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**Lucas Metropolitan Housing  
Unit Repairs and Renovations**

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**Various Properties**

**TPA Commission No. 22022**  
February 2023

**Prepared for:**

**Lucas Metropolitan Housing Authority**  
424 Jackson Street  
Toledo, Ohio 43604

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(Contractor to provide submittals for Owner Rep. & A/E approval)

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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, LMHA 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 renovate the units to pre-incident condition or additional work as described.

**A. Base Bid for: 26 Birmingham Terrace**

- 1. Abatement as indicated. Air clearance testing and wipe tests will be by owner.
- 2. Removal and replacement of existing finishes (gypsum wall board, wall base, flooring, interior gypsum soffits, door/window trim) as indicated. Plaster on select walls shall remain.
- 3. Removal and replacement of existing electrical systems and components in their entirety including range hood, smoke detectors, doorbell, light fixtures, wiring devices, wiring, service panel and meter, as indicated. Utilize surface mounted wiremold and devices only on existing plaster and block walls.
- 4. Removal and replacement of existing N.G. furnace, supply diffusers, return grilles, thermostat, damaged ducts and other hvac components in their entirety. Replace existing exterior b-vent with concentric vent.

5. Removal and replacement of existing plumbing fixtures (water closet, lavatory, sink, tub, water heater), p-traps, water stops and other fittings in their entirety. Select plumbing fixtures may require replacement of piping back to main while other undamaged and concealed piping may remain with visual inspection and approval by owner/architect after demolition.
6. Removal and replacement of casework (restroom vanity base & kitchen cabinets), countertops, and pantry/closet shelving/rods.
7. Removal and replacement of restroom, closet, and kitchen accessories, such as shelving, recessed medicine cabinet, mirror, shower curtain rod, cloths rods, towel racks, and toilet paper and paper towel dispensers.
8. Remove existing rubber stair treads in their entirety down to concrete/steel stair structure. Stabilize lead paint on steel and paint steel stringers and risers. install new resilient stair reads and risers.
9. Install stainless steel end-wall guard cover over existing painted end-wall guard cover. Location of existing guards are at the top and bottom of stairs. Verify in field locations and sizes.
10. Removal and replacement of all doors, hardware, window and window treatments (blinds).
11. Removal and replacement of batt insulation at unit/tenant separation walls and restroom walls.
12. Smoke and odor elimination. Seal all existing to remain surfaces including walls, trim, doors, joists, etc. with shellac based white sealant.
13. Thorough cleaning of interior and exterior surfaces and fixtures throughout unit.
14. Interior priming/painting throughout the unit.
15. Perform sanitary scoping from all existing plumbing fixtures to the exterior of the unit and, if obstructions or damages exist, remove said obstruction or repair and clean sanitary lines.

**Deduct Alternate for: 26 Birmingham Terrace** (Deduct the cost to provide all labor, materials, and equipment to furnish and install items specified)

1. Deduct cost to provide a new high efficiency furnace with new concentric intake/exhaust. Include the cost for a standard efficiency furnace and utilize existing flue. See sheet M1.0 for basis of specification.

**B. Base Bid for: 360 Dennis Court (McClinton Nunn Homes)**

1. Abatement as indicated. Air clearance testing will be by owner.
2. Removal and replacement of existing finishes (gypsum wall board, wall base, gypsum ceilings, door/window trim) as indicated. Limited scope of work as noted. abatement of 1st floor flooring and stair treads. protect second floor flooring.
3. Removal and replacement of existing electrical systems and components in their entirety including range hood, smoke detectors, doorbell, light fixtures, wiring devices and wiring.
4. Remove and replace existing n.g. furnace, thermostat, supply diffusers, return grilles, and other hvac components. Thorough professional cleaning utilizing vacuum collection & rotary brush/air whips inside and out of existing undamaged ducts in their entirety. See hvac drawings for complete scope of work.
5. Removal and replacement of noted plumbing fixtures (sinks, water heater), p-traps, water stops and other fittings in their entirety. Detach and reset of noted plumbing fixtures (water closet, lav basin on new vanity). Select plumbing fixtures may require replacement of piping back to main while other undamaged and concealed piping may remain u.n.o. See plumbing drawings for complete scope of work.
6. Thorough cleaning of interior surfaces and fixtures throughout the building including existing water closet, lavatory basin, tub and wall surround.
7. Removal and replacement of casework (restroom vanity base & kitchen cabinets), countertops, and pantry/closet shelving/rods.
8. Removal and replacement of restroom, closet, and kitchen accessories, such as recessed medicine cabinet, mirror, shower curtain rod, cloths rods, towel racks, toilet paper and cabinet mounted paper towel dispensers.
9. Removal and replacement of noted doors & hardware. Remove and replace all windows and window treatments (blinds). Detach and reset noted second-floor door slabs and repair existing frames/stops.
10. Demolition and replacement of all demising wall & exterior wall insulation including in floor joists at perimeter of unit.
11. Smoke and odor elimination. Seal all existing to remain surfaces including walls, trim, doors, joists, etc. with shellac based white sealant. Protect existing to remain components (door hardware/plumbing fixtures).

12. Interior priming/painting throughout the unit.
13. Wax stripping, cleaning, & re-waxing existing to remain flooring
14. Perform sanitary pipe scoping from all existing plumbing fixtures to the exterior of the unit and, if obstructions or damages exist, remove said obstructions or repair and clean sanitary lines.
15. Replace damaged exterior siding as noted.

**Deduct Alternates for: 360 Dennis Court** (Deduct the cost to provide all labor, materials, and equipment to furnish and install items specified)

1. Deduct cost to provide a new high efficiency furnace with new concentric intake/exhaust. Include the cost to detach and reset existing furnace with professional cleaning and service.
  2. Deduct cost to provide new water heater. Include cost to detach and reset existing water heater with professional cleaning and service.
- C. Owner-Furnished Items: The following items will be furnished by the Owner and shall be installed by the contractor as part of the Work:
1. Appliances
    - a. The contractor shall also be responsible for all parts and accessories necessary for a complete installation.
- 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. The site will be kept clean and swept daily.
- F. 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.

#### 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 form HUD-5100 – Schedule of Amounts for Contract Payments.
- B. Submit Schedule of Amounts for Contract Payments in duplicate within 15 days after date established in Notice to Proceed.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification Section. Identify site mobilization, bonds and insurance, and other pertinent information.
- D. Include in each line item, the amount of Allowances specified in this Section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- E. Include separately from each line item, a directly proportional amount of Contractor's overhead and profit.
- F. 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 form HUD-51001 – Periodic Estimate for Partial Payment.
- 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 AIA A201 or other executed Contract form, by issuing supplemental instructions on AIA Form G710 or other supplied HUD document.
- B. The Architect/Engineer may issue a Proposal Request or 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: AIA G701/AIA G701/CM Change Order/HUD-51002.
- E. Execution of Change Orders: Architect/Engineer/Owner will issue Change Orders/Construction Change Directives 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, LMHA 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: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name of 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:
    - a. Related Specification Section or Division.
    - b. Description of Work.
    - c. Name of subcontractor.
    - d. Name of manufacturer or fabricator.
    - e. Name of supplier.
    - f. Dollar value.
      - 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 a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
    - a. Differentiate between items stored on-site and items stored off-site. 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: The date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days prior to the date for each progress payment.
- C. Payment-Application Forms: Use the **HUD-51000 series documents** or an approved equal as the form for Applications for Payment. (form HUD-51001)
- D. Application Preparation: Complete every entry on the form. Include notarization and 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, that must precede or coincide with submittal of the first Application for Payment, include the following:
1. List of subcontractors.
  2. List of principal suppliers.
  3. Schedule of Values.
  4. Contractor's Construction Schedule.
  5. Schedule of principal products.
  6. Copies of authorizations and licenses from governing authorities for performance of the Work.
  7. Initial progress report.
  8. Report of preconstruction meeting.
  9. Certificates of insurance and insurance policies.
  10. Performance and payment bonds.
  11. Data needed to acquire the Owner's insurance.
- 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.

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, LMHA 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, LMHA 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, on either AIA Form G710, Architect/Engineer's Supplemental Instructions or as part of an RFI (Request for Information) response form.

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, LMHA 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. Schedule a preconstruction conference before starting construction, at a time convenient to the Owner and the Architect/Engineer, but no later than 15 days after execution of the Agreement. Hold the conference at the Project Site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: Authorized representatives of the Owner, Architect/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. Conduct progress meetings at the Project Site at regular intervals. Notify the Owner and the Architect/Engineer of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request. 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, LMHA 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.
- D. List of Unit Prices: A list of required unit prices is also included on the Bid Proposal Form.

**1. Attic Access Replacement (360 Dennis Court)**

Provide cost to be added to the contract sum to remove and replace the existing attic access as detailed.

Unit Price \$\_\_\_\_\_ /EA

**2. Replace Tub (26 Birmingham)**

Provide cost to be deducted from the contract amount to remove and replace the existing enameled steel tub & surround & valve kit & shower head with new as specified.

Unit Price (\$\_\_\_\_\_/EA

**3. Vinyl Siding Replacement**

Provide cost to be added or deducted from the contract amount for additional or unused amounts of matching exterior vinyl siding and all required trims, blocking, fasteners and other materials required for installation.

Unit Price \$\_\_\_\_\_/SF of vinyl siding replacement

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, LMHA 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.
- 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."

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, LMHA 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.
- 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
Furnish as Corrected	Incorporate Corrections/Comments
Revise and Resubmit	Item(s) Not Acceptable
Submit Specified Item	Additional Information Required
Rejected	Generally Not Acceptable
Logged & Sent to Consultants	Reference Consultant Stamp

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, LMHA 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. 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.
- C. 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.
- D. 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.
- E. 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.

#### 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: Where available, use water from the Owner's existing water system without metering and without payment of use charges. Existing plumbing may be damaged and unavailable – contractor shall plan accordingly.
- C. Electric Power Service: Where available, use of electricity from Owner's existing system without metering or payment. Existing power may be damaged and unavailable – contractor shall plan accordingly.
- 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, LMHA 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, LMHA 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.
- B. Post-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.
  - 1. Before selective demolition, Owner will remove the following items:
    - a. Kitchen appliances
- 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.

