

CONSTRUCTION PERFORMANCE MANUAL
for
ARKANSAS DEVELOPMENT FINANCE AGENCY
JULY 2006

SECTION I

DIVISION 01: GENERAL REQUIREMENTS AND
DIVISION 02: EXISTING CONDITIONS

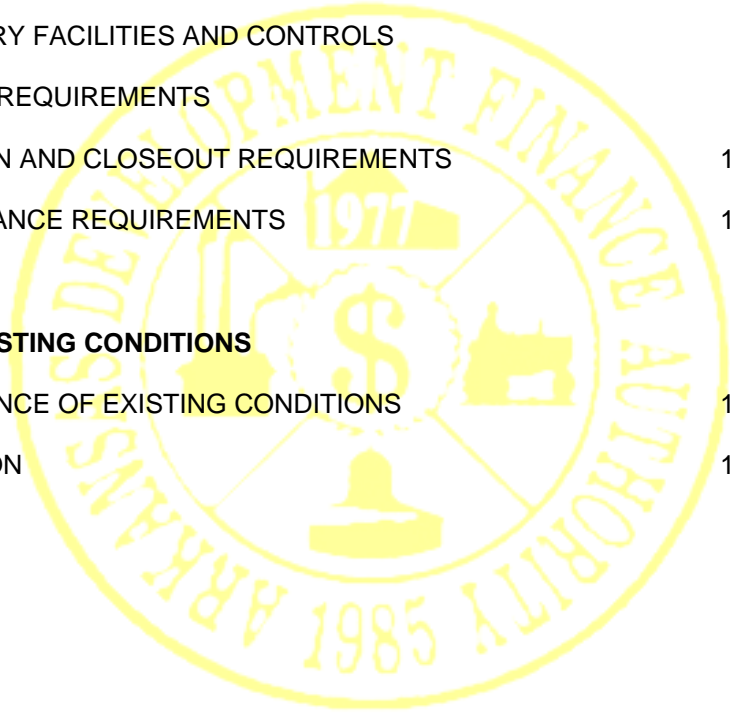
APPLIES TO ALL TRADES ON ALL JOBS



DIVISION 01 AND DIVISION 02

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SECTION 01.31 – PROJECT MANAGEMENT AND COORDINATION

GENERAL:

Summary: This Section specifies requirements for project coordination including: Administrative and supervisory personnel, general installation provisions, cleaning and protection, insurance requirements.

Coordination: Coordinate activities included in various Sections to assure efficient and orderly installation of each component. Coordinate operations included under different Sections that are dependent on each other for proper installation and operation. Where installation of one component depends on installation of other components before or after its own installation, schedule activities in the sequence required to obtain the best results. Where space is limited, coordinate installation of different components to assure maximum accessibility for maintenance, service and repair.

Coordination with local and state authorities: It shall be the Contractors responsibility to receive permission from and coordinate with all authorities having jurisdiction over all temporary facilities and construction occurring outside the property line.

Permits, Fees, and inspections: It shall be the Contractors responsibility to pay for and coordinate all inspections, permits, fees, excavation fees, etc. required; and to receive approval from all authorities having jurisdiction over all aspects of the construction of this project as may be required by these, specifications, building code, or other laws and requirements applicable to this project. This does not include approvals by Planning and Zoning Boards. Coordinate construction with inspections and tests, to minimize uncovering completed construction for that purpose. No additional costs will be allowed for uncovering completed construction for the purpose of inspections and tests.

Administrative Procedures: Coordinate scheduling and timing of administrative procedures with other activities to avoid conflicts and ensure orderly progress. Such activities include:

1. Preparation of owner selection checklist.
2. Installation and removal of temporary facilities.
3. Progress and draw request meetings.
4. Project closeout activities.

Inspection of Conditions: The Installer of each component shall inspect the substrate and conditions under which Work is performed. Do not proceed until unsatisfactory conditions have been corrected. No variation from the manufacturers written instructions without explicit written permission from the Rehab Specialist will be allowed.

Manufacturers' Instructions: Comply with manufacturers' installation instructions and recommendations, to the extent that they are more stringent than requirements in Performance Manual and Work Write-Up.

Inspect material immediately upon delivery and again prior to installation. Reject damaged and defective items.

Visual Effects: Provide uniform joint widths in exposed work. Arrange joints to obtain the best effect. Refer questionable choices to the Rehab Specialist for decision.

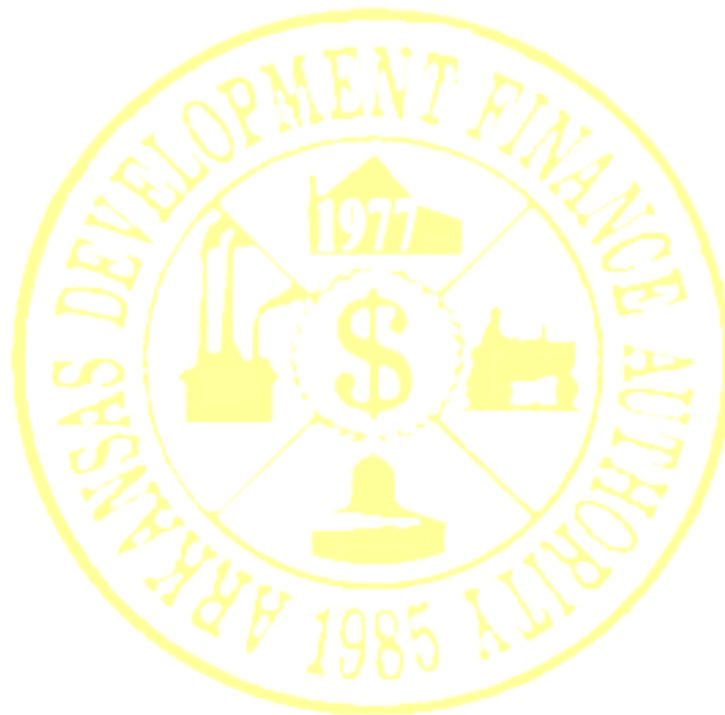
Recheck measurements and dimensions, before starting installation.

Install each component during weather conditions and project status that will ensure the best results. Isolate each part from incompatible material as necessary to prevent deterioration.

Mounting Heights: Where mounting heights are not indicated, install components at standard heights for the application indicated. Where applicable comply with ADA, ANSI, and UFAS for handicapped accessibility. Refer questionable decisions to the Rehab Specialist.

Cleaning and Protection: During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion. Clean and maintain completed construction as often as necessary through the construction period. Adjust and lubricate operable components to ensure operability without damaging effects. Supervise operations to ensure that no part of construction, completed or in progress, is subject to harmful or deleterious exposure.

END OF SECTION



SECTION 01.50 - TEMPORARY FACILITIES AND CONTROLS

General:

Summary: This Section specifies temporary services and facilities, including utilities, construction and support facilities, security and protection. Remove when no longer needed, or replaced by permanent facilities.

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

Water and Sewer. Existing water services may be used by the Contractor. The Owner will pay for water and sewer services during construction. Condition of existing sewer services is unknown and may be used during construction provided that they comply with all applicable codes. Maintain temporary toilets, wash facilities and drinking water during construction. Contractor shall pay all costs for damages during construction to existing facilities and services to be reused in the completed project.

Electric Power: Contractor may use the existing electrical service to and within the building provided that it complies with all applicable codes. Do not overload circuits, use weatherproof and grounded service as required. Contractor shall pay all costs for damages during construction to existing facilities and services to be reused in the completed project. Provide Owner with a schedule of any and all proposed shut-offs.

Heat: Contractor may use heat in the building during construction.

Parking: On site parking is limited to the areas designated by the owner. Contractor shall not use or obstruct parking without prior approval of Owner or Tenant.

Construction Storage Trailer: Are permitted on site. Owner will designate areas for trailers. Contractor storage of material on site is at their own risk.

Temporary Enclosures: Provide temporary enclosure for protection of construction from exposure, foul weather, other construction operations and similar activities. Where heat is needed and the building enclosure is incomplete, provide enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions.

Collection and Disposal of Waste: Collect waste daily. Comply with NFPA 241 for removal of combustible waste. Enforce requirements strictly. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose in a lawful manner.

Security and Protection Facilities Installation: Except for use of permanent fire protection as soon as available, do not change from use of temporary security and protection facilities to permanent facilities until Substantial Completion.

1. Fire Protection: Until fire protection is supplied by permanent facilities, install and maintain temporary fire protection of types needed to protect against predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."
2. 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. Locate fire extinguishers where effective for the intended purpose, but not less than one on each floor near each exit.
 - a. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, and access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.

b. Store combustible materials in containers in fire-safe locations.

c. Provide supervision of welding operations, combustion type temporary heating units, and sources of fire ignition.

3. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of barricades. Paint appropriate warning signs to inform personnel and the public of the hazard being protected against. Where needed provide lighting, including flashing lights.

4. Security Enclosure and Lockup: Install temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism and theft. The existing garage may be used to store materials and equipment, provide a secure lockup.

5. Environmental Protection: Operate temporary facilities and conduct construction by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints.

6. Dust Control: Minimize raising dust from construction operations. Provide positive means to prevent dust from disturbing the occupants.

7. Water Control: Provide methods to control surface water and prevent damage to the Work. Damage to the building elements or Tenants personal items shall be repaired or replaced to the Tenant's and Owner's approval at no additional cost to the Owner or Tenant.

Operation: Enforce strict discipline in use of existing facilities. Limit availability to intended use to minimize abuse. Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and the elements.

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

2. Prevent piping from freezing.

3. At Substantial Completion, renovate permanent facilities used during the construction period, including but not limited to:

a. Replace air filters and clean inside of ductwork and housings.

b. Replace worn parts and parts subject to unusual operating conditions.

c. Replace burned out lamps.

END OF SECTION

SECTION 01.60 – PRODUCT REQUIREMENTS

General

"Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock.

1. "Named Products" are items identified by manufacturer's product name, including make or model designation indicated in the manufacturer's product literature.

"Materials" are products that are shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

"Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

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

1. When the Contractor has the option of selecting between two or more products, the product selected shall be compatible with products previously selected.

Nameplates: Except for required labels and operating data, do not attach manufacturer's nameplates or trademarks on surfaces exposed to view in occupied spaces or on the exterior.

1. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an inconspicuous accessible surface. The nameplate shall contain the following information and essential operating data:

- a. Name of product and manufacturer.
- b. Model and serial number.
- c. Capacity.
- d. Speed.
- e. Ratings.

Product Delivery, Storage, and Handling: Deliver, store and handle products in accordance with manufacturer's recommendations, using methods that will prevent damage, deterioration and loss.

Product Selection: Provide products that comply with the Work Write-Up, are undamaged and unused at installation.

1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for 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.

3. Proprietary specification: All products specified by name are assumed to be accompanied by the term "or preapproved equal". Comply with provisions for "substitutions" to obtain approval for use of an unnamed product.

4. Non-Proprietary Specifications: When Specifications list products or manufacturers that are available and may be used, but do not restrict the Contractor to use of these products only, the Contractor may propose any product that complies with Contract requirements. Comply with provisions for 'substitutions' to obtain approval for use of an unnamed product.

Substitutions: When the Contractor proposes an alternative product or manufacturer for a proprietary specification, the following items must be submitted to the Rehab Specialist at the time of the initial bid:

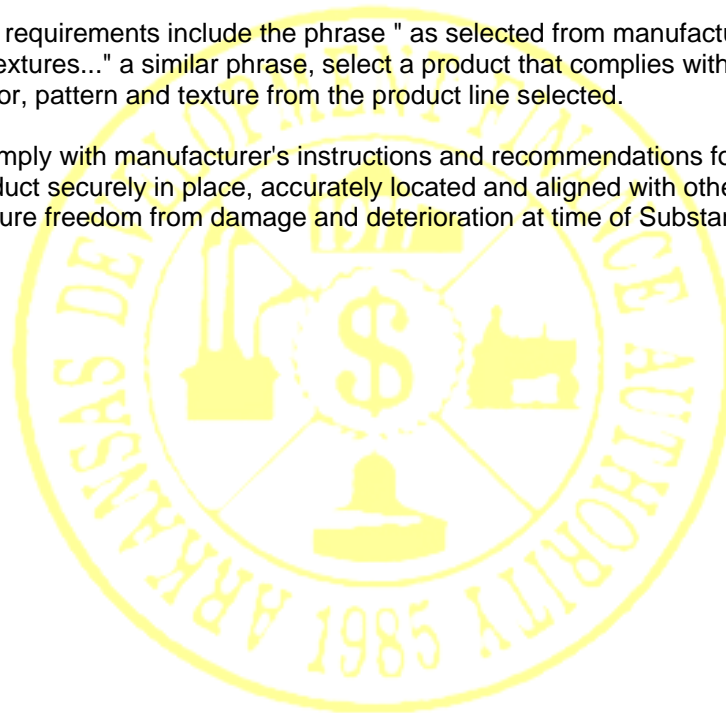
1. Installation Instructions
2. Manufacturer's Warranty

Descriptive Specification Requirements: Where Specifications describe a product, listing characteristics required, with or without use of a brand name, provide a product that provides the characteristics and otherwise complies with requirements.

1. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply and are recommended for the application. Manufacturer's recommendations may be contained in product literature, or by certification of performance.
2. Compliance with Standards: Where Specifications require compliance with a standard, select a product that complies with the standard specified.
3. Visual Matching: Where Specifications require matching a Sample, the Architect's decision on whether a proposed product matches is final. Where no product matches and complies with other requirements, comply with provisions for "substitutions" for selection of a matching product in another category.
4. Visual Selection: Where requirements include the phrase " as selected from manufacturer's standard colors, patterns, textures..." a similar phrase, select a product that complies with other requirements. The Architect will select color, pattern and texture from the product line selected.

Installation of Products: Comply with manufacturer's instructions and recommendations for installation of products. Anchor each product securely in place, accurately located and aligned with other Work. Clean exposed surfaces and protect to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION



SECTION 01.70 – EXECUTION AND CLOSEOUT REQUIREMENTS

General:

Substantial Completion: Before requesting inspection for certification of Substantial Completion, complete the following:

In the Application for Payment that coincides with the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed substantially complete. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents. Submit maintenance manuals. Complete start-up testing of systems and instruction of the Owner. Remove temporary facilities from the site, along with construction tools. Complete final clean up. Touch-up and repair and restore marred exposed finishes.

Operating and Maintenance Instructions: Arrange for the installer of equipment that requires regular maintenance to meet with the Owner to provide instruction in proper operation and maintenance. Include a detailed review of the following:

1. Maintenance manuals.
2. Hazards.
3. Warranties and bonds.
4. Maintenance agreements and similar continuing commitments.

As part of instruction for operating equipment, demonstrate the following procedures:

1. Start-up and shutdown.
2. Emergency operations.
3. Safety procedures.

Final Cleaning: Employ experienced workers for final cleaning. Clean each surface to the condition expected in a commercial building cleaning and maintenance program. Complete the following before requesting inspection for certification of Substantial Completion:

1. Remove labels that are not permanent labels.
2. Clean transparent materials. Remove glazing compound. Replace chipped or broken glass.
3. Clean exposed hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
5. Clean the site of rubbish, litter and other foreign substances. Sweep paved areas; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

Removal of Protection: Remove temporary protection and facilities.

Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials from the site and dispose of in a lawful manner.

END OF SECTION

SECTION 01.80 - PERFORMANCE REQUIREMENTS

General

Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

Special Warranties are written warranties required by or incorporated in Contract Documents, to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1. All work performed is subject to a 1 year Contractor's special warranty of workmanship and materials.

Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and Subcontractors required to countersign special warranties with the Contractor.

Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

Replacement Cost: On determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through part of its useful service life.

Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and limit selections to products with warranties not in conflict with requirements of the Contract Documents.

2. The Owner reserves the right to refuse to accept Work where a special warranty, or similar commitment is required, until evidence is presented that entities required to countersign commitments are willing to do so.

Submit written warranties to the Rehab Specialist prior to the date certified for Substantial Completion.

When a special warranty is to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Forms are available from the Rehab Specialist.

Bind warranties and bonds in 3-ring binders for Owner. Include the name, address and telephone number of each installer.

When operating and maintenance manuals are required for warranted construction, provide additional copies of each warranty, as necessary, for inclusion in each required manual.

END OF SECTION

SECTION 02.01 – MAINTENANCE OF EXISTING CONDITIONS

General:

Summary: Refer to other Sections of these Specifications, including Divisions 22, 23 and 26, for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

Demolition of selected portions of the building for alterations is included in Section 02.41.00 "Selective Demolition."

Structural Work: Do not cut and patch structural elements in a manner that would reduce the load-carrying capacity or load deflection ratio. Obtain approval of the cutting and patching proposal before cutting and patching structural elements not indicated on the drawings.

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

Materials: Use materials identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible. Use materials whose performance will equal or surpass of existing materials.

