City of Montgomery, Alabama

REHABILITATION CONSTRUCTION STANDARDS
For Affordable Housing

As Adopted By the

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ABBREVIATION KEY **93**

GENERAL CONDITIONS

1. SCOPE of the work shall include all labor, materials, equipment, permits, drawings (if any), and services necessary for the proper completion of the rehabilitation of the property as identified and specified in the Work Write-up.

2. This PERFORMANCE MANUAL shall take precedence over the Work Write-up; in the event of any conflict, the material, equipment and workmanship called for in the Performance Manual shall prevail.

3. Any DRAWINGS provided are diagrammatic only, illustrating the general intention of this manual. They may not show all of the work required, exact dimensions, or construction details. (Contractors shall verify all dimensions prior to submission of bids.)

4. CHANGES IN THE WORK including substitutions of materials, changes in the scope or workmanship required by these specifications, which may be proposed by the Contractor or found to be necessary or desirable as the work progresses, shall be made only by written Change Order approved by the Contractor, the Owner and the Rehabilitation Specialist, before any work incidental thereto is started.

5. WORKMANSHIP shall be performed in accordance with the standards of the several trades known as a “workmanlike manner.”

6. MATERIALS shall be new, in good condition, and of standard grade unless otherwise agreed to in writing by the Contractor and Rehabilitation Specialist prior to installation.

7. REPAIRS to surfaces, structures, and/or properties damaged by the Contractor or resulting from his/her work under any related contract are the responsibility solely of the Contractor, who shall restore such items to condition that is equal-to or better than at the time the damage occurred, at no additional cost to the owner.

   Where “repair of existing work” is called for by the contract, the feature is to be placed in “equal to new condition” either by patching or replacement; all damaged, loose or rotted parts shall be removed and replaced, and the finished work shall match adjacent work in design, dimension, and finish.

   Incidental items not mentioned in the Work Write-up that can be reasonably and legitimately be inferred to belong to the work described or to be necessary, in good and common practice to provide a complete system shall be furnished and installed as though called out in every detail.

8. INSPECTION OF THE WORK during normal working hours by authorized inspectors shall be facilitated by the Contractor, and the work shall be subject to the inspectors’ approval and acceptance.

The responsibility of obtaining all necessary permits shall also be that of the Contractor.

9. SUBCONTRACTORS shall be bound by the terms and conditions of the related contract in so far as it applies to their work, but this shall not relieve the General Contractor, if such a one is awarded the contract, from full responsibility for proper completion of all work to be executed under the agreement, and he/she shall not be released from this responsibility by any sub-contractual agreement he/she may make with others.

10. BIDS OR PROPOSALS will be submitted at the Bidders' risk, and the City and/or its designated Subrecipient reserves the right to reject any or all bids or proposals.

11. BUILDING CODES - All housing rehabilitation construction shall be subject to the standards contained herein, regardless of funding source, except when superseded by building codes as adopted by the City of Montgomery.

12. CLEAN UP and removal from the site on a daily basis of all debris and waste materials resulting from the work shall be the responsibility of the Contractor, who shall, upon completion of the work, leave the premises in broom clean condition and all windows washed.

13. PRODUCT TRADE NAMES, when used in the basic specifications, are used only to establish quality and type of materials required; exact material to be used on a specific property will be described in the Work Write-up.

14. ADJACENT PROPERTY - When adjacent property is affected or endangered by any work done under any related contract, it shall be the responsibility of the Contractor fully and responsibly to take whatever steps are necessary for the protection of the adjacent property and to notify the owner thereof of such hazards.

15. All rehabilitation work that is performed through the Department of Economic Development must comply with City of Montgomery building codes.

01- CARPENTRY

A. GENERAL ROUGH CARPENTRY - FRAMING

1. Framing: General -All framing shall comply with the applicable official City of Montgomery building codes.

    a. Framing shall be level, square, straight, plumb and true, and shall fit closely, set to line and level indicated and fastened in place rigidly. Framing members shall not be cut, notched, or bored more than 1/4 of their depth without adequate approved reinforcing. Boring shall be in the middle 1/3 of the member. Floor joists shall not be cut, notched or bored more than 1/6 of their depth; holes bored shall not exceed 2” in diameter and shall be in the end 1/3 of span only.
    b. All exterior and bearing walls shall have minimum 2”x 8” header with 1/2” plywood spacers over all openings. Any rough opening exceeding 5’ in width will require a solid 1/2” core running the continuous length of header.
    c. All structural framing lumber shall be construction grade or better. Moisture content shall not exceed 19 percent at rime of installation.
    d. No untreated wood shall be in contact with paving or within 8” of finished grade. All wood within 8” of the finished grade shall be preservative treated.
    e. All framing exposed to weather shall be nailed with galvanized spikes. All exterior nailing shall use galvanized nails.
    f. Minimum nominal thickness of sill plates shall be 2”. Minimum bearing for ends of joints and wood framing shall be 3-1/2” x 1-1/2” (nominal 2 x 4). All sills shall be preservative treated.
    g. Sill installation: termite shields shall be metal, extending at least 2” over each side of foundation wall. Shields are to separate all exterior sill plates from masonry.
    h. All girders and other structural support members shall be capable of supporting all designed dead and live loads imposed on them, without sagging or buckling.

2. Studs and Joists

    Minimum bearing for joists framing into masonry shall be three (3) linear inches. Joists which are to be framed into masonry and all mudsills shall be pressure and preservative treated or shall consist of foundation grade redwood. All new joist framing shall have bridging, per code.

3. Stud Walls

    a. Studs in one and two story buildings shall not be less than nominal 2”x 4” with the wide face perpendicular to the wall, spaced at maximum 16” on center.

b. Sole plates shall be pressure treated if installed on masonry or concrete.
c. For load bearing walls, headers shall be made up of doubled nominal 2”x 6” lumber for spans up to 5 feet and doubled nominal 2"x 8” for spans up to 6 feet. Spans up to 8 feet shall require doubled 2"x 10"; up to 10 foot spans must utilize doubled nominal 2"x l2". Beams shall be secured together so that load is distributed evenly. Headers for non-load bearing walls may consist of doubled nominal 2”x 4” lumber for spans up to 5 feet.

B. ROOF FRAMING

1. Rafters: General Specifications

a. All damaged or deteriorated rafters shall be replaced entirely. No splicing of any rafter will be permitted, unless specified. When rafter tails are to be replaced, they shall be cut back flush with exterior siding.
b. New rafter tails shall be of same dimension as the old and shall be face-nailed to the side of the existing rafter to a minimum distance of 4” in from the outer edge of the wall framing.
c. Approved prefabricated trusses may be used when specified.
d. Collar ties shall be installed on all new rafters. Ties shall be nominal l” x 6” pine or fir and located in the middle third of the rafter length.
e. All saw cuts on roof framing and rafters shall be to the line and closely fitted. Ridge boards, when installed, shall be a minimum of nominal 1” in thickness and not less in depth than the cut end of the enjoined rafters.
f. All rafters shall consist of a minimum nominal 2”x 6” lumber spaced no more than 24” on center, unless otherwise specified.

2. Sheathing: General Specifications

Sheathing shall be minimum 1/2” CDX plywood fastened with 8d ringed-shank nails 6” on center at perimeter and 10” on center in field area. Sheathing shall run perpendicular to framing with a ply clip between each rafter.

3. Soffit: General Specifications

a. Maximum spacing for soffit supporting (“look out”) members shall be 24” on center.
b. Enclosure options are plywood, vinyl, or aluminum siding, per Carpentry Section I.3, 5, 6 or as otherwise specified. Wood soffit enclosures shall be trimmed at the building wall with an appropriate molding, and finished at rafter ends using #2 clear grade pine, spruce, redwood, or factory-primed composition board fascia, unless otherwise specified, followed by primer application upon installation. Vinyl or aluminum enclosure systems shall use treated pine or redwood lumber for fascia.
c. All enclosed soffit shall be provided with screened vents to provide sufficient air flow for volume of under-roof area.
d. Replacement procedures for fascia shall incorporate lengths of material sufficient to reach a minimum of three rafter ends.

C. FLOOR FRAMING

1. New and relocated floor joists shall be supported at their extreme ends by either a minimum 2”x2” ledger member or metal joist hanger; mere “toe-nailing” will not be acceptable. Splicing of floor joists shall be allowed only at support locations. All floors shall be properly reinforced, per code.

2. Deteriorated floor joists shall be removed and replaced with new joists of pressure treated or decay-resistant material of the same dimensions. When “scabbing” repair method is specified, new joist must extend at least four times the length of deteriorated portion. The new material shall have the same dimensions of the old joist and be nailed securely from both sides.

3. Bearing lumber framing shall not be less than 1-1/2” in width for bearing on wood or metal, and 3” for bearing on masonry. Joists shall be placed so that the top edge provides an even plane for installation of the sub floor and finished floor. Notches for piping in the top or bottom of joists should not exceed one sixth the depth of the joist and shall be located in the middle of the span. Holes bored in joists for piping or electric wiring shall not be closer than 2” to the top or bottom of the joist and the diameter of the hole shall not exceed 1/3 the depth the joist.

D. GENERAL FINISH CARPENTRY

1. Trim - General

For baseboard, window and door casings, crown and other molding, unless otherwise specified, all new material used shall be mill-finished and sanded white pine, stain grade free from scars. Whenever possible, new baseboards, moldings and casings are to be matched in size and shape to existing trim.

a. Joints in continuous rows of trim shall be mitered and placed to join over framing members. All joints are to be accurately cut to fit tightly; material is to be securely fastened using appropriate fasteners and/or adhesive, with all fasteners countersunk and filled. No new materials that are split or otherwise defective will be accepted.
b. Base and shoe molding, unless otherwise specified, shall be installed in all rooms of the dwelling. When resilient-type floor covering is to be installed, shoe moldings shall be held for installation after resilient flooring installation is complete. Unless otherwise specified, when removal of existing base and/or shoe molding is necessary in order to repair damaged flooring, new base and/or shoe mold shall be installed and finished to match existing.

c. Casings shall have neatly mitered corners, set back a maximum of 3/8” from the face of the jamb, and securely fastened to the finish and rough jamb material.

2. Stairs - General

a. Every stairway is required to have a handrail installed in a secure, sound, safe condition, mounted on standard handrail brackets or equivalent. All stairs shall be constructed in accordance with local building codes.

b. Repair procedures for stairs shall include re-nailing or replacing all loose, springy or squeaking treads, risers and stringers in order to restore to tight, sound and safe condition. Wood used shall be the same species and size as original when not covered by carpet.

c. Interior requirements to be observed are as follows:

(1) Prefabricated stairs shall have oak or fir treads and risers; stringers shall be Douglas fir with rabbeted slots for tread insertion. The installer shall provide solid bearing at top and bottom in accordance with building code. A center stringer shall be installed when the distance between stringers is greater than 2’-6.” Prefabricated stairs having wedged and glued treads and risers may be supported by only two 12” stringers, provided that the width of stairs does not exceed 3’-6.”

(2) Site-built stairs shall use minimum No.1 pine stringers and conform to all local building codes.

d. Exterior steps shall be built using pressure treated lumber, on minimum nominal 2” x 12” stringers, and in accordance with local building code. Treads and risers of required stairs shall be so proportioned that the sum of two risers and a tread, exclusive of the projection of the nosing, is not less than 24” or more than 25.”

The height of any riser shall not exceed 7-3/4”, and treads, exclusive of the nosing, shall not be less than 9” wide. Treads shall be of uniform width and risers of uniform height in any flight of stairs or steps.

e. A flight of stairs shall not have a vertical rise of more than twelve (12) feet between floor and landing.

f. Landings shall incorporate the following rules, unless otherwise specified:

(1) The width of a landing shall not be less than the width of the stairways they serve. Landings must exceed 3’x 3’ in overall dimension.

(2) Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the stairway. Such dimension need not exceed 4’ when the stair and landing together form a straight run.

(3) Doors opening onto a landing shall not reduce the available space on the landing to less than 1/2 the required width. When fully open, the door may not project more than 7” beyond the landing’s leading edge.

d. Attic stairs shall have treads and risers which at least conform to existing construction, with handrails consisting of a minimum of two-by-four lumber mounted on standard handrail brackets.

e. Disappearing stairs:
   (1) Damaged or missing parts shall be replaced and unit adjusted for safe operation and usage.
   (2) When replacement is specified, equivalent or better than existing unit shall be installed in accordance with local building code.

f. Ceiling scuttles, when installed new, shall be at least 22” X 22” in opening dimension and closed with an unattached panel of minimum 3/8” thick AD plywood firmly and neatly supported on continuous wood cleats. Unit must be trimmed on ceiling side to create a framed opening, using a minimum of 2-1/4” wide casing stock.

4. Pre-finished hardboard panels shall be applied over existing wall surface or framing, using appropriate fasteners and/or adhesive, in accordance with manufacturer’s written instructions, along with factory-finished moldings and other trim accessories as required.