#### 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

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 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. No employee of the Contractor shall fraternize with any employee of the Owner during work hours.
  - 3. 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: Unit Repairs and Renovations

PROJECT LOCATIONS: McClinton Nunn Homes  
360 Dennis Court, Toledo, OH 43604

Birmingham Terrace Homes  
26 Birmingham Terrace, Toledo, OH 43605

EVALUATION SPECIALISTS: Harjot Singh, Certification Number: ES34825

PROJECT OWNER: Lucas Metro Housing Authority (LMHA)  
424 Jackson Street  
Toledo, OH 43604  
Contact: Craig Bartley  
Dan Grosschedl

**B. SCOPE OF WORK, ASBESTOS ABATEMENT ACTIVITIES:**

Provide all labor and material for the asbestos abatement of fire damaged asbestos materials prior to the renovations at the LMHA housing units. 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.

**McClinton Nunn – 360 Dennis Court, Toledo, OH 43604**

<b>ASBESTOS MATERIALS</b>	<b>LOCATIONS</b>	<b>ESTIMATED QUANTITY</b>
Black Mastic with associated tan VCT and stair treads	Throughout (abate 1 <sup>st</sup> floor & stairs, protect 2 <sup>nd</sup> floor)	Abate 524 SF Protect 477 SF

**Birmingham Terrace – 26 Birmingham Terrace, Toledo, OH 43605**

<b>ASBESTOS MATERIALS</b>	<b>LOCATIONS</b>	<b>ESTIMATED QUANTITY</b>
Black/Amber Mastic with associated tan VCT	Throughout 1 <sup>st</sup> Floor & 2 <sup>nd</sup> Floor	757 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 *may not* be available to the contractor due to existing damages. Sewer facilities to receive properly filtered project wastewater *may not* be available due to existing damages. Electric power *may not* be available for Contractor use due to existing damages. Contractor may utilize existing services, where available, but shall be prepared for temporary provisions of services by other means at no additional cost to the Owner/Architect.
  - 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/her 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. Permits: City & County Permits if required.
    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 AIR MONITORING--TEST LABORATORY SERVICES
- A. General Requirements
    1. This section describes air monitoring carried out by the Owner to verify that the building beyond the work area and outside environment remain uncontaminated.
    2. Air monitoring within the work area is required of the Contractor by OSHA. It is not covered in this section and is not the purpose of the Owner's air monitoring.
  - B. Air Monitoring
    1. The purpose of the Owner's air monitoring will be to produce a definitive record showing that the non-work areas of the building have not been contaminated by the work.
    2. Should any event occur that would reasonably be expected to cause such contamination, Contractor shall immediately stop work and implement the pre-approved Contingency Plan. Examples of such events are the failure of the filtration system or a breach in the containment barrier.
  - C. Sampling and Analytical Methods
    1. PCM air samples will be collected on 25 mm cassette-mounted filters at sampling rate between 4 and 16 liters per minute. The filter medium will be mixed cellulose ester having a pore size less than or

equal to 1.2 micrometers. They will be analyzed according to NIOSH Method 7400A.

D. On-Site Laboratory Testing

1. An On-Site Laboratory may be operated by the Consultant to perform analysis of the PCM air samples. A complete record of all air monitoring tests and results will be furnished to the Owner's Representative, the Owner, and the Contractor.

E. Final Air Clearance Testing

1. PCM Clearance Areas: Testing will be done in accordance with AHERA and OEPA regulations. All 3 PCM clearance air samples taken inside the work area must be below 0.01 f/cc as analyzed according to NIOSH method 7400A.

1.8 WORK AREA CLEARANCE - REGULATED AREAS

A. Description of Requirements

1. This section describes the procedures that will be used for determining the acceptability of the Work as determined by the concentration of airborne asbestos fibers within the work area.

B. Work Activity Sequence

1. Final air samples will be collected after a specific sequence of activities have taken place. These activities are intended to assure that the work area will be satisfactorily cleaned so that the area will pass the air test. The final visual inspection shall be conducted in accordance with the ASTM Standard E-1368-90 (Standard Practice for Visual Inspection of Asbestos Abatement Projects).
2. Negative air machines are to be operated until a sufficient amount of room air volumes have been HEPA filtered. After this "air flushing" of the work area, the Owner's Representative will conduct aggressive air sampling. Aggressive techniques such as the active use of a 1 HP leaf blower over all exposed surfaces in the work area will be used. Fans may or may not be used for continued air circulation.
3. Sampling will start no later than four hours after the aggressive procedure is completed. Negative air is to be continuously maintained in the work area until the results of the air sampling have been received.

- C. Final Air Sampling
  - 1. Final air sampling will be conducted by the Owner's Representative.
  - 2. PCM Clearance Areas: Sampling and analysis will be conducted by the Consultant with on-site analysis. All sampling will be conducted in accordance with AHERA regulations with all 3 clearance samples being below 0.01 f/cc for clearance.
- D. Release Criterion
  - 1. PCM clearance samples: The protocol of 763.90 of AHERA will be followed. If all sample results are below 0.01 f/cc the clearance requirements have been met and the work area can be prepared for re-occupancy by the Owner.
  - 2. If any PCM sample(s) exceed 0.01 f/cc the clearance requirements have not been achieved the entire work area must be recleaned and re-tested.
- E. Contractor's Responsibility
  - 1. In the event that re-testing is required, the Contractor shall pay such Owner's Representative's fees as necessary so that no added cost accrues to the Owner as a result of the aborted test and subsequent re-testing.

1.9 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.

1.10 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. Visual inspection, and
  - c. Final PCM air clearance sampling.
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.
  - c. The PCM final air clearance samples are below the AHERA clearance level.
2. If any of these requirements are not met the Contractor shall reclean as necessary to achieve the required results.

1.11 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.

#### 1.12 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.

#### 1.13 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.

#### 1.14 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.

1.15 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.

1.16 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 \_\_\_\_\_

<b>CERTIFICATION OF FINAL VISUAL INSPECTION</b> <b>for</b> <b>ASBESTOS ABATEMENT PROJECTS</b>
---

OWNER: **Lucas Metropolitan 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 <b>under the following limitations:</b> _____
	Is <b>not</b> 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: \_\_\_\_\_



**ASBESTOS HAZARD ABATEMENT PROJECT AGREEMENT**  
**(To be kept on-site at all times during project)**

In accordance with Ohio Revised Code 3701-34-11 the following is the written project agreement for this asbestos project:

Project: **LMHA Fire Unit Restoration**  
**McClinton Nunn Homes**  
**360 Dennis Court, Toledo, OH 43604**

**Article 1** All persons working on this project shall be licensed by the Ohio EPA.

**Article 2** Final air clearance monitoring shall be by PCM with all 3 clearance samples less than 0.01 f/cc

**Article 3** All clearance air sampling for this project will be conducted by a Certified Asbestos Hazard Evaluation Specialist.

**Article 4** The project activities are detailed in the Specifications and Project Design. The summary of the activities are as follows:

<b>ASBESTOS MATERIALS</b>	<b>LOCATIONS</b>	<b>ESTIMATED QUANTITY</b>
Black Mastic with associated tan VCT and stair treads	Throughout (abate 1 <sup>st</sup> floor & stairs, protect 2 <sup>nd</sup> floor)	Abate 524 SF Protect 477 SF

**Article 5** All asbestos hazard abatement activities on this project shall be conducted in accordance with all applicable federal, state, and local asbestos regulations.

**ASBESTOS HAZARD ABATEMENT PROJECT AGREEMENT**  
**(To be kept on-site at all times during project)**

In accordance with Ohio Revised Code 3701-34-11 the following is the written project agreement for this asbestos project:

Project: **LMHA Fire Unit Restoration**  
**Birmingham Terrace**  
**26 Birmingham Terrace, Toledo, OH 43605**

**Article 1** All persons working on this project shall be licensed by the Ohio EPA.

**Article 2** Final air clearance monitoring shall be by PCM with all 3 clearance samples less than 0.01 f/cc

**Article 3** All clearance air sampling for this project will be conducted by a Certified Asbestos Hazard Evaluation Specialist.

**Article 4** The project activities are detailed in the Specifications and Project Design. The summary of the activities are as follows:

<b>ASBESTOS MATERIALS</b>	<b>LOCATIONS</b>	<b>ESTIMATED QUANTITY</b>
Black/Amber Mastic with associated tan VCT	Throughout 1 <sup>st</sup> Floor & 2 <sup>nd</sup> Floor	757 square feet

**Article 5** All asbestos hazard abatement activities on this project shall be conducted in accordance with all applicable federal, state, and local asbestos regulations.

SECTION 02 93 60

SEEDING

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Hydroseeding, mulching and fertilizer.
- B. Maintenance.

1.2 REFERENCES

- A. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.3 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.4 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.
- B. Contractor shall guarantee the production of a close stand of grass. Reseeding or resodding as necessary shall follow the Specifications for the initial installation.

1.5 REGULATORY REQUIREMENTS

- A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01 60 00.

1.7 COORDINATION

- A. Coordinate work under provisions of Section 01 20 00.



1.8 MAINTENANCE SERVICE

- A. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition for two cuttings.

2. PART 2 PRODUCTS

2.1 SEED MIXTURE

- A. Fresh seed shall be not less than 85%, pure and have not less than 80% germination and maximum .5% weed; blended in the following proportions by weight:  
25% Kentucky Bluegrass, POA pratensis, 80% Germ, 85% Pure, .5% weed  
25% Creeping Red Fescue, Festuca Rubra, 85% Germ, 98% Pure, .5% weed  
25% Rebel Jr. Tall Fescue, Restuca-Arundinacea, 90% Germ, 98% Pure, .10% weed  
25% Perennial Ryegrass, Lolium Perenne, 90% Germ, 98% Pure, .50% weed

A premixed grass seed would also be acceptable. Seed mix should be optimized for soil and site conditions.

2.2 SOIL MATERIALS

- A. Topsoil: Excavated from site and free of weeds.

2.3 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are [not] acceptable.
- B. Fertilizer: FS O-F-241, Type I Grade A; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil [to the following proportions: Nitrogen 10 percent, phosphoric acid 20 percent, soluble potash 10 percent.
- C. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

3. PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that prepared soil base is ready to receive the work of this Section.