Inspection: Before cutting, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

Temporary Support: Provide temporary support of Work to be cut.

Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions that might be exposed during cutting and patching operations.

Take all precautions to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

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

1. Cut existing construction to provide for the installation of other components or the performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review procedures with the original installer; comply with the original installer's recommendations.

1. Where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

2. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.

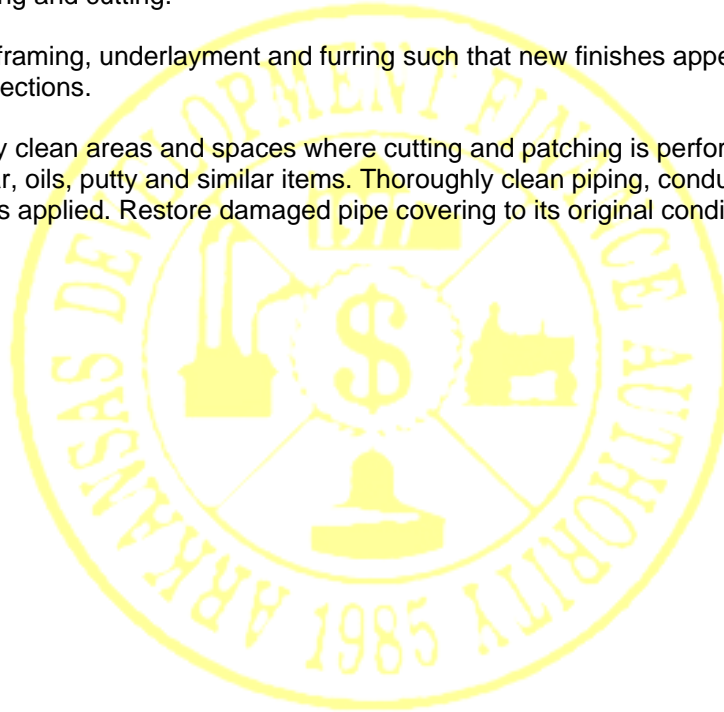
3. By-pass utility services such as pipe or conduit, before cutting, where services are shown or

required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

Patching: Align new framing, underlayment and furring such that new finishes appear seamless from new sections to existing sections.

Cleaning: Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove paint, mortar, oils, putty and similar items. Thoroughly clean piping, conduit and similar features before painting or finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION



SECTION 02.41 - DEMOLITION

SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected portions of a building.
2. Demolition and removal of selected site elements.
3. Patching and repairs.

DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner's designated storage area.

C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in the same locations or in locations indicated.

D. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Rehab Specialist, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

SUBMITTALS

None

QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

PROJECT CONDITIONS

A. Owner assumes no responsibility for actual condition of buildings to be selectively demolished.

1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

B. Asbestos: It is not expected that asbestos will be encountered in the Work. If any materials suspected of containing asbestos are encountered, do not disturb the materials. Immediately notify the Rehab Specialist and the Owner.

C. Storage or sale of removed items or materials on-site will not be permitted.

SCHEDULING

A. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.

WARRANTY

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

PRODUCTS

REPAIR MATERIALS

A. Use repair materials identical to existing materials.

1. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

2. Use materials whose installed performance equals or surpasses that of existing materials.

EXECUTION

EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Rehab Specialist.

E. Survey the condition of the building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.

F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

UTILITY SERVICES

A. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.

B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services serving building to be selectively demolished.

1. Arrange to shut off indicated utilities with utility companies.

2. Where utility services are required to be removed, relocated, or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.

3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit after bypassing.

C. Utility Requirements: Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

PREPARATION

A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.

1. Protect existing site improvements, appurtenances, and landscaping to remain.

2. Provide temporary weather protection, during interval between demolition and removal of existing construction, on exterior surfaces and new construction to ensure that no water leakage or damage occurs to structure or interior areas.

3. Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition operations.

4. Cover and protect furniture, furnishings, and equipment that have not been removed.

C. Erect and maintain dust proof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.

D. Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of building to be selectively demolished.

1. Strengthen or add new supports when required during progress of selective demolition

POLLUTION CONTROLS

A. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

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

C. Clean all areas at the end of each workday. Construction debris, tools, scaffolding etc must be removed from all public areas and units at the end of each workday.

SELECTIVE DEMOLITION

A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from lower to higher level. Complete selective demolition work each floor or tier before disturbing supporting members on upper levels.

2. 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. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.

3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. 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.
 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 6. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 7. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.
 8. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
- B. Break up and remove concrete slabs on grade, unless otherwise shown to remain.
- C. Remove resilient floor coverings and adhesive according to recommendations of the Resilient Floor Covering Institute's (RFCI) "Recommended Work Practices for the Removal of Resilient Floor Coverings" and Addendum.
- D. Remove no more existing roofing than can be covered in one day by new roofing. See applicable Division 7 Section for new roofing requirements.

PATCHING AND REPAIRS

- A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.
- B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
1. Completely fill holes and depressions in existing masonry walls to remain with an approved masonry patching material, applied according to manufacturers printed recommendations.
- C. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.
- D. Remove loose plaster or water damaged drywall. Patch and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.
- E. Remove existing wallpaper to refusal, skim coat before painting.

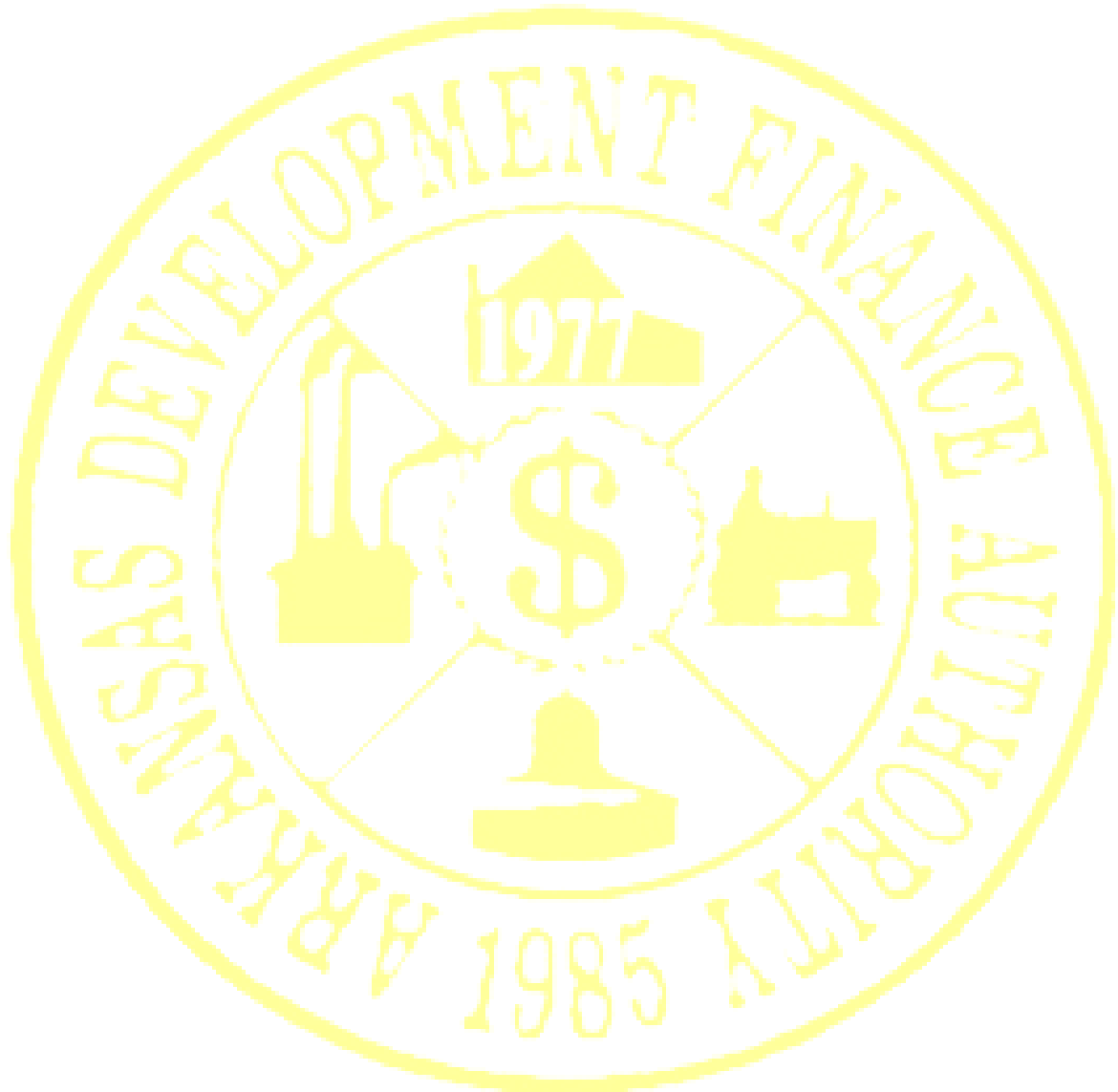
DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owners property and legally dispose of them.

CLEANING

A. Sweep the building broom clean on completion of selective demolition operation.

END OF SECTION



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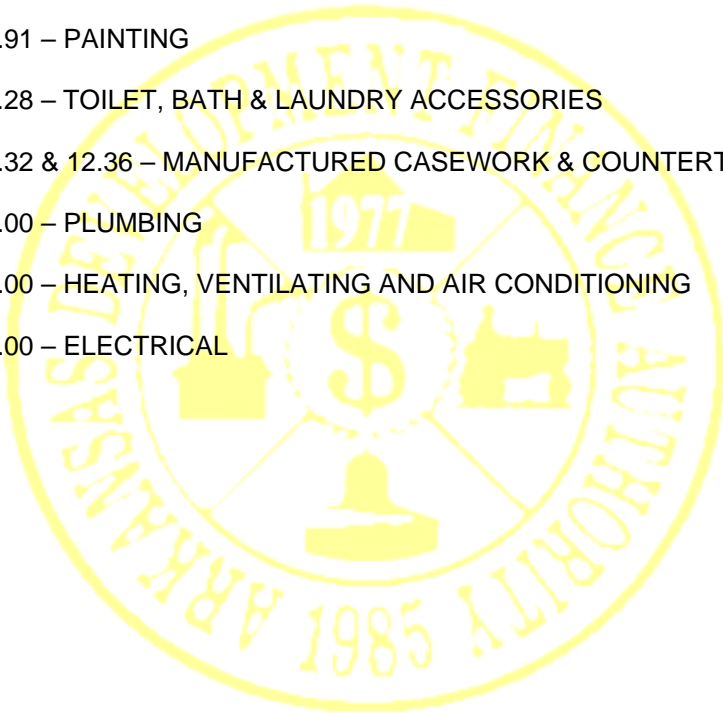
PERFORMANCE MANUAL
for
ARKANSAS DEVELOPMENT FINANCE AGENCY
JULY 2006

SECTION II
TRADE WORK IN CSI 4 MASTER FORMAT

TRADE WORK IN CSI 4 MASTER FORMAT

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SECTION 03.00 - CONCRETE

GENERAL

RELATED DOCUMENTS

None

SUMMARY

A. This Section specifies cast-in-place concrete, including reinforcement, concrete materials, mix design, placement procedures and finishes for patching or installing concrete slabs, walks and driveways.

PRODUCTS

STEEL REINFORCEMENT

A. Deformed-Steel Welded Wire Fabric: ASTM A 497, flat sheet.

CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Types I or II or Type I/II.

B. Normal-Weight Aggregate: ASTM C 33, uniformly graded, not exceeding 1-1/2-inch (38-mm) nominal size.

C. Water: Potable and complying with ASTM C 94.

ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures. Do not use admixtures containing calcium chloride.

B. Air-Entraining Admixture: ASTM C 260.

C. Water-Reducing Admixture: ASTM C 494, Type A.

RELATED MATERIALS

A. Vapor Retarder: Multi-ply reinforced polyethylene sheet, ASTM E 1745, Class C, not less than 7.8 mils (0.18 mm) thick; or polyethylene sheet, ASTM D 4397, not less than 6 mils (0.25 mm) thick.

B. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural d; ASTM D 448, Size 10, with 100 percent passing a No. 4 (4.75-mm) sieve and 10 to 30 percent passing a No. 100 (0.15-mm) sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

C. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Water: Potable.

CONCRETE MIXES

A. Comply with ACI 301 requirements for concrete mixtures.

B. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 2.5 to 4.5 percent.

CONCRETE MIXING

A. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. (0.76 cu. m) or smaller, continue mixing at least one and one-half minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.

2. For mixer capacity larger than 1 cu. yd. (0.76 Cu. m), increase mixing time by 15 seconds for each additional 1 cu. yd. (0.76 cu. m).

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project

identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

EXECUTION

VAPOR RETARDER

A. Install, protect, and repair vapor-retarder sheets according to ASTM E 1643; place sheets in position with longest dimension parallel with direction of pour.

B. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.

1. Cover vapor retarder with fine-graded granular material, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch (0 mm) or minus 3/4 inch (19 mm).

STEEL REINFORCEMENT

A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement. 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

C. Contraction (Control) Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:

1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

CONCRETE PLACEMENT

A. Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.

FINISHING UNFORMED SURFACES

A. General: Comply with ACI 302.1R for screening, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set methods. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.

TOLERANCES

A. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

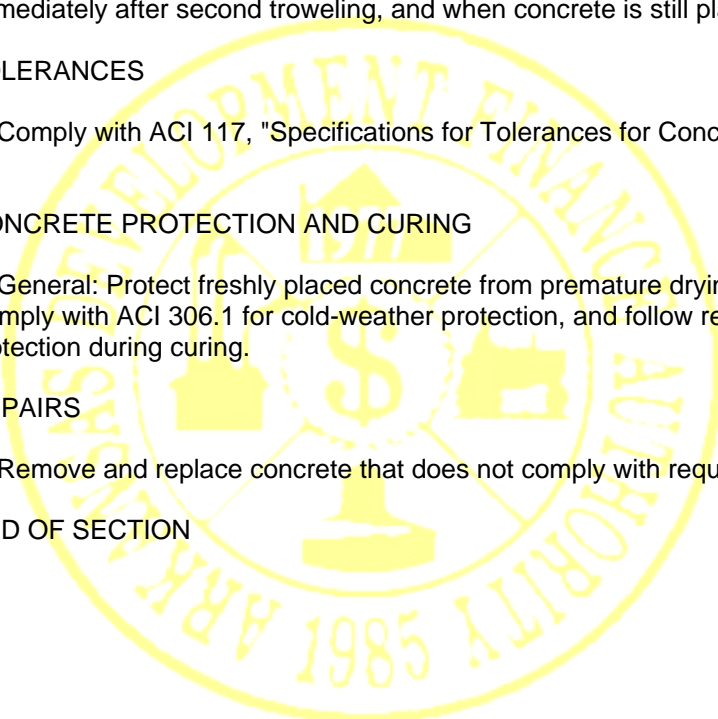
CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection, and follow recommendations in ACI 305R for hot-weather protection during curing.

REPAIRS

A. Remove and replace concrete that does not comply with requirements in this Section.

END OF SECTION



SECTION 04.00 – MASONRY

GENERAL

These specifications represent the minimum standards by which the work is to be performed. Additional job site standards and requirements will be listed in the individual work order for that particular job. Refer to the drawings and Work Write-Up for Scope of Work, locations, quantities and additional requirements.

PRODUCTS

A. Building Brick: Modular brick shall be made from clay or shale and conform to ASTM C 216.

1. When installed in contact with earth use grade SW.

2. When installed above ground use grade MW.

B. Fire Brick: ASTM C 2760.

C. Concrete Masonry Units: ASTM C90, compressive strength of 1900 PSA, normal weight. Grade A where exposed to frost action, Grade A or B elsewhere.

D. Joint Reinforcement: Dur-o-wall or equal, 9 gauge side rods, 12 gauge cross rods. Galvanized or stainless steel.

E. Brick Veneer Anchors: .07' x 23/4' wide x 3' high, zinc plated.

F. Portland Cement: ASTM C, Type I

G. Line: ASTM C 20749, Hydrated Lime, Type S or N

H. Sand: ASTM C 14452 T

I. Mixing Water: Clean and Potable.

J. Mortar:

1. Ground Contact: Type S

2. Fire Brick: Clay specifically prepared for the purpose.

3. All Other: Type N

EXECUTION

GENERAL

1. Cold Weather Construction: Do not construct when temperature will be below 25° F for 48 hours before and after work. If temperature is between 40 and 25° F cover masonry with weather resistant membrane for 48 hours after work.

2. Hot Weather Construction: Do not construct when temperature exceeds 100° F. Provide shade, windbreaks and cooled materials when temperature is between 85° and 100° F.