5. Wood Paneling:

   a. Materials: Pre-finished wood paneling in 4’x 8’sheets, minimum ¼” thick, shall be attached using appropriate panel adhesives, per manufacturer’s recommendations, and/or nails with matching color heads. Finish trim shall be pre-finished wood molding to match; matching color putty sticks shall be used to touch up any gaps, defects, or countersunk nails. When pre-finished molding to match is not available, new sanded white pine molding may be used, with matching stain and minimum one coat of varnish or lacquer applied. All panel installations must be trimmed to finish with the appropriate molding pieces, i.e., base and shoe at floor, casings at doors and windows, and minimum 1-3/4” cove or bed molding at ceiling.

   b. Installation on existing walls: Installer shall remove any loose plaster or protruding objects such as nails and screws. Existing base mold and casings may be removed when specified; if existing molding is to be left in place, panels must be neatly scribed and joined to trim. Appropriate moldings shall be applied to inside or outside corners when a close, neat fit is not obtained. Paneling shall be installed with vertical joints placed over wall stud locations, fastened securely with appropriate length nails and/or adhesive, and nails countersunk and filled.

c. Installation on new walls may be performed by direct application over bare wall studs, or over wood lath strips, using appropriate nails combined with adhesive, placing all vertical joints and top and bottom ends of panels over a stud or lath strip.

E. CABINETS

1. Material

   a. All cabinets shall be prefabricated Merilatt, equivalent, or as specified. When site-finishing is specified, finish shall match existing room, unless otherwise noted.
   b. Knobs, pulls, hinges and catches shall match existing whenever possible. Except for the purpose of matching, no plastic hardware will be accepted.
   c. Countertops shall be prefabricated laminate type with formed edge and integral 4” backsplash, and prefabricated miters.

2. Installation

   a. Countertops must be screwed onto cabinet for secure attachment, with *siliconized latex* tub & tile caulk applied to transition of wall to backsplash.
   b. All cabinets shall be installed level, plumb, square and true throughout.
   c. Wall and base cabinets will be screwed through rear stiles into wall framing and through side stiles to each other.
   d. Unless otherwise specified, wall cabinets shall be mounted such that the tops are 7 feet above the finished floor.
   e. Cabinets shall be installed only after all other room painting is completed, followed by appropriate touch-up as needed.

F. CLOSETS

Closets shall be framed and dimensioned as specified in the Work Write-up and in accordance with local building code. Interior finish shall match existing room finish. All closets shall include a clothes rod and at least one shelf, minimum 12” deep.

1. *Closet Repair*, when specified, shall consist of the removal and new installation of the shelf and clothes rod, as per existing.

2. *Shelf Installation*, when specified, must include all supports necessary to carry the load to be placed upon them. All such shelves shall be minimum 12” wide and 14” apart, unless otherwise specified. All shelves over 4’ in length shall have appropriate center supports.

3. *Closet rod Installation*, when specified, shall be either wood or finished metal rods secured with rod hanger and screws, and designed for the intended load. Any closet rods over 4' in length shall have appropriate center supports.

G. EXTERIOR SURFACES - General Repairs

1. All new wood shall be primed, followed by the application of two or more coats to cover using high quality exterior grade paint, allowing owners' preference for color and finish scheme. All nails shall be galvanized; screws used must be galvanized or other corrosion resistant finish .

2. Exterior surfaces, such as cornices, walls, soffit, rake board and molding, etc., shall be repaired, removed and/or replaced to match existing or as specified in the Work Write-up.

3. Surfaces to be repaired shall have all decayed or deteriorated parts removed and replaced with new parts matching original work. Back-up framing shall be repaired as required to permit this work in accordance with local building code.

4. Surfaces exposed by the removal of framing structure for cornices, roofs or rooms shall be treated as specified in the Work Write-up.

5. New fascia material shall be as indicated in Carpentry Section B.3.b., and shall be back-primed before installation and fastened with galvanized nails or non-corrosive exterior screws. Any substantial, but loose fascia may be secured with new fasteners, where required.

H. SIDING

1. General Standards

   a. Siding shall be installed in a workmanlike manner in accordance with the recommendations of the manufacturer in every detail, including flashing and caulking where required.
   b. All defective sheathing shall be repaired or replaced prior to the application of siding materials. All loose sheathing shall be securely re-nailed.
   c. Exterior wall surfaces to be covered shall be dry and free from all defects that might affect the application of siding.
   d. Minimum 15 lb. felt paper or other approved vapor barrier shall be installed under siding on all exterior walls, including new stucco-over-siding.
   e. Starter strip of siding shall be separated from foundation by a layer of sheathing paper or by a heavy bituminous coating.

f. Butted joints of siding shall be placed over wall framing; joints in adjacent pieces shall be staggered.
g. Siding accessories shall be of same quality, color, and finish in order to provide unit responsibility, and all materials shall be delivered to the job site in their original cartons, bearing the manufacturer's name and materials quality identification.

2. Beveled Wood Siding

a. All replacement siding shall match existing on required areas of structure, or as specified in the Work Write-up.
b. Installation shall be performed per the manufacturer's specifications regarding surface preparation, nailing, lag- and joint-staggering, etc.

3. Plywood Siding

a. Minimum thickness of plywood or hardboard for soffit and all other exterior applications shall be 3/8".
b. Plywood shall be exterior type AC and shall bear the mark of a recognized plywood association.

4. Asbestos Siding

Specified sections of a house structure may be covered with new asbestos shingles, which shall be as manufactured by Johns-Manville or equivalent, 12"x 12" or sized to match existing. Shingles shall be applied only over proper vapor barrier material, and installed in accordance with manufacturer's recommendations. Asbestos siding shall be used ONLY for repair purposes or replacement in small areas.

5. Vinyl Siding and Trim

Vinyl siding shall be T-Lock or equal, installed to manufacturer's specifications. Siding shall be installed on 1/8" foam backer board or reflective type insulation as recommended by manufacturer. Installation shall include window "J" channel, door channel, inside and outside corners, starter strip, and finish mold, installed per manufacturer's recommendations.

6. Aluminum Siding and Trim

a. Material used for siding and fascia cover shall be minimum .024” gauge aluminum siding of a high impact aluminum alloy with a tensile strength of minimum 20,000 PSI. Soffit and other trim material shall be minimum .019gauge. Installation shall include window “J” channel, door channel, inside and outside corners, starter strip, and finish mold, applied per manufacturer’s recommendations.

b. Aluminum siding shall be installed over a vapor barrier or reflective type insulation as recommended by the manufacturer. All window, door, and sill trim shall be covered with baked enamel aluminum coil stock, minimum .019”gauge.

c. Each panel shall be factory-coated to assure bonding and corrosion resistance; color shall be as specified. Owner may select from stock textures and colors only. Surface texture shall be smooth or pattern embossed as specified. Aluminum siding materials shall have a finished coating with a minimum 30 year transferable warranty against defects.

d. Nails shall be made of minimum .125 gauge aluminum, minimum 1” long with 5/16” head diameter.

e. When aluminum siding work is specified in the Work Write-up, whether new, replacement, or repair, the contractor shall ensure and/or install proper electrical grounding with minimum No. 6 copper wire, set screw lugs, and other necessary hardware. The back of each panel shall be “skip coated” at the interlock to provide positive contact, panel to panel, for the grounding system. All grounding shall conform to the National Electrical Code (N.E.C.) and the requirements of the local building code.

7. Masonite Siding

Masonite-style lap siding shall be minimum 7/16” thick, smooth, pre-primed panels. Siding shall be installed with corrosion resistant nails, and all ends shall be attached together with H-molding, and sealed with quality exterior caulking. Lap siding shall extend to no less than 6” above finished grade.

8. Stucco Siding

If stucco or decorative stone is to be applied over frame construction, a suitable vapor barrier must first be installed under the siding. Corrosion resistant metal reinforcement shall be nailed securely over vapor barrier, followed by the application of one 3/8” brown coat and one 1/4” finish coat. Stucco finish shall not extend more than 6” below grade. Stucco shall not be applied over block or brick unless surfaces are primed, sandblasted, or chemically treated beforehand for this purpose.

I. PORCHES

1. Porch Piers

Supporting piers shall be placed on concrete footing, extending below grade in accordance with building code. Existing masonry piers shall be without cracks or holes; see 02 CONCRETE section B.2 of this manual for instructions on tuck pointing on new or existing piers.

2. Porch Joists

Wherever indications of weak floor and ceiling joists are apparent they should be examined. Additional support may be provided by addition of joists where distance between existing members is excessive, or shoring up long spans with block or brick piers set in concrete. New joists shall be pressure treated nominal 2” dimensioned material.

3. Porch Decking

Porch decking shall be tongue and groove treated No.2 pine, or to match existing, unless otherwise specified.

4. Porch Steps

Repair of wooden porch steps should only be performed where deterioration or defects are minor, otherwise, replacement shall be the indicated course of action, using pre-cast concrete steps, unless otherwise specified.

5. Porch Stair Handrail

All stairways having treads located more than three risers above a floor or grade shall be equipped with handrails located not less than 30” or more than 34” above the leading edge of a tread. Handrails shall be well secured to the stairwell walls or shall be an integral part of a guard railing which is well secured to the stairway framing.

a. Metal handrails shall be minimum 1-1/2” x 1” O.D. galvanized steel, securely attached to the floor system or steps. If any handrail is to be attached to an existing one, it shall match the existing handrail as closely as possible.

b. Ornamental iron railings may be of an adjustable type or welded type, primed with a rust resistant primer, and shall include all components to properly secure them to walls, floors, and/or columns.

6. Porch Guard Rail

Guard railings, where required along open-sided flights of stairs or steps, and all unenclosed floor and roof openings, balconies or porches which are more than 30” above grade or floor, shall be of adequate construction and securement in strength and durability for their purpose. They shall include intermediate vertical or longitudinal rails or lattice work of arrangement which prohibits the passage of objects up to the size of a 9” sphere.

7. Porch Columns

a. Any waterproofing or sealing treatment of columns will include the installation of plates and base blocks.
b. Wood columns shall be of pressure treated lumber, minimum nominal dimension 4” x 4”, and shall be set on raised galvanized post supports with tops properly and securely attached to the roof structure. Decorative columns may be used where specified, provided they are structurally capable of supporting the roof load.
c. Brick columns will be constructed to match existing as closely as possible.
d. Metal columns shall be attached securely with the proper type anchors at the top and bottom.
e. Steel or aluminum columns shall be primed tubular stock.

8. Porch Ceiling

New installation may be applied over existing material after removal of rotted sections. If plywood is used, it shall be exterior grade type AC, minimum 3/8” thick, and tightly jointed or trimmed at joints.

J. NEW ADDITIONS

1. Materials

The object of this specification is an enclosed watertight structure, complete except for mechanical and/or electrical equipment. All work shall conform to the local building code.

a. New construction shall incorporate 2”x 4” stud walls at 16” on center with 2”x 4” sole plate and double top plate.
b. New wall covering, unless otherwise specified, shall be minimum 1/2” interior standard drywall taped, sanded and finished with a typical three-coat process, ready to accept paint or other finishing materials.
c. Exterior sheathing shall be minimum ½” CDX plywood or 15/32” OSB.
d. Exterior roof framing treatment shall include fascia, soffit, downspouts and gutters with splash blocks.
e. Siding shall be as specified in the Work Write-up.

f. Unless otherwise specified, new ceilings shall be standard 8’ height, with joists spaced maximum 16” on center with minimum 1/2” finished drywall covering. The Work Write-up may specify joists to be 24” on center, however, in such cases the drywall must be minimum 5/8” thickness.
g. Roof rafters shall be as specified in the Work Write-up, with minimum ½” plywood or 19/32” OSB sheathing. Approved manufactured roof truss systems may be used.
h. Shingles shall be as specified, 25 year 3-tab asphalt shingles, secured with a minimum of 5 nails per shingle.
i. Attic ventilation shall be installed to minimum building code requirements, or better, as specified.
j. Ceiling insulation shall be minimum R-19 with vapor barrier.
k. Wall insulation minimum shall be 3-1/2” R-13 with vapor barrier.
l. Floor joists shall be as specified and in accordance with building code.
m. Underlayment and floor covering shall be as specified in the Work Write-up.
n. Base and all other trim shall be installed as required per building code.
o. Windows shall be specified in the Work Write-up.
p. Doors and frames shall be included as specified in the Work Write-up and in accordance with local code.
q. Conventional foundations shall be specified either 8” x 16” CMU block foundation according to 04 Masonry section A.1.e, or minimum 8” poured-in-place concrete foundation wall according to 02 Concrete section A.5. Poured-in-place concrete slab foundations may also be specified, and must be installed strictly in accordance with the local building code.
r. All foundation walls shall be set on a concrete footing and set a minimum of 12” below grade unless otherwise specified in the Work Write-up.
s. New addition construction must include the installation of all flashing materials as required by local building code.

2. Repair Accessory Building

Repairs to accessory buildings shall be limited to replacement of missing or deteriorated component parts to fully restore to a weather-tight condition, *and* if the accessory structure is attached to the main structure.

3. Demolition of Accessory Buildings

Demolition of an accessory building shall be performed only when the accessory structure is attached to the main structure, and is specified in the Work Write-up. After demolishing, all trash and material shall be removed from the site, leaving the site clear and “broom clean”.

4. Garage or Carport Repair

Repairs to any garage or carport shall be performed only to fully restore to original condition by replacing all missing or deteriorated components so as to provide a complete weather-tight condition, *and* when the garage or carport is attached to the main structure and/or posing a danger to life, health, and/or safety of the occupants or others.

K. WINDOWS

1. General

a. Repair of windows shall include replacement of all decayed or broken components, including glass panes, and re-glazing according to manufacturer's recommendations and/or common glazing standard practice, per local code.
b. All windows addressed are to be made functional to operate smoothly.
c. Unless otherwise specified, windows shall match existing construction as closely as possible where window is replaced or framed in and installed new. When window opening is blocked off, opening shall be framed with similar framing material and both interior and exterior wall surfaces finished to match existing.
d. Window repairs and installations shall include all necessary hardware, locks, screens, and drip cap.