3.2 FERTILIZING

- A. Apply fertilizer in accordance with manufacturer's instructions.

- B. Apply after smooth raking of topsoil and prior to roller compaction.
- C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.
- D. Mix thoroughly into upper 2 inches of topsoil.
- E. Lightly water to aid the dissipation of fertilizer.
- F. Areas shall be leveled as necessary so the surface is free from all unsightly variations, bumps, ridges, depressions, debris, roots, branches, etc.

### 3.3 HYDROSEEDING

- A. Apply seeded slurry with a hydraulic seeder at a rate of 8 lbs per 1000 sq ft evenly in two intersecting directions. If seeding by hand or spreader apply at a rate of (4) pounds per one thousand (1000) square feet for overseeding, if seed is incorporated into the soil and covered with peat or paper mulch. Do not use straw.
- B. Do not hydroseed area in excess of that which can be mulched on same day.
- C. Immediately following seeding, apply mulch to a thickness of 1/8 inches. Maintain clear of shrubs and trees.
- D. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

### 3.4 SEED PROTECTION

- A. Identify seeded areas with stakes and string around area periphery.
- B. Cover seeded slopes where grade is 4 inches per foot or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.
- C. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
- D. Secure outside edges and overlaps at 36 inch intervals with stakes.
- E. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- F. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.5 MAINTENANCE

- A. Mow grass at regular intervals to maintain at a maximum height of 2 inches. Do not cut more than 1/3 of grass blade at any one mowing.
- B. Neatly trim edges and hand clip where necessary.
- C. Immediately remove clippings after mowing and trimming.
- D. Water to prevent grass and soil from drying out.
- E. Roll surface to remove minor depressions or irregularities.
- F. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.
- G. Immediately reseed areas which show bare spots.
- H. Protect seeded areas with warning signs during maintenance period.

END OF SECTION

SECTION 04 50 00

MASONRY RESTORATION AND CLEANING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Chemical cleaning and sealing of all exterior brick surfaces at 358/360 Dennis Court and 26 Birmingham Terrace.
- B. Re-pointing of existing deteriorated joints as indicated.

1.2 QUALITY ASSURANCE

- A. Under provisions of Section 01 40 00.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 1.
- B. Store and protect products under provisions of Section 1.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Do not wash down or wet surfaces when temperature may drop below 40 degrees F within twenty-four hours.
- B. Cold Weather Requirements: IMIAC – Recommend Practices and Guide Specifications for Cold Weather Masonry Construction.

1.5 SEQUENCING/SCHEDULING

- A. Chemically clean brick, cut/cast stone and other masonry
- B. Rake-out existing mortar from joints indicated to be repointed.
- C. Repoint existing mortar joints of masonry indicated to be restored.
- D. Chemically seal brick, cut/cast stone and other masonry.
- E. Caulk stone joints specified under Section 07 92 00

PART 2 PRODUCTS

2.1 MANUFACTURERS – CLEANING/SEALING MATERIALS

- A. Diedrich Chemical Inc.
- B. Prosoco Inc.
- C. Sika Corporation
- D. or Approved Equal

2.2 CLEANING/SEALING MATERIALS/TOOLS

- A. Water: Clean, potable.
- B. Brushes: Soft, natural fiber bristles.
- C. Spray Equipment: Provide equipment for controlled spray application of water and chemical cleaners, if any, at rates indicated for pressure, measured at spray tip, and for volume.
  - 1. For spray application of chemical cleaners provide low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with cone-shaped spray-tip.
  - 2. For spray application of water provide fan-shaped spray-tip which disperses water at angle of not less than 15 degrees.

D. Chemicals:

Surfaces to be cleaned

Product

Brick Masonry

Diedrich #101 Masonry Restorer  
or  
Approved Equal

Surfaces to be sealed

Product

Brick Masonry

Prosoco Siloxane PD  
or  
Approved Equal

2.3 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Colored Mortar Aggregate: Natural or manufactured sand selected to produce mortar color to match adjacent existing mortar color.
- D. For pointing mortar provide sand with rounded edges.
- E. Match size, texture and gradation of existing mortar as closely as possible.
- F. Colored Mortar Pigment: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with record of satisfactory performance in masonry mortars.
- G. Water: Clean, free of oils, acids, alkalis and organic matter.

### 3. PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Verify that surfaces to be cleaned and restored are ready for work.
- B. Beginning of installation means acceptance of existing surfaces and conditions.

#### 3.2 PREPARATION

- A. General: Comply with recommendations of manufacturers of chemical cleaners for protecting building surfaces against damage from exposure to their products.
- B. Protect persons, motor vehicles, surrounding surfaces of building whose masonry surfaces are being restored, building site, mask windows and window frames.
- C. Prevent chemical cleaning solutions from coming into contact with pedestrians, motor vehicles, landscaping, buildings and other surfaces, which could be injured by such contact.
- D. Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
- E. Dispose of run-off from cleaning operations by legal means and in manner which prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- F. Erect temporary protection covers over pedestrian walkways and at points of entrance and exit for persons and vehicles, which must remain in operation during course of masonry restoration work.
- G. Protect glass and unpainted metal trim from contact with chemical cleaners by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape. Apply masking agent to comply with manufacturer's recommendations. Do not apply liquid masking agent to painted or porous surfaces.

#### 3.3 RESTORATION CLEANING

- A. Chemical Cleaning of Brick Masonry
  - 1. Spray masonry with proper restoration cleaner, mixed into solution in strict accordance with manufacturer's instructions and identical to that required for sample area. Low pressure spray (100 psi)
  - 2. Provide a second application if required by preliminary test of sample area.

3. Allow sufficient time for solution to remain on masonry – keep moist, do not allow chemical to dry on surfaces.
4. Scrub tough stains with brush.
5. Spray/rinse with high pressure washer (500psi-1200psi, ensure not to damage existing to remain) from the bottom up with potable water applied at rates recommended by manufacturer. During the entire cleaning process the lower masonry areas must be continuously rinsed to avoid rundown staining of adjacent brick and stone masonry.
6. Cleaning process shall include algaecide.

### 3.4 REPOINTING

#### A. Joint Raking:

1. Rake out mortar from joints to depths equal to 2-1/2 times their widths but not less than 3/4" nor less than that required to expose sound, unweathered mortar.
2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum or flush joints to remove dirt and loose debris.
3. Do not spall edges of masonry units or widen joints. Replace any masonry units, which become damaged.
4. Cut out old mortar by hand with chisel and mallet, unless otherwise indicated.
5. Power operated rotary hand saws and grinders will be permitted but only on specific written approval of Architect based on submission by Contractor of a satisfactory quality control program and demonstrated ability of operators to use tools without damage to masonry. Quality control program shall include provisions for supervising performance and preventing damage due to worker fatigue.

#### B. Joint Pointing:

1. Rinse masonry joint surfaces with water to remove any dust and mortar particles. Time application of rinsing so that, at time of pointing, excess water has evaporated or run off, and joint surfaces are damp but free of standing water.

2. Apply first layer of pointing mortar to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8" until a uniform depth is formed. Compact each layer thoroughly and allow to become thumbprint-hard before applying next layer.
3. After joints have been filled to a uniform depth, place remaining pointing mortar in 3 layers with each of first and second layers filling approximately 2/5 of joint depth and third layer the remaining 1/5. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing bricks have rounded edges recess tool final layer slightly back from face of brick. Take care not to spread mortar over edges onto exposed masonry surfaces, or to featheredge mortar.
4. When mortar is thumbprint hard, tool joints to match original appearance of joints, unless otherwise indicated. Remove excess mortar from edge of joint by brushing.
5. Cure mortar by maintaining in a damp condition for not less than 72 hours.
6. Where repointing work precedes cleaning of existing masonry allow mortar to harden not less than 30 days before beginning cleaning work.
7. Owner shall have the right to perform periodic tests to verify depth of repointing. Contractor shall repair with like materials area where mortar has been removed to ascertain depth of repointing.

### 3.5 FINAL CLEANING

- A. After mortar has fully hardened thoroughly clean exposed masonry surfaces of excess mortar, efflorescence and foreign matter using stiff nylon or bristle brushes and clean water, spray applied at low pressure. Clean surrounding areas.
- B. Use of metal scrapers or brushes will not be permitted.
- C. Use of acid or alkali cleaning agents will not be permitted.

### 3.6 MASONRY SEALING

- A. Protection: mask windows and window frames as sealer is being applied.



- B. Do not apply sealer in windy when air temperature is above 95 degrees F
- C. Test each surface to be covered. Wet each surface with as a test too determine suitability and results. Wet surfaces without creating drip or rundowns.
- D. Spray apply from bottom up creating 4 to 8 inch rundown below the spray contact point. Brush out heavy runs and drips that do not penetrate.
- E. Treated surfaces are dry too touch in one hour and protect from rain for six hours following application.

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 chlorpyrifos 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.

Georgia Pacific

- 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 06 61 16

SOLID SURFACE

PART 1 - GENERAL

1.1 SUMMARY

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

B. SECTION INCLUDES:

1. Solid Surfacing Fabrications for window sills as indicated, including trim and material needed for a complete installation.

1.2 RELATED WORK

A. WORK OF THIS SECTION IS RELATED TO WORK SPECIFIED IN THE FOLLOWING SECTIONS:

1. Not Used

1.3 REFERENCES

A. REFERENCE STANDARDS: In addition to requirements, comply with applicable provisions of following for design, materials, fabrication, and installation of component parts:

1. ISSFA-2, "Classification And Standards Publication of Solid Surfacing Material".
2. ANSI Z124-3 for vanities and Z124-6 for kitchen sinks.
3. NSF Standard 51 for use in both splash and food service areas.
4. New York City MEA for gas toxicity.
5. Canadian Standards Association (CSA).
6. ASTM G21 "Fungal Resistance," Method [A] [B], no growth.
7. ASTM G22 "Bacterial Resistance," no growth.
8. Stain Resistance, ANSI Z124-6-5.2 1997.

1.4 DESIGN REQUIREMENTS

A. DESIGN LOAD: Deflection limited to 1/360.

B. Design items with sufficient strength for handling stresses.

1.5 SUBMITTALS

A. PRODUCT DATA: Manufacturer's technical literature indicating physical properties and performance criteria for solid surfacing materials and related components.