3. Laying Masonry: NOTE: Remove all rubbish before enclosing accessible spaces.

A. Installation: Lay all masonry units plumb, level and true to line in full beds of mortar. Lay brick in running bond with metal ties spaces in even pattern at one tie per 4 SF of brick face unless otherwise specified.

B. Joints: Joints shall be uniform and tooled to concave texture. Provide weep holes. Build in any and all work required of other trades. All joints shall be approximately 3/8" thick.

PARGING:

Remove all loose, broken, deteriorated mortar on the foundation wall completely around structure. Reset or replace where necessary any broke or loose foundation wall elements. Clean all voids and point with mortar cement. Use fiberglass reinforced Type N mortar in sufficient layers to result in smooth, sound surface. Finish to minimum 1/2" thick and brush textured. Damp cure for 24 hours. Waterproofing of the foundation wall is not considered within the scope of this item of work.

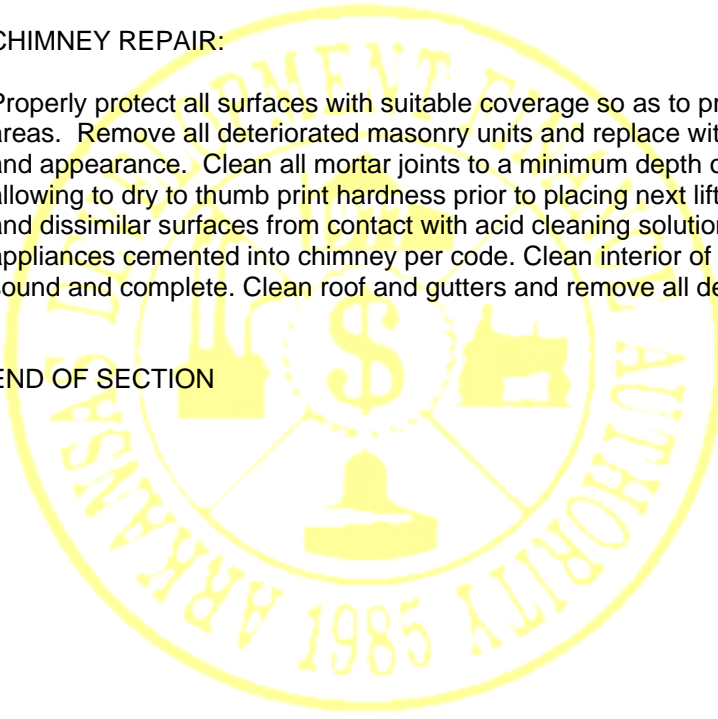
POINTING & CLEANING:

Remove all deteriorated masonry units and replace with units of same material and like dimension and appearance. Clean all mortar joints to a minimum depth of 3/8", moisten joint, install new mortar in 1/4" lifts allowing to dry to thumb print hardness prior to placing next lift, and finish with concave joint. Protect all concrete and dissimilar surfaces from contact with acid cleaning solutions if used.

CHIMNEY REPAIR:

Properly protect all surfaces with suitable coverage so as to prevent masonry drippings and damages to roof areas. Remove all deteriorated masonry units and replace with new units of same material and like dimension and appearance. Clean all mortar joints to a minimum depth of 3/8", moisten joint, install new mortar in 1/4" lifts allowing to dry to thumb print hardness prior to placing next lift, and finish with concave joint. Protect all concrete and dissimilar surfaces from contact with acid cleaning solutions if used. Provide all connections to the appliances cemented into chimney per code. Clean interior of chimney to base. Assure that clean out box is sound and complete. Clean roof and gutters and remove all debris from the site after completion of work.

END OF SECTION



SECTION 06.10 - ROUGH CARPENTRY

GENERAL

RELATED DOCUMENTS

A. None

SUMMARY

B. This Section includes the following:

1. Wood furring, grounds, nailers, and blocking.
2. Sheathing.
3. Underlayment.
4. Framing with dimensional lumber.

C. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 6 Section 20 "Finish Carpentry" for non-structural carpentry items exposed to view and not specified in another Section.

DEFINITIONS

A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.

SUBMITTALS

A. None

DELIVERY, STORAGE, AND HANDLING

A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.

1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PRODUCTS

LUMBER, GENERAL

A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

B. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.

1. For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece, or omit grade stamps and provide grade-compliance certificates issued by inspection agency.

C. Nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content

specified. 1. Provide dressed lumber S4S unless otherwise indicated. 2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.

DIMENSION LUMBER

A. General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.

B. Structural and Non-Structural Light Framing: For structural and non-structural light framing (2 to 4 inches thick, 2 to 4 wide), provide the following grade and species:

1. Any species (Southern Pine, Fir, Spruce, etc.) of Grade: No. 2.

C. Structural Framing: For structural framing (2 to 4 inches thick, 5 inches and wider), provide the following grade and species:

1. Grade: No. 2

2. Species: Spruce, Pine, Fir graded under NLGA rules or Southern Yellow Pine graded under SPIB rules.

D. Ceilings (Non-Load-Bearing): For ceiling framing that does not support a floor, roof, or attic, provide the following grade and species:

1. Grade: No. 2.

2. Any species of specified grade.

BOARDS

A. Concealed Boards: Where boards will be concealed by other work, provide lumber with 19 per cent maximum moisture content and of following species and grade:

1. Species and Grade: Mixed southern pine, No. 2 per SPIB rules.

MISCELLANEOUS LUMBER

B. General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.

C. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

D. Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment

E. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, NLGA, or WWPA; No. 2 grade per SPIB; or Standard grade per NLGA, WCLIB or WWPA of any species.

WOOD-BASED STRUCTURAL-USE PANELS, GENERAL

A. Structural-Use Panel Standards: Provide either all-veneer, mat-formed, or composite panels complying with DOC PS 2, "Performance Standard for Wood-Based Structural-Use Panels," unless otherwise indicated. Provide plywood panels complying with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood," where plywood is indicated.

B. Structural-Use Panel Standard: Provide plywood panels complying with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood."

C. Trademark: Factory mark structural-use panels with APA trademark evidencing compliance with grade requirements.

CONCEALED, PERFORMANCE-RATED STRUCTURAL-USE PANELS

D. General: Where structural-use panels are indicated for the following concealed types of applications, provide APA-performance-rated panels complying with requirements designated under each application for grade, span rating, exposure durability classification, and edge detail (where applicable).

1. Thickness: Provide panels meeting requirements specified but not less than thickness indicated.

2. Span Ratings: Provide panels with span ratings required to meet "Code Plus" provisions of APA Form No. E30, "APA Design/Construction Guide: Residential & Commercial."

E. Wall Sheathing: 1/2" APA-rated sheathing.

F. Roof Sheathing: 1/2" APA-rated sheathing.

STRUCTURAL-USE PANELS FOR BACKING

A. Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire retardant-treated plywood panels with grade, C-D Plugged Exposure 1, in thickness indicated or, if not otherwise indicated, not less than 15/32 inch (11.9 mm) thick.

STRUCTURAL-USE PANELS FOR UNDERLAYMENT

A. Over smooth subfloors, provide underlayment grade plywood not less than 1/4 inch (6.4 mm) thick. Over board or uneven subfloors, provide underlayment grade plywood not less than 11/32 inch (8.7 mm) thick.

PARTICLEBOARD

A General: Comply with and factory mark each panel according to ANSI A208.1. Provide thickness indicated.

B. Particleboard Underlayment: Grade PBU.

C. Particleboard Subflooring: Grade M-3-Exterior Glue.

D. Particleboard Wall Sheathing: Grade M-1-Exterior Glue

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 a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.

B. Nails, Wire, Brads, and Staples: ES EF-N-105.

C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M)

F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

MISCELLANEOUS MATERIALS.

A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch (25-mm) nominal thickness, compressible to 1/32 inch (0.8 mm); selected from manufacturers standard widths to suit width of sill members indicated.

B. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturers.

C. Water-Repellent Preservative: NDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbonate (IPBC) as its active ingredient.

EXECUTION

INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement

B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated. Secure wood members to steel with bolts and washers; to concrete with expansion bolts or power driven anchors to wood with common steel nails.

E. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. 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 hot-dip galvanized or stainless-steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.

G. Countersink nail heads on exposed carpentry work and fill holes with wood filler.

WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attaching other work. Form to shapes shown and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

WOOD FRAMING, GENERAL

A. Framing Standard: Comply with AFPA's "Manual for Wood Frame Construction," unless otherwise indicated.

B. Install framing members of size and at spacing indicated.

C. Do not splice structural members between supports.

D. Firestop concealed spaces of wood-framed walls and partitions at each floor level and at ceiling line of top story. Where firestopping is not inherent in framing system used, provide closely fitted wood blocks of 2-inch nominal- (38-mm actual-) thickness lumber of same width as framing members.

WALL AND PARTITION FRAMING

A. General: Arrange studs so that wide face of stud is perpendicular to direction of wall or partition and narrow face is parallel. Provide single bottom plate and double top plates using members of 2-inch nominal (38-mm actual) thickness whose widths equal that of studs; except single top plate may be used for non-load-bearing partitions. Nail or anchor plates to supporting construction, unless otherwise indicated.

1. For exterior walls, provide 2-by-6-inch nominal- (38-by-140-mm actual-) size wood studs spaced 24 inches (610 mm) o.c., except where otherwise indicated or required

2. For interior partitions and walls, provide 2-by-4-inch nominal- (38-by-89-mm actual-) size wood studs spaced 16 inches (406 mm) o.c., except where otherwise indicated or required.

B. Construct corners and intersections with 2 or more studs. Provide miscellaneous blocking and framing as required to support facing materials, fixtures, specialty items, and trim.

C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Set headers on edge and support on jamb studs.

1. For non-load-bearing partitions, provide double-jamb studs with headers not less than 4 inch nominal (89-mm actual) depth for openings 36 inches (900 mm) and less in width, and not less than 6-inch nominal (140-mm actual) depth for wider openings.

2. For load-bearing walls, provide double-jamb studs for openings 72 inches (1800 mm) and less in width, and triple-jamb studs for wider openings. Provide headers of depth shown or, if not shown, as recommended by AFPA's "Manual for Wood Frame Construction.

END OF SECTION

SECTION 06.20 - FINISH CARPENTRY

GENERAL

RELATED DOCUMENTS

None

SUMMARY

A. This Section includes the following:

1. Interior standing and running trim.
2. Exterior standing and running trim.

B. Contractor shall salvage and reuse existing trim in areas where new work requires modification of trim. Where new flooring will be installed Contractor will replace baseboard in kind or install quarter round shoe molding as required to provided a finish trim.

QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed finish carpentry similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

DELIVERY, STORAGE, AND HANDLING

A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.

PRODUCTS

A. Lumber Standards: Comply with PS 20 "American Softwood Lumber Standard" for lumber and with applicable grading rules of inspection agencies.

B. Plywood Standards: Comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood and, for products not manufactured under PS 1, with APA PRP-108.

C. Formaldehyde Emission Levels: Comply with formaldehyde emission requirements of HPMA FE for hardwood plywood and NPA 8 for particle board.

D. Wood Moisture Content: Comply with requirements of referenced quality standard and manufacturers recommendations for moisture content of finish carpentry.

E. Moldings:

1. Species and Grade: Eastern White Pine, fingerjointed, profiles to match existing.

F. Exterior Trim:

1. Species and Grade: Eastern White Pine, fingerjointed or solid PVC.

G. Interior Trim:

1. Species and Grade: Eastern White Pine, fingerjointed.

2. Reuse salvaged historic door and window trim to replace missing or damaged trim at windows and doors to remain or where salvaged doors and windows are relocated.

3. Reuse historic salvaged wall base trim where possible.

H. Fasteners: hot-dip galvanized siding nails at exterior locations. Finish nails suitable for substrates at interior locations. Provide prefinished nails in color to match where face nailing is unavoidable.

EXECUTION

A. Condition finish carpentry to average prevailing humidity conditions in installation areas before installation for a minimum of 24 hours. Back prime all lumber trim.

B. Install finish carpentry plumb, level, true, and in proper alignment with adjacent materials. Use concealed shims where required for alignment. Scribe and cut finish carpentry to fit adjoining work, and refinish and seal cuts as recommended by manufacturer.

C. Repair damaged or defective finish carpentry where possible to eliminate functional or visual defects. Where not possible to repair, replace finish carpentry. Adjust joinery for uniform appearance.

D. Unless otherwise noted install interior and exterior trim with finish nails. Punch heads and fill holes. Fill holes in clear finish wood to match as closely as possible finished wood color.

END OF SECTION

SECTION 07.00 - THERMAL AND MOISTURE PROTECTION

GENERAL

These specifications represent the minimum standards by which the work is to be performed. Additional standards or particular requirements, if necessary, will be listed in the individual work order for that particular job. Refer to the drawings and Work Write-Up for Scope of Work, locations, quantities and additional requirements.

PRODUCTS

New roofing material to match existing surfaces in style and color for repair or partial re-roof. Otherwise color and style shall be at owner's selection.

- A. Asphalt Singles: Min. 240 lb./square tab, mineral surface, self-sealing, 3 tab fiberglass based ASTM D 3018 Type I, Class A, 30-year warranty, pretreated to minimize algae growth. Preferred products are: Certaineed XT-25 or Landmark 50; GAF Timberline Ultra; Owens Corning Supreme, Elk Prestige.
- B. Built-Up Roofing: SBS modified bitumen roofing system, Grade 1, 15-year manufacturer's warranty, 4 ply specification. Acceptable manufacturers are: Koppers, Manville, Siplast, Soprema or approved equal.
- C. Flashings: Terne metal alloy flat sheet, .019" thick min., Type 304.
- D. Roofing Felt: Type I asphalt saturated organic felt, ASTM D 226.
- E. Water Proof Underlayment: Min 40 mil thick, self adhering polymer-modified bitumen sheet membrane complying with ASTM D 1970. Install with manufacturer's recommended primers.
- F. Caulking: Elastomeric Silicone Sealant.
- G. Valleys: 24" wide min., terne metal valley flashing.
- H. Metal Drip Edge: Galvanized steel brake formed sheet metal with at least 2" roof deck flange with 1-1/2" fascia flange with 3/8" drip at lower edge.
- I. Ridge Vents: High density polypropylene, nonwoven modified polyester or other ultraviolet stabilized plastic with driven rain dampers.
- J. Nails: Hot dip galvanized, 12" dia., barbed shank, sharp-pointed, min. 3/8" dia., head sufficient length to penetrate 3/4" into solid decking or at least 1/8" through plywood sheathing.
- K. Vent Pipe Flashing: Aluminum flange with ultraviolet resistant rubber boot.
- L. EPDM Membrane System: Complete system shall have 10-year manufacturer's warranty.
 - 1. Ethylene Propylene Diene Monomers formed into uniform flexible sheets, complying with ASTM D 4637, Type I, Class SR, 60 mils thick, white face color, mechanically fastened per manufacturer's standard installation instructions. Acceptable manufacturers are: Celotex, Firestone, GenFlex, Manville or approved equal.
 - 2. Mechanical fasteners shall be metal or plastic plates, caps, battens, accessory components and fastening devices to suit substrate and as recommended by manufacturer.
 - 3. Insulation Board: Glass fiber board insulation faced one side with asphalt and kraft paper to comply with ASTM C 726. Thickness indicated in Work Write-Up. When used as re-roof base, use 1/2" thick board. Taper-slope to drain.

4. Protective Coating: Liquid applied Hypalon finish coat designed to apply to exposed EPDM and compatible with EPDM membrane sheet, in color selected by owner.

M. Aluminum Gutters & Downspouts: Aluminum gutter shall be 5", seamless, prefinished aluminum 'K' style, min. 032.

N. Galvanized Steel Gutters & Downspouts: 5" galvanized steel .026 gauge, All joints sealed with lead-free solder. Repairs Only.

O. Vinyl Siding & Trim: Solid .040 min. thick, PVC compound siding complying with ASTM D 3679 wood grain face, 8" exposure in double 4' style. Preferred manufactures and products in 2005 are: Norandex – Great Barrier; Reynolds – Grand Junction; Royal – Residential; Alcoa – Trademark and Mill Creek and Mastic 2 – Brentwood. Color selected by owner.

P. Aluminum Siding & Trim: Aluminum alloy complying with AAMA, 1402, primed and backed on acrylic topcoat.

Q. Wood Clapboard: Bevel pine or cedar siding, 19% moisture content, 5-1/2' x 2/4' (thick edge).

R. T111 Wood Siding: Exterior plywood siding complying with APA 303, 1/2" thick, Type 3036-W, cedar faced, rough sawn, prestained, texture 111, grooves 4" o.c. gauge.

S. Hardboard Siding: Factory primed with exterior primer complying with ANSI/AHA A136.6, 7/16", texture and pattern to be selected by owner.