2. Primary Windows

Unless otherwise specified, replacement shall be with new solid vinyl or vinyl-clad, double-glazed replacement windows, fit to existing opening.

3. Wood Window Units

Where wood windows are specified in lieu of vinyl, the exterior wood window units shall be of standard grade material, with type "S" or "T" stiles, and check rails or plain rails.

a. Wood windows shall be double-glazed, double-hung replacements that are factory primed and painted with two coats upon installation.
b. Windows will be installed square and plumb, with 16d galvanized finish nails or corrosion-resistant screws, secured through brick mold into framing members, shimmed and fastened through jamb. All nail or screw holes shall be filled and sanded before painting.

4. Facing Replacement

Wooden facing shall be clear pine or grade C fir or redwood. Style shall match existing as closely as possible.

5. Re-glazing

   a. Surfaces shall be properly prepared by removal of all cracked or otherwise unsound glazing material.
   b. Proper standard “points” or holding devices shall be installed.
   c. New glazing compound shall be of high grade and applied according to manufacturer’s specifications. Glazing compound shall be of type indicated for materials to which it is to be applied. No caulk or other non-standard glazing compounds will be accepted.

6. Sash Cords and Supports

   a. Sash cords shall be replaced with minimum No. 8 cording.
   b. All moving parts shall be cleaned and/or replaced as necessary so as to allow smooth and proper operation.
   c. Guiding devices installed shall be “jiffy-spring” type or nylon insert.

7. Storm Windows

   All storm windows shall be installed at the exterior side of existing windows and shall fit tightly to the frame with proper screws and sealed with an appropriate and approved caulk.

8. Screens

   Window screen repair shall include replacement of all decayed or broken components, as well as paint touch-up to match exterior and/or interior areas affected by the removal/ installation process. New screen frames shall be installed so as to fit properly in window opening. When specified, re-screening of screen frames shall be done using aluminum screen wire, stretched to form a firm, tight screen with no sag. All damaged or missing screen molding shall be replaced. All joints shall be reinforced where needed.

9. Aluminum Windows in Existing Frames

   a. Aluminum windows currently installed on existing frames shall be removed for replacement only when there is no other repair possible by which to render the window to state of smooth and proper operation. When removal is necessary, the work shall be done from either the inside or the outside, whichever will cause the least disruption to the homeowner or least disturbance to the structure, and with proper consideration to cost efficiency. In either case, all existing adjoining surfaces and trim shall be restored to pre-repair condition as closely as is practicably possible.

b. New aluminum replacement windows shall be Alenco, Pella, or equivalent, secured to the jamb with nails or screws through the mounting flange into framing members.
c. When necessary, old sill material shall be removed and reinstalled, then re-positioned to bottom of new window. In such cases, the void left by removal of the old sill shall be repaired both inside and outside of the wall with material to match existing.

10. Installation of Aluminum Windows in New Wood Frames

All new wood frames shall be built of grade C fir or better. Jamb shall be minimum nominal 3/4” material. Exterior casing shall be dimensioned minimum nominal 3/4” x width of existing casing. Exterior sill shall be nominal 2” stock with 5/8” slope to exterior and shall be installed between jambs at the bottom of the new aluminum window. Interior stool and trim shall be of type and size to match existing interior trim. New wood frame shall be installed in opening after all framing of studs and headers has been completed and approved by the City authorized representative or funded Subrecipient. Note: on installation of new frames in existing horizontal siding, no vertical joints continuous with the window casing will be accepted.

L. DOORS

1. General Guidelines

a. Wherever possible, only pre-hung door units shall be used for new installations or replacement where jambs and/or threshold must also be removed.
b. When installing or repairing doors the contractor shall repair any surrounding area affected by the work, finishing so as to match the surrounding areas affected as closely as possible.
c. All doors shall operate smoothly without binding and close easily to a snug, well-aligned fit to the jamb and floor at all points.
d. All newly installed exterior doors shall receive finish on all six sides immediately after installation.
e. All new and retro-fitted exterior doors will be installed complete with weather stripping, proper well-fitted thresholds, and in-swing mounting, unless otherwise specified. Hinges for any exterior out-swinging doors, where specified, shall have a setscrew in the barrel to prevent the removal of the pin when the door is closed.
f. A complete doorway system shall include door, jamb, hinges, lockset and trim on both sides.
g. All jambs shall be pre-manufactured, unless otherwise specified.

h. All locksets will be Kwikset or approved equivalent with polished brass finish. Privacy locksets shall be installed on all bedroom and bathroom doors. Double-bolt deadbolt locks shall be installed on all exterior doors.

i. Where two or more exterior door locksets are installed, they shall be keyed alike.

j. Door repair, when specified in the Work Write-up, shall be performed under the following guidelines:

(1) Door shall be restored to a sound, freely operating condition and secure fit. If necessary, the existing door may be re-hung using new hardware, complete. Hinges shall be set in new locations if required, with old screw holes filled and sanded smooth.

(3) If cutting is required to re-size a door, it shall be done in such fashion as to maintain uniform appearance, proper fit and freely operating condition.

(4) All cracks in door blank shall be repaired by gluing and clamping; if fasteners are necessary, appropriately sized screws with holes countersunk, filled and sanded smooth, shall be used rather than nails wherever possible.

(5) For exterior doors, the repair specification shall also indicate: replace *existing* deteriorated or inoperative items with new, up to and including the necessary and required latching and locking hardware, deadbolt, hinges, hinge or flexible type door stop, strike, kick plate, peephole, sweep, and threshold.

(6) For interior doors, the repair specification shall also indicate: replace *existing* deteriorated or inoperative items with new, up to and including the necessary and required latching and locking hardware, strike, hinges, and hinge or flexible type doorstop.

2. <u>Exterior Wood Doors</u>

a. Unless otherwise specified, flush exterior doors shall be 1-3/4” solid core, with or without lites, or metal exterior door as specified.

b. Pre-hung wood doors shall be mahogany veneered on both sides unless otherwise specified. Doors shall be finished immediately upon installation. New or replacement door lites shall be tempered glass.

c. Exterior doors up to 36” wide shall be installed with three 3-1/2” x 3-1/2” brass butt hinges countersunk into the door and jamb. Doors shall have a key-in- knob lockset, Kwikset or approved equivalent, with a strike plate countersunk flush with door jamb. Door installation shall include a new aluminum or wood threshold.

d. Any cracks, holes, hinge cutouts, etc., and any noticeable paint or other finished-surface defects in the door jamb, stops and casing, shall be filled and/or repaired to match the existing color and finish.

e. The minimum thickness of frame components shall be as follows:

jamb:	1-5/16” with ploughed stop
sill:	nominal 2”
casing:	nominal 3/4”
drip cap:	3/4”
brick mold:	1-1/8”

3. Other Exterior Doors

Generally, other exterior doors, either of fiberglass composition, vinyl, metal or newer technology materials, may be accepted; prior approval is required for any material not specified. All exterior doors shall be 1-3/4” minimum thickness, and include integral or applied weather stripping.

4. Exterior Door Styles

All exterior door styles shall be as specified. Combination doors, when specified, shall be flush or paneled lower half, with window and screen insert in the upper half. All exterior doors may be flush or paneled in design.

5. Metal Clad

Metal clad doors shall be steel faced, internally framed with wood stiles and rails, and cores filled with rigid foam or wood composite material. Doors shall be corrosion resistant and shall have factory-applied primer. Facing edges shall be formed and fitted so that no contact occurs between the facings and the jambs when unit is properly installed. Exposed edges shall be fully weather-stripped on all four edges with magnetic or compressed vinyl gaskets.

6. Exterior Pre-hung Doors

a. A metal clad pre-hung door package shall include metal clad door as described above with weather-stripping, jamb or frame, trim, threshold and all hardware. Install per manufacturer’s recommendations.
b. A wood pre-hung door package shall include wood door, weather-stripping, jamb with casing, stops, trim, threshold and all other required hardware.

7. Retro-Fit Exterior Wood Door

New wood doors retro-fit into existing frames shall be of exterior standard grade, Ideal brand or equivalent. The door shall be solid core having a minimum thickness of 1-3/4”, and shall be cut and trimmed on site to fit properly `as prescribed in General Information 1.a-j above.

8. Storm Doors

Storm doors shall be solid core aluminum or vinyl construction with a minimum thickness of 1”, and shall have minimum 2” wide stiles, all necessary mounting hardware, including adjustable closer with wind chain, and heavy duty kick plates; doors shall be thoroughly weather-stripped and furnished with 18x16 mesh corrosion-free screen on a removable panel with a one lite removable panel of safety glass above.

9. Screen Doors

Screen doors shall be according to the same standards as storm doors (above), with regard to dimension and hardware. Adjustable spring-actuated hinges may be used in lieu of a closer; screen doors may be primed and painted wood, aluminum, or other standard materials as otherwise specified or approved.

10. Interior Wood Door

a. Unless otherwise specified, interior doors shall be 1-3/8” hollow core, either flush or paneled style.
b. Doors shall be mahogany luan veneered or Masonite or equivalent, and finished on all six sides to match existing, or as otherwise specified.
c. Interior doors shall be installed with two 3-1/2” x 3-1/4” brass-plated butt hinges countersunk into the door and door jamb, and shall have a lockset as specified. The strike plate shall be countersunk flush with the door jamb. All hardware shall be brass plated or chrome finish, or as required to match existing.
d. Any cracks, holes, hinge cutouts, etc., and any noticeable defects in the door jamb, stops and casing shall be repaired to match the existing color and finish.
e. Closet door types shall be specified in the Work Write-up.
f. All trim shall be either painted or stained to provide neat, finished appearance.

11. Bi-Fold Doors

New bi-fold doors and assembly shall include metal track and trim, all hardware, and 1-3/8” bi-fold doors. No metal doors will be accepted. Doors shall be installed complete with new hardware; when used in pairs, a door aligner shall be installed. All hardware (knobs, hinges, etc.) shall be brass or aluminum finish, and hinges shall remain unpainted unless otherwise specified.

12. Sliding Doors

New doors for pocket or bypass sliding installations shall be as specified and shall be installed complete with new hardware. A sliding door assembly shall include 1-3/8” door(s) as specified, top roller assembly and floor guide, and all hardware. Pocket type assembly shall include pocket framing, 1-3/8” door as specified and recessed pull with locking latch. Two recessed door pulls shall be installed for each by-passing unit (pair).

13. Tub and Shower Doors

a. New tub enclosure doors shall be bypass type, and installed to be water-tight. Top channel, jamb channels and water stop shall be anodized aluminum. Sliding panels shall be glazed with translucent safety glass. Each sliding panel shall have one towel bar.
b. New shower stall door assembly shall include stiles, handrail, threshold, door and all operating hardware, and shall be installed to be water-tight. Hinge shall be continuous piano type. Metal shall be extruded anodized aluminum, satin or mill finish. Door shall be glazed with translucent safety glass.

14. Patio Doors

a. Repair of patio doors shall encompass the replacement of pull and latch hardware, and rollers or friction shoes as required for proper operation. Doors shall be reset in track, with all moving parts cleaned and oiled.
b. Replacement screens for patio doors shall be sized to fit, anodized aluminum finished doors to match existing unit, with standard replaceable weather-stripping of wool, polypropylene, or nylon woven pile, and shall be installed per manufacturer’s instructions and adjusted for proper fit, sliding action and hardware operation.

15. Garage Doors

a. For repair or alignment purposes, garage doors shall be made to operate smoothly and freely by the repair, adjustment, or replacement of tracks, rollers, hinges and all other operating hardware as necessary. Any missing or deteriorated weather seals shall be replaced, and all door that bind at the jamb areas shall be aligned and reset for proper gap at the top and sides. All locks and latch mechanisms shall function properly. Deteriorated wood or composite panels and/or broken glass panes shall be replaced to match existing.

b. Replacement or new installation of garage doors shall only be with metal, vinyl-clad or fiberglass units, unless otherwise specified. New garage doors shall be Overhead Door brand or approved equivalent, and shall be installed according to the manufacturer's specifications. Side and head jambs shall have minimum 1"x 3" stop molding. Doors shall be rigidly braced, and shall be adjusted to close properly and to fit tightly against doorstops. Tracks shall be suspended and secured to joists or other framing. Additional framing members shall be added if necessary, and as required.

16. Exterior Door Frames

New exterior frame and trim shall match existing in dimensions and style, made from grade C fir or redwood. Sill shall be of nominal 2" treated stock.

17. Interior Frames

New interior frame and trim shall match existing in dimensions and style, clear grade C fir or pine.

18. Cased Openings

Installation, replacement or repair of cased openings shall be of minimum grade C fir or pine. New cased openings shall match existing in dimensions, structure and style.

19. Retro-fit or Re-hung Interior Doors

Retro-fitting of a door to an existing jamb and frame shall include the proper re-sizing or replacement of any components necessary for its proper operation. Appropriate filling, sanding and repair of holes, mortises, cracks, etc. left by previous hardware mountings shall be included.

20. Door Stops

Existing deteriorated or missing doorstops shall be replaced with new. Stops shall be installed at any location of required wall repair due to the lack or failure of a door stop.

21. <u>Fire Rated Doors</u>

Fireproof doors shall be of minimum Class C rating, or as specified, to meet local code.

02 - FLOORING

A. FLOOR SHEATHING

1. For new construction of floors, sub floor sheathing shall be installed directly over floor joists, and shall be D.F.P.A. underlayment grade plywood, minimum 3/4" thick, or better.