B. SHOP DRAWINGS: Indicate design parameters, adjacent construction, materials, dimensions, thickness, fabrication details, tolerances, jointing methods, method of support, anchorages, integration with plumbing fixtures and connections, and colors.

C. SAMPLES: Submit two, 2 inch by 2 inch (51mm x 51mm) samples representative of colors, patterns, textures, finishes and edge treatments. Approved samples will be retained as a standard for the work.

D. INFORMATIONAL SUBMITTALS: Submit following packaged separately from other submittals:

1. Manufacturer's written installation instructions.
2. Maintenance Data: Manufacturer's recommended cleaning and maintenance procedures. Include in project closeout documents.

#### 1.6 QUALITY ASSURANCE

A. FABRICATOR/INSTALLER QUALIFICATIONS: Company specializing in fabricating and installing solid surfacing fabrications similar in complexity to those required in this project, including specific requirements indicated.

B. SOURCE LIMITATIONS: Obtain solid surfacing fabrications through one source.

C. FIRE-TEST-RESPONSE CHARACTERISTICS: Provide solid surfacing fabrications with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL 723 or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 450 or less.

D. MOCKUPS: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution set quality standard for fabrication and installation.

E. PRE-INSTALLATION CONFERENCE: Conduct conference at Project site to comply with requirements in Section 01 31 00.

#### 1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, handle, and protect materials in accordance with manufacturer's written instructions.

1. Provide protective coverings of suitable material. Take special precautions at corners.

## 1.8 PROJECT CONDITIONS

A. ENVIRONMENTAL LIMITATIONS: Do not deliver or install solid surfacing fabrications until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at design levels during the remainder of the construction period.

B. FIELD MEASUREMENTS: Verify that field measurements are as indicated on Shop Drawings.

## 1.9 SEQUENCING

A. Sequence work to permit installation of adjacent affected construction, plumbing rough-in.

B. Coordinate sizes and locations of plumbing, cut-outs, and other related work specified in other sections to ensure that interior architectural woodwork can be supported and installed as indicated.

## 1.10 WARRANTY

A. WARRANTY: Provide manufacturer's 10 year limited warranty covering replacement of the material except for non-covered conditions as follows:

1. Minor stains, scratches, water spots, and burns that may be corrected by techniques covered in the manufacturer's Use and Care Guide.
2. Failure of solid surfacing joint material.
3. Failure due to structural failure of base cabinets or other solid surfacing substrate construction.
4. Use for purposes other than indoor finish material.

See manufacturer's warranty for complete details.

## PART 2 - PRODUCTS

### 2.1 PRODUCTS AND MANUFACTURERS

A. ACCEPTABLE PRODUCT AND MANUFACTURER:

1. Formica Solid Surfacing
2. Or Approved Equal

### 2.2 MATERIALS AND COMPONENTS

A. SOLID SURFACING MATERIALS: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.

1. Colors and Patterns: Owner to select.
2. Edge Treatment: Owner to select

**C. ACCESSORIES:**

1. Adhesives: For seams and drop edges, Formica Solid Surfacing Seaming Cartridges, 9 ounce (260ml); color to blend with sheet material.
2. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

**2.3 FABRICATION**

A. Assemble work at shop following manufacturer's printed fabrication instructions and deliver to job ready for installation. Manufacture in largest practical pieces for handling and shipping without seams.

1. Grade: AWI, Economy.
2. Fabricate work square and to required lines.
3. Recess and conceal fasteners, connections, and reinforcing.
4. Design construction and installation details to allow for expansion and contraction of materials. Properly frames material with tight, hairline joints held rigidly in place.
5. Fabricate countertops and vanities with back splash and side splash pieces to profiles and sizes indicated.
6. Fabricate items to profiles shown with connections and supports as indicated or as required for complete installation in accordance with manufacturer's written instructions and approved submittals.
7. Provide cut-outs for plumbing fixtures and trim, washroom accessories, appliances, and related items. Confirm layout with manufacturer's cut-out templates before beginning work. Round corners of cut-outs and sand edges smooth.
8. Do not exceed manufacturer's recommended unsupported overhang distances.
9. Finish exposed surfaces smooth and polish to low sheen.
10. Radius corners and edges.

**B. WINDOW SILLS:**

1/2 inch (13mm) thick, Solid Surfacing, adhesively joined with no exposed seams, edge details as selected by Owner.

**C. TOLERANCES:**

1. VARIATION IN COMPONENT SIZE: Plus/Minus 1/4 inch.
2. LOCATION OF OPENINGS: Plus/Minus 1/4 inch from indicated location.

**PART 3 - EXECUTION**

### 3.1 EXAMINATION AND PREPARATION

A. Examine surfaces for conditions that would adversely affect execution.

B. PREPARATION: Take field measurements.

### 3.2 INSTALLATION

A. GENERAL: Install in accordance with manufacturer's written installation instructions and approved Submittals. Provide templates and rough-in measurements.

1. Set items plumb, level, rigid and solidly adhered to substrate.
2. Prefit items: Adjust supports to make fit. Align joints over support framing.
3. Apply dabs of silicone on supports; place items on supports and attach.

B. WINDOW SILLS: Install sills tight to window framing and adjacent wall surfaces. Anchor with concealed fastening system to securely prevent rocking, racking, or displacement. Seal joint between sill at adjacent wall and window surfaces with Sealant Designation as specified in by manufacturer.

D. TOLERANCES:

1. Maximum Variation From True Dimension: 1/8 inch.
2. Maximum Offset From True Position: 1/8 inch.

### 3.3 CLEANING AND PROTECTION

A. CLEANING:

1. Clean and polish fabrications in accordance with manufacturer's instructions.
2. Promptly remove excessive mastic and seam adhesive.
3. Clean tops and splashes in accordance with manufacturer's recommendations.

B. PROTECTION:

1. Do not permit construction near unprotected surfaces.

C. Refer to manufacturer's warranty and exclusions.

END OF SECTION

SECTION 07 21 00

THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Extruded polystyrene foam-plastic board.
  - 2. Glass-fiber blanket

1.2 ACTION SUBMITTALS

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

1.3 INFORMATIONAL SUBMITTALS

- A. Product test reports.
- B. Research reports.

PART 2 - PRODUCTS

2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD

- A. Extruded polystyrene boards in this article are also called "XPS boards."
- B. Extruded Polystyrene Board, Type IV: ASTM C 578, Type IV, 25-psi (173-kPa) minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
    - a. DiversiFoam Products.
    - b. Dow Chemical Company (The).
    - c. Owens Corning.
    - d. Pactiv Corporation.
  - 2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.

2.2 GLASS-FIBER BLANKET

- A. Glass-Fiber Blanket, Unfaced: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
    - a. CertainTeed Corporation.
    - b. Guardian Building Products, Inc.
    - c. Johns Manville; a Berkshire Hathaway company.
    - d. Owens Corning.
- B. Glass-Fiber Blanket, Kraft Faced: ASTM C 665, Type II (nonreflective faced), Class C (faced surface not rated for flame propagation); Category 1 (membrane is a vapor barrier).
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
    - a. CertainTeed Corporation.
    - b. Guardian Building Products, Inc.
    - c. Johns Manville; a Berkshire Hathaway company.
    - d. Owens Corning.

2.3 ACCESSORIES

- A. Insulation for Miscellaneous Voids:
  - 1. Glass-Fiber Insulation: ASTM C 764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E 84.
  - 2. Spray Polyurethane Foam Insulation: ASTM C 1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
- B. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.
- C. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

- C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

### 3.2 INSTALLATION OF SLAB INSULATION

- A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.
  - 1. If not otherwise indicated, extend insulation a minimum of 36 inches below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
  - 1. If not otherwise indicated, extend insulation a minimum of 36 inches in from exterior walls.

### 3.3 INSTALLATION OF FOUNDATION WALL INSULATION

- A. Butt panels together for tight fit.
- B. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors.
- C. Adhesive Installation: Install with adhesive or press into tacky waterproofing or dampproofing according to manufacturer's written instructions.

### 3.4 INSTALLATION OF CAVITY-WALL INSULATION

- A. Foam-Plastic Board Insulation: Install pads of adhesive spaced approximately 24 inches o.c. both ways on inside face and as recommended by manufacturer. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions. Press units firmly against inside substrates.
  - 1. Supplement adhesive attachment of insulation by securing boards with two-piece wall ties designed for this purpose and specified in Section 04 20 00 "Unit Masonry."



3.5 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.
  2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  3. Maintain 3-inch (76-mm) clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
  4. For metal-framed wall cavities where cavity heights exceed 96 inches (2438 mm), support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
  5. For wood-framed construction, install blankets according to ASTM C 1320 and as follows:
    - a. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to maintain continuity of vapor retarder once finish material is installed over it.
  6. Vapor-Retarder-Faced Blankets: Tape joints and ruptures in vapor-retarder facings, and seal each continuous area of insulation to ensure airtight installation.
    - a. Exterior Walls: Set units with facing placed toward interior of construction.
    - b. Interior Walls: Set units with facing placed toward areas of high humidity.
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.
  2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

END OF SECTION

SECTION 07 26 00

VAPOR RETARDERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Polyethylene vapor retarders.
2. Reinforced-polyethylene vapor retarders.

B. Related Requirements:

1. Section 07 21 00 "Thermal Insulation" for vapor retarders integral with insulation products.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.

PART 2 - PRODUCTS

2.1 POLYETHYLENE VAPOR RETARDERS

- A. Polyethylene Vapor Retarders: ASTM D4397, 10-mil thick sheet, with maximum permeance rating of 0.1 perm.

2.2 REINFORCED-POLYETHYLENE VAPOR RETARDERS

- A. Reinforced-Polyethylene Vapor Retarders: Sheet with outer layers of polyethylene film laminated to an inner reinforcing layer consisting of either nylon cord or polyester scrim and weighing not less than 20 lb/1000 sq. ft., with maximum permeance rating of 0.1 perm.