T. Vapor Barrier: Nonwoven fabric vapor barrier shall be installed in the largest continuous sheets possible. Where seams are required at corners or between walls and ceilings, the contractor shall allow a minimum of 18" overlap. All seams to be sealed with manufacturer's seam tape.

EXECUTION

A. Roofing, 3-in-1 Shingles: Apply fiberglass asphalt shingle roofing in accordance with shingle manufacturer's recommendations and "the NRCA Steep Roofing Manual". Provide roofing felt in accordance with code. Provide waterproof underlayment at eaves and extend 24" inside exterior wall line. Replace all penetration flashings. Repair all flashings, gutter hangers, chimney crickets and the like that will not provide a sound nailing for new roof surfaces.

B. Valleys: Center 36" wide waterproof modified bitumen underlayment in valley. Provide 15 lb. felt and open metal valley in accordance with NRCA recommendations.

C. Rake and Drip Edge: Install new metal drip edge strips at eaves and gable ends nailed 6' on center along the inner edge.

D. Flashing: Where roof adjoins vertical wall surfaces, flashing is to be installed under existing siding and sealed with roof cement. Where chimney flashing is replaced, score masonry at mortar joints and bend flashing into resulting seam minimum 1/2". Cement top of chimney flashing with masonry adhesive or mortar and coat with non-running plastic roof cement.

E. Membrane Roofing:

1. Clean substrate and secure loose roofing materials designated to remain. Install cant strips, flashing and accessories recommended by manufacturer.

2. Install insulation board in accordance with insulation board manufacturer, roofing membrane manufacturer and NRCA recommendations. Install mechanical fasteners recommended by manufacturer but not less than one fastener per 4 SF. Provide protection sheet between insulation and membrane where recommended by membrane manufacturer.

3. Install membrane by unrolling over prepared substrate lapping adjoining sheets as recommended by manufacturer and bonding and sealing seams. Install mechanical fasteners at spacing recommended by manufacturer. Cover with adhesive applied membrane so that no fasteners are exposed. Install flashing and accessories recommended by manufacturer.

4. Apply protective coating per manufacturer's instructions.

F. Modified Bitumen Built-Up Roofing Systems:

1. Install 1/2" Perlite insulation board over existing roofing in accordance with manufacturer's recommendations by hot-mopping to existing built-up roofing.
2. Install base sheet, 2 interply sheets and mineral surfaced cap sheet over insulation by hot-mopping each sheet at rates recommended by roofing manufacturer.

G. Gutters & Downspouts:

1. General Requirements: Remove gutters and downspouts where indicated. Flush or snake conductor sewers where they exist to insure proper drainage of storm water. Install new gutters and downspouts with all required miters, hangers and other accessories to insure proper anchorage and proper drainage of all roof surfaces. All conductors shall be properly connected to the sewer system, and cemented into sewer hubs. Slope gutters to downspouts 1/16" per foot minimum and provide basket strainers to top of all downspouts. Hangers and/or brackets shall be installed no greater than 30" o.c. If the conductor sewers cannot be properly restored to use by flushing, snaking or other expedient method, install concrete splash block of sufficient size to accommodate the roof area.

H. Aluminum Gutters: Provide and install where indicated with all accessories and fittings. Seal all seams with silicone-based sealant per manufacturer's recommendation.

I. Galvanized Gutters: Provide and install where indicated with all accessories and fittings. Gutters and downspouts shall be painted with manufacturer's recommended paint upon completion, color per owner selection.

J. Siding & Trim.

1. General Siding and Preparation: Secure, replace or remove all loose existing siding to provide a sound nailing surface for new coverage. Install foam backer with foil laminate on all areas to receive siding; accordion style preferred. Assure that finished backer is in plane and smooth.

K. Vinyl Siding, Installation: Accessory trim moldings for the type of siding being used shall be installed at all endings and openings and shall include outside and inside corner posts. Reside all vertical surfaces of the house. The installation shall be made according to manufacturer's recommendations and manufacturer's warranty shall be furnished to owner on completion. Owner shall have choice of style and color.

L. Vinyl or Aluminum Trim:

1. Preparation: Replace or repair eaves, sills and/or vinyl coverage. Remove storm windows and doors. Build up window and door trim to bring at least flush with finished siding. Build up sills to protrude at least 1/2" beyond finished siding. New trim to wrap onto blind stops on windows. Reinstall storm windows and doors in bead of caulk per manufacturer's recommendation.
2. Installation: Install aluminum or vinyl breaker stock covering on all soffits, fascias, overhands, porch box beams, window and door casings and window sills except cellar windows. Trim wrap shall be formed on a machine brake to insure a neat, tight fit.

3. Window and Door Trim: Windowsill covers are to be extended from exterior underside of sill up to the window stool. Saw cut the exterior casing and window frame at sill to slide metal underneath. Caulk all edges and voids of sills to make the coverage weathertight, including drip edge overhead.

4. Soffit: Soffit material on all horizontal edges of roof shall be vented unless otherwise noted. Where existing soffit material is unbroken, drill one 1-1/4" minimum hold in each area between rafters. Soffit material on rake edges shall be solid.

5. Fascia: Where fascia is deteriorated, replace with dimensional lumber of same width and minimum 3/4" thickness. Deteriorated rafter tails shall be sistered with 2x stock to provide sound nailing surface.

M. Wood Clapboard: Remove all deteriorated sections of clapboard to nearest sound siding. Install new cedar clapboard free of knots with matching reveal. Assure minimum 1/2" overlap between pieces. Butt seams to fit tight, with minimum 6" stagger in seams between courses. Set nails and prime new wood. Set nails and fill with exterior spackle or painter's putty. Caulk all seams and overlaps to prevent penetration by moisture and air. Finished siding shall have uniform reveals with straight edges parallel to sill plate.

N. T111 Sheathing: Install sheathing in largest continuous sheets possible. All seams to fit tight. Nail on studs 10" on center. Assure that butt seams rest on studs as fully as possible. Nails shall be galvanized screw type, minimum 8d. Install Z flashing at all head seams. Staining or painting is included in this item unless otherwise noted.

O. Mineral Siding: Replace existing mineral siding with new mineral or wood siding of style and dimension to match existing as close as possible. Remove all deteriorated, cracked or broken siding to nearest sound material. Assure minimum 1/2" overlap and all seams tight. Use aluminum or galvanized nails minimum 6d.

P. Hardboard Siding: Prepare existing walls to receive new siding. Install Tyvek or equal vapor barrier in continuous sheets. Install hardboard siding according to manufacturer's recommendation. Back all butt joints with 15 lb. felt flashing and caulk with clear silicone to prevent moisture penetration. Butt joints to be mitered. Allow 1/16" at corner posts, window and doors to accommodate expansion and contraction of siding material.

Q. Pneumatically-Placed Insulation

1. Blown-In Insulation, Walls: Material may be either fiberglass or cellulose, per Work Write-up. Insulate all walls exposed to outside and walls adjacent to unheated spaces. The single or double opening method of installation may be used. The installation is to be made by removing siding and drilling holes where necessary to properly insulate all stud cavities. Replace siding when installation is complete. All damaged materials being replaced shall match existing as close as possible. Materials used shall have a resistance value of R11 minimum, Owens-Corning, Certainteed or equal.

2. Blown-In Insulation, Attics: Seal all openings from attic to living space. Install blown-in fiberglass insulation uniformly throughout attic to a depth of R32. When adding additional insulation to existing insulation, blow in over existing to achieve a depth of R32.

R. Batt-Style Insulation: NOTE: Batt-style insulation shall be required in every situation in which interior walls shall be gutted to perform work. Batt insulation shall vapor barrier on one side. Vapor barrier to be installed on the warm side of the assembly.

1. Insulation, Open Walls: Insulate all walls exposed to the outside or unheated spaces. Use insulation sized to optimally utilize space available in stud bays. Use minimum 3", R11, foil-faced insulation fit snugly against wooden framing. All irregular voids shall be filled to provide total insulation. Installation of the insulation shall be in strict accordance with the manufacturer's printed instructions for the specific product.

2. Insulation, Open Ceilings: Insulate ceilings exposed to the outside or unheated spaces. Use minimum R38, foil-faced insulation and sheathing. Install styrene baffles between all rafters adjacent to eaves to assure soffit ventilation above insulation. All irregular voids shall be filled to provide total insulation. Installation of the insulation shall be in strict accordance with the manufacturer's printed instructions for the specific product.

3. Band-Joist Insulation: Insulate box joist area around interior perimeter of foundation wall. Use Owens-Corning or Certainteed batt insulation or equal and maintain a minimum R19 value.

END OF SECTION

SECTION 07.62 - SHEET METAL FLASHING AND TRIM

GENERAL

RELATED DOCUMENTS

None

SUMMARY

A. This Section includes sheet metal flashing and trim in the following categories:

1. Exposed trim and fasciae.
2. Metal flashing.
3. Vent Flashing

QUALITY ASSURANCE

A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

PRODUCTS

METALS

- A. Aluminum: Alloy and temper recommended by manufacturer for use intended and as required for proper application of finish indicated below but not less than the strength and durability properties specified in ASTM-B-209 for alloy 3015, temper H15: 1. Finish: Painted aluminum except as otherwise indicated. 2. Thickness: .027 inch thick except as otherwise indicated.
- B. Zinc Coated Steel: ASTM A 526, G90 hot dip galvanized, 26 gage minimum. For all pre-formed roof drip edge and where flashings are not exposed to view. Unless otherwise noted use pre manufactured galvanized drip edge on all new asphalt roofs.
- C. Galvanized Steel Sheet: ASTM A 526, G 90 (ASTM A 526M, Z 275), commercial quality, or ASTM A 527, G 90 (ASTM A 527M, Z 275), lock-forming quality, hot-dip galvanized steel sheet with 0.20 percent copper, mill phosphatized where indicated for painting; not less than 0.0396 inch (1.0 mm) thick, unless otherwise indicated.

MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Solder: For use with steel, provide lead-free solder, with rosin flux.
- B. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.
- C. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil (0.4-mm) dry film thickness per coat.
- D. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.
- E. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed and complying with requirements for joint sealants.
- F. Epoxy Seam Sealer: 2-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior and interior nonmoving joints, including riveted joints.
- G. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.
- H. Paper Slip Sheet: 5-lb/square (0.244 kg/sq. m) red rosin, sized building paper conforming to FS UU-B-790, Type I, Style I b.
- I. Polyethylene Underlayment: ASTM D 4397, minimum 6-mil- (0.15-mm-) thick black polyethylene film, resistant to decay when tested according to ASTM E 154.
- J. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.
- K. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

FABRICATION, GENERAL

- A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.
- B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
- D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.
- E. Expansion Provisions: Fabricate running lengths to allow controlled expansion not only for movement of metal components in relationship to one another but also to adjoining dissimilar materials, including flashing and roofing materials in a manner sufficient to prevent water leakage, deformation or damage. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

F. Sealed Joints: Where moveable, nonexpansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.

G. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.

H. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

I. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

FINISHES

A. Standard: Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes. All finishes listed here shall be factory applied.

1. Baked Enamel Finish: Apply baked enamel in compliance with paint manufacturer's specifications for cleaning, conversion coating, painting and as follows:

a. Organic Coating: Thermosetting modified acrylic enamel primer top coat system complying with AAMA 603.8 except with minimum dry film thickness of 1.5 mils, medium gloss.

b. Color: As selected by Owner from manufacturer's standard line of colors.

EXECUTION

EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

INSTALLATION

A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

1. Underlayment: Where installing aluminum directly on cementitious or wood substrates, install a slip sheet of red-rosin paper and a course of peel and stick underlayment.

D. Counterflashings: Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashing. Install counterflashings in reglets or receivers. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches (50 mm) and bed with sealant.

E. Roof-Penetration Flashing: Coordinate roof-penetration flashing installation with roofing and installation of items penetrating roof. Install flashing as follows:

CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

FLASHING AND SHEET METALS SCHEDULE

ITEM	MATERIAL	PROFILE	FINISH	REMARKS
DRIP EDGE	Zinc-coated steel	Premanufactured	Hot dip galvanized	
VENT FLASHING	Modified rubber boots	Premanufactured	Bare metal	
CHIMNEY FLASHING	2 gauge aluminum	Step and counter flashing	Bare metal	
TRIM FLASHING	Sheet aluminum	"Z" to fit trim with 4" flange and 1/2" lip	Painted	

END OF SECTION

SECTION 07.92 - JOINT SEALANTS

GENERAL

SUMMARY

A. This Section includes sealants for the following applications:

Control and expansion joints in cast-in-place concrete. Control and expansion joints in unit masonry. Joints between different materials. Joints in exterior wood siding and trim. Perimeter joints between materials listed above and frames of doors and windows. Control and expansion joints in ceiling and overhead surfaces. Joints in exterior wood siding and trim. Control and expansion joints on exposed interior surfaces of exterior walls. Perimeter joints of exterior openings. Tile control and expansion joints. Vertical control joints on exposed surfaces of interior gypsum board, and other walls and partitions. Perimeter joints between interior wall surfaces and frames of interior doors, windows, elevator entrances, and other framed openings. Perimeter joints of plumbing fixtures.

PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.

DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.

B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

PROJECT CONDITIONS

C. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:

When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.

When joint substrates are wet.

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

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

PRODUCTS

MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

ELASTOMERIC JOINT-SEALANT SCHEDULE

	APPLICATION/TYPE OF JOINT SEALANT	DESCRIPTION OF JOINT CONSTRUCTION AND LOCATION WHERE SEALANT IS TYPICALLY APPLIED	RELATED SPEC. SECTION
ELASTOMERIC JOINT SEALANTS			
	100% Silicone Paintable	Exterior door and window frames.	
SOLVENT-RELEASE-CURING SEALANTS			
	Butyl Sealants	All joints and anchorage for vapor barriers.	
LATEX SEALANT			
	100% Acrylic-Emulsion Sealant	For interior finish painting work to fill gap as necessary between trim, walls, non-vibrating furnishings.	
ACOUSTIC SEALANT			
	Acoustic Sealant	As required for acoustic control of gypsum board assemblies and acoustic panel assemblies.	Gypsum Board Assemblies
FOAM IN PLACE SEALANT			
	Foam in Place Sealant	Conceal locations in insulated assemblies, which are inaccessible or not practical for standard insulation. Also for concealed locations in insulated assemblies where expanding foam provides for superior performance to reduce air infiltration at critical joints such as but not limited to clad window opening	Building Insulation
JOINT SEALANT BACKING			
	Plastic Foam Joint Sealers	Where required to control sealant depth and promote wetting of joint substrates during tooling.	
	Elastomeric Tubing Joint Filers	Where required to control sealant depth and promote wetting of joint substrate during tooling in locations where joint filler will also serve as a temporary joint seal.	
	Bond Breaker Tape	Where required to prevent adhesion of sealants where this can not be accomplished by joint fillers or where there is insufficient depth of joint recess for joint filler installation.	

ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule, including those referencing ASTM C 920 classifications for type, grade, class, and uses.

B. Additional Movement Capability: Where additional movement capability is specified in the Elastomeric Joint-Sealant Schedule, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASIM C 719, to withstand the specified percentage change in the joint width

existing at the time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.

C. Available Products: Subject to compliance with requirements, elastomeric sealants that may be incorporated in the Work include but not limited to, the products specified below for each type of sealant listed on the schedule.

Single Part Neutral-Curing Silicone Sealants: Base Polymer-Neutral Curing Silicone, Type-S, Grade-NS, Class-25, Additional Movement Capability-25 % in extension and 25% in compression.

Available Product:

- 1) 795, Dow Corning
- 2) SILPRUF, General Electric
- 3) VP 275, Ohio Sealants
- 4) SPECTRUM 2, Tremco
- 5) Approved Equal

SOLVENT-RELEASE JOINT SEALANTS

A. Butyl-Rubber-Based Solvent-Release Joint-Sealant Standard: Comply with ASTM C 1085 for each product of this description indicated in the Solvent-Release Joint-Sealant Schedule. Manufacturer's standard one-part nonsag, solvent release curing, polymerized butyl sealant and formulated with minimum of 75 percent solids to be nonstaining, paintable, and have tack free time of 24 hours. Clear, small joint sealants are also available. Revise below or add if required.

B. Available Products: Subject to compliance with requirements, solvent-release-curing sealants

that may be incorporated in the Work include but not limited to, the products specified below for each type of sealant listed on the schedule.

BC-158, Pecora Corp

PTI 757, Protective Treatments Inc.

Sonneborn Multi Purpose Sealant, Sonneborn Building Products.

TREMCO Butyl Sealant, Tremco, Inc.

LATEX JOINT SEALANTS

A. Latex Sealant Standard: Comply with ASTM C 834 for each product of this description indicated in the Latex Joint-Sealant Schedule.

B. General: Provide manufacturer's one-part, nonsag, mildew-resistant, paintable latex sealant of formulation indicated that is recommended for exposed applications on interior and protected exterior locations and that accommodates indicated percentage change in joint width existing at time of installation without failing either adhesively or cohesively.