2. Underlayment shall be placed when covering over existing floors using 1/4", 3/8", or 3/4" AC grade plywood or better, and shall be provided under all resilient floors. Underalyment shall be smooth and level before the installation of floor covering.

   a. Underlayment shall be fastened with ring-shanked nails or screws placed on 4" centers at all edges and 6" centers along intermediate framing members. Joints of underlayment and sub-floor shall be staggered and break over joists.
   b. A suitable filler (Fix-all or equal) shall be applied over seams, indentations or other irregularities in the underlayment to provide a smooth surface suitable for resilient floor covering.

B. RESILIENT FLOOR COVERINGS

1. Installation

   a. Resilient flooring installation shall be deferred until completion of other finishing operations including painting, and all work that might cause damage to flooring.
   b. Vinyl or asbestos tiles shall be laid in the same pattern and fashion as the existing floor, or as specified in the Work Write-up.
   c. Sheet flooring shall be laid so as to provide as few seams as possible while maintaining economical use of materials. Edges shall be matched for color shading and pattern at seams in compliance with the manufacturer's recommendations; adjoining sheets shall be reversed so that abutting edges originate from the same edge of the roll.

2. Sub-floor Preparation

Sub-floors or underlayment shall be swept clean; spots of paint, grease, dirt, and other foreign matter shall be removed. All holes, cracks, joints, and indentations in sub-floors shall be filled using the appropriate filler as recommended by the product manufacturer. Sub-floors or underlayment shall be swept clean, or vacuumed, prior to spreading adhesive. After cleaning sub-floor and prior to laying flooring, contractor shall inspect sub-floors or underlayment and walls to receive covering. Corrections or repairs shall be made to remove any defects such as low spots, high spots, uneven surfaces or damages that will prevent satisfactory installation; *placement of flooring shall not proceed until such defects have been corrected.*

3. Material Protection On-Site

Resilient flooring materials and adhesives shall be delivered in the manufacturer's original containers with the manufacturer's original seals and labels intact, and shall be stored in an approved, protected location, in accordance with the manufacturer's recommendations. The contractor shall ensure the protection of these materials against freezing or other damage during delivery, handling, and storage.

4. Temperature and Ventilation Requirements

a. The contractor is responsible to ensure that all environmental conditions requirements for the storage, handling and installation of resilient floor materials have been met.
b. The moisture content of concrete slabs and their environmental conditions must be within limits recommended by manufacturer of the products being installed.
c. A minimum temperature of 70 degrees F (18 degrees C) shall be maintained in areas to receive resilient flooring for at least 40 hours prior to and during installation. For not less than 48 hours after installation, the temperature shall be maintained at a minimum of 55 degrees F (13 degrees C) in areas where work is completed.

5. Materials

a. Adhesives and primers shall be water resistant type and of consistency recommended and approved by the flooring and base manufacturer, for the type and condition of the surface to be covered. Base adhesive shall be of the type developed specifically for top-set cove base, and shall be used in accordance with the manufacturer's instructions.

b. Vinyl or asbestos tile shall be minimum 1/16”x 12”x 12” Armstrong or equivalent tile installed with an approved mastic adhesive.
c. Sheet vinyl shall be minimum .090 gauge Armstrong or equivalent material in rolls, installed with an approved mastic adhesive and in accordance with the manufacturer’s specifications. Sheet vinyl shall be installed in kitchens, bathrooms, and utility or entry areas unless otherwise specified.

C. HARDWOOD FLOORING

1. New Floor Installation

a. Strip wood flooring is to be laid on a sub-floor covered with building paper or other suitable vapor barrier, perpendicular to floor joists.
b. Blind-nail fastening shall be used, nailing at an approximate angle of 50 degrees, spaced 16” on center on each course, and directly into joists every second course. Any face-nailing shall be countersunk and holes filled.

2. Materials

Material shall be nominal l” x 4” tongue-and-groove, grade C or better pine, white oak, or other size and/or species as specified. New or refinished floors shall be provided with new matching shoe mold, to be finished as designated by the owner.

3. Finishing

After installation, unfinished material shall be sanded, sealed and finished with up to two coats of varnish, or up to three coats of polyurethane, with light sanding between coats, and allowing a full twenty-four hours for drying time between coats. New floors shall be sanded as required and sealed with a penetrating sealer, followed by steel wool buffing when dry.

4. Re-finishing

a. All damaged, split, cracked, or defective flooring shall be repaired or replaced. All flooring must be sound and repaired prior to any sanding and/or finishing. Cracks shall be filled with appropriate wood filler.
b. All floors are to be sanded with a commercial belt-type floor sander, and edging and stairs shall be sanded with a commercial hand-held floor sander. Corners shall be scraped and sanded by hand where power sanders cannot reach.
c. All old finish shall be sanded to the original natural wood with #2 grit sandpaper. Floors shall be stripped to baseboards and under radiators.

d. A second sanding shall be performed using 100-grit sandpaper; care must be taken to remove all machine marks in flooring made by the first sanding.
e. A quality penetrating floor sealer shall be applied when the sanding process is complete, followed by buffing with a steel wool pad when completely dry.
f. At least three coats of clear polyurethane finish shall be applied, with light sanding between coats and 24 hours drying time allowed between coats.

D. CARPETING

Carpet shall be of an FHA-approved type or equivalent quality, professionally installed over minimum 3/8” padding. All required tack strips, metal accessories, adhesives, etc., shall be included in bids under this specification.

E. FLOOR LEVELING

1. When any structure is to be significantly raised off its foundation, it shall be vacated, with all utilities turned off for safety, and shall remain so for the duration of that work.

2. Leveling shall be done in such a manner as to be permanent; shims shall be of non-deteriorating or non-corrosive material.

3. Materials and equipment used for lifting shall be in sound, operating condition.

4. Procedures used shall minimize any damage to the interior walls, ceilings and floors; when specified, the demolition and/or removal of the old foundation shall in no way jeopardize the existing structure.

5. The site shall be returned to its original condition as closely as possible as part of the work.

6. Remaining structural or surface defects, which become apparent after the completion and/or resulting from the successful completion of the leveling work, shall be the responsibility of the homeowner; repairs to such defects are not to be considered as part of the leveling work.

F FLOOR REPAIR

1. All damaged, loose, or broken sub-flooring shall be repaired or replaced before the installation of finished flooring. Sub-flooring repairs may be of CDX grade plywood or common No.2 pine or oak boards of thickness to match existing.

2. Plywood shall be installed with outer plies at right angles to the joists. Plywood sub-floor shall be nailed to joists at each bearing with 8 penny (8d) ring-shanked nails spaced 4” on center along all edges and 6” on center along intermediate members, with a bead of construction adhesive applied to each joist.

3. All repair materials shall be staggered so that the end joints occur over floor joists and all adjacent end joints are staggered over different joists.

4. All replaced flooring shall match existing in species, size, quality, and finish, unless otherwise specified.

5. Flooring or floor covering repairs shall extend into closet storage areas when the repaired defect is adjacent to such areas. Arbitrary omission of repairs to a given area due to its location being hidden or out of reach in storage areas, etc., will not be accepted.

03 – CONCRETE

A. CONCRETE SPECIFICATIONS

1. General

a. Concrete shall be standard, air-entrained Portland cement concrete with water-to-cement ratios as recommended by the Portland Cement Association (PCA) for the particular application. The Portland cement shall comply with ASTM C150, type as required.
b. Aggregate shall be clean and free from organic or other harmful material and comply with ASTM C33, except local aggregates of proven durability may be used when such is standard practice and approved by the local Building Official.
c. Water shall be clean and free from excessive amounts of acid and alkalis.
d. In no case shall the slump be more than 4”, unless otherwise specified or approved by the Rehabilitation Specialist or construction manager.
e. All reinforcing shall be free of scale, rust, or coatings that reduce concrete bond.
f. All reinforcing rods will be per ASTM Designation A615 for deformed steel bars.
g. All concrete slabs shall be separated from existing construction by 1/2” asphalt-impregnated expansion joint material.
h. Fill dirt shall be clean, compacted, and free of deleterious material.
i. All materials used for concrete forms shall be removed after concrete has set. Voids in exposed concrete surfaces dressed smooth with cement.
j. No concrete shall be placed over grass, roots, or other foreign materials.
k. For repair and replacement, concrete materials used shall be such as to produce finished textures and color to match existing surfaces as closely as possible.
l. Quality and finish of all work shall be of the type specified herein for the particular installation and shall be done in accordance with recognized standards.
m. The contractor shall do all cutting and patching into concrete or masonry surfaces as required for the job.
n. Any liquid chemical floor hardener, when required, shall be a blend of magnesium and zinc fluorosilicates, at a rate of not less than 2 lbs. of fluorosilicates per gallon, combined with a wetting agent.

2. Reinforced concrete

All work shall comply with City of Montgomery building code requirements for reinforced concrete. Reinforcing material shall be new material conforming to the following standards:

- deformed steel bars - ASTM A-615
- billet steel bars - ASTM A-15
- welded wire fabric - ASTM A-185

3. Concrete Placement

Concrete placement shall take place in a continuous operation within planned joints or sections, and shall comply with the City of Montgomery building code.

a. The load bearing capacity of the soil shall determine the type of footing, foundation or slab system to be specified; placement of concrete in the indicated system shall be performed properly and efficiently with respect to load for that system in accordance with the local building code and the City of Montgomery Building Department.
b. For all concrete installations which require open trench inspection prior to placement of the concrete, it shall be incumbent upon the contractor to obtain such inspection and approval from the City of Montgomery Building Department. Should the Contractor fail to schedule such an inspection when required, any cost incurred as a result of this negligence shall be at his/her own expense.
c. Formwork used shall be true to lines and grades and shall be properly braced and rigid to prevent displacement. Forms shall be constructed so as not to damage concrete when being removed. Concrete shall have proper slump when placed in forms, and shall not be deposited in forms from a height greater than 3'. All concrete wall forms shall be mechanically vibrated during the pour to prevent honeycombing. After forms are stripped, honeycombed or defective work shall be immediately repaired. Any holes shall be filled. Surfaces shall be swept clean and all loose particles or other foreign matter shall be removed.
d. During cold or hot weather, steps shall be taken to maintain appropriate curing temperature and rate of water evaporation. New concrete shall not be placed when the temperature is less than 44 degrees Fahrenheit (4 degrees C) or greater than 90 degrees Fahrenheit (32 degrees C) unless it is properly protected and controlled during mixing, placement and curing in accordance with the recommendations of the ACT and the PCA. In cold weather comply with ACI 306; in hot weather, comply with ACI 305. The Contractor shall replace all concrete damaged as a result of failure to comply with these ACI provisions at his/her own expense.

e. Under no circumstances shall any anti-freeze compound or agent be added to the concrete mix in order to prevent freezing, nor shall than 2% calcium chloride be used in freezing weather to accelerate concrete setting. No concrete shall be placed on frozen ground or when the temperature is less than 32 degrees. Concrete may be placed when temperature is 33 degrees or more, provided however, that weather reports indicate a daily high of at least 40 degrees. When temperatures are expected to drop below 32 degrees, after concrete has been finished, a 12" cover of straw or other standard-practice protective system shall be spread evenly to preclude freezing. Any and all frozen or spalled concrete shall be removed and replaced at the general contractor's expense. A controlled environment with an interior temperature of 33 degrees or greater is acceptable if the temperature will remain 33 degrees or greater for five days thereafter.

B. FOOTINGS AND FOUNDATIONS

1. Footings

Footings shall have a minimum compressive strength of 2500 PSI at 28 days. Forms shall be used when the existing soil is not sufficiently firm to retain the concrete. Footing size shall be according to local building code requirements for the designed use. Footings may vary with the type of slab or load, but shall extend at least 24" below grade when required, unless otherwise specified.

2. Piers and Bases

a. Piers shall be poured solid using a minimum 2500 PSI mix, or reinforced and filled 8"x 8" CMU block, to a height equal to the distance from the bottom of the joists or sill plate to the existing grade.
b. Bases shall be minimum 4" thick 2500 PSI concrete, 16"x 16" wide. Bases must be set on firm soil below existing grade. The area under the base shall be cleared, filled and tamped to a firmness that will adequately support the load imposed on it. Spacing of piers shall be determined by the architect or engineer in accordance with the building code. Each pier shall have a termite shield of not less than 26 gauge galvanized steel, aluminum, or other non-corrosive metal of proper thickness, installed in an approved manner. The shield is to extend past the edge of the pier a minimum of 3-1/2" to the end of the crimp, which shall be at a 45-degree angle. Shims shall be of a decay resistant material and shall not exceed 1-1/2" in maximum thickness.

C. <u>CONCRETE SLABS</u>

Structural slabs and foundations shall conform to the City of Montgomery building code.

1. Vapor barrier material shall be installed between the sub-grade and the slab for all interior floor slabs for carports, and garages. The vapor barrier shall be minimum 8 mil polyethylene, polyethylene-coated barrier paper, or 1/8" thick asphalt core membrane sheet.

2. Bases for slabs shall be well compacted, sub-grade. For slabs to be placed upon new backfill material: unless fill has been compacted to assure uniform slab support, slabs or fill shall be supported by concrete or masonry piers or intermediate foundation walls resting on undisturbed soil.

3. Thickness of new slabs shall be a minimum of 4", using minimum 2,500 PSI mix concrete with a slump of 2" to 4", unless otherwise specified.

4. Reinforcement for slabs shall be minimum 6"x 6" No. 10 welded wire fabric. The edge of sections of wire mesh shall overlap the adjacent sections by at least one full mesh, or 6". Laps shall be tied together with standard steel tie-wire. Where floor drains are present, concrete shall be poured in such fashion as to slope toward drains.