1. ISI Building Products
2. Raven Industries, Inc.
3. Reef Industries, Inc.
4. W. R. Meadows, Inc.
5. Or Approved Equal

### PART 3 - EXECUTION

#### 3.1 INSTALLATION OF VAPOR RETARDERS ON FRAMING

- A. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives, vapor retarder fasteners, or other anchorage system as recommended by manufacturer. Extend vapor retarders to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.
- B. Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs and sealing with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Locate all joints over framing members or other solid substrates.
- C. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.
- D. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

#### 3.2 INSTALLATION OF VAPOR RETARDERS IN CRAWL SPACES

- A. Install vapor retarders over prepared grade. Lap joints a minimum of 12 inches and seal with manufacturer's recommended tape. Install second layer over pathways to equipment.
- B. Extend vapor retarder over footings and seal to foundation wall or grade beam with manufacturer's recommended tape.
  1. Extend vapor retarder vertically minimum 24 inches above top of footing.
- C. Seal around penetrations such as utilities and columns in order to create a monolithic, airtight membrane at grade surface, perimeter, and all vertical penetrations.

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**

- 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 46 46

FIBER CEMENT TRIM

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Accessories and trim.
- B. Siding Panels.
- C. Soffit Panels.

1.2 RELATED SECTIONS

- A. Rough Carpentry - Framing and Sheathing: per drawings.
- B. Joint Sealers: per drawings.
- C. Paints and Coatings - Field painting: per drawings.

1.3 REFERENCES

- A. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 1998.
- B. ASTM C 1185 - Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards; 1999.
- C. ASTM C 1186 - Standard Specification for Flat Non-Asbestos Fiber Cement Sheets; 1999.
- D. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 1998.
- E. ASTM E 84 -- Standard Test Method for Surface Burning Characteristics of Building Materials; 1999.
- F. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials; 1995.
- G. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 1999.



- H. ASTM E 228 - Standard Test Method for Linear Thermal Expansion of Solid Materials With a Vitreous Silica Dilatometer; 1995.
- I. ASTM G 26 - Standard Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials; 1996.

#### 1.4 SUBMITTALS

- A. Make submittals under provisions of Section 01 30 00.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations.
  - 3. Installation methods, including nailing patterns.
  - 4. Applicable model code authority evaluation report (ICC, CCMC, etc.)
- C. Maintenance and periodic inspection recommendations.
- D. Siding manufacturer's requirements for vapor retarders, primer, paint, etc., to be installed by others.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Provide installer with not less than three years of experience with products similar to those specified.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products off the ground, on a flat surface, and under a roof or separate waterproof covering.

#### 1.7 WARRANTY

- A. Provide WeatherBoards 50 year limited siding warranty.
- B. Finish – provide 15 year limited paint warranty
- C. Register manufacturer's warranty, made out in Owner's name, with copy to Owner.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. CertainTeed Corporation
- B. Or Approved Equal

2.2 PANELS

- A. Fiber Cement Board Panels - General: Fiber Cement Board Panels consist of cement, fly ash and cellulose fiber formed under high pressure into boards with integral surface texture; complying with ASTM C 1186 Type A Grade II; machined edges; for nail attachment.
  - 1. Surface Burning Characteristics: Flame spread index of 0, smoke developed index of 5, maximum; when tested in accordance with ASTM E 84 (Class I/A).
  - 2. Flammability: Noncombustible, when tested in accordance with ASTM E 136.
  - 3. Flexural Strength: At least 1450 psi (10 MPa) when in equilibrium condition, and at least 1015 psi (7 MPa) when in wet condition, tested in accordance with ASTM C 1185.
  - 4. Coefficient of Thermal Expansion: Less than  $1 \times 10^{-5}$ /inch/inch/degree F ( $0.5 \times 10^{-5}$ /degree C), when tested in accordance with ASTM E 228.
  - 5. Freeze Thaw Resistance: At least 80 percent flexural strength retained, when tested in accordance with ASTM C 1185.
  - 6. UV Resistance: No cracking, checking, or erosion, when tested for 2000 hours in accordance with ASTM G 26.
  - 7. Water Tightness: No water droplets on underside, when tested in accordance with ASTM C 1185.
- B. Horizontal Siding: Lap Siding.
  - 1. Thickness: 5/16 inch (7.9 mm), plus or minus .04 inch (1 mm).
  - 2. Length: 12 feet (3657 mm), plus 0, minus 1/8 inch (3 mm).
  - 3. Style: Cedar lap siding.
    - a. Width: 7-1/4 inches (185 mm) wide.
  - 4. Sealant/Primer: Fibercement manufacturer recommended Sealant/Primer.
  - 5. Field Finish Paint: 100 percent acrylic latex as specified by manufacturer & drawings.
  - 6. Factory Finish: Factory applied Finishing System by Fibercement manufacturer with 100 percent acrylic solid color as follows:
    - a. Owner to Select.
- C. Soffit: Soffit, ventilated and non-ventilated.
  - 1. Thickness: 1/4 inch (6.35 mm), plus or minus 1/32 inch (0.8 mm).
  - 2. Style: Smooth texture, 24 inches (610 mm) wide.

3. Combination of Ventilated and Non-ventilated as indicated on the Drawings.
  4. Sealant/Primer: Fibercement manufacturer recommended Sealant/Primer.
  5. Field Finish Paint: 100 percent acrylic latex as specified by manufacturer & drawings.
  6. Factory Finish: Factory applied Finishing System by Fibercement manufacturer with 100 percent acrylic solid color as follows:
    - a. Owner to Select
- D. Soffit/Porch Panel: CertainTeed FiberCement Soffit/Porch Panel.
1. Thickness: 1/4 inch (6 mm), (6.35 mm, plus or minus 0.8 mm).
  2. Width: 48 inches (1220 mm).
  3. Length: 8 feet (2440 mm), plus 0, minus 1/8 inch (3.17 mm).
  4. Sealant/Primer: Fibercement manufacturer recommended Sealant/Primer.
  5. Field Finish Paint: 100 percent acrylic latex as specified by manufacturer & drawings.
  6. Factory Finish: Factory applied Finishing System by Fibercement manufacturer with 100 percent acrylic solid color:

### 2.3 ACCESSORIES

- A. Trim: CertainTeed WeatherBoards Trim
1. Size:
    - a. Thickness 7/16 inch (11 mm) plus or minus (1 mm).
    - b. Width:
      - 1) 3-1/2 inch (89 mm).
      - 2) 5-1/2 inch (140 mm).
      - 3) 9-1/4 inch (235 mm).
      - 4) 11-1/4 inch (286 mm).
    - c. Length: 12 feet (3.657 m) plus or minus 1/8 inch (3.17 mm).
  2. Sealant/Primer: Fibercement manufacturer recommended Sealant/Primer.
- B. Trim: Western red cedar lumber, without knotholes, checks, or cracks; 1 inch (25 mm) nominal thickness.
- C. Trim: Pressure preservative treated southern pine, without knotholes, checks, or cracks, No.1 grade or better; 1 inch (25 mm) nominal thickness.
- D. Provide the following trim:
1. Starter strip for lap siding.
  2. Outside corners, butted to siding.
  3. Outside corners, overlapping siding.
  4. Fascia board.
  5. Band / trim boards.
  6. As noted on drawings/

- E. Sealant: Paintable, 100 percent acrylic latex caulk complying with ASTM C 920.
- F. Sheet Metal Flashing: Minimum 26 gauge hot-dipped galvanized steel sheet, or coated aluminum.
- G. Nails: Length as required to penetrate minimum 1-1/4 inch ( 32mm) into solid backing; hot-dipped galvanized or stainless steel.
- H. Building Paper: Kraft or bituminous paper; not polyethylene or foil.
- I. Field Finish Paint: 100 percent acrylic latex as specified by manufacturer & drawings.
- J. Touch Up Kit: Fibercement manufacturer provided touch-up kit for each color specified by Owner.

### PART 3 EXECUTION

#### 3.1 EXAMINATION

- A. Prior to commencing installation, verify governing dimensions of building and condition of substrate.
- A. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

#### 3.2 PREPARATION

- A. Examine, clean, and repair as necessary any substrate conditions that would be detrimental to proper installation.
- B. Do not begin installation until unacceptable conditions have been corrected.

#### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and Drawing details.
  - 1. Read warranty and comply with all terms necessary to maintain warranty coverage.
  - 2. Install in accordance with conditions stated in model code evaluation report applicable to location of project.
  - 3. Use trim details indicated on drawings.
  - 4. Touch up all field cut edges before installing.
  - 5. Pre-drill nail holes if necessary to prevent breakage.

- B. Over Wood Studs Without Sheathing: Install building paper over studs prior to installing siding.
- C. Over Wood and Wood-Composite Sheathing: Fasten siding through sheathing into studs.
- D. Over Foam Sheathing: Read and comply with sheathing manufacturer's recommendations.
  - 1. For sheathing of 1 inch (25 mm) thickness or less, nail through sheathing into studs using correspondingly longer nails.
- E. Over Masonry Walls: Install furring strips of adequate thickness to accept full length of nails and spaced at 16 inches (406 mm) on center.
- F. Over Steel Studs: Minimum 20 gauge steel, 3 5/8" (92 mm) C-studs. Use 1-5/8" (41 mm) long, #8-18 x 3/8" HD self-tapping, corrosion-resistant ribbed bugle head screws. Attach siding at each stud insuring that at least 3 screw threads penetrate the studs.
- G. Diagonal Siding: Follow manufacturer's instructions.
- H. Allow space between both ends of siding panels that butt against trim for thermal movement; seal joint between panel and trim with exterior grade sealant.
- I. Joints in Horizontal Siding: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.
- J. Joints in Vertical Siding: Install Z-flashing in horizontal joints between successive courses of vertical siding.
- K. Furred Installation: Leave space at top and bottom open; top may be behind soffit; at bottom install insect screen over opening by wrapping a strip of screen over bottom ends of vertical furring strips.
- L. Install sheet metal flashing above door and window casings and horizontal trim in field of siding.
- M. Do not install siding less than 6 inches (150 mm) from surface of ground nor closer than 1 inch (25 mm) to roofs, patios, porches, and other surfaces where water may collect.
- N. After installation, seal all joints except lap joints of lap siding. Seal around all penetrations. Paint all exposed cut edges.
- O. Finish Painting: 100 percent acrylic latex as specified by manufacturer & drawings..

- P. Finish Painting: Within 24 months after installation, paint siding and trim with one coat finish paint.
- Q. Finish Painting: Within 24 months after installation, paint siding and trim with one coat primer and two coats finish paint.