1. Acrylic-Emulsion Sealant: Provide products that accommodates joint movement of not more than 5 percent in both extension and compression for a total of 10 percent.

a. Available Products: Subject to compliance with requirements, latex joint sealants that may be incorporated in Work included but not limited to the following:

- 1) AC-20, Pecora Corp.
- 2) Sonolac, Sonneborn Building Products Div, Chem Rex Inc
- 3) Tremco Acrylic Latex 834, Tremco, Inc

FOAMED IN PLACE SEALANTS

A. Foamed In Place Sealants: For each product of this description indicated in the Foamed In

Place Schedule, provide manufacturers standard polyurethane foam with average expansion of three times the initial application and an insulating-value of R-5 per inch.

1 Available Products: Subject to compliance with requirements, foam sealants that may be incorporated in the Work, but are not limited to the following:

- a. Foam Sealant, Red Devil, Inc.
- b. Great Stuff, Insta Foam
- c. Touch-n-Foam, Convenience Products

JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstanding, nonwaxing, nonextruding strips of flexible plastic foam of material indicated below and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance of one of the following: 1. Closed cell polyethylene foam, nonabsorbent to liquid water and gas, nonoutgassing in unruptured state. Proprietary, reticulated, closed cell polymeric foam, nonoutgassing, with a density of 2.5 pcf and tensile strength of 35 psi per ASTM 0 1623, and with water absorption less than .02 gms/cc per ASTM C 1083.

C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM 0 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F (minus 32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

MISCELLANEOUS MATERIALS

EXECUTION

EXAMINATION

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

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

Masking Tape: Long removal (blue), nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturers written instructions and the following requirements:

Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:

- a. Concrete.
- b. Masonry.

Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

- c. Metal.
- d. Glass.
- e. Porcelain enamel.
- f. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

INSTALLATION OF JOINT SEALANTS

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

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

C. Acoustical Sealant Application Standard: Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

D. Install sealant backings of type 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.

Do not leave gaps between ends of sealant backings.

Do not stretch, twist, puncture, or tear sealant backings.

Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.

F. Install sealants by proven techniques to comply with the following and at the same time backings are installed:

Place sealants so they directly contact and fully wet joint substrates. Completely fill recesses provided for each joint configuration.

Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

Remove excess sealants from surfaces adjacent to joint.

Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated. Provide flush joint configuration, per Figure 5B in ASTM C 1193, where indicated.

Provide recessed joint configuration, per Figure 5C in ASTM C 1193, of recess depth and at locations indicated.

a. Use masking tape to protect adjacent surfaces of recessed tooled joints.

H. Installation of Preformed Silicone-Sealant System: Comply with the following requirements:

Apply masking tape to each side of joint, outside of area to be covered by sealant system.

Apply a bead of silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's printed schedule and covering a bonded area of not less than a 3/8 inch (10 mm). Hold edge of sealant bead inside of masking tape by 1/4 inch (6 mm).

Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.

Complete installation of horizontal joints before installing vertical joints. Lap vertical joints over horizontal joints. At end of joints. cut silicone extrusion with a razor knife.

I. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, to produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant to comply with sealant manufacturer's written instructions.

CLEANING

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

PROTECTION

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

END OF SECTION

SECTION 08.00 OPENINGS

GENERAL

These specifications represent the minimum standards by which the work is to be performed. Additional standards or particular requirements, if necessary, will be listed in the individual work order for that particular job. Refer to the drawings and Work Write-Up for Scope of Work, locations, quantities and additional requirements.

A. Sizes: All new doors and windows shall be selected to match existing rough openings unless otherwise specified. The contractor shall provide headers supported by cripple jacks where none exist. Provide double studs at both sides of opening if none exist.

PRODUCTS

A. Single Glazed Doors. Not Allowed

B. Double Glazed Doors: Glass in replacement windows shall be min ½" double glazed "low E" double strength fully tempered glass in compliance with ASTM E744.

C. Glazing Compounds:

1. Wood Frame: Use putty (FE TT-P7912) for glazing in wood frames.
2. Metal Frame: Elastic Glazing Compound
3. Aluminum Storm Frame: Elastic rubber or vinyl gasket per manufacture's recommendation.

D. Metal Garage Doors: Sectional steel overhead door, tracks, springs, locks and accessories min. 24 ga. electroplated galvanized steel panels and min. 20 ga. steel channels and stiles. Stanley 200 Series doors or approved equal.

E. Wood Garage Doors: 13/4" thick stiles and rails of Douglas Fir. ¼" tempered.

F. Exterior Lock Set: Mortised combination 6 pin tumbler cylinder, 5/8" min. throw dead bolt/knob lock with strike, dust box and 2 sets of keys. Grade B lock or better.

G. Interior Passage Lock: Cylinder passage latch with push button lock. Provide trim. Quick-Set or approved equal. Comply with ANSI A 156.2

H. Bi-Fold Doors: Hollow core luan face bi-fold doors with packaged hardware set.

I. Exterior Door, Materials: All exterior doors shall be 1 3/4" thick and shall be hung on three sets of brass finished steel butt hinges, 1 1/2" x 3 1/2". Pre-hung door units to be used wherever practical. Door shall be foam core steel or solid core birch, fir or oak or fiberglass per Work Write-up. Exterior door shall always include weather-stripping (wood or aluminum with vinyl strip), threshold (aluminum and vinyl) and wide angle peephole. Preferred manufacturers: Pella – fiberglass or steel; Reliabuilt – steel; Stanley – Staytrue plus steel.

J. Interior Door, Materials: Interior doors shall be 1-3/8" thick, hollow core, luan, masonite or birch per Work Write-Up. Interior doors shall be hung on one pair brass finished steel butt hinges, 1-1/4" x 3". Pre-hung door units to be used wherever practical. Door shall be flush surfaced as manufactured by Stanley or equal unless otherwise specified.

K. Steel Airway Door: .09100 thick steel with baked-on factory prime finish, concealed hinges, trosion/cam door operators, automatic hold open catches, lock-and handle. Manufactured by Bilco or approved equal.

L. Glass Block: Hollow nonload bearing glass block of clear colorless glass with light diffusing wavy design. Square units 53/4" by 31/8" thick as manufactured by Pittsburgh Corning or approved equal. Panel (joint) reinforcement shall be Class 3 zinc coated steel wire 0.148" dia.

M. Aluminum Double Hung Windows: Aluminum pre-glazed, double glazed, Energy Star rated, double hung window frames and sashes formed of aluminum alloy not less than .06" thick, fastened with aluminum, nonmagnetic stainless steel fasteners or epoxy adhesive compatible with window units. Compressive type weather fasteners or epoxy adhesive compatible with window units. Compressive type weather-strip of woven pile wool, polypropylene or nylon pile. Insect screens min. .040" thick aluminum sashes of a .013" dia. coating aluminum wire, Type VII. Sash balance-spiral tapering spring. AAMA Grade, Class DH-HC 40 with tilt-in feature, tilt and sash lock and associated trim. Factory anodized finish. Traco TR5000 or equal. At least one window must be vented for proper ventilation.

N. Aluminum Slider Windows: Aluminum gas-filled, low E, double glazed, Energy Star rated, horizontal slider window frames and sashes formed of aluminum alloy not less than .06" thick, fastened with aluminum, nonmagnetic stainless steel fasteners or epoxy adhesive compatible with window units. Compressive type weatherstrip of woven pile wood, polypropylene or nylon pile. Insect screens min .040" thick aluminum sashes of 18 x 18 of .013" dia. coating aluminum wire, Type VII. Nylon sash rollers. AAMA Grade, Class ES-BC 40 sash locks and associated trim. Factory anodized finish. Traco TR6000 or equal.

O. Aluminum Storm Windows: Aluminum triple track, double hung storm/screen unit with 2 single glazed glass sashes and one screen sash. Unit to be AAMA approved and comply with ANSI1002.10 Traco, Season-All or approved equal.

P. Aluminum Storm Door. Furnish and install combination storm and screen door with complete hardware package (door sweep hinges, closer, locksets, etc.). Door shall be pile insulated. Door(s) shall be hinged to suit convenience of the homeowner (avoid interference of handles of new storm doors) and existing exterior door(s). Door shall be minimum 1 1/4" thick as manufactured by Season-All or equal. Unless otherwise specified, color selection to be by Owner.

Q. Vinyl Double Hung Windows: PVC vinyl, gas-filled, double glazed, Energy Star rated, double hung, low E window frames and sashes fastened with aluminum, nonmagnetic stainless steel fasteners or epoxy adhesive compatible with window units. Compressive type weatherstrip of woven pile wool, polypropylene or nylon pile. Insect screens min. .040" thick aluminum sashes of 18 x 18 of .013 dia. Coating aluminum wire, Type VII. Sash balance – spiral taper spring. ASTM D4099 Grade R40 with tile-in feature, tile and sash locks and associated trim. Preferred models in 2005 are: Alside Premium Vinyl, Season-All, Thermalator Series Model 212, AlSCO, Traco, Certainteed.

EXECUTION

WINDOWS: Refer to Work Write-Up for Window Type. In all cases of replacement windows, counter weight pockets shall be fully insulated.

A. Vinyl Replacement Windows, Sashes with Aluminum Tracks: Remove the existing deteriorated window sash and stops. Install new vinyl replacement window with tilt sash for easy cleaning, balances covers. Make any adjustments to fit stock sash to existing window frames and any stop replacement necessary to ensure proper window operation.

B. Reframe and Replace Windows, Complete Replacement: Remove sashes, jambs, interior and exterior moldings. Reframe opening. Install window, jamb and casing per manufacturer's recommendation. Repair exterior siding and interior wall. Install interior casing trim consistent with interior trim.

C. Replacement Windows, Basement: Remove deteriorated window(s) complete with sash, frame and sill. Replace sill and frame, if necessary, with 2" pressure-treated stock. Install basement unit(s) complete with sash, frame, hardware and screen. Provide filler and shims as required to accommodate window. Paint two coats inside and outside.

STORM WINDOWS

A. Aluminum Storm Window: Double hung windows shall be self-storing combination triple track, with screen. All other windows shall be made to suit the style with combination storms and screens for all venting windows. Window installations shall be set in a fine bead of caulking. All windows shall have a sill expander of the floating type with adequate drainage provided. Oversize windows shall have center stabilizing bars.

DOORS

A. General Requirements: Door shall include passage lock or lockset, hinges and striker per requirements listed under "Hardware Specialties." Properly installed door is to be plumb all directions and shall remain at any position in normal arc of opening without propping or holding. Assure that latch holds door tightly against weather-stripping or stop molding without binding. Interior trim to match existing as close as possible. Finish doors per manufacturer recommendation. Paint or varnish wood door per manufacturer's recommendation and standard specification. Steel and fiberglass doors to be painted with manufacturer's recommended paint. Color of paint or varnish per owner selection.

B. Exterior Door, Sill: Remove the door sill and install a oak or aluminum sill properly anchored to the door frame. Refit the bottom of the door to the door sill. Weatherstrip bottom of door with interlock or vinyl insert door sweep.

C. Installation of Pre-hung Door. Where pre-hung door is to be installed, removed existing door and casement completely to framing. Install new pre-hung door unit of maximum standard size allowed by framing. Provide trim and hardware. Patch to previous condition all plaster and like finishes around door frame.

D. Installation of New Door in Existing Opening. Where new door is to be placed in existing opening, repair frame, fill all holes and irregularities in casement. Relocate hinges to previously unused section of casement. Mortise hinges into door and casement per manufacturer's recommendation. Provide hardware.

E. Exterior Basement Door, Steel: Repair walls enclosing exterior stairs to the cellar as required to receive pre-fabricated enclosure. If necessary, form, pour and finish concrete caps minimum 4" thick on top of walls. Install "Metal" basement door unit per the manufacturer's recommendation. The enclosure shall be installed complete with hardware, assembly bolts and anchors necessary for proper installation. After installation, apply finish coat of acrylic outdoor metal enamel. Color shall be selected by the homeowner.

GARAGE DOORS

A. Garage Door, General Requirements: Reframe opening with 2 x 4 frame for sides and laminated header of sufficient size to accommodate new overhead garage door(s). Install 2 x 6 jambs of select dimensional material ripped to match wall thickness and 1 1/8" x 3" exterior casing, #1 common pine or better with drip cap overhead. Fill in excess opening overhead to match existing siding and patch concrete if doorway has be increased in size.

B. Garage Door: Install new sectional overhead garage door(s) complete with stops and all bracing required for installation. Paint all new wood and the new door two coats of exterior paint.

END OF SECTION

SECTION 09.20 – PLASTER AND GYPSUM BOARD

GENERAL

A. Provide gypsum board assemblies:

1. Interior walls, partitions, and ceilings as required to patch or shown on Work Write-Up.

PRODUCTS

A. Manufacturers or approved equal: Georgia-Pacific Corp., Gold Bond Building Products, United States Gypsum Co.

B. Gypsum Board: Provide gypsum board of types indicated, in maximum lengths available, to minimize end joints:

1. Gypsum Wallboard: ASTM C 36, thickness as indicated.

- a. Regular for vertical surfaces, unless otherwise indicated.
- b. Type X where required for fire-resistive-rated assemblies.
- c. Sag-resistant type for ceiling surfaces.
- d. Edges: Tapered.

2. Water-Resistant Gypsum Backing Board: ASTM C 630, thickness as indicated.

- a. Regular, unless otherwise indicated.
- b. Type X for fire-resistive-rated assemblies.

C. Accessories for Interior Installation: Corner beads, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:

1. Material: Formed metal, plastic, or metal combined with paper. Metal shall be sheet steel coated with zinc by hot-dip or electrolytic processes, or with aluminum or rolled zinc.

2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:

- a. Cornerbead shall be installed on all outside corners, unless otherwise indicated.
- b. L-bead with face flange only; face flange formed to receive joint compound.
Provide L-bead at all exposed board ends and where indicated on the drawings.

D. Gypsum Board Joint Treatment Materials: ASTM C 475 and ASTM C 840, and as follows:

1. Joint Tape: Paper reinforcing tape, unless otherwise indicated. Use open-weave glass fiber tape where recommended by gypsum board manufacturer with setting-type joint compound.

2. Drying-Type Joint Compounds: Factory-packaged, vinyl-based products complying with the following requirements:

- a. Ready-Mixed Formulation: Factory premixed.
- b. All-purpose compound formulated as both taping and topping compound.

E. Miscellaneous Materials: As follows, recommended by gypsum board manufacturer:

1. Laminating Adhesives: Product recommended by gypsum board manufacturer.
2. Fastening Adhesive for Wood: ASTM C 557.
3. Sound Attenuation: see "Building Insulation".

4. Polyethylene Vapor Retarder: 4 mil polyethylene

EXECUTION

A. At New Walls and Ceilings:

1. At exterior walls and ceilings where new gypsum board is applied, install vapor barrier.
2. Install gypsum board per manufacturers recommendations and specifications:
 - a. 5/8" min. at new walls and ceilings except as noted on the drawings.
 - b. 1/2" Moisture resistant gypsum board at all bathroom walls and ceilings.

B. At Existing Walls and Ceilings to remain:

1. Remove existing plaster/lath and/or gypsum board only as required to install new wiring, plumbing and blown-in insulation. Remove all loose or crumbling plaster. Patch existing plaster. Most of the plaster walls are covered with wallpaper. Remove existing wallpaper on all existing walls to remain unless they are to be covered with gypsum board. Assume for bidding that the existing wallpaper is relatively new, only one or two layers thick, and easily peeled. Scrape and sand existing plaster patching holes to make ready to pain. Where existing plaster walls are severely loose and crumbling, cover existing plaster with 14" thick gypsum board if approved by Owner.

C. Install and finish gypsum board to comply with ASTM C 840 and as follows:

1. Form floating construction for gypsum boards at internal corners, except where special isolation or edge trim is indicated.
2. Isolate gypsum board construction from abutting structural and masonry work. Provide edge trim and acoustical sealant as recommended by manufacturer.
3. Install sound attenuation insulation as specified in Div 7 "Building Insulation" without gaps, and support, where necessary, to prevent movement or dislocation.
4. Screw gypsum board to wood supports with double attachment 12" on center.

D. Finishing Gypsum Board Assemblies: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects, and elsewhere, as required, to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated.

1. Apply joint tape over gypsum board joints to prevent cracks from developing in joint treatment at flange edges, except those with trim accessories having concealed face flanges not requiring taping.
2. Apply joint tape over gypsum board joints and to trim accessories with concealed face flanges as recommended by trim accessory manufacturer and as required to prevent cracks from developing in joint compound at flange edges.
3. Feather new plaster into existing and match finish.
4. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
 - a. Level 2 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.
 - b. Level 4 for gypsum board surfaces indicated to receive paint.

5. For level 4 gypsum board finish, embed tape in finishing compound plus two separate coats applied over joints, angles, fastener heads, and trim accessories.