D. FINISHING SLABS

Surfaces shall be troweled and finished with a non-skid texture, unless otherwise specified. Slabs for floors and those with wearing surfaces shall be float-finished; deck and porch slabs shall require steel trowel finish.

E. SIDEWALKS

1. All exterior concrete walks and slabs-on-grade shall be a minimum of 4" thick, using minimum 2500 PSI mix concrete. Sidewalks should be of a width to match existing walks, if any, with expansion joints as specified or spaced not more than one times the sidewalk width and no greater than 20 feet apart.

2. Walks shall be sloped away from buildings at a minimum rate of ¼" of fall per linear foot, and a maximum rate of 1" of fall per linear foot. Concrete shall be floated and troweled to true surface and broom-finished. Asphaltic strip expansion joints shall be placed where new concrete adjoins other walks, curbs, steps or buildings, etc.

3. When curing during hot weather, concrete shall be kept moist for at least 72 hours.

4. During wet weather, concrete surfaces shall be protected until set.

5. Proper barricades, fences or other means of protection shall be used until concrete is set, and forms removed after 24 hours. Grade shall be restored, allowing turf to finish flush with top of walk.

6. Placement of concrete for walks during freezing weather shall be subject to the rules stated above for such procedures (See section A.3.d).

F. DRIVEWAYS

1. Sub-grade shall be well compacted, well drained and uniformly graded to a minimum of 6” below finished grade. New concrete shall be a minimum of 6” thick. Slump of concrete for driveways may be determined by the contractor as required, from 2” to 6”.

2. Finished surface of new driveways shall be approximately parallel with that of existing grade; driveways shall be constructed so as not to impede the drainage of surface water away from the house and off the property.

3. Expansion joints shall be provided at no more than 10-foot intervals and at the intersections with walks, curbs, street pavement, other slabs, buildings etc.

4. Entrance aprons shall be flared with adequate for safe and convenient ingress and egress. Aprons shall have proper grade to minimize vehicular contact with concrete surfaces.

5. Width of new driveways shall be at least 10 feet, unless otherwise approved by the rehabilitation representative. Width of new concrete sections shall match existing when replacement of only certain sections of the existing driveway is specified.

6. For Ribbon-type driveways, concrete shall be formed and poured to the full apron width for at least 16 feet in length, beginning at the street pavement line. Ribbons shall be spaced at 5 feet on center, a minimum of 2 feet in width, unless one is to also serve as a walkway, in which case the minimum width of both ribbons shall be 3 feet; in either case, both shall be identical in length and width.

7. Wire mesh reinforcement, minimum 8”x 8”, shall be evenly installed below the surface.

8. Finish surfaces shall receive a light brushed finish, be true to cross section and grade, and provide for uniform surface drainage.

G. CONCRETE PORCHES

1. Slab shall be a minimum of 4” thick, 3000 PSI ready mixed, air-entrained concrete having a minimum 4” slump, placed on properly compacted earth and fill covered by a proper vapor barrier (see section C.1).

2. Slab shall have minimum slope of 1/16” per foot and maximum of 1/4” per foot away from house.

3. Wire mesh reinforcement, minimum 6”x 6”, shall be installed in the lower 2” of the slab.

H. CONCRETE STEPS

All concrete steps shall be formed and poured in place, or pre-cast manufactured units, installed on proper concrete or CMU block footing. Tread depth shall be a minimum 10” and riser height a minimum 7”.

I. CONCRETE REPAIR

1. Bonding of repair work to existing concrete members is critical; when required, a coat of concrete bonding agent shall be applied prior to the application of patching material. *Repair work shall become an integral part of existing concrete members by the prior demolition of existing materials back to the nearest existing expansion joint or as far back as necessary to form new integral sections.*

2. Spalling or loose concrete shall be removed in squared-off sections. Edges shall be sloped so that the opening at the bottom is larger than the opening at the top.

3. Wire mesh reinforcement shall be installed for holes wider than 6”x 6”.

4. Patching material for areas smaller than 6”x 6” shall be self-leveling latex based repair compound for concrete and shall be applied according to the manufacturer’s recommendations.

J. CONCRETE LEVELING

Concrete foundation or slab underpinning shall be performed as specified in the Work Write-up in accordance with all local building code guidelines. Methods and procedures used shall be determined on a case-by-case basis and only with the approval of the City of Montgomery Building Department.

1. The underpinning contractor shall use care to minimize the disturbance of existing landscaping and foliage as much as is practicably possible. Any soil removed in the process of the work, which is not to be replaced, shall be hauled away and properly disposed of by the contractor. When work is completed, all resultant damage to landscaping and grade shall be restored to original condition or better, and the site left in swept, clean condition.

2. Remaining structural or surface defects, which become apparent after the completion and/or resulting from the successful completion of the underpinning work, shall be the responsibility of the homeowner; repairs to such defects are not to be considered as part of the underpinning work process.

04 - MASONRY

A. GENERAL INFORMATION

1. All masonry construction including reinforced masonry shall comply with local building codes, subject to prior design approval.

2. Proper footing and support shall be provided for all masonry and masonry veneer using masonry, concrete or steel, unless otherwise specified.

3. Materials

   a. Mortar shall consist of the following minimum proportions by volume:
      (1) For foundations, chimneys and load bearing masonry (Type S):
          1 Portland cement
          ½ hydrate lime
          2 ½ dry sand
      (2) For other masonry (Type N):
          1 Portland cement
          1 hydrate lime
          2½ dry sand
   b. Sand shall be clean and well-graded.
   c. Water shall be clean and free of deleterious amounts of acids, alkalis, salts, oils and organic substances.
   d. Brick, where exposed, shall be face brick and shall match adjacent or existing brick in texture and color, unless otherwise specified. If new brick is not exposed to view or where it is to be painted or covered, common brick may be used.
   e. When masonry block is specified, standard weight 8”x 16” concrete block shall be used unless otherwise specified, using concave ends for all block within the length of the wall and square-ended or corner block for all corners.

4. Installation

   a. All masonry units shall be laid in a running bond in full joints of mortar. Mason shall strike all joints to form a tight seal of mortar to brick or block.
   b. Any required steel reinforcing bars shall conform to the applicable specifications for Deformed Billet-Steel Bars for Concrete Reinforcement, ASTM A6 15-70, grade 40.

c. Mortar plasticity shall be maintained continuously until use and any mortar awaiting the mason's use shall be turned and remixed as necessary to maintain a workable mix. Retempering the mortar on the mortarboards may be done only by adding water to a shallow basin formed within the mortar, with the water reworked into the mortar. Merely dashing or pouring water over the mortar will not be acceptable. Mortar that has become harsh and non-plastic shall not be retempered or used and no mortar may be used beyond one hour after original mixing. The mortar shall have a flow, as determined by the requirements of Standard Specification for Masonry Cement ASTM C9 1-70, after one minute of suction, of at least 65% of the flow immediately before suction.

d. All grout shall be sufficiently fluid to completely fill the spaces being grouted, fully embed the reinforcing steel, and fill all openings in the block joints. Particular care shall be taken to keep mortar out of the grout spaces. Retempering grout is not an acceptable practice in this program.

5. Repair

a. All mortar joints, cracks, and holes shall be cleaned of loose mortar and shall be tuck-pointed with new mortar in an approved manner.

b. Any chipped blocks shall be patched with mortar and any structurally damaged blocks shall be removed and replaced with a new unit, properly set in a new bed of mortar.

B. BRICK VENEER OVER FRAME CONSTRUCTION

1. Materials

Face brick shall be of size and texture to match existing surface or as otherwise specified. The existing pattern shall be duplicated or constructed as specified.

2. Installation

a. A corrosion resistant base flashing shall extend over the top of the foundation wall from not less than 6" up on the wall, *under the sheathing.*

b. Unless otherwise specified, a water resistant building paper or house wrap, such as Tyvek or equivalent, shall be used over sheathing.

c. Ventilation shall be provided to prevent condensation by leaving weep holes or wicking at the base of brick walls spaced at a minimum of 4 feet on center, and by maintaining a minimum 1" air space between brick veneer and sheathing.

d. Galvanized metal ties shall be installed in every 6th course, a vertical distance not to exceed 23”, and at a horizontal separation not to exceed 36”. There shall be a minimum of one metal tie for any given 4 1/2 square feet of wall area. Ties shall be vertically staggered. The ends of ties shall be bent to 90 degrees to provide hooks not less than 2” long. Additional ties shall be provided at all wall openings, spaced at a maximum of 36” on center around such openings and within 12” of the opening perimeter.

C. MASONRY CHIMNEYS

1. Chimney removal, when specified, shall follow these guidelines:

   a. Brick shall be removed to below the roof decking, covered with three layers of 15-ply water resistant building paper and capped with a tightly-fitting 26 gauge galvanized cover sealed with caulk.
   b. Existing framing in roof opening shall be retro-fit to meet local building code requirements, covered by minimum 5/8” exterior sheathing or as required so as to be flush with existing decking. Minimum 15 lb. asphalt-saturated felt paper shall cover sheathing, nailed to sheathing with appropriate-length standard roofing or button-cap style nails, in accordance with the local building code.
   c. Shingles used for repair shall match existing as closely as possible in color, style and quality.
   d. The Contractor shall be responsible for any and all repairs required due to damage resulting from the removal and/or restoration of a chimney.

2. Chimney repair, when specified, shall follow these guidelines:

   a. All deteriorated masonry units shall be removed to expose a sound substrate.
   b. Any structurally damaged bricks shall be removed and replaced with new units, properly set in a new bed of mortar.
   c. Repair shall be performed using new material, unless otherwise specified, and shall match existing as closely as possible in color, size, style and quality.
   d. When new step down flashing is specified or required for repair, the sections shall be tied into the existing roof and all seams caulked.
   e. The Contractor shall be responsible for any repairs required due to damage resulting from the removal and/or restoration of the chimney.

3. Chimney cap repair, when specified, shall follow these guidelines:

a. Old cap shall be removed and mason shall check all masonry units for tightness, restoring or replacing to a sound condition any loose or deteriorated units.
b. A mortar wash of Portland cement shall be laid from the outer-most edge of the brick to within 2” of the top of the flue liner.
c. Material shall be worked using a steel trowel at a 45 degree angle to assure fast run off. Mason shall ensure a water-tight seal between the flue liner and the mortar.

D. TUCK POINTING

1. All faulty and defective joints of stone and face brick shall be ground or cleared of loose, unstable material. All faulty and defective joints of common brick shall be raked out to a sound masonry bed. All structural fractures shall be cut deep enough to relieve structural pressure and cleaned clear of debris.

2. After the above operation is completed, no joints to be pointed shall be less than 1/2” deep. The contractor shall rinse all joints with clear, clean water and then proceed with pointing using properly mixed cement and lime mortar. All joints shall be properly tooled to eliminate evidence of replacement.

3. Frozen or frost-filled masonry shall not be applied under any circumstances; tuck pointing work shall not be performed when temperatures are below 33 degrees Fahrenheit.

E. PARGING

1. Surfaces shall be repaired before parging masonry walls by replacing all defective material and tuck pointing all loose mortar joints.

2. A uniform surface at least 5/8” thick throughout, using an appropriate cement mortar mix shall be built up leaving a smooth troweled finish.

3. Surfaces shall be kept damp for 48 hours after application.

F. STUCCO

1. Sheathing or similar backing is not required, unless specified, when applying stucco. When used, skeleton sheathing shall be of boards not less than 4” wide and spaced with no wider than 4” gaps between boards.

2. An 18 gauge wire tautly stretched horizontally across the stud frame in rows spaced no more than 6” on center apart shall be securely fastened in place, where sheathing or similar backing is not used, before the felt or paper is applied. Where such felt or paper is fastened to the metal reinforcing in a manner so as not to affect its waterproof qualities, the wire need not be installed.

3. An approved water-proof paper or asphalt saturated felt weighing not less than fifteen pounds per 100 square feet or any substantial water-proof building paper which successfully passes a 60 lb. Mullen test shall be applied in all cases, except in back-plastered construction, directly over the studs or sheathing. Horizontal joints shall be overlapped not less than 2” and vertical joints not less than 6”.

4. Coating of stucco shall consist of three coats: first or scratch coat, second or brown coat, and the finish coat.

   a. Stucco shall consist of one part by volume of Portland cement to not more than three parts by volume of sand, with an addition of hydrated lime or similar material in the amount of not more than ten percent of the volume of cement in either the scratch coat or brown coat and not more than 33-1/3 percent of the volume to cement in the finish coat.
   b. The total thickness of the three coats shall be not less than 7/8” at any point. No one coat of stucco shall be less than 1/4” thick, except the finish coat, which shall be not less than 1/8” in thickness at any point.
   c. The first or scratch coat of stucco shall be shoved thoroughly through the metal reinforcing until all space between the metal and the backing is filled, and the coat shall be kept moist during the first 24 hours after application.
   d. The brown coat shall be kept thoroughly moist during the first 24 hours after being applied and at least seven days shall elapse between the application of the scratch coat and the brown coat, except when approved high-early-strength cement is used, when at least 48 hours shall elapse between the application of the scratch coat and brown coat.
   e. Stucco placed on masonry backing shall not be subject to the timing requirements in “d.” above. Before applying stucco on masonry backing, such backing shall be thoroughly washed and cleaned.
   f. Gunite or equivalent products, when used, shall be applied in not less than two coats, and shall be reinforced as specified for stucco. Gunite shall be not less than ¾” in thickness on one- or two-story buildings and not less than 1” in thickness on three-story or higher buildings.