#### 3.4 CLEANING

- A. At completion of work, remove debris caused by siding installation from project site.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 60 00

FLASHING AND SHEET METAL WORK

PART 1 GENERAL

1.1 SCOPE

- A. This section covers sheet metal for flashings and moisture protection. The following sheet metal items are covered in other sections:
  - 1. Metal curbs for roof top mechanical equipment.
  - 2. Roof scuttle and access hatches.
  - 3. Ductwork, louvers, and other sheet metal for the heating, ventilating, and air conditioning system.

1.2 GENERAL

- A. Installation of wall and roof flashings shall be as indicated on the Drawings and as specified in the building masonry and roofing sections.
  - 1. Flashing members to be built into masonry, concrete, or roofing shall be delivered at the proper time for incorporation into the work.
- B. When installing sheet metal items, care shall be taken to avoid marring and improper bending. All components shall be stored in clean, dry storage areas. Contact with corrosive or staining materials shall be prevented. All damaged sections shall be replaced and only undamaged units shall be installed.

1.3 SUBMITTALS

- A. Complete specifications, data, and catalog cuts or drawings covering the items furnished under this section shall be submitted in accordance with the Submittals Procedures section.

1.4 HANDLING AND STORAGE

- A. Adequate protection shall be provided during shipment, site storage, and installation to prevent damage to materials or finished work.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Sheet Aluminum: ASTM B209, Alloy 3003-H14, mill finish.
- B. Extruded Aluminum: ASTM B221, Alloy 6053 or 6063.

- C. Stainless Steel: ASTM A167, Type 302 or 304, AISI 2B finish unless otherwise specified.
- D. Solder: ASTM B32, Alloy Grade 50A (50-50).
- E. Soldering Flux:
  - 1. For Stainless Steel: Zinc chloride type, Fed Spec O-F-506, Type II.
  - 2. For Other Metals: Acid type, Fed Spec O-F-506, Type I, Form A.
- F. Fasteners: Same metal as sheet metal being fastened.
- G. Plastic Cement: Asphalt roof cement, asbestos free; ASTM D4586, Type 1.
- H. Acrylic Sealant: Pecora "Unicylic" or Tremco "Mono".

## 2.2 FLASHINGS

- A. All exposed or contacting flashings shall be of the same material.
- B. Types:
  - 1. Cap Flashing: Stainless steel, 26 gage.
  - 2. Counterflashings: Stainless steel, 26 gage; Architectural Steel, Cheney, or Keystone, with wall flat and hook dam for masonry wall installation, with vertical receivers for surface-mounted installation, or with snap lock for reglet installation as indicated.
  - 3. Miscellaneous Hidden Flashings: Stainless steel, 26 gage.
  - 4. Miscellaneous Exposed Flashing: Prefinished metal flashing, 22 gage steel.
  - 5. Scuppers and Downspouts: Prefinished aluminum 0.063 inch thickness.
  - 6. Copings: 0.063 prefinished aluminum formed as indicated; Metal ERA "Perma-Tite" coping or approved equal.

## 2.3 CONFIGURATIONS.

- A. Cap Flashings.
  - 1. Cap flashings shall be provided at all roof ventilators and elsewhere as indicated on the Drawings.
  - 2. Cap flashings shall be fabricated in sections not exceeding 10 feet in length; sections shall overlap at least 3 inches and shall form a slip joint, but shall not be interlocked.
  - 3. All corners and all joints other than slip joints shall be closed watertight as specified herein.



- B. Scuppers And Downspouts.
  - 1. Scuppers and downspouts shall be provided where and as detailed on the Drawings.
  - 2. Scuppers and downspouts shall be constructed of the material specified.
  - 3. Scuppers shall be configured as indicated with fully welded seam construction.
  - 4. All details and construction shall be as recommended by the SMACNA "Architectural Sheet Metal Manual".
  
- C. Counterflashings.
  - 1. Counterflashings shall be provided, at the locations indicated on the Drawings, to overlap roof membrane base flashings and fit into flashing reglets or receivers.
  - 2. Counterflashings shall be fabricated in sections not exceeding 10 feet in length; sections shall overlap at least 3 inches and shall form a slip joint, but shall not be interlocked.
  - 3. End joints between counterflashing sections shall be offset from underlying joints between reglet or receiver sections.
  - 4. Corners in counterflashings shall be closed watertight as specified herein.
  
- D. Miscellaneous Metal Flashings. Metal flashings shall be provided for vents, sleeves, and similar projections through the roof.

### PART 3 EXECUTION

#### 3.1 INSTALLATION.

- A. Watertight Joints. Joints in sheet metal work shall be closed watertight unless slip joints are specifically required.
  - 1. Watertight joints shall be mechanically interlocked and then thoroughly soldered for metals other than aluminum.
  - 2. Joints in aluminum or between aluminum and other metals shall be sealed with acrylic sealant.
  - 3. All joints shall be wiped clean of flux after soldering. Acid flux shall be neutralized by washing the joints with sodium bicarbonate.
  
- B. Cap Flashings.
  - 1. Cap flashings shall be installed after membrane base flashings have been completed.
  - 2. Cap flashings shall be anchored in place as indicated on the Drawings.

C. Counterflashings.

1. Counterflashings shall be installed after membrane base flashings have been completed.
2. Counterflashings shall be fitted into reglets or receivers and securely locked in place in accordance with the manufacturer's recommendations.

D. Miscellaneous Metal Flashings.

1. Metal flashings shall be installed as specified in the roofing section.

3.2 PROTECTION

- A. Adequate protection shall be provided during shipment, site storage and installation, to prevent damage to materials or finished work.
- B. Protection of Aluminum from Dissimilar Materials: Coat surfaces of aluminum in contact with dissimilar materials such as concrete, masonry, steel, and other metals in accordance with Section 09 91 13, Painting.

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-precast 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 08 12 13  
HOLLOW METAL FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes hollow-metal frames.
- B. Related Requirements:
  - 1. Section 08 14 16 "Flush Wood Doors" for wood doors installed in hollow-metal frames.

1.2 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include elevations, frame profiles, metal thicknesses, preparations for hardware, and other details.
- C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.4 INFORMATIONAL SUBMITTALS

- A. Product test reports.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Amweld International, LLC.
  - 2. Ceco Door; ASSA ABLOY.
  - 3. Curries Company; ASSA ABLOY.
  
  - 4. Steelcraft; an Allegion brand.

2.2 REGULATORY REQUIREMENTS

- A. Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
  - 1. Smoke- and Draft-Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
- B. Fire-Rated, Borrowed-Lite Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.

2.3 INTERIOR FRAMES

- A. Standard-Duty Frames: SDI A250.8, Level 1. At locations indicated in the Door and Frame Schedule or as required by wall rating.
  - 1. Physical Performance: Level C according to SDI A250.4.
  - 2. Materials: cold-rolled steel sheet, minimum thickness of 0.042 inch
  - 3. Frames: Fabricated from same thickness material as adjacent door frame.
  - 4. Construction: Face welded.
  - 5. Exposed Finish: Prime.

2.4 EXTERIOR HOLLOW-METAL FRAMES

- A. Heavy-Duty Frames: SDI A250.8, Level 2. At locations indicated in the Door and Frame Schedule.
  - 1. Physical Performance: Level B according to SDI A250.4.
  - 2. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch, with minimum A40 (ZF120) coating.

3. Construction: Face welded.
4. Exposed Finish: Prime.

## 2.5 BORROWED LITES

- A. Hollow-metal frames of uncoated steel sheet, minimum thickness of 0.042 inch interior / 0.053 inch exterior.
- B. Construction: Face welded.

## 2.6 FRAME ANCHORS

- A. Jamb Anchors:
  1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
  2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
  3. Compression Type for Drywall Slip-on Frames: Adjustable compression anchors.
  4. Post-installed Expansion Type for In-Place Concrete or Masonry: Minimum 3/8-inch diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch.

## 2.7 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z (12G) coating designation; mill phosphatized.
  1. For anchors built into exterior walls, steel sheet complying with ASTM A1008/A1008M or ASTM A1011/A1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A153/A 153M.

- F. Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.
- H. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing).
- I. Glazing: Comply with requirements in Section 088000 "Glazing."
- J. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil dry film thickness per coat.

## 2.8 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
  - 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
  - 3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
  - 4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor; however, for slip-on drywall frames, provide anchor clips or countersunk holes at bottoms of jambs.
  - 5. Jamb Anchors: Provide number and spacing of anchors as follows:
    - a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing.
    - b. Stud-Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c.
    - c. Compression Type: Not less than two anchors in each frame.
    - d. Post-installed Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches o.c.
  - 6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.

- C. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
  - 1. Reinforce frames to receive non-templated, mortised, and surface-mounted hardware.
  - 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
  
- D. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with mitered hairline joints.
  - 1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow-metal work.
  - 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
  - 3. Provide fixed frame moldings on outside of exterior and on secure side of interior frames.
  - 4. Provide loose stops and moldings on inside of hollow-metal work.
  - 5. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.

## 2.9 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
  - 1. Shop Primer: SDI A250.10.

## 2.10 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
  
- B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Hollow-Metal Frames: Install hollow-metal frames for doors, transoms, sidelites, borrowed lites, and other openings, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
  - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

- a. At fire-rated openings, install frames according to NFPA 80.
  - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
  - c. Install frames with removable stops located on secure side of opening.
  - d. Install door silencers in frames before grouting.
  - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
  - f. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
  - g. Field apply bituminous coating to backs of frames that will be filled with grout containing anti-freezing agents.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
    - a. Floor anchors may be set with power-actuated fasteners instead of post-installed expansion anchors if so indicated and approved on Shop Drawings.
  3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation inside frames.
  4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
  5. Concrete Walls: Solidly fill space between frames and concrete with mineral-fiber insulation.
  6. In-Place Concrete or Masonry Construction: Secure frames in place with post-installed expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
  7. In-Place Metal or Wood-Stud Partitions: Secure slip-on drywall frames in place according to manufacturer's written instructions.
  8. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
    - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
    - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- B. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.



3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION

SECTION 08 14 16

WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Solid-core doors with wood-veneer faces.
  2. Hollow-core doors with wood-veneer faces.
  3. Factory finishing wood doors.
  4. Factory fitting wood doors to frames and factory machining for hardware.