6. Where level 2 gypsum board finish is indicated, apply joint specified for first coat in addition to embedding-coat.

END OF SECTION



SECTION 09.30 – CERAMIC TILE

SUMMARY

A. Provide ceramic tile as indicated in Work Write-Up, as specified herein and as needed for a complete and proper installation.

PRODUCTS

Ceramic Tile

1. Use standard grade glazed ceramic tile and accessories in colors and patterns selected by the owner.
2. For floor tiles, use only tile designed for that application.

ACCESSORIES

1. Dry-set Mortar: ANSI A1181.1
2. Latex modified thin-set mortar: ANSI A118.4
3. Organic adhesives: ANSI A136.1. Type II for walls, Type I for floors and ceilings.

A. Grout: ANSI A118.6. Do not use silicone or latex grouts for countertops.

B. Substrate

1. Walls and Ceilings

- a. Dry Applications: 1/2" moisture resistant type gypsum board.
- b. For continuous moisture areas: 1/2" fiber cement tile backer specifically designed for that purpose.

2. Floors

- a. Concrete Subfloor: Well curved, no cracks, clean with no waxy or oily films. For thin-set application, concrete subfloor must have steel trowel or fine broom finish.
- b. Wood Subfloor: For cement mortar method: roofing felt over min 5/8" plywood. For organic adhesive: double wood floor with 1/4" fiber cement board (1/8" expansion gaps) over min 5/8" plywood subfloor. 2" wide glass fiber seam tape.

3. Maximum Surface Variation:

- a. Dry set: Walls: 1/8" in 8'; floors 1/8" in 10'
- b. Organic: Walls: 1/8" in 8'; floors: 1/16" in 3'

INSTALLATION

A. All tubs and showers to be protected during installation, cleaned immediately after completion and then recovered with cardboard or other protective material.

B. Maintain temperature at minimum of 55° F during installation and for 7 days.

C. Fasten substrate with 1 1/4" zinc coated roofing nail 8" o.c.

D. Leave extra tile for owner.

END OF SECTION

SECTION 09.65 - RESILIENT FLOORING

GENERAL

None

SUMMARY

A. Provide product information and full selection of manufacturers standard color samples for resilient flooring.

SUBMITTALS

A. Submit for approval, samples, product data, extra stock.

QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

B. Performance: Fire performance meeting requirements of building code and local authorities.

C. Provide materials and adhesives which do not contain asbestos.

PRODUCTS

MATERIALS

A. Vinyl Sheet Flooring:

1. Manufacturers: No preferred manufacturers in 2005.
2. Wearing Surface: Smooth with slight texture
3. Seams: Sealed as specified in manufacturer's installation manual. No seams permitted in floors with a dimension less than the manufactured width of the material.

B. Auxiliary Materials:

1. Edge strips and terminations. Vinyl one or two piece transition strips.

Manufacturers: Johnsonite or approved equal.

C. Resilient Wall Base:

1. Vinyl Wall Base: FS SS-W-40, Type II, [0.125 inches] thick.
2. Height: 4 inches.

D. Installation Accessories:

1. Concrete Slab Primer: Non-staining type.
2. Trowelable Underlayments and Patching Compounds: Latex-modified, Portland cement-based formulation.
3. Stair Tread Nose Filler: Two-part epoxy compound.
4. Adhesives: Water-resistant type.

EXECUTION

INSTALLATION

A. Comply with manufacturers instructions and recommendations. Install in proper relation to adjacent work.

B. Prepare surfaces by cleaning, leveling and priming as required. Test adhesive for bond before general installation. Level to 1/8" in 10' tolerance.

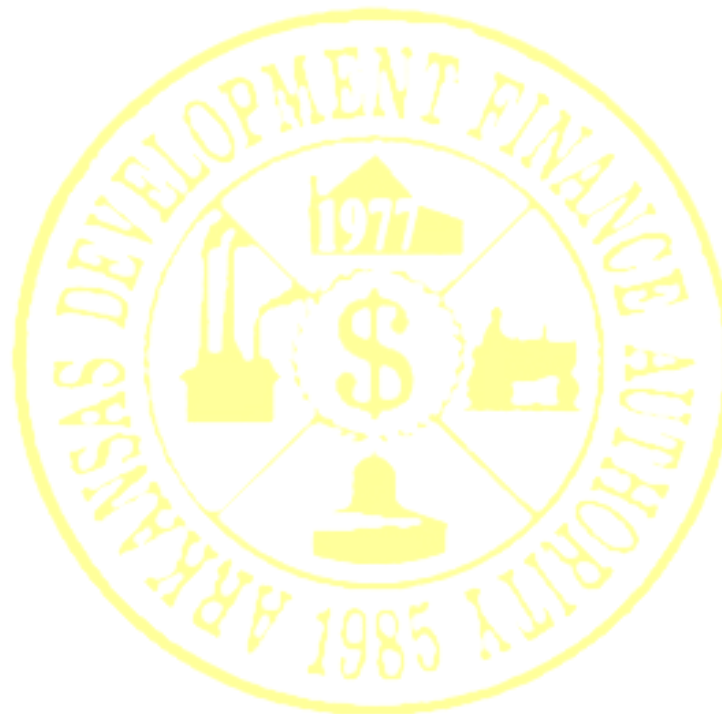
C. Install resilient flooring under all appliances. Install vinyl base at all toe spaces on cabinets and vanities.

D. Sheet flooring: Install 12" wide sheets with tight joints and pattern in adjoining areas running in the same direction. In rooms with one dimension smaller than the width of specified material no seams will be permitted. In rooms with no dimension smaller than the width of specified material layout to avoid seams in places of high wear or in damp locations.

E. Install base and accessories to minimize joints. Install base with joints as far from corners as practical.

F. Clean, polish, and protect.

END OF SECTION



SECTION 09.68 – CARPETING

SUMMARY

Work specified in this section covers furnishing, delivery and installation of wall to wall carpeting in areas noted with accessories such as edge strips and padding required for a complete installation.

QUALITY ASSURANCE

A. Qualifications of workmen: Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of materials being installed and the best methods for their installation and who shall direct all work performed under this section.

B. FHA Certified meets or exceeds government test as required under UM44-D.

SAMPLES

A. Submit duplicate swatches of sufficient size to show full range of colors of each type of carpet accompanied by respective material specifications, for approval and color selection by Owner.

B. Submit samples of carpet padding for selection by the Rehab Specialist.

DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's unbroken, original packing or container bearing manufacturer's name and identification of the contents.

B. Store materials in building in areas designed by owner.

C. Store carpet in such a manner to avoid soiling and damage.

ENVIRONMENTAL REQUIREMENTS

A. Maintain 70° F during installation of carpeting and for 48 hours after installation.

WARRANTY

A. Obtain manufacturer's written guarantee of materials and workmanship for a period of 7 years.

PRODUCTS

A. Cut-pile plush: Any FHA-approved product with a 30 oz. weight.

B. Padding: 4.5# rebond pad.

C. Edge Strip: Molded vinyl, rounded outer edge with a deep undercut to receive carpet. Color to be selected by Owner.

D. Tack strip.

ACCEPTABLE MANUFACTURERS

A. Any FHA-approved product manufacturer.

EXECUTION

A. Inspection/Examination

1. Examine all surfaces to receive carpet. Notify Rehab Specialist immediately in writing of any defects or discrepancies describing the specific conditions. Verify before starting work that such defects are corrected.
2. Field check all dimensions and other conditions to ensure proper fitting of carpet.
3. Do not begin installation until work of other trades, including painting, in the area to be carpeted is completed.

B. Preparation

1. Clean subfloor of loose materials, mortar, paint drips and grease. Fill holes and otherwise prepare the floor to ensure proper fit and uniform installation of carpet.

C. Installation/Application

1. Just before installation of the carpet, sweep and vacuum clean the area to remove dust and dirt.
2. Lay out all carpet to ensure proper fit.
3. Install carpet wall to wall using continuous lengths and as broad widths as possible to eliminate seams in traffic lanes. Cut edges shall be true and appropriately treated to form invisible and non-raveling joints where exposed. Seams shall be taped or otherwise secured according to the manufacturer's instructions.
4. Install carpet in accordance with manufacturer's recommendations for seaming technique and for proper amount of stretch in width and length.
5. Do not seam perpendicular to a door opening within the width of the opening.
6. Extend carpet into adjoining closets.
7. Provide vinyl grip type edge where carpet adjoins other surface materials.

D. Adjusting and Cleaning

1. Remove from the premises all unusable scraps, tools and equipment upon completion of the work.

E. Protection

1. Protect the completed installation from damage, soiling, etc., until final acceptance is given by the Rehab Specialist.
2. Protect finish installation with an approved paper covering taped into place. Remove cover just prior to final inspection.

F. Extra Stock/Spare Parts

1. Deliver usable scraps of carpet to the owner (pieces of 8 square feet or larger).

END OF SECTION

SECTION 09.91 - PAINTING

GENERAL

RELATED DOCUMENTS

None

SUMMARY

A. This Section includes surface preparation and field painting of the following:

1. Exposed exterior items and surfaces.
2. Exposed interior items and surfaces.
3. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
4. Wood floor finishes

B. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
2. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
3. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
4. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
5. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

SUBMITTALS

A. Product Data: For each paint system specified. Include block fillers and primers.

6. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).

7. Samples for Selection: Provide full range of Manufacturer's Standard Colors

QUALITY ASSURANCE

A. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the Project Site in manufacturers original, unopened packages and containers bearing manufacturers name and label, and the following information:

1. Product name or title of material.
2. Product description (generic classification or binder type).
3. Manufacturers stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions.

6. Application instructions.
7. Color name and number.
8. VOC content.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

PROJECT CONDITIONS

A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 deg F (10 and 32 deg C).

B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 deg F (7.2 and 35 deg C).

C. Do not apply paint in snow, rain, fog, or mist or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

PRODUCTS

MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in the paint schedules.

B. Products: Subject to compliance with requirements, provide one of the products in the paint schedules.

C. Manufacturers Names: The following manufacturers and paints are preferred in 2005:

1. Kilz: Casual Colors, Flat
2. Behr: Premium Plus Flat Enamel
3. Valspar
4. UGL: Drylock Latex Masonry Waterproofing
5. American Tradition, Flat

The following floor finish manufacturer's and paints are preferred in 2005:

1. Flecto: Urethane Waterborne
2. Zar: Aqua polyurethane gloss
3. Pro Finisher: Waterborne polyurethane
4. Olympic: Oil based polyurethane
5. Minwax: Gloss polyurethane
6. Flecto: Urethane oil based gloss
7. Zar: Polyurethane gloss

PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturers best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.

C. Colors: Provide color selections made by the Owner from the selected manufacturers full range of colors.

EXTERIOR FINISHES

A. Schedule: Comply with the number of coats, sheen and type of paint for each application or substrate below. Coats is abbreviated CT. All products are painted unless indicated as stain. All products listed below shall be specifically identified as exterior use. Where sheen is not available in a specific product, Architect shall choose sheen one step up or down.

B. Color Scheme: Up to two (2) colors will be used for exterior color scheme.

EXTERIOR SURFACES	CT	SHEEN	TYPE	REMARKS
Trim	1st	Primer	100% Acrylic	
	2nd	Semi-Gloss	100% Acrylic Paint	
	3rd	Semi-Gloss	100% Acrylic Paint	

INTERIOR FINISHES

A. Schedule: Comply with the number of coats, sheen and type of paint for each application or substrate below. Coats is abbreviated CT. All products are painted unless indicated as stain. All products listed below shall be specifically identified as exterior use.

B. Color Scheme: Up to two (2) colors will be used for the interiors. Assume different colors for walls and trim.

INTERIOR SURFACES	CT	SHEEN	TYPE	REMARKS
Gypsum Board Walls	1 st	Primer	Vinyl Acrylic Latex	Tint to final color. Same for existing walls except for primer coat.
	2 nd	Flat	Vinyl Acrylic Latex	
Gypsum Board Ceilings	1 st	Primer	Vinyl Acrylic Latex	Tint to final color. Same for existing clgs except for primer coat.
	2 nd	Flat	Vinyl Acrylic Latex	
Wood for Natural (Transparent) Finish	1 st	Gloss	Water-base Polyurethane	Sand between coats. Only one coat of Semi-gloss on existing trim.
	2 nd	Gloss	Water-base Polyurethane	
	3 rd	Semi-Gloss	Water-base Polyurethane	
Wood Painted (Opaque) Finish	1 st	Underbody	100% Vinyl Acrylic	Sandable Primer, sand between coats
	2 nd	Satin	100% Vinyl Acrylic	

EXECUTION

EXAMINATION

A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.

1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.

1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible primers or remove and reprime.

2. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

a. Scrape and clean small, dry, seasoned knots, and apply up to two (2) thin coats of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.

b. Prime, stain, or seal new wood to be painted. Prime edges, ends, faces, under sides, and backsides of wood.

c. When transparent finish is required, backprime with spar varnish.

d. Back prime paneling and all trim on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.

D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.

2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.

3. Use only thinners approved by paint manufacturer and only within recommended limits.

APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

1. Paint colors, surface treatments, and finishes are indicated in the schedules.

2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

3. Provide finish coats that are compatible with primers used.

4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, closet interiors, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.

5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.

6. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

7. Sand lightly between each succeeding enamel or varnish coat.

8. All existing areas to be repainted, remove blistered or peeling paint to sound substrates. Remove chalk deposits and mildew and wash all surfaces with TSP detergent. Perform related minor preparation including caulking. Spot prime bare areas before priming and painted as specified.

9. When wall or building component is patched or partially replaced paint the entire surface.

10. Fill or caulk all nail holes, imperfections, seams and cracks prior to applying finish coat.

11. Clean all existing trim to remain and apply two coats of polyurethane as specified for new trim.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or other wise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.

2. Omit primer on metal surfaces that have been shop primed and touchup painted.

3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.

1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.

2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.

3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

E. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.

F. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable

G. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections. Provide satin finish for final coats.

CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

PROTECTION

A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.

B. Provide 'Wet Paint' signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

END OF SECTION

SECTION 10.28 – TOILET, BATH & LAUNDRY ACCESSORIES

GENERAL

These specifications represent the minimum standards by which the work is to be performed. Additional standards or particular requirements, if necessary, will be listed in the individual work order for that particular job. Refer to the drawings and the Work Write-up for Scope of Work, locations, quantities and additional requirements.

PRODUCTS

A. Toilet Accessories: Acceptable toilet accessories manufacturers include Bobrick, American Specialties. Finish shall be stainless steel #4 stain finish, 22 gauge minimum.

B. Fasteners. Where exposed, fastener finish shall match accessories.

C. Closet Shelving: Neoprene or plastic coated wire with PVC hangers. Closet Maid or equal.

D. Building Signage: Numerals shall be two-tone injection molded acrylic plastic as manufactured by Scott Plastics or homeowner approved equal.

EXECUTION

TOILET ACCESSORIES

A. Installation: Provide solid wood blocking for all accessories. No hollow wall fasteners are acceptable. Strictly comply with the manufacturer's instructions and recommendations, except where more restrictive requirements are specified in this section. All accessories shall be installed truly straight, plumb, level and square. Securely install accessories at the mounting heights indicated on the work write-ups.

B. Schedule:

1. Full Bath:

- (1) Toilet paper dispenser
- (2) Towel bars, 24" long
- (1) Medicine cabinet, recessed 24" x 30"
- (1) Robe hook
- (1) Shower curtain rod
- (1) Soap dish
- (1) Toothbrush/tumbler holder

2. Half Bath

- (1) Toilet paper dispenser
- (1) Towel bar, 24" long
- (1) Medicine cabinet, recessed 24" x 30"
- (1) Soap dish
- (1) Toothbrush/tumbler holder

C. Final Cleaning: Remove all protective coverings and labels from installed accessories.

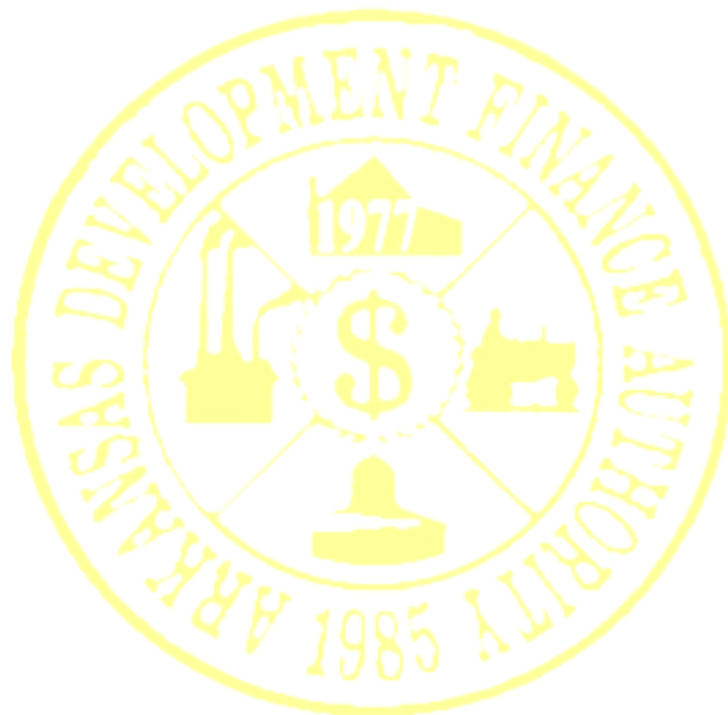
WIRE SHELVING

A. Installation: Furnish and install all items in strict accordance with manufacturer's recommendations. Deck rods spacing shall be one inch increments. Cross deck wires shall be trimmed smooth to longitudinal wires and capped. Components shall provide for shelving installation to drywall without requiring mounting to concealed wall structural members. Provide brackets for every 42" span.