G. <u>CLEANING</u>

1. General

All precautions shall be taken not to inconvenience any occupants while the cleaning operation is in process, as far as is practicable. Protective canopies shall be installed over entrances while work is being completed in such areas and removed upon completion of work; job site shall be left in broom-clean condition daily.

2. Steam Cleaning

When steam cleaning is specified, all brick and cut stone shall be cleaned free of dirt, soot, and carbon, etc., with a high pressure steam cleaning machine and proper solution of acid and water.

3. Hydro Blasting

When cleaning by water blasting, all brick and stone shall be cleaned free of dirt, soot, and carbon with a high pressure machine and proper solution of acid and water followed by a high pressure air and water rinse at minimum 800 P.S.I. to a clean surface.

4. Sandblasting

When the Work Write-up specifies sandblasting, all stone trim and brick masonry from roof down to ground level shall be sandblasted, using clean, sharp silica sand and rinsed with clean, clear water to a clean surface free of dirt, soot, carbon, and dust. All excess sand to be removed from the premises upon completion.

5. Masonry Cleaning -New Work

a. All exposed masonry not less than seven days old shall be cleaned with a solvent such as Sure-Klean or Grays Ferry, or 2 percent solutions of muriatic acid. Acids or cleaners must be thoroughly rinsed with water after cleaning.
b. No cleaning shall be done until all work has been pointed and mortar joints struck.
c. For stronger cleaning solutions or other cleaning methods, the contractor must obtain specific approval from the Rehabilitation Representative or agent.

5 - METALS

A. STRUCTURAL

1. Materials

a. Metal structural members shall be installed as specified in the Work Write-up and in accordance with the local building code.
b. The contractor is responsible for determining the correct size of any metal structural members used which are not specified in the Work Write-up.
c. Design and fabrication of structural steel shall be in accordance with AISC specifications.

2. Installation

a. Bearing area on walls for lintels, beams and girders shall be such as is required to distribute the designed load but not less than 4 linear inches of the member.
b. Bearing plates, minimum 1/4” in thickness, shall be installed where beams or girders rest on masonry and shall be set in a minimum 1/4” mortar bed.

B. STEEL COLUMNS

1. Materials

a. Columns shall be a minimum of 3” in diameter new standard steel pipe, with bearing plates at the top and bottom, unless otherwise specified. Used pipe will not be acceptable.
b. Columns shall be of sufficient strength to carry the required or designed loads. Concrete footing shall be provided per local building code.

2. Installation

Both top and bottom plates shall be anchored to structure with a minimum of two corrosion resistant bolts or lag screws each.

C. PORCH IRONWORK COLUMNS

1. Materials

Corner and flat iron columns shall be of sufficient strength to carry required load; Columns must be plumb and resting on sound plates.

2. Installation

Columns shall be attached to the floor and ceiling with approved flanges, If not pre-finished, all metal shall be primed with a rust preventive primer followed by the application of one or more coats of exterior rust-resistant enamel to cover.

D. HANDRAILS AND GUARDRAILS

1. Materials

a. Railings and component parts shall be pre-finished aluminum or primer-coated steel, and shall be constructed to include square baluster posts spaced not more than 6’ apart, center-to-center. Channel rails shall be not less than 1” in width.
b. All joints shall be secured and ground smooth prior to priming and finishing.

2. Finish, if not factory-applied, shall be a rust preventative primer coat followed by one or more coats of exterior rust-resistant enamel as required to cover.

E. ALUMINUM – General Use

1. Finish coatings on aluminum materials shall have a minimum 30 year transferable warranty against defects, unless otherwise specified.

2. Protection of the finish of new aluminum materials, as well as that of any other finished metals and where applicable, is the responsibility of the contractor for the duration of the process of the work of the rehabilitation contract.

3. Aluminum siding – see 01 CARPENTRY section H.6.

F. FLUE LINERS

1. Metal flue liners shall be prefabricated metal liners as approved by the Uniform Mechanical Code or local building code.

2. Liners shall be installed to 6” above top of exterior brickwork and according to the manufacturer’s specifications in compliance with all applicable codes.

G. HARDWARE

1. Materials

a. In existing structures, new hardware should match existing as closely as possible.

b. All rough and finish hardware shall be standard brands and fully suitable for the intended purposes.
c. New locksets and latchsets shall be Kwikset brand or equivalent unless otherwise specified. Entry door hardware shall be conventional locksets with separate deadbolt locks which are keyed on one side only.
d. New hinges shall be Hager, Stanley or equivalent. Hinges for exterior out-swinging doors shall be rust-resistant and have security hinge pins.
e. New door stops shall be solid bumpers screwed into the wall base behind each door or the door itself.
f. Peephole devices shall be included on all non-lite entry doors, standard size and mounted at standard 5-foot height from the floor, unless otherwise specified.
g. All window hardware shall be polished brass plate or to match existing.
h. Guiding devices for window sash shall be “jiffy” spring, or nylon insert.

3. Window Sash Weights

Window counterweights shall be Unique brand or equivalent, or as specified. Sash cord shall be no less than 1/4” nylon cord.

4. Installation

a. The installation of hardware shall be performed in a workmanlike manner in accordance with these performance standards for the applicable trade.
b. Finish hardware shall fit perfectly, be uniform in color and free from marred appearance or imperfections affecting serviceability.
c. New hardware shall be furnished with the necessary screws, bolts or other fasteners of suitable size and type so as to anchor the hardware in position for its designed use and durability. Such fasteners shall blend appropriately in appearance with the hardware and its finish, and shall be furnished in accordance with the recommendations of the hardware manufacturer.
d. Carpentry cuts for the finish hardware shall be carefully and accurately made. The screws shall be turned to a firm grip but not to the point of distorting the hardware or stripping the material. In no case shall screws be hammered into place. Doorknobs shall be positioned at the height of the existing doorknobs in each building and the other hardware shall be uniformly positioned in accordance with good common practice.

H. FOUNDATION VENTS: See 06 Weatherization section O.1.

I. ROOF VENTS: See 07 Roofing section A.1.

J. GUTTERING: See 07 Roofing section O.1

K. METAL WINDOWS: See 01 Carpentry section K.1

L. METAL DOORS: See 01 Carpentry section L.1

06 - WEATHERIZATION

A. MATERIALS

1. Rigid foam, fiberglass batts, or blown-in cellulose insulation shall be the accepted materials used, unless otherwise specified, and shall meet all of the specification requirements of the local building code.

2. Insulation shall be non-flammable moisture absorbing type as manufactured by Owens Corning, Johns-Manville or approved equivalent.

3. Batts shall have a foil or Kraft paper vapor-barrier or “facer”, except where otherwise specified, and shall be installed with facer toward the conditioned or heated and cooled side of construction, firmly fastened to framing members.

4. Batt insulation shall be cut carefully around electrical boxes, pipes and water lines, being inserted in such fashion as to preserve the loose fluff of the material, yet thoroughly fill all voids; compacting insulation to accommodate fit is not acceptable.

B. CRAWL SPACES

1. Batt insulation shall be securely attached to band boards so that edges butt tightly.

2. A vapor barrier will be securely attached to the floor joists when standing water or other problems prohibit installation in the above manner. Batts shall be held in place with “Tight Claws” insulation supports or equivalent.

C. OPEN-WALL INSULATION

1. Frame wall insulation shall be minimum R-3, 3-1/2” thick fiberglass batts with vapor barrier on one side. Insulation used in partition walls which are not separating rooms of conditioned air space from rooms of ambient air space need not have a facer, unless otherwise specified. Insulation shall be installed securely between studs, attached per manufacturer’s recommendations.

2. Masonry walls shall be insulated using minimum 3/4” rigid foam with vapor barrier facer on one side; joints in foam boards must be foil-taped. The insulation shall be installed between furring strips as recommended by the manufacturer. Non-faced insulation may be used if the interior face of the insulation is covered with a vapor barrier of minimum 4 mil polyethylene sheeting, firmly attached to the furring strips.

D. SIDE-WALL BLOWN INSULATION

1. Installer shall inspect all interior sides of walls to be blown for holes, cracks or openings prior to blowing insulation; any such damage found shall be filled or patched-over.

2. *Only* trained and qualified contractors will be used for blown insulation installation.

3. An applicable two-hole installation method shall be used for inaccessible wood siding walls, with cellulose insulation blown in to completely fill all voids.

4. Aluminum and vinyl siding shall be removed prior to drilling and replaced in good condition as close to original as possible after installation of insulation.

5. Asbestos siding shall be removed prior to drilling unless existing siding is deemed to be too brittle, in which case smaller appropriate drill bits will be used to drill through the siding, creating removable sections, and the removed sections shall be re-inserted after installation of the insulation. The siding shall then be restored as near to original condition as possible. Touch-up paint shall be applied if necessary for restoration.

E. ATTIC INSULATION

1. Batts

Insulation shall be minimum R-30, 6” thick fiberglass, with vapor barrier facer on one side. The facer side shall be installed against the top of the ceiling surface (non-faced side toward the attic) and attached to the ceiling joists according to the manufacturer’s recommendations.

2. Blown Insulation

Insulation must be of an approved type, properly tested, and warranted to meet applicable requirements. The insulation shall be installed to the proper thickness for the type of insulation and the R-value specified and according to local building code. NOTE: All attic access covers shall have minimum R-19 batt insulation permanently attached to the attic side of the cover.

F. ATTIC (1-1/2 STORY)

Knee walls shall be insulated with batt insulation run to roof sheathing.

G. DUCT INSULATION

When specified, a sound lining shall be applied to all air ducts, minimum 1-1/2” thick fiberglass, Ultra Liner by C.S.B., Aeroflex by Owens Corning, or equivalent. Duct lining shall be installed in accordance with manufacturer’s recommendations. Stick clips, where used, shall not compress around lining more than 10 percent of its nominal thickness. Liner shall be U.L. approved for use in accordance with NFPA Pamphlet 90A insulating procedure. Insulation shall be installed with vapor barrier on the outside and joints in vapor barrier shall be neatly sealed with foil tape.

H. MISC. INSULATION: WATER HEATER JACKETS & EXTERIOR METAL ENCLOSURES

1. Materials

Prefabricated standard water heater blanket kits installed per manufacturer’s recommendation shall be used when additional exterior insulation is specified for water heaters. No site-fabricated covering of stock insulation materials is acceptable.

2. Sheet Metal Enclosures

a. Only prefabricated, minimum 28 gauge metal enclosures shall be used unless otherwise specified. Enclosure shall be set on minimum 4” thick concrete slab poured to code unless installation is to be located other than at grade level.
b. Openings of enclosure to crawl spaces shall be enclosed with 1/2” exterior grade or pressure-treated plywood.

I. VAPOR BARRIERS

1. Materials

All vapor barriers shall be minimum 4 mil water-proof material, i.e. visqueen, polyethylene, or polypropylene film.

2. Installation

a. When installed in a crawl space, vapor barriers shall be placed smoothly on grade and weighted along sides and corners.
b. On open walls with batt insulation, the vapor barrier shall be stapled firmly to studs, independently of the insulation batts.

J. STORM WINDOWS - (See windows, metal)

Smooth operation of all sashes shall be ensured. Insulating storm windows shall be squarely set in a bead of caulk; attachment shall be made with appropriate aluminum screws.

K. STORM DOORS - (See doors, metal)

Frames and trim shall be of rigid construction and fastened with appropriate screws as furnished by the manufacturer.

1. All hardware shall be included in this installation, including hydraulic door closer and storm chain to be furnished by contractor.

2. Door shall be firmly fastened to frame and operate smoothly and correctly.

3. Any cracks, holes, hinge cutouts, etc., caused or discovered in the installation process shall be filled and scraped. Noticeable paint defects in the door jamb, stops and casing shall be touched up with new paint to match existing in color and texture.

L. CAULKING

IMPORTANT NOTE: *Indiscriminate use of pure silicone caulk will not be accepted; appropriate caulk type for the type of materials and for the work to be performed is required. Any silicone caulk used shall be a paintable formula only, and shall be installed sparingly and appropriately. The contractor will be required to remove any unsightly, improper, or inappropriate application of caulk at the contractor's own expense. Caulking should be performed by experienced, trained personnel.*

All caulking shall be applied utilizing the following details and procedures:

1. Joints, spaces and surfaces to be caulked shall be dry and free of dirt, dust or mildew.

2. Prior to applying caulk, all bare unpainted wood, as well as other surfaces as directed according to manufacturer's directions, shall be primed using an oil-based primer.

3. Deep joints and cracks shall be packed with a non-shrinking backup filler to within 1/2" of surface before caulking.

4. Caulk shall be applied neatly with an appropriate dispensing gun, and using the proper size nozzle opening; joints and spaces shall be solidly filled, and excess compound *tooled* away ("fingering" should be avoided), leaving the surface smooth and clean.

5. Around bathroom and kitchen plumbing fixtures, ONLY an appropriate *siliconized latex tub & tile caulk* shall be applied, using an appropriate size bead and ONLY after thoroughly cleaning surfaces to be caulked of mold, mildew, soap scum, and dirt. Pure silicone caulk will not be accepted; *the contractor will be required to remove and re-caulk any such misapplication.*

6. Temperatures must be maintained at or above 40 degrees F during any caulk application process, or as directed by the manufacturer.