1.2 INFORMATIONAL SUBMITTALS

- A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

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. Algoma Hardwoods, Inc.
  2. Eggers Industries.
  3. Marshfield Door Systems, Inc.
  4. VT Industries, Inc.
  5. Masonite International

2.2 WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Doors."
1. Provide AWI Quality Certification Labels indicating that doors comply with requirements of grades specified.

- B. WDMA I.S.1-A Performance Grade:
  - 1. Heavy Duty unless otherwise indicated.
  - 2. Extra Heavy Duty: public toilets janitor's closets assembly spaces exits and where indicated.
  - 3. Standard Duty: Closets (not including janitor's closets) private toilets and where indicated.
  
- C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252.
  - 1. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
  - 2. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
  - 3. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
  
- D. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.
  
- E. Particleboard-Core Doors:
  - 1. Particleboard: ANSI A208.1, Grade LD-1, made with binder containing no urea-formaldehyde.
  - 2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
  
- F. Mineral-Core Doors:
  - 1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
  - 2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
  - 3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
  
- G. Hollow-Core Doors: NOT USED unless noted otherwise
  - 1. Construction: Honeycomb Flexgrid

2.3 VENEER-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
  - 1. Grade: Premium, with Grade A faces.
  - 2. Species: Select Birch, or match existing.
  - 3. Cut: Plain sliced, or match existing.
  - 4. Match between Veneer Leaves: Book match.
  - 5. Assembly of Veneer Leaves on Door Faces: Running match.
  - 6. Pair and Set Match: Provide for doors hung in same opening.
  - 7. Core: Particleboard.
  - 8. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.

2.4 DOORS FOR OPAQUE FINISH

- A. Interior Solid-Core Doors:
  - 1. Grade: Premium.
  - 2. Faces: MDO.
  - 3. Core: Particleboard.
  - 4. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press.
  - 5. Construction: Three plies, either bonded or non-bonded.

2.5 LIGHT FRAMES AND LOUVERS

- A. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated.
- B. Metal Frames for Light Openings in Fire-Rated Doors: Manufacturer's standard frame formed of 0.048-inch-thick, cold-rolled steel sheet; factory primed for paint finish; and approved for use in doors of fire-protection rating indicated.

2.6 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
  - 1. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied.

- C. Openings: Factory cut and trim openings through doors.
  - 1. Light Openings: Trim openings with moldings of material and profile indicated.
  - 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 08 80 00 "Glass and Glazing."
  - 3. Louvers: Factory install louvers in prepared openings.

## 2.7 SHOP PRIMING

- A. Doors for Opaque Finish: Shop prime faces, all four edges, edges of cutouts, and mortises with one coat of wood primer specified in

## 2.8 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
  - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors that are indicated to receive transparent finish.
- C. Transparent Finish:
  - 1. Grade: Premium.
  - 2. Finish: AWI's, AWMAC's, and WI's "Architectural Woodwork Standards."
  - 3. Finish: WDMA TR-6 catalyzed polyurethane.
  - 4. Staining: as selected by Architect from manufacturer's full range. Match existing as required.
  - 5. Effect: Open-grain finish.
  - 6. Sheen: Satin.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Hardware: For installation, see Section 08 71 00 "Door Hardware."
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
  - 1. Install fire-rated doors according to NFPA 80.
  - 2. Install smoke- and draft-control doors according to NFPA 105.

- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
  - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
    - a. Comply with NFPA 80 for fire-rated doors.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

END OF SECTION

SECTION 08 54 13

PVC WINDOWS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. PVC windows.

1.2 RELATED SECTIONS

- A. Section 07 92 00 - Joint Sealants: Sealants and caulking
- B. Section 07 60 00 - Flashing and Sheet Metal Work

1.3 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
  - 1. AAMA 502 - Voluntary Specification for Field Testing of Windows and Sliding Doors.
  - 2. AAMA 613 - Voluntary Performance Requirements and Test Procedures for Organic Coatings on Plastic Profiles.
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM C 1036 - Flat Glass.
  - 2. ASTM C 1048 - Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Un-coated Glass.
  - 3. ASTM D 3656 - Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns.
  - 4. ASTM E 283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference Across the Specimen.
  - 5. ASTM E 547 - Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential.
- C. Screen Manufacturers Association (SMA):
  - 1. SMA 1201 - Specifications for Insect Screens for Windows, Sliding Doors and Swinging Doors.
- D. Window and Door Manufacturers Association (WDMA):
  - 1. ANSI/AAMA/NWWDA 101/I.S.2 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.

1.4 PERFORMANCE REQUIREMENTS

- A. Windows shall meet Rating HS-LC30-50 specifications in accordance with ANSI/AAMA/NWWDA 101/I.S.2.

- B. Window Air Leakage, ASTM E 283: Window air leakage when tested at 1.57 psf (25 mph) shall be 0.25 cfm/ft<sup>2</sup> of frame or less.
- C. Window Water Penetration, ASTM E 547: No water penetration through window when tested under static pressure of 4.5 psf (42 mph) after 4 cycles of 5 minutes each, with water being applied at a rate of 5 gallons per hour per square foot.

#### 1.5 SUBMITTALS

- A. Submit in accordance with Division 1 requirements.
- B. Product Data: Submit manufacturer's product data, including installation instructions.
- C. Shop Drawings: Submit manufacturer's shop drawings, indicating dimensions, construction, component connections and locations, anchorage methods and locations, hardware locations, and installation details including flashings and shims.
- D. Samples: Submit full-size or partial full-size sample of window illustrating glazing system, quality of construction, and color of finish.

#### 1.6 QUALITY ASSURANCE

- A. Mockup:
  - 1. Provide sample installation for field testing window performance requirements and to determine acceptability of window installation methods.
  - 2. Approved mockup shall represent minimum quality required for the Work.
  - 3. Approved mockup shall not remain in place within the Work.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site undamaged in manufacturer's or sales branch's original, unopened containers and packaging, with labels clearly identifying manufacturer and product name. Include installation instructions.
- B. Storage:
  - 1. Store materials in accordance with manufacturer's instructions.
  - 2. Store materials off ground and under cover.
  - 3. Protect materials from weather, direct sunlight, and construction activities.
- C. Handling: Protect materials and finish during handling and installation to prevent damage.



PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Polaris (UltraWeld)
- B. Or Approved Equal

2.2 PVC WINDOWS

A. Windows:

- 1. Factory-assembled window with sash installed in frame.
- 2. Frame and Sash Material: 5-layer, pultruded-composite material, reinforced with interlocking mat.
- 3. Configuration as indicated on drawings – sliders, fixed, double hung or any combination thereof.

B. Frame:

- 1. Type: Block frame.
- 2. Overall Frame Depth: +/- 3 1/4 inches.
- 3. Nominal Wall Thickness of Members: 0.050 inch to 0.070 inch.
- 4. Frame Corners:
  - a. Mitered.
  - b. Joined and bonded with thermoset polyurethane adhesive, nylon corner lock, and mechanically fastened.
- 5. Sill: Fitted with weep valve assemblies.
- 6. Jamb: Factory-drilled, counter-bored, installation screw holes.

C. Sash:

- 1. Sash Corners:
  - a. Mitered.
  - b. Bonded and sealed with injected thermoset polyurethane adhesive.

D. Glazing:

- 1. Float Glass: ASTM C 1036, Quality 1.
  - a. Tempered Glass: ASTM C 1048.
- 2. Type: insulating glass, clear, tempered, multi-layer Low-E coated with argon.

E. Weather Stripping:

- 1. Vent Sash: Dual weather-stripped around perimeter with fin-type, dual-pile, weather stripping.

2.3 OPTIONS

- A. Insect Screens:
  - 1. Compliance: ASTM D 3656 and SMA 1201.
  - 2. Screen Cloth: fiberglass screen cloth set in aluminum frame fitted to outside of window.
  - 3. Complete with necessary hardware.
  - 4. Screen Frame Finish: Baked enamel.
    - a. Color: Owner to select.
  - 5. Aluminum screen mesh screen shall be free of any tears or punctures

2.4 HARDWARE

- A. Rollers:
  - 1. Vents: Equip with 2 nylon roller housings containing 2 acetal rollers each.
  - 2. Rollers: Remove for cleaning and maintenance.
- B. Lock:
  - 1. Type: Self-aligning.
  - 2. Windows 37 Inches High or Greater: 2 locks.
  - 3. Standard Finish: Owner to select.

2.5 TOLERANCES

- A. Windows shall accommodate the following opening tolerances:
  - 1. Horizontal Dimensions Between High and Low Points: Plus 1/4-inch, minus 0 inch.
  - 2. Width Dimensions: Plus 1/4-inch, minus 0 inch.
  - 3. Building Columns or Masonry Openings: Plus or minus 1/4-inch from plumb.

2.6 FINISH

- A. Exterior and Interior Finish: Factory-applied powder-coat paint, comply with AAMA 613.
  - 1. Color: Owner to select.

2.7 INSTALLATION ACCESSORIES

- A. Flashing/Sealant Tape:
  - 1. Aluminum-foil-backed butyl window and door flashing tape.
  - 2. Maximum Total Thickness: 0.013 inch.
  - 3. UV resistant.
  - 4. Verify sealant compatibility with sealant manufacturer.
- B. Exterior Perimeter Sealant: Geocel Proflex Tripolymer Sealant.

- C. Insulating-Foam Sealant:
  - 1. Low-pressure, polyurethane window and door insulating-foam sealant.
- D. Block Frame Installation Accessories: Installation screws for frame screw applications.

## 2.8 SOURCE QUALITY CONTROL

- A. Factory Testing: Factory test individual standard operable windows for air infiltration in accordance with ASTM E 283, to ensure compliance with this specification.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to receive windows. Notify Owner Representative and Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

### 3.2 INSTALLATION

- A. Install windows in accordance with manufacturer's instructions.
- B. Install windows to be weather-tight and freely operating.
- C. Maintain alignment with adjacent work.
- D. Secure assembly to framed openings, plumb and square, without distortion.
- E. Integrate window system installation with exterior water-resistant barrier using flashing/sealant tape. Apply and integrate flashing/sealant tape with water-resistant barrier using watershed principles in accordance with window manufacturer's instructions.
- F. Place interior seal around window perimeter to maintain continuity of building thermal and air barrier using insulating foam sealant.
- G. Seal window to exterior wall cladding with sealant and related backing materials at perimeter of assembly.
- H. Leave windows closed and locked.