SIGNAGE

A. At each unit entry door and at prominent location for entire building, provide 22" high street and unit numbers.

END OF SECTION



SECTION 12.32 & 12.36 – MANUFACTURED CASEWORK AND COUNTER TOPS

GENERAL coordinate work covered by this section with all other applicable sections.

SUMMARY

- A. Provide prefabricated modular kitchen cabinets and vanities as indicated.
- B. Provide Plastic laminate counter tops as indicated and specified herein.

SUBMITTALS

A. Submit for approval proposed kitchen layout and product data including existing field dimensions. Submit manufacturer's standard color samples for plastic laminate counter tops

QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Standards: All cabinets shall meet or exceed the requirements and specifications of KCMA and ANSI/A161.1-1990 certification. Cabinets shall also comply with provision of paragraph 611-1.1, HUD Minimum Property Standards Housing 4910.1, 9/8/86.

PRODUCTS

MATERIALS

A. Manufacturers: Kitchen Classics - Select; Premier - Basic or IKEA – Basic; American Woodmark – Designer Series; Shenandoah; Mills Pride

B. Cabinets:

Cabinets face and frames to be manufactured from 1" select kiln dried hardwood in full overlay design. End panels shall be 1/4" plywood with wood grain laminate to match exterior, 1/4" plywood backs. All wall cabinets shall have adjustable edge banded shelves of 1/2" substrate with wood grain laminate. Base cabinets shall have half-shelves of 1/2" substrate with wood grain laminate, dadoed into end panels. Wall cabinet end panels shall be edge-banded top and bottom. Hinges shall be fully concealed. Door glides shall be epoxy coated and side mounted with bottom support. Drawers shall have "stay-closed" feature.

C. Counters:

Double radius front, high-pressure plastic laminate as manufactured for residential kitchens with finished ends and backslashes at side walls. Color will be selected from manufacturer's standard colors.

D. Accessories:

Door and drawer pulls shall be provided if requested by owner.

EXECUTION

INSTALLATION

A. Install materials and systems in accordance with manufacturers instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.

B. Attach to existing blocking and grounds as required for proper installation of counter tops.

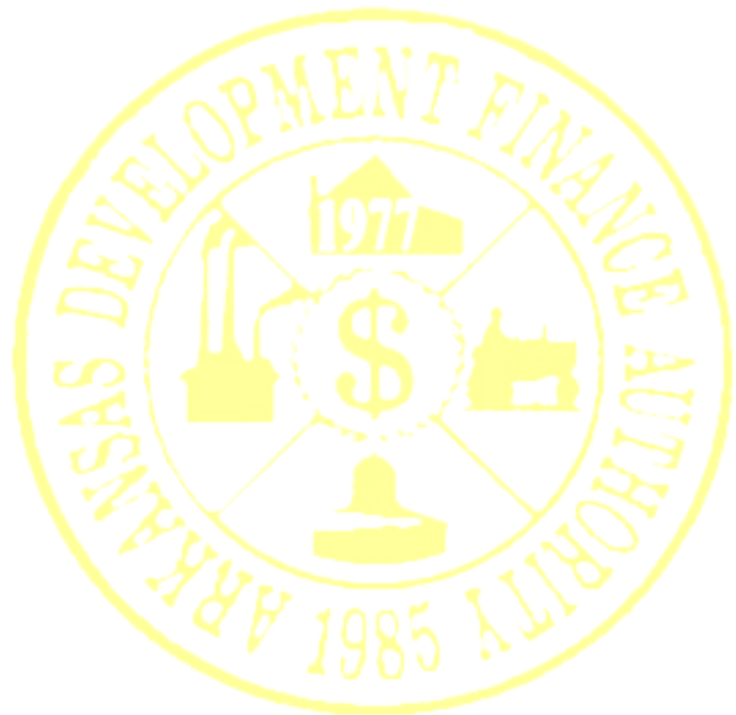
C. Seal entire back and edges of countertops at sink cut outs with water-based polyurethane varnish.

D. Restore damaged finishes and test for proper operation. Clean and protect work from damage.

E. Where base cabinets are installed under existing wall cabinets verify that width dimensions shown on plans for new base cabinets match the width dimension of corresponding existing wall cabinet.

F. Minimize joints in all plastic laminate tops to the greatest possible extent. Joints in plastic laminate tops will not be permitted within 12" of kitchen sinks. Finish all open ends of plastic laminate countertops

END OF SECTION



SECTION 22.00 - PLUMBING

1.1 GENERAL

A. DESCRIPTION

1. Plumbing: The plumbing system for this work includes all water distribution, vents and wastes, floor drainage, condensate drains, plumbing fixtures and trim, and all other plumbing items indicated on the drawings or described in the Work Write-up, plus all other plumbing items needed for a complete and proper installation. ALL ASPECTS OF PLUMBING SYSTEM TO COMPLY WITH ALL APPLICABLE PLUMBING, MECHANICAL AND HEALTH CODES.

B. QUALITY ASSURANCE

1. Use sufficient workers and competent supervisors in execution of this portion of the work to ensure proper and adequate installation throughout and in accordance with all applicable codes. Install all equipment per manufacturers recommendations and specifications.

C. SUBMITTALS

1. Product Data:

a. A materials list of owner allowance items proposed to be furnished and installed under this Section. Minimum of 15 days prior to installation of the heating and/or plumbing system.

b. Warranties: Provide owner with copies of all equipment warranties.

1.2 PRODUCTS

A. PIPE

1. Soil, waste, and vents in building:

a. Except for fixture connections, piping under slabs and vents 2-1/2" size or smaller, all pipe fittings shall be schedule 40 PVC.

b. Provide schedule 40 PVC traps with cleanout plugs at all kitchen and bath sinks. Provide flex hose supply connectors at all sinks and toilets. Provide brass shut off valves at all plumbing fixture supplies.

2. Domestic water piping:

a. All hot and cold water piping shall be hard-drawn Type L copper tube, made up with wrought or forged copper fillings and 95-5 tin-antimony solder.

b. Below-grade and below-slab copper piping shall be type "K"; all other copper piping shall be type "L."

c. Any penetrations of copper through concrete shall have sleeves.

B. VENT FLASHING

1. Provide modified rubber vent boots at each vent through the roof Coordinate with roofer.

INSULATION

1. Pipe insulating materials shall be installed on the following:

a. Cold water piping concealed within exterior walls.

b. Hot water piping:

1. 1/2" wall thickness, closed cell foam insulation with PVC vapor barrier exterior

D. FIXTURES AND EQUIPMENT

1. Provide fixtures and equipment shown on the work write-up, complete with all required stops, supplies, backing drain, trim, and other items necessary. All fixtures shall be in white unless noted otherwise.

2. Plumbing Fixture Schedule:

a. Water Closet, Standard: TOTO 1.6 Gallon Flush, Elongated Rim Bowl or Kohler Wellworth or American Standard Cadet, with any solid plastic, heavy duty, closed front seat with cover.

b. Lavatories: 20"x17" vitreous china, self rimming, #051-3514 with single lever with pop-up. Contractor shall verify that size of lavatory will fit countertop before ordering.

c. Kitchen Sink and Disposal: 6" deep, double bowl, 23 gauge stainless steel, double handle faucet with spray. Provide basket strainers and plugs. Disposal: Kenmore 42-6051, 3/4 HP with 7 year warranty or WasteKing 3/4 Gourmet Stainless Steel or In-Sink-Erator 555 3/4.

d. Tub/Shower Surround Standard: Three piece fiberglass module, 60"x31" verify in field, with MOEN #L3189 tub shower unit with 2.5 GPM flow restrictor.

e. Laundry Hookup: Symmons "Laundry-Mate" W-600. Locate on interior wall.

E. OTHER MATERIAL

1. All other materials, not specifically described but required for a complete and proper installation of the work of the Section, shall be new first quality of their respective kinds, and as selected by the CONTRACTOR subject to the approval of the OWNER.

1.3 EXECUTION A. PLUMBING SYSTEM LAYOUT

1. Design the plumbing systems in accordance with all applicable codes.

2. Acquire all necessary permits for heating and plumbing work.

3. Lay out the plumbing and heating systems in careful coordination with the work write-up, determining proper elevations for all components of the system and using only the minimum number of bends to produce a satisfactorily functioning system. Follow the general layout shown on the drawings in all cases except where other work may interfere. Lay out all pipes to fall within partition, walls, or roof cavities, and to not require furring other than as shown on the drawings.

C. INSTALLATION, GENERAL

1. Do not cut into or reduce the size of any load-carrying member without the prior approval of the Rehab Specialist. Install all pipes to clear all beams and obstructions and in accordance with the following:

- a. Install all piping promptly, capping or plugging all open ends.
- b. Install all piping generally level and plumb, free from traps, and in a manner to conserve space for other work.
- c. Cushion all traps and bearings to minimize transfer of sound. Provide complete isolation of all dissimilar metals. Firmly anchor all pipes into position.
- d. Provide uniform pitch of at least 1/4" per foot for all horizontal waste and soil piping within the building.
- e. Pitch all vents for proper drainage. Install vent piping with each bend 45 degrees minimum from the horizontal wherever structural conditions will permit.
- f. Provide air chambers at all fixtures; 16" minimum length and same diameter as the branch.
- g. Conceal all piping unless otherwise shown on the drawings.
- h. Inspect each piece of pipe, coupling, fillings, and equipment for defects and obstructions. Promptly remove all defective materials from the site.

D. HANGERS AND SUPPORTS

Spacing: Do not exceed the following spacing, on centers:

- a. PVC: 4'
- b. Copper or steel, 1-1/2' and small: 6'
- c. Copper or steel, 2" and larger: 10'

2. Supporting: Use a separate hanger for each branch. Support vertical risers at the floor with extension pipe clamps. Wherever insulated pipe is supported by ring hangers, the rings shall pass freely around the insulation. Protect the insulation at a point of contact with saddles.

E. STERILIZATION OF PIPES

1. Chlorination:

- a. After preliminary purging of the system, chlorinate the entire potable water system in accordance with the current procedures of the American Water Works Association for flushing and disinfecting water mains, and in accordance with all other pertinent rules and regulations.
- b. Upon completion of sterilizing, thoroughly flush the entire potable water system.
- c. When sterilizing is complete, arrange with the pertinent authorities for tests.
- d. Chlorinate only when the building is unoccupied.

2. Certification: Deliver a Certificate of Completion of Chlorination" to the Rehab Specialist.

F. CLOSING IN UNINSPECTED WORK

Do not cover up or enclose work until it has been properly and completely inspected and approved. Should any of the work be covered up or enclosed prior to all required inspections and approvals, uncover the work as required and, after it has been completely inspected and approved, make all repairs and replacements with such materials

and workmanship as are necessary to the approval of the Rehab Specialist, and at no additional cost to the OWNER.

G. TESTING

1. General: Furnish all test pumps, gauges, equipment, and personnel required, and test as necessary to demonstrate the integrity of the finished installation to the approval of the OWNER.
2. Soil and Waste: Unless otherwise directed, plug all openings and fill with water to a height equal to the lowest vent. Allow to stand one hour or longer as required. Repair leaking joints and then re-test.
3. Water lines: Test and make tight at 150 psi water gauge. Retain for four hours; repair all leaking joints as directed; and then re-test.

END OF SECTION



SECTION 23.00 – HEATING, VENTILATING AND AIR CONDITIONING

GENERAL

1.2 Performance specification for all HVAC.

1.2.1 Description: Provide heat as needed to maintain the HVAC room temperature above 45 degrees minimum and to protect water pipes from freezing.

1.2.3 Calculations: The Heating Contractor is required to prepare heat loss calculations to determine the proper amount of radiation to install. The system shall be designed to maintain 75 degree Fahrenheit indoor temperature with an outdoor temperature of -10 degrees Fahrenheit. Prepared heat loss calculations shall be submitted to the Rehab Specialist and Owner for review 15 days prior to ordering any equipment for the project. Calculations shall be prepared for each individual room and shall include the total heat loss for the building. The calculation sheets shall list the U-factors, temperature differences and ventilation factors, including air changes calculated for each area. Calculations shall be presented in a neat, legible manner. Include the name of the preparer, the firm, their telephone number and date prepared. Assume the following: Exterior walls = R-12, Sloped ceiling = R-20, Flat ceiling = R-38.

1.3 Specifications: The Contractor shall prepare written specifications for all equipment, piping, insulation, valves, ducts, thermostats, etc. These specifications shall be submitted to the Rehab Specialist and Owner for review 15 days prior to beginning work or ordering equipment.

1.4 The Heating Contractor is required to provide combustion air for the HVAC equipment in order to meet code requirements. In addition to combustion air, the Heating Contractor shall provide adequate ventilation to prevent overheating of the mechanical room. This system shall maintain the HVAC room at a temperature not exceeding 85 degrees Fahrenheit, except during the months of July and August when the boiler room temperature may rise to the outdoor temperature.

PART 1 FURNACES

1. The system for this work includes all heat, hot air, furnaces, vents, distribution lines, flues, condensate drains plus all other items required for a complete and proper installation.

1.1.1 Heating System sizing must be based on Manual J calculations. Sizing calculations provided to Rehab Specialist on request. Buildings with heating loads larger than 250,000 BTU/hr require staged multiple furnaces.

1.1.3 Furnaces are provided with ducted combustion air ducted directly from outdoors to the burner or to an "airtight" mechanical room. The combustion air requirements of the furnaces are separate from the building to eliminate backdrafting.

1.1.10 Each residential unit is individually zoned; homes with two or more levels shall have individual zones per level.

PRODUCTS

A. All new furnaces shall be Energy Star labeled with an Annual Fuel Utilization Efficiency (AFUE) of 90% or greater.

B. Metal Ducts

1. For exhaust systems and for the main plenum of heating, ventilating and air conditioning systems, use galvanized sheet metal ducts.

2. At branch ducts, provide manually operated dampers, two gauges heavier than the ducts and equipped with locking quadrants.

C. Flexible Ducts: Where permitted, use factory fabricated insulated low pressure flexible duct with the following attributes:

1. Zinc-coated spring steel helix, with R-6 fiberglass insulation, sheathed in a seamless vapor barrier jacket.
2. Interior fire-resistive coated to prevent fiber erosion.

3. Provide flexible duct in fully extended condition, free from sags and kinks. Use only the minimum length required to make the connection. Do not exceed 8 feet in length. Make joints and connections with 1/2" wide positive locking steel straps.

D. Air Outlets. Use double deflecting type with opposed blade dampers.

E. Thermostats: Provide programmable, low voltage, thermostats for each zone. Mount 40" A.F.F. in all locations. Preferred manufacturers and products in 2005 are: Lux TX 9000, Lux TX 1500, Honeywell CT 2800.

PART 2 AIR CONDITIONING

GENERAL

1. The work of this section includes the A-frame, air handlers, fans, condensers, pads condensate lines and drains as indicated in the Work Write-up required to create a complete and proper installation.

PRODUCT

Equipment Manufacturers: The following are preferred models:

1. Bryant: 2 speed Puron Plus: 16 Seer
2. Rheem: Classic 14 – Puron
3. Ruud: Achievement Series 14 – Puron

Refrigerant: Freon is scheduled to be discontinued in the United States as of January 1, 2010. All new installations of complete systems shall use Puron refrigerant.

Minimum Efficiency: All heat pumps and central air conditioning units shall provide at least 14 Seer.

A. Metal Ducts

1. For the heating, ventilating and air conditioning systems, use galvanized sheet metal ducts.
2. At branch ducts, provide manually operated dampers, two gauges heavier than the ducts and equipped with locking quadrants.

B. Flexible Ducts: Where permitted, use factory fabricated insulated low-pressure flexible duct with the following attributes:

1. Zinc-coated spring steel helix, with R-6 fiberglass insulation, sheathed in a seamless vapor barrier jacket.
2. Interior fire-resistive coated to prevent fiber erosion.

