knee Space Panels: Vertical.
 - 7. Aprons: Horizontal.

- E. Exposed Materials:
 - 1. Plywood: Hardwood plywood with face veneer of species indicated, selected for compatible color and grain. Provide backs of same species as faces.
 - 2. Solid Wood: Clear hardwood lumber of species indicated and selected for grain and color compatible with exposed plywood.
 - 3. Edgebanding: Solid wood, minimum 1/8 inch thick and of same species as face veneer or Wood veneer of same species as face veneer or PVC.
 - a. PVC Edgebanding Color: As selected by Architect from casework manufacturer's full range.

- F. Semiexposed Materials:
 - 1. Wood: Provide solid wood or hardwood plywood for semiexposed surfaces unless otherwise indicated.
 - a. Solid Wood: Sound hardwood lumber, selected to eliminate appearance defects, of exposed wood.
 - b. Plywood: Hardwood plywood of exposed wood. Provide backs of same species as faces.
 - 2. Thermally Fused Laminate (TFL) Panels: Provide thermally fused laminate panels for semiexposed surfaces, except provide solid wood or hardwood plywood for interior faces of doors and drawer fronts and other locations where opposite side of component is exposed.
 - a. Colors and Patterns: As selected by Architect from manufacturer's full range.
 - 3. Hardboard: Use only for cabinet backs where exterior side of back is not exposed.
 - 4. Metal for Steel Drawer Pans: Cold-rolled, carbon-steel sheet complying with ASTM A1008/A1008M; matte finish; suitable for exposed applications.

- G. Concealed Materials:
 - 1. Solid Wood: With no defects affecting strength or utility.
 - 2. Plywood: Hardwood plywood. Provide backs of same species as faces.

2.4 MATERIALS

- A. Maximum Moisture Content for Lumber: 7 percent for hardwood and 12 percent for softwood.

- B. Hardwood Plywood: HPVA HP-1, particleboard core except where veneer core is indicated.
- C. Softwood Plywood: DOC PS 1.

2.5 FINISH

- A. Stain or Paint: Provide uniform color and to match approved Samples.
- B. Finish: Manufacturer's standard, baked, clear finish consisting of a thermosetting catalyzed sealer and a thermosetting catalyzed conversion varnish.

2.6 CASEWORK HARDWARE AND ACCESSORIES

- A. Hardware, General: Unless otherwise indicated, provide manufacturer's standard, commercial-quality, heavy-duty hardware.
 - 1. Use threaded metal or plastic inserts with machine screws for fastening to particleboard except where hardware is through-bolted from back side.
- B. Butt Hinges: Stainless steel, semi-concealed, five-knuckle hinges complying with ANSI/BHMA A156.9, Grade 1, with antifriction bearings and rounded tips.
- C. Frameless Concealed Hinges: ANSI/BHMA A156.9, Type B01602.
- D. Door Catches: Zinc-plated/Powder-coated, nylon-roller spring catch or dual, self-aligning, permanent magnet catch.
- E. Door and Drawer Bumpers: Self-adhering, clear silicone rubber.
- F. Drawer Slides: Manufacturer's standard; complying with ANSI/BHMA A156.9.
- G. Adjustable Shelf Supports:
 - 1. Pin-type, two-pin-locking plastic shelf rests complying with ANSI/BHMA A156.9, Type B04013 or single-pin metal shelf rests complying with ANSI/BHMA A156.9, Type B04013.
 - 2. Mortise-type, zinc-plated/powder-coated steel standards and shelf rests complying with ANSI/BHMA A156.9, Type B04071 and Type B04091.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Grade: Install casework to comply with same quality standard grade as item to be installed.
- B. Install casework level, plumb, and true in line; shim as required using concealed shims. Where casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.

- C. Base Cabinets: Set cabinets straight, level, and plumb. Adjust subtops within 1/16 inch of a single plane. Align similar adjoining doors and drawers to a tolerance of 1/16 inch. Bolt adjacent cabinets together with joints flush, tight, and uniform.
- D. Wall Cabinets: Hang cabinets straight, level, and plumb. Adjust fronts and bottoms within 1/16 inch of a single plane. Fasten cabinets to hanging strips, masonry, framing, wood blocking, or reinforcements in walls and partitions. Align similar adjoining doors to a tolerance of 1/16 inch.
- E. Fasten casework to adjacent units and to masonry, framing, wood blocking, or reinforcements in walls and partitions to comply with the AWI/AWMAC/WI's "Architectural Woodwork Standards."
- F. Install hardware uniformly and precisely. Set hinges snug and flat in mortises unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- G. Adjust operating hardware so doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.
- H. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.

3.2 FIELD QUALITY CONTROL

- A. Inspections: Provide inspection of installed Work certifying that woodwork, including installation, complies with requirements of the Architectural Woodwork Standards for the specified grade.

END OF SECTION