M. WEATHER STRIPPING

1. Materials

   a. Weather stripping for all doors and windows shall be adjustable tubular vinyl, interlocking aluminum, and/or magnetic systems, unless otherwisespecified or approved.
   b. New thresholds shall be aluminum unless otherwise specified, properly installed using appropriate sealant, and of proper height and width for the application.
   c. Door sweeps shall be aluminum-backed rubber or vinyl, trimmed to fit properly.

2. Installation

   a. Weather-stripping shall fit snugly against doors and windows without gaps in such a manner as to prevent the entrance of air and moisture into the structure.
   b. New thresholds are to be securely anchored and appropriately sealed. When necessary, door bottoms shall be trimmed for proper operation, seal, and fit to threshold. If top and/or bottom of door must be cut or trimmed, they must be sealed after trimming using clear waterproof sealant or primer and paint to match existing finish.

N. GLAZING

1. Materials

   a. Glazing compound shall be standard Dap Glazing Compound or equivalent. No siliconized, pressurized, or caulking-type compound will be accepted. Replacement glass shall be "B" strength or better. Tempered glass shall be used when installed on or within 4 feet of any door.

b. All glazing shall be done prior to painting and only when temperatures are above 40 degrees F.
c. New glazing points shall be used in all glass replacement or where existing points appear to be deteriorated.

2. Installation

Glazing compound shall be applied at a 45 degree bevel to hide all points; replacement glass must be set in thin (1/16") bead of caulk. All glass will be cleaned thoroughly of paint and/or glazing residue after job is complete.

O. VENTS

1. New foundation vents shall be screened metal or otherwise approved, closeable louver, minimum 8"x16" installed at least one per 500 square feet of crawlspace area.

2. New soffit vents shall be screened continuous 2" strip vents or otherwise approved, set in caulk.

3. New gable vents shall be screened, prefabricated aluminum units placed as high as possible without interference from framing members.

4. New roof vents shall be screened aluminum, minimum 8" power attic ventilators or static continuous ridge vents only. No turbine type vents shall be acceptable. Powered ventilators must be properly sized to attic space for CFM capacity and must have proper direct-wired power supply per code requirements.

5. Continuous ridge vents when installed with roofing, shall be standard vents or as specified, installed according to the manufacturer's recommendations.

07 - ROOFING

A. GENERAL INFORMATION

1. If more than one layer of roofing exists, all roofing materials down to sheathing must be removed and replaced with new roofing felt and roofing materials to code.

2. All finished surfaces of the building and surrounding plantings shall be protected against damage.

3. Roofing work shall proceed only after related repair or replacement work (deck, fascia, nailers, flashing, etc.) has been completed, and only when existing and forecasted weather conditions will permit the work to be accomplished without interruption until completion.

4. The contractor shall provide temporary coverings for roof when adverse weather conditions prevent the roofing and associated work from being completed and if such protection is necessary or recommended.

5. The contractor shall coordinate the installation of roofing materials and associated work such as to provide a complete roofing system, and shall ensure the prevention of materials from entering and clogging gutters, drains and conductors, as well as the thorough removal of roofing nails and debris from the jobsite daily. Nails shall be removed from grade-level areas with the use of a magnetic sweep.

6. All new shingle roofing shall be applied in conformance with the applicable building code and shall be warranted by the contractor and the manufacturer to have a minimum economic life of not less than 15 years.

7. Prior to roofing installation, all damaged or rotted sheathing shall be replaced with new materials, installed flush with existing sheathing. End joints shall be placed over framing members.

8. Under exposed roof decking, roofing nails shall not penetrate deck material unless approved. Nails are to be corrosion resistant and shall be installed in accordance with material specifications and manufacturer's warranty.

9. When new roofing is installed in conjunction with aluminum or vinyl fascia, all eaves-drip, gravel stop, or other integrated flashings shall match existing materials in type, color, and appearance as closely as possible.

10. Roof *repair* shall include the necessary replacement of deteriorated, inadequate, and/or missing components of the roof structure, including roof decking, rafters, gable studs, collar beams, and ridge boards installed in accordance with building code requirements. Roof application surfaces shall be even, sound, thoroughly clean, dry, and free from any defects that might affect the quality of the application. Finished repair work on roof covering shall match existing roof as close as possible.

11. Material shall conform to Underwriter's Laboratories (UL) standard UL 55B Class C. Each roll of roofing shall be identified with the UL label. Roofing shall be installed to overlay according to manufacturer's recommendations and weigh at least 90 lbs. per square. Nails shall be corrosion-resistant, with sharp points, large flat heads 3/8" to 7/16" in diameter, and with smooth or ringed shanks. Nails should have a minimum length of 1-1/4" for new construction, longer for re-roofing. Spacing and nail patterns shall be in accordance with manufacturer's recommendations. Roofs with less than 3/12 pitch must use double-coverage roll roofing.

B. SHINGLE INSTALLATION

1. When required, contractor shall remove old roofing from deck, including all deteriorated surfacing materials.

2. Deck surface must be smooth and clean; all associated deck repairs are to be complete.

3. A general inspection by the contractor should be made to remove any protruding nails.

4. Contractor shall apply one layer of minimum 15 lb.-rated felt paper and install minimum 210 pound-rated, self-sealing fiberglass shingles. All roofing materials shall be applied according to the manufacturer's specifications.

   NOTE: Color selection of shingles must be approved.

5. Metal drip-edge flashing shall be installed on all exposed leading edges of the roof (excludes rake edges).

6. Installer shall flash open valleys with minimum .20 gauge galvanized steel flashing; flashing and counter-flashing at chimneys or vertical walls shall be .28 gauge.

7. When applying new 215 lbs. per square ‘T” lock shingles or square butt shingles with seal tab, labeled U.L. Class ‘C” or better, shingles shall be nailed with 7/8’ nails in accordance with the manufacturer’s specifications and have at least 15 year warranty.

C. ROLLED ROOFING

NOTE: This material is only to be used in very small areas as a patch or on broader very-low slope areas and only as permitted by local code.

1. The contractor shall strip existing rolled roofing, removing all rolled roofing, shingles and felt areas. Application area preparation requirements shall be the same as for shingled installation.

2. The contractor shall examine existing roof sheathing, cornice and eave edges before continuing work, and shall notify the Rehabilitation Representative of any defects. Work is not to proceed until all defects have been corrected.

3. At leading-edge eaves, the contractor shall apply one row of 36” wide, minimum 15 lb.-rated felt paper, covered by one row, or “starter course” of rolled roofing, with the second course installed by overlapping a minimum of 8” onto the starter course. Felt installation shall be extended in similar fashion to the crown of the roof or to the required termination point.

D. BUILT-UP ROOFING

Installation

1. Built up roofs shall consist of a minimum of 3-ply construction using a 30-lb. per square base sheet and two 15-lb. per square felt paper plies on top. Each ply shall be mopped with 25 lb. per square bituminous roofing asphalt after application.

2. The base sheet shall be overlapped at least 4” onto preceding sheets and at least 6” at end seams.

3. Any damaged or wet sheathing, rafters and fascia shall be removed and replaced prior to new roof installation. New flashings and gravel stop, etc. shall be used to replace existing as required.

4. All roofing materials shall be applied according to manufacturer’s specifications.

5. Single-ply roofing may be specified, to be installed per manufacturer’s specifications and local code, when a minimum of equivalent service life and warranty are available from the contractor.

E. METAL ROOFING

1. Materials

Metal roofing shall be installed on a substrates consisting of a minimum of no less than nominal 1”x4” No. 2 yellow pine nailers installed perpendicular to rafters on 24” centers. Corrugated steel roofing shall be minimum .28 gauge hot-dipped galvanized steel, with 2-1/2” or smaller corrugations. Factory pre-finished steel may be used when the manufacturer’s warranty on the finish is a minimum of 25 years and the color is approved in writing.

2. Application

Metal corrugated roofing shall be installed with side overlaps at corrugations of no less than 2-1/2” wide and end overlaps of no less than 6”, nailed 8” on center along the trailing edge. Contractor shall install roof according to manufacturer’s recommendations.

F. ROOF SHEATHING

Repair of sheathing shall include removal of all defective materials and replacement with new materials similar and flush to existing, in accordance to local codes and standards. At a minimum, ½” CDX plywood or 9/16” OSB standard sheathing shall be the accepted standard.

G. GUTTERS AND DOWNSPOUTS

1. General

Gutters must be appropriately sized for the job requirements regarding flow capacity and design. All gutter systems must include downspouts or other outlets effectively spaced a minimum of every ten linear feet of gutter, per run. Gutters overhung by trees and other growth or potential sources of debris must include strainer covers which are removable for cleaning purposes, and are substantial enough for length of service and durability. Standard splash blocks shall be included for each downspout extending to grade.

2. Materials

a. Aluminum with factory enamel finish shall be accepted, minimum .28 gauge.
b. Galvanized steel of minimum .28 gauge is acceptable when properly prepared prior to paint application. When paint is required on galvanized steel gutters, the installed gutter assembly shall be properly pre-treated for adhesion (see 10 PAINTING section B.4).

3. Installation

All gutter systems must be properly and securely fastened to the building structure using appropriate fasteners and the inclusion of a minimum slope to the nearest outlet of 0.1 inch per linear foot of gutter, or as otherwise approved.

H. FLASHING

1. All flashing material shall be either .26 gauge galvanized steel or .28 gauge aluminum sheet product unless otherwise specified.

2. Valley flashing shall be minimum 20” wide .28 gauge aluminum sheet laid over 36”, 15 lb. felt paper base sheet, set in valley with nails.

3. All vent stacks penetrating the roof deck shall be flashed with prefabricated metal or rubber boot flashing.

I. ROOF VENTS: See 06 Weatherization O.4

J. CHIMNEYS (also see 04 Masonry, Section 4.c.)

Chimneys shall be flashed with base flashing, counter flashing and stepped rake flashing of approved material. Where chimney, skylight or other similar penetrating curb is on slope of roof, the installation of a saddle or cricket is required. All flashing must extend at least 6” up the chimney surface from deck level and be grouted into brick joints or other veneer wall surface. Flashing must run at least 8” along roof deck.

08 - SITEWORK

A. EXCAVATION

1. Excavation shall be performed to the elevations and dimensions indicated in the Work Write-up; allowance should be made for working space. If suitable bearing is not found at elevations indicated, the Rehabilitation Representative must be notified immediately and give confirmation before the work proceeds.

2. In the event of over-excavation, the contractor shall place compacted backfill to the required grade.

B. BACKFILL

1. Materials

   a. Use only materials free of roots, stumps, wood, cinders, trash and stones larger than 4” in diameter.
   b. Any foreign matter other than suitable backfill shall be removed to a minimum of 24” below the surface of the ground.

2. Installation

   a. All grades shall slope away from the residence.
   b. Fills shall be placed in successive layers not exceeding eight (8) inches loose measure. Each layer shall be adequately and uniformly compacted before placement of the subsequent layer.
   c. All fill shall be compacted to a density which will avoid damaging settlement to walks, driveways, lawns and other site improvements.
   d. Backfill shall not be placed upon mud.
   e. Settlement or washing that occurs in backfilled areas prior to the acceptance of the work shall be repaired and grade re-established to the required elevation.
   f. Rough grades shall be established at 4” below the finish grade.

C. SAND FILL

Acceptable local materials shall be used when available. Sand shall be free of clay, rock or gravel larger than ½” in any dimension, as well as any debris, waste, frozen materials, vegetable and/or other harmful material.

D. ROUGH GRADE

Rough grade shall be to within 4” of the desired finish grade, sloped away from building, and compacted. Finish grade shall conform to the City of Montgomery building code.

E. TOPSOIL

1. Materials

a. Topsoil shall be used to establish the finish grade except where dust free surfaces are required.
b. Topsoil shall be fertile, easily crumbled, natural surface soil obtained from well drained areas, and shall be free of subsoil, brush, organic litter, objectionable weeds, clods, shale, clay, large stones, stumps, roots or other material harmful to plant growth or that which is potentially a hindrance to planting or maintenance.

2. Installation

The topsoil shall be uniformly distributed on the designated areas and evenly spread to the required depth, or if for lawn areas to be seeded, to a minimum of 4”. Any irregularities in the surface resulting from topsoil placement or other operations shall be corrected in order to prevent the formation of depressions where water will stand.

F. SEEDING

1. Materials

a. All seed shall be new seed labeled in accordance to the manufacturer’s guaranteed analysis under the rules and regulations of the U.S.D.A Federal Seed Act. The seed shall be 95 percent pure, with a germination rate of at least 85 percent.
b. Commercial fertilizer shall conform to all applicable Scare Fertilizer Laws. The fertilizer shall be delivered in bags fully labeled with the manufacturer’s guaranteed analysis, of the appropriate formulation to the requirements of the planting to be performed, and evenly distributed at the appropriate rate.

2. Installation

a. The seed shall be uniformly distributed over the areas to be seeded at the rate of 4 lbs. per 1000 square feet. The seed shall be lightly covered by raking and the surface rolled with equipment weighing 60 to 90 lbs. per linear foot of contact surface.

b. The planting area shall be thoroughly cleaned upon completion of the work. Debris, rubbish, subsoil and waste materials shall be cleaned up and removed from the property.

c. The newly planted areas shall be watered beginning on the same day of planting to promote seed germination. The watering period shall extend through the contract period to the final inspection. After the final inspection, the home owner will be responsible for continuing the watering.

G. SOD

Cultured sod shall be laid when specified in the Work Write-up. After placement, the new sod shall be rolled and compacted to assure bond with topsoil, and watered as necessary to maintain a proper moisture condition and assure rooting. Sod failing to become established at the end of one (1) month, shall be replaced by the contractor at contractor's expense. Contractor shall stake sod on slopes flush with top of mat to prevent slippage.