3. Provide flexible duct in fully extended condition, free from sags and kinks. Use only the minimum length required to make the connection. Do not exceed 8 feet in length. Make joints and connections with 1/2" wide positive locking steel straps.

C. Air Outlets. Use double deflecting type with opposed blade dampers.

D. Piping: For refrigerant piping, use Type L copper, refrigerant grade with wrought copper fittings.

E. Thermostats: Provide programmable, low voltage, thermostats for each zone. Mount 40" A.F.F. in all locations. Preferred manufacturers and products in 2005 are: Lux TX 9000, Lux TX 1500, Honeywell CT 2800.

PART 3 BOILERS

GENERAL

1.1.1 Heating System sizing must be based on Manual J calculations. Sizing calculations provided to Rehab Specialist on request. Buildings with heating loads larger than 250,000 BTU/hr require staged multiple boilers.

1.1.2 All new boilers shall be Energy Star labeled with an Annual Fuel Utilization Efficiency (AFUE) of 90% or greater.

1.1.3 Boilers are provided with ducted combustion air ducted directly from outdoors to the burner or to an "airtight" boiler room. The combustion air requirements of the boiler are separate from the building to eliminate backdrafting.

1.1.4 In multiple boiler systems, boilers are piped with primary/secondary piping to isolate them from each other.

1.1.5 In buildings of fewer than eight apartments, pumps are controlled to operate only when there is a call for heat (intermittent primary pump operation).

1.1.6 Motors of 1 hp or greater are NEMA premium efficiency. Pumps for system shall be appropriately sized and sizing calculations with head and flow will be provided to Rehab Specialist, if requested.

1.1.7 All hot water hydronic distribution piping is insulated to the following ASHRAE standards:

- Nominal pipe diameter < 1.5" has 1" insulation
- Nominal pipe diameter > 1.5" has 2" insulation
- Pipe insulating values based on material with insulating value of R-3.7 per inch (conductivity not exceeding 0.27 BTU per inch/h * ft² ° F)

1.1.8 Multiple-boiler installations have controls and are programmed to (1) stage boilers; (2) alternate lead/lag; (3) modulate boiler water temperature based on outside temperature; and (4) shut off the primary circulator when outside temperature rises above a pre-set outdoor temperature.

1.1.10 Each residential unit is individually zoned; apartments with two or more levels have individual zones per level.

1.1.11 Water Heater: Domestic hot water shall be Energy Star rated at greater than 90% stand-alone system. CHW tanks have insulation with a minimum R-value of R-14.

1.1.12 Circulating domestic water heating loops are installed only when the run is greater than 50 feet to the furthest tap. Pumps are appropriately sized, and control with a 24-hour timer is recommend, but not required. All loop piping is insulated to ASHAR Standards:

- Nominal pipe diameter < 1.5" has 1" insulation

- Nominal pipe diameter > 1.5" has 2" insulation
- Pipe insulating values based on material with insulating value of R-3.7 per inch (conductivity not exceeding 0.27 BTU per inch/h * ft² ° F)

MATERIALS

2.1 Piping: Piping shall be Type M copper with soldered joints.

2.2.1 Combustion Air. Combustion air and venting shall be as required by the HVAC manufacturer and to meet all codes. Equipment shall be vented to the existing chimney. Install chimney liner or flue as necessary.

2.2.2 Expansion Tank and Fill Valve: by Watts or Amtrol or approved equal.

2.3 Baseboard Radiation and Fintube Radiation: Furnish and install baseboard radiation as required. Radiation shall be Trane, Vulcan, or Sterling. Enclosure shall be one piece, manufactured of 18 or 16 gauge steel with friction damper, plastic element supports and removable front covers. Enclosures shall be joined by means of a slip joint. Back panel shall be die formed for rigidity. Hangers shall be of the rod type or slide cradle to allow for expansion and contraction with optional adjustable hangers provided when pitch is required. Enclosures shall be installed with supports approximately two feet on center, with a minimum number of joints. All enclosures and trim will be finished with baked enamel. Provide access panels or other approved access at each manual and automatic valve installed inside the covers. Circulators: Taco, size as required or approved equal.

2.6.1 All power and control wiring shall be installed by the Electrical Contractor. Provide proper instruction and wiring diagrams.

2.6.2 Thermostats: Provide programmable, low voltage, thermostats for each zone. Mount 40" A.F.F. in all locations. Preferred manufacturers and products in 2005 are: Lux TX 9000, Lux TX 1500, Honeywell CT 2800.

2.7 Insulation: All hot water supply and return piping except within radiation enclosures shall be insulated with 3/4" fiberglass insulation with ASJ jacket. All valves and fittings shall be insulated with Zeston pre-molded pipe covers. All joints shall be sealed with self sealing overlap on insulation or tape as recommended by the manufacturer. Cellular foam insulation shall be limited to piping installed in the crawl space.

2.8 Provide sprinkler head over boiler as required by code unless it is included in an overall sprinkler system, contractor to coordinate.

2.9 Provide zone priority system to favor hot water heating over radiation heat.

INSTALLATION

3.1 Pipe Installation:

3.1.1 Special care must be taken to maintain maximum headroom and clearances for access to other equipment and to avoid conflict with electrical conduits, lighting fixtures, piping, ducts and equipment of other trades. All piping shall be concealed in all finished rooms, located in radiation covers, walls, ceilings, soffits, crawlspaces, etc.

3.1.2 All piping shall be installed with proper provisions to allow for expansion and contraction of lines without placing undue strain in pipes, fittings, and equipment. All piping shall be separated from structure to eliminate "water hammer." Piping shall be installed to provide adequate pitch for drainage and venting with trapping any lines. Improperly installed pipe shall be corrected at no additional expense to the Owner. Provide Drain Tees at low points of radiations loop piping.

3.1.3 Connections to pipe headers and to equipment shall be made with unions or flanges to permit future replacement, removal, and servicing of the equipment.

3.1.4 All burrs shall be removed, pipe ends shall be reamed or filed out to the full size bore of pipe and all chips removed

3.1.5 Before any part of the various piping system is placed in operation, it shall be cleaned as specified.

3.1.6 Flexible connections shall be provided where required at fan coil units to isolate movement of equipment for piping system or piping system for equipment and building. Piping adjacent to flexible connections shall be rigidly supported and anchored so that all movement and vibration will be absorbed in the flexible connection.

3.1.7 All horizontal piping shall be supported for its entire length. Hangers or supports shall be located with 2'-0" of elbows. Maximum spacing of hangers and supports shall be as follows, but closer spacing should be used when practical or necessary for each installation or attachment to the building structural system.

Copper Tube 1-1/4" and smaller - 5'-0"

Copper Tube 1-1/2" to 20-1/2" - 8'-0"

3.1.8 The use of wood or fiber plugs, cold bent hanger loops, chains, wires, perforated metal bands or horizontal pieces of pipe will not be permitted.

3.1.9 All piping shall be labeled with direction of flow and system designation. Tag all valves. Provide valve chart.

3.2 Cleaning of Piping System:

3.2.1 The Contractor shall take whatever action is necessary to remove all dirt, construction debris, corrosion material, oil, grease, etc., from the piping systems and to chemically clean the system before placing in operation.

3.2.2 Hot water heating system shall, after initial flushing with compressed air or cold water to remove chips and scales, be brought up to temperature of 200 degrees Fahrenheit. Water shall be circulated through all piping and heating elements for not less than two hours. Then the system shall be completely drained and flushed out while water is still above 170 degrees Fahrenheit in temperature. Bring water to an alkalinity of B to 120 pH when putting system into operation.

3.3 Testing of Hot Water Heating System Piping:

3.3.1 All pressure (leak) tests shall be completed and results accepted prior to the start of cleaning procedure and before any insulation covering or other finish is applied.

3.3.2 Test all piping at 125 psi by applying a hydrostatic pressure using a pump. Be sure all lines are vented of all air. Test shall be maintained for not less than two hours and longer as necessary to completely check and inspect the piping.

3.4 Balancing:

3.4.1 The new water and air systems shall be balanced upon completion of the work. Contractor shall submit balancing report to Rehab Specialist for review.

3.5 Maintenance and Instruction:

3.5.1 The Heating Contractor shall allow 1 hour time to instruct the Owner, or his maintenance staff as to the operation and maintenance of the system and shall be provided with a neatly organized, hard covered manual which includes all lists of all equipment installed, their individual model numbers, warranty of individual equipment, manufacturer's names, addresses, telephone numbers, and parts lists for all equipment.

3.6 Guarantee for all Systems:

3.6.1 All work, installation and equipment shall be guaranteed for one full year after acceptance by the Owner. Manufacturer's warranties that exceed one year shall take precedence over Contractor's warranty of one year.

3.7 Duct Installation: All details of the duct system shall be in accordance with SMACNA, International Mechanical Code and NFPA.

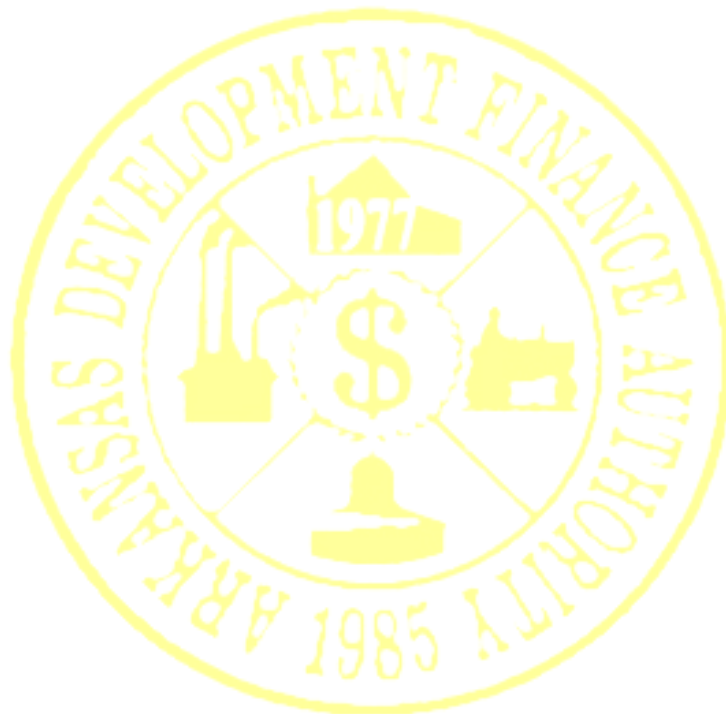
3.8 Removal:

3.8.1 Remove all piping, fittings, valves, fixtures, ducts, furnaces and equipment not to be incorporated in the building renovations. Visit the site and become familiar with all items being removed.

3.8.2 All items being removed and not called for to be reinstalled shall become the property of the Contractor and shall be removed from the site.

3.8.3 Any items or removal which is apparent by field inspection as a conflict with the proposed new construction shall be brought to the attention of the Rehab Specialist. Any items apparent by field inspection as work required to accomplish the renovations shall be included in the bid. The Contractor is responsible for any assumptions made thereto.

END OF SECTION



SECTION 26.00 - ELECTRICAL

GENERAL

A. Wiring in the property may be salvaged and reused as long as the total system meets all codes and is neat in appearance. Remove from the site all unused and disconnected wiring, unused electrical connections, meters, equipment, etc.

B. DESCRIPTION

1. Electrical work required for this section includes, but is not necessarily limited to:

a. Contractor shall inspect all electrical entrances meters and panels at the pre-bid walk through and shall include these items in their proposal if required to bring the electrical service in compliance with all applicable codes.

b. Electric service, complete, including new panels and connection with the utility company's facilities if so required.

c. Feeder to circuit breaker panel;

d. Complete branch circuit wiring system for lighting, receptacles, junction boxes, appliances and similar uses.

e. Electrical connections to complete installation of all appliances and HVAC equipment.

2. All electrical work shall be installed in accordance with all applicable electrical codes and local utility company regulations. No surface-mounted raceway shall be used unless specified in Work Write-Up.

C. SERVICE ENTRANCE EQUIPMENT AND CIRCUIT BREAKER PANEL AND MAIN DISCONNECT SWITCH

1. Circuit breaker panel board shall be main lug, 1 phase, 120/240 VAC, 42 (26 spaces) Circuit, 200 Amp with surface door or approval equal. Circuit breakers shall conform with the panel, amperage size 20, 30, 40, 1-pole and 2-pole as indicated by panel layout.

2. Main disconnect switch shall be quick-make, quick-break, fused type, rated 240 VAC for 120/240 V. systems, 3-pole, s/n, 200 Amp.

D. ELECTRICAL DISTRIBUTION SYSTEM

1. Identification of components: Identify all components by means of a neatly stenciled label.

2. Wiring devices:

a. All duplex receptacles shall be standard 2-pole, 3-wire grounding type, 15 Amp, 15 VAC or equal.

b. All duplex ground-fault receptacles shall be 2-pole, 3-wire, 15 Amp, 120 VAC feed-through or equal.

c. All toggle switches shall be standard, 15 Amp, 120 VAC.

d. All plates and covers color plastic to match existing.

3. Home runs: Continue all such home runs to the panel as though the routes were completely indicated.

4. All conduit as indicated on the work write-up for service entrance and other, shall be PVC conduit.

5. Insulate and tape all splices in accordance with governing code.

6. Wiring methods: Non-metallic sheathed cable may be used where it is totally concealed within wood frame walls or attic spaces. In basements where subject to possible physical damage, the cable shall be protected. In attics, mechanical protection of cables is required within 6 feet of scuttles and mechanical equipment. Non-metallic sheathed cable shall be secured by approved staples at intervals not exceeding 4-1/2 feet and within 12 inches of every outlet box or fitting. A change from non-metallic sheathed cable to a metal-protected wiring system shall be made in an accessible metallic junction box. Non-metallic sheathed cable shall be the type having grounding wire in addition to the energized wires.

E. INSTALLATION OF PANELS

1. Directories: Mount a neat, typewritten, directory on the inside of each panel door. On the directory, show the circuit number and complete description of all outlets on each circuit.

F. GROUNDING SYSTEM

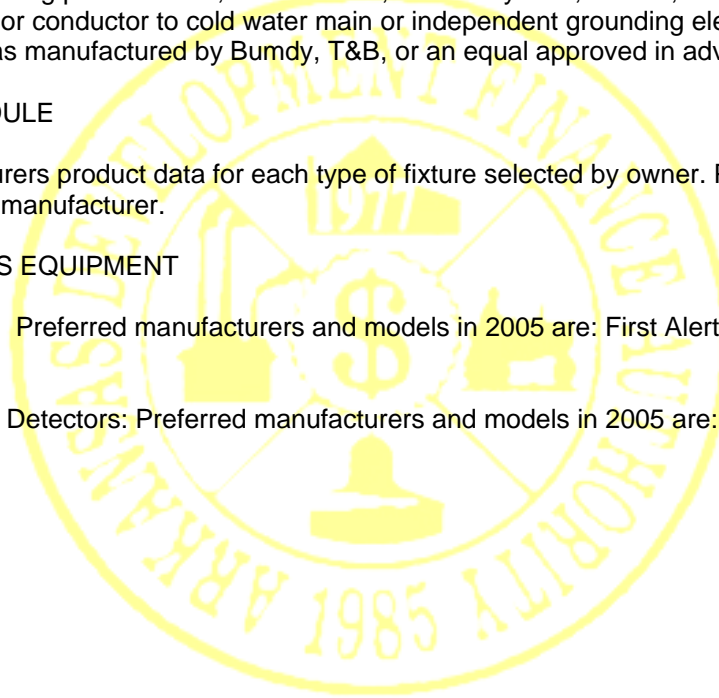
1. All equipment including panel boards, transformers, conduit system, motors, and other apparatus, shall be grounded by conduit or conductor to cold water main or independent grounding electrode, as required by Code, with ground clamps as manufactured by Bumdy, T&B, or an equal approved in advance by the Rehab Specialist.

G. FIXTURE SCHEDULE

a. Submit Manufacturers product data for each type of fixture selected by owner. Provide lamp(s) for each fixture as recommended by manufacturer.

H. MISCELLANEOUS EQUIPMENT

1. Smoke Detectors: Preferred manufacturers and models in 2005 are: First Alert – Dual Sensor or 10 Year Lithium.
2. Carbon Monoxide Detectors: Preferred manufacturers and models in 2005 are: Kiddie Nighthawk; Kiddie 9 CO 5.



TESTING

1. At the time of the final inspection and tests, all wiring and connections throughout the construction area must be complete, devices and equipment properly operating, all lighting fixtures installed, power and lighting circuit and control wiring clearly identified with approved tags ready for acceptance.
2. Each wiring system, before devices are installed, shall test free from short circuits and from ground.
3. All testing equipment necessary to satisfactorily conduct the above tests must be furnished by the Electrical Contractor, and all tests made by him in the presence of the Rehab Specialist.

END OF SECTION