### 3.3 FIELD QUALITY CONTROL

- A. Field Testing: Field-test windows in accordance with AAMA 502, Test Method A.

3.4 CLEANING

- A. Clean window frames and glass in accordance with Division 1 requirements.
- B. Do not use harsh cleaning materials or methods that would damage finish or glass.
- C. Remove labels and visible markings.

3.5 PROTECTION

- A. Protect installed windows to ensure that, except for normal weathering, windows will be without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Hardware for swinging doors.
- B. Thresholds.
- C. Weather stripping, seals and door gaskets.

1.2 REFERENCES

- A. ADA-AG - Americans with Disability Act Accessibility Guidelines for Buildings and Facilities.
- B. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.
- C. NFPA 252 - Fire Tests of Door Assemblies.
- D. UL 10B - Fire Tests of Door Assemblies.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Shop Drawings: Indicate locations and mounting heights of each type of hardware and connection requirements,
- C. Submit manufacturer's parts lists, and templates.
- D. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.

1.4 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01 70 00.
- B. Record actual locations of installed cylinders and their master key code.

1.5 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 01 70 00.

- B. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.6 QUALITY ASSURANCE

- A. Perform work in accordance with the following requirements:
  - 1. ADA-AG
  - 2. NFPA 101
  - 3. NFPA 80
  - 4. NFPA 252

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years experience.
- B. Hardware Supplier: Company specializing in supplying commercial/institutional door hardware with three years experience and approved by manufacturer.

1.8 REGULATORY REQUIREMENTS

- A. Conform to applicable code for requirements applicable to fire rated doors and frames.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01 60 00.
- B. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.
- C. Deliver keys to Owner by security shipment direct from hardware supplier.

1.10 COORDINATION

- A. Coordinate work under provisions of Section 01 03 90.
- B. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

1.91 WARRANTY

- A. Provide five year warranty under provisions of Section 01 70 00.

1.12 MAINTENANCE MATERIALS

- A. Provide maintenance materials under provisions of 01 70 00.
- B. Provide special wrenches and tools applicable to each different or special hardware component.
- C. Provide maintenance tools and accessories supplied by hardware component manufacturer.

1.13 EXTRA MATERIALS

- A. Furnish under provisions of Section 01 70 00 and drawings.
- B. Provide ten extra key lock cylinders for each master keyed group.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Hinges: Hager, McKinney, Stanley, H.SOSS
- B. Continuous Hinges: McKinney
- C. Latch Sets: McKinney, Corbin/Russwin, Sargent, Schlage, Yale
- D. Cylinder Locks: Best, Corbin/Russwin, Sargent, Schlage less cores, Yale
- E. Mortise Locks: Corbin/Russwin, Best, Sargent, Schlage, Yale
- F. Exit Devices: Corbin/Russwin, Precision Hardware Inc., Reed, Sargent, Yale, Von Duprin
- G. Electric Strikes: VonDUPRIN
- H. Stabilizers: VonDUPRIN
- I. Closers: LCN, Corbin/Russwin, Dorma, Dor O Matic, Norton, Rixson, Sargent, Yale
- J. Gasketing, Weatherstripping, Threshold, Door Sweeps: Accurate, Hager, National Guard Products, Pemko, Reese Enterprises
- K. Protection Plates: Burns Manufacturing, Ives, Rockwood, Yale
- L. Door Stops: Rockwood, Glynn-Johnson, Hager, Ives, Yale
- M. Door Holder: Glynn-Johnson, Ives, Yale

N. Push / Pulls: Rockwood

## 2.2 FINISHES

A. Finishes: As noted or as selected from full range through submittal process.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Verify site conditions under provisions of Section 1.

B. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings.

### 3.2 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions.

B. Use templates provided by hardware item manufacturer.

### 3.3 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 40 00.

B. Architectural Hardware Consultant to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

### 3.4 ADJUSTING

A. Adjust work under provisions of Section 01 70 00.

B. Adjust hardware for smooth operation.

### 3.5 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 01 50 00.

B. Do not permit adjacent work to damage hardware or finish.

### 3.6 SCHEDULES

See Drawings

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. 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.

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.
- 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. 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 10 44 16

FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 ACTION SUBMITTALS

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

1.3 INFORMATIONAL SUBMITTALS

- A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.5 COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.
  - 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. Buckeye Fire Equipment Company.
    - b. Guardian Fire Equipment, Inc.
    - c. JL Industries, Inc.; a division of the Activar Construction Products Group.
    - d. Larsens Manufacturing Company.
  - 2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B, and bar coding for documenting fire-extinguisher location, inspections, maintenance, and recharging.
- B. Multipurpose Dry-Chemical Type: UL-rated 10-lb nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.

2.3 MOUNTING BRACKETS

- A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.
  - 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. Buckeye Fire Equipment Company.
    - b. Guardian Fire Equipment, Inc.
    - c. JL Industries, Inc.; a division of the Activar Construction Products Group.
    - d. Larsens Manufacturing Company.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Examine fire extinguishers for proper charging and tagging.
  - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
  
- B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
  - 1. Mounting Brackets: 54 inches (1372 mm) above finished floor to top of fire extinguisher.
  
- C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION

SECTION 12 32 13

MANUFACTURED WOOD-VENEER-FACED CASEWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Wood-veneer-faced 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.

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-veneer-faced 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-VENEER-FACED CASEWORK

- A. Design: Frameless cabinet construction with the following door and drawer-front style:
1. Lipped/partial overlay with radiused wood edges and full-width, recessed finger pulls machined into faces of doors and drawers.
  2. Reveal/partial overlay with recessed finger pulls machined into faces of doors and drawers.
- B. Wood Species: White Birch or as selected by Architect from casework manufacturer's full range.
1. Wood Stain Colors and Finishes: As selected by Architect from casework manufacturer's full range. Includes factory applied paint or stain finishes. Standard or custom order
- 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

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. 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: 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, semiconcealed, 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

SECTION 12 36 23

PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Plastic-laminate-clad countertops.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
- C. Shop Drawings: For plastic-laminate-clad countertops.
  - 1. Apply applicable Program label to Shop Drawings.
- D. Samples: Plastic laminates in each type, color, pattern, and surface finish required.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For the following:
  - 1. Composite wood products.
  - 2. High-pressure decorative laminate.
  - 3. Adhesives.
- B. Quality Standard Compliance Certificates: [AWI Quality Certification Program] [WI Certified Compliance Program].

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- B. Installer Qualifications: Fabricator of products or an authorized representative who is trained and approved by manufacturer.

1.5 FIELD CONDITIONS

- A. Environmental Limitations without Humidity Control: Do not deliver or install wood countertops until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.

- B. Environmental Limitations with Humidity Control: Do not deliver or install wood countertops until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

## PART 2 - PRODUCTS

### 2.1 FABRICATORS

- A. Fabricators: Subject to compliance with requirements, available fabricators offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Post Form Laminate Tru-Radius.

### 2.2 PLASTIC-LAMINATE-CLAD COUNTERTOPS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of plastic-laminate-clad countertops indicated for construction, finishes, installation, and other requirements.
  - 1. Provide inspections of fabrication and installation together with labels and certificates from a program indicating that countertops comply with requirements of grades specified.
- B. Grade: Custom.
- C. High-Pressure Decorative Laminate: NEMA LD 3, Grade HGS/ Grade HGL/ Grade HGP.
- D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
  - 1. As selected by Architect from manufacturer's full range in the following categories:
    - a. Solid colors, gloss/matte finish.
    - b. Solid colors with core same color as surface, gloss/matte finish.
    - c. Wood grains, gloss/matte finish with grain running parallel to length of countertop.
    - d. Patterns, gloss/matte finish.
- E. Edge Treatment: Continuous matching laminate with profile as selected by Architect, or match existing conditions.
- F. Core Material: As selected by fabricator to comply with quality standard.
- G. Core Material at Sinks: As selected by fabricator to comply with quality standard.
- H. Second option in "Core Thickness" Paragraph below is for heavy-duty applications and costs approximately 20 percent more than first option.

- I. Core Thickness: 3/4 inch.
  - 1. Build up countertop thickness to 1-1/2 inches at front, back, and ends with additional layers of core material laminated to top.
- J. Backer Sheet: Provide plastic-laminate backer sheet, NEMA LD 3, Grade BKL, on underside of countertop substrate.
- K. Paper Backing: Provide paper backing on underside of countertop substrate.

## 2.3 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard unless otherwise indicated.
  - 1. Wood Moisture Content: 5 to 10 percent.
- B. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of countertop and quality grade specified unless otherwise indicated.
  - 1. MDF: Medium-density fiberboard, ANSI A208.2, Grade 130.
  - 2. Particleboard: ANSI A208.1, Grade M-2.
  - 3. Softwood Plywood: DOC PS 1.

## 2.4 ACCESSORIES

- A. Wire-Management Grommets: Circular, molded-plastic grommets and matching plastic caps with slot for wire passage.
  - 1. Outside Diameter: 1-1/4 inch or 2 inches as approved by Architect.
  - 2. Color: as approved by Architect.

## 2.5 MISCELLANEOUS MATERIALS

- A. Adhesive for Bonding Plastic Laminate and other components: As selected by fabricator to comply with requirements.

## 2.6 FABRICATION

- A. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch over base cabinets. Ease edges to radius indicated for the following:
  - 1. Solid-Wood Members: 1/16 inch unless otherwise indicated.
- B. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.
  - 1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately, and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 2. Seal edges of cutouts by saturating with varnish.
- C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
  - 1. Secure field joints in countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten in accordance with manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.
- D. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Countertop Installation: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Install countertops level and true in line. Use concealed shims as required to maintain not more than a 1/8-inch-in-96-inches variation from a straight, level plane.
  - 2. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
  - 3. Seal joints between countertop and backsplash, if any, and joints where countertop and backsplash abut walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.
- F. Protection: Provide Kraft paper or other suitable covering over countertop surfaces, taped to underside of countertop at a minimum of 48 inches o.c. Remove protection at Substantial Completion.

END OF SECTION