H. TREE TRIMMING & REMOVAL

1. Tree(s) are to be removed ONLY when specified and in the manner set forth in the Work Write-up. Any trees removed without official specification or the approval of the Rehabilitation Representative or authorized agent shall be replaced and any damage resultant of the removal.

2. All trimming and/or removal shall be performed only by a professional experienced tree surgeon and shall include stump removal to a minimum of 18 inches below grade, unless otherwise specified.

3. All limbs, branches, roots, leaves, and stump chips, etc. shall be removed from the premises.

4. Topsoil shall be used to fill any remaining voids to grade level with surrounding surfaces.

I. PAVED SURFACES - BITUMINOUS

1. Excavation shall be to depth required. Earth sub-grade shall be compacted thoroughly.

2. Base shall be 4" of sand, gravel, or mixture thereof, compacted to 2" below finish grade.

3. Finish shall be a 2" wearing surface of a hot plant mix of bituminous asphalt placed flush to grade. Finished surface shall be rolled to slope at least 1/4" per foot in the direction of surface drainage flow as indicated on site plan and/or as specified in the Work Write-up.

J. PAVED SURFACES - CONCRETE

For concrete surfaces see 02 CONCRETE, Section F.

K. REMOVAL OF TRASH

Trash shall be disposed of in a proper manner and area shall be raked or swept clean and level with the surrounding grade.

L. PEST EXTERMINATION

1. When pest extermination is specified, the entire main structure is to be treated. The “treatment” shall be that treatment recommended by a bonded, licensed, exterminator to rid the structure of any and all types of infestation and shall carry a minimum guarantee of one year.

2. Chemicals used shall be those that will cause the least inconvenience to the property owner (moving of foam rubber articles, plants. etc.).

   NOTE: When dry wood termites are present tent fumigation may be required.

M. DEMOLITION WORK

The contractor shall be responsible to obtain all required permits as well as to ensure the cleanup and removal from the site of all trash, debris, and surplus materials encountered during the course of the work, including all debris and trash inside and under the dwelling. The contractor shall protect adjacent property areas against damage.

N. CISTERNS, SEPTIC TANKS, WELLS: BACKFILL AND SEAL

The following procedures shall be utilized in permanently closing cisterns, septic tanks, and water wells:

1. The contractor shall break the concrete bottom and remove or cut and seal tap lines leading to/from the unit; contractor shall then pump and dispose of sludge prior to filling.

2. The unit shall be filled and compacted to within four feet of the surface using appropriate backfill material and methods.

3. The tops of the walls shall be broken out and removed to a minimum of 24” below the surface of the ground. Backfill shall be compacted to a rough grade, no less than 4” below existing, followed by topsoil to finish grade, and the application of seed, fertilizer and water as set forth in Section F above.

O. CLEANING EXTERIOR SIDING

In situations where the exterior siding is not damaged, deteriorated, or missing, the Rehabilitation Representative may specify cleaning. This shall be done in strict observance of the following standards:

1. Cleaning shall be conducted with a high pressure washer using the application of a blend of bleach and T.S.P., or a proper mix of Jomax brand cleaner or equivalent.

2. Pressure washing shall only be performed using the appropriate size sprayer tip for a wide spray pattern; the results should be a pattern which is wide enough to ensure against damage to the structure, while narrow enough to be effective in the cleaning process.

3. All window openings, shrubbery, or any other vulnerable items shall be covered, removed or otherwise protected from damage by the contractor.

4. The Contractor shall be responsible for any damage done to the property during this process.

09 - WALLCOVERING

A. WALLBOARD

1. Standards

Wallboard shall be Sheetrock, Gold Bond, or equivalent gypsum board with beveled edges carefully fitted and sized prior to fastening in place. That which is installed in areas subject to excessive moisture shall be rated for moisture resistance. All drywall shall be taped, bedded and sanded smooth unless otherwise specified. Finish sanding standard shall be to remove all *delineation,* or visible edges, of compound-coated areas; no observable edges of compound or protrusion of butted joints, taped edge joints, fasteners, or any other irregularities are to be accepted. Sanding may be by either wet or dry process, as long as the contractor has taken all reasonable measures possible to minimize and to contain dust within the area of work currently in process at the time.

2. Fastening

Fastening shall be only by appropriate length standard drywall ***screws*** set to such depth as to create an appropriate “dimple” which does not tear or sink beneath the facing paper. Drywall nails will not be accepted.

3. Walls & Ceilings

Prior to installing drywall, the contractor is responsible to prepare all substrates such that resulting irregularities are minimized. If defects in framing or other substrate problems outside of the drywall contractor’s area of responsibility are encountered, the contractor shall immediately notify the rehab specialist or authorized agent for repairs to be made by the appropriate tradespersons. Covering such defects shall only be allowed with proper approval. Ceiling drywall must be fastened to ***level***, smooth substrate, i.e., rafters, nailers, etc., unless otherwise specified or approved. All corners shall be finished using standard metal or vinyl corner bead forms, imbedded in compound.

4. Taping & Coating

Tape shall be either standard paper or fiberglass mesh embedded in compound and allowed to dry completely. Second and third successive coats shall be applied; each coat shall be feather-edged and extended beyond the previous coat approximately 2” and shall be thoroughly and completely dry before applying the next coat. The finish coat shall be sanded lightly and any imperfections filled in prior to any painting or decorating. In no case shall joint tape, metal forms, or fasteners be allowed to remain exposed beyond the finish coat. Fasteners shall be coated and finished similar to taped joints, with a minimum of three applications, allowing time to dry between each coat.

5. Finishing

After sanding, contractor shall apply a minimum of one coat of drywall sealer, followed by touch-up of drywall finish as required, with spot-priming of touched-up areas.

6. Drywall Repair Standards: Walls & Ceilings

Wherever existing drywall is to be repaired, the damaged material shall be completely removed, and new material shall be installed flush and finished to match existing as closely as possible. All repairs shall be done in a workmanlike manner, and properly prepared to receive the finish application.

a. Ceiling replacement, unless otherwise specified, shall be made by installing the specified thickness of drywall panels directly over the existing ceiling, fastened directly to joists, using spacer or fill material as required to create flush, smooth coverage. Perimeter of ceiling shall be treated as specified in the Work Write-up.
b. Unless otherwise specified, new or replacement dropped ceilings shall be 1/2” drywall taped, bedded, and sanded. Drywall shall be installed over new ceiling joists, *level* and properly supported from roof framing, at 16” on center.
c. All wall and ceiling patches in drywall shall be properly secured using either “deadwood” nailer boards or metal drywall repair clips connecting new sections of material with the old, such as to provide stiffness and continuous integrity in the repaired drywall. Where repairs are required due to the failure or “pullout” of toggle screws or other fasteners through the drywall because of items having been mounted directly to the drywall without securement into framing members, and if the same or similar items are to be re-mounted within the same general area after repair, the contractor shall install such deadwood or sub framing material as would prevent a repeat of the failure, prior to patching the drywall material.

B. PANELING

Paneling shall be pre-finished, and shall consist of either pre-stained luan or wood veneer on a plywood backing. All paneling shall be a minimum of 1/4” thick. Installation shall include matching inside and outside corner trim, caps, dividers, window and door trim, cove molding and base trim. When installing paneling in conjunction with new windows, paneling shall return to windows. Method of installation used shall conform to the manufacturer’s recommendations. No Masonite or other brand composite or paper type paneling is to be accepted unless specified.

G. PLASTER

Base coat shall be “Gold Bond”, “Gypsolite” or equivalent mill mix, pre-proportioned lightweight gypsum/perlite plaster. Finish coat shall be Gold Bond “E-Z Soak” finish lime, or equal. Water shall be clean and free from organic materials, oil, and contaminants. All base coat and finish plasters shall be mixed in accordance with manufacturer’s instructions for repair.

1. Repair/patching

Cracks and holes shall be raked clean of any loose plaster or drywall, and filled with patching plaster. New repair shall be struck level with surrounding surface and finished to match existing walls.

2 Installation

a. The minimum thickness of plaster over metal lath, wire fabric, masonry or concrete shall be 5/8”; over metal, gypsum, fiberboard or wood lath, the minimum thickness shall be one half inch (1/2”).
b. Plaster shall be applied in a three-coat process; a two-coat process is acceptable if the base is to be gypsum lath or masonry.
c. The contractor shall install suitable plaster grounds of required thickness at openings and at intersections of walls and floors. Internal angles shall be reinforced using expanded metal lath or Cornerite or equivalent, having not less than 2” legs, or of woven or welded-wire fabric of equivalent strength. External angles shall be protected with corner bead. For gypsum or fiber lath, corners of all openings shall be reinforced with strips of metal lath, approximately 6”x8”, installed at 45 degree angles. Perforated lath supported by clips shall not be used for ceiling installations.

H. STUCCO: See 04 MASONRY section F.

I. HARDBOARD

1. Materials

a. Plastic coated hardboard shall be Marlite or approved equal.

b. The contractor shall use only the pattern, design and color as chosen by the owner and approved by the Rehabilitation Specialist.
c. Molding, edges, fillers, fasteners and adhesives shall be used as recommended by the manufacturer. NO EXPOSED NAILS WILL BE ACCEPTED.
d. Molding strips for use between panels shall be of same material, color and design as panel.

2. Installation

a. All hardboard shall be installed as recommended by the manufacturer.
b. Appropriate and adequate sealant shall be used as required or specified.

J. CERAMIC TILE

1. Wall Finish Standard

Wall tile shall equal or exceed the standard Grade Requirements of the U.S. Department of Commerce. Wall tile shall be minimum standard grade and shall be trimmed at terminating edges using the appropriate bullnosed or other trim-specific tiles.

2. Standard Bed

Existing material on indicated walls is to be removed and replaced with ceramic tile using standard-bed method over lath.

3. Thin Set

The application of ceramic tile on new or existing drywall using the “thinset” method is acceptable unless otherwise specified, eliminating the need for lath. When this setting method is used within 6 feet of any plumbing fixture, the wall backing must be moisture-resistant grade drywall, Durock brand backer board, or equivalent.

4. Repair

All cracked, loose, chipped or otherwise defective tile shall be removed. The contractor shall then repair the setting bed or wall board as required to provide a smooth surface for installation of new tile, flush with existing surfaces. New tile being installed next to existing tile shall match existing as closely as possible in size, color, texture and adhesive type. When replacement tile cannot be matched to existing in color or texture, a new contrasting color or texture shall be used which meets the owner’s approval. Any other procedure shall require approval.

5. Tub & Shower Installation

Tub and/or shower areas shall be tiled only up to 5'-6" above the floor unless otherwise specified in the Work Write-up. Interior windows within a tub or shower area shall have ceramic tile returns only. All ceramic tile repairs performed in tub, shower, or sink areas shall include the proper application of *siliconized* "tub & tile" caulk at fixture-to-wall transitions in the finishing step (see 06 WEATHERIZATION section L).

K. WALLPAPER

1. Materials

Wall paper colors shall be sunfast and waterfast, and of the owner' choosing from within a selection provided by the contractor. The contractor may choose to provide only a budgetary guide for selection. Adhesive for wallpaper shall be as recommended by the manufacturer.

2. Preparation

Prior to installation, all walls shall be properly prepared by the removal of dirt, grease, loose wallpaper, old adhesive or other contamination, as well as repair of any holes and/or irregularities in the wall surfaces.

L. SUSPENDED CEILINGS

1. Standard

a. Non-commercial grade systems are preferred, subject to approval.
b. Ceiling tiles shall be a minimum of 1/2" thick, selected by the homeowner from within cost guidelines provided by the contractor.
c. Grid shall be standard 1"x 1" metal or as otherwise specified.
d. Tiles shall be installed in the grid in such fashion as is aesthetically pleasing. Tiles soiled or damaged during installation shall be replaced at the contractor's expense.
e. Suspension wires shall be of a type as recommended by grid manufacturer, and shall be installed level and free of defects.

2. Installation

a. Finished ceiling height and installation shall conform to the Building Code.
b. The contractor shall provide and install either 24"x 24"or 24"x 48" suspended acoustical ceiling on metal "T-bar" grid, securely anchored to existing ceiling framing, per manufacturer's specifications, complete.

M. ACOUSTIC CEILING TILE (Standard)

1. Materials

a. Tile shall be 12 x12” 1/2” fire rated Class A ceiling tile manufactured by Celotex, Armstrong or approved equivalent, with interlocking edges.
b. Acoustic tile shall be mounted on minimum 1”x 3” furring strips with the use of appropriately sized staples for secure fastening.
c. Ceiling trim moldings used shall be minimum 3/4” cove molding around entire perimeter of room at wall and ceiling transition.

2. Installation

Tile shall be installed securely with staples or in accordance with manufacturer’s recommendations, in a fashion such that joints are staggered in a grid pattern. Tiles soiled or scarred during installation shall be replaced at the contractor’s expense. Ceiling trim shall be included in the installation of new ceiling tile. All work shall conform to the local Building Code.

10 - PAINTING

A. PAINTING: INTERIOR/EXTERIOR

1. Standards

   a. The contractor shall inspect all surfaces prior to starting work and report any deficiencies to the rehabilitation representative; starting work implies the contractor's acceptance of all specified surfaces.
   b. Unless otherwise specified, paint colors will ONLY be those as selected by the homeowner and agreed upon in writing prior to the issuance of the Notice to Proceed order.

2. Materials

   a. All materials used shall be completely free of all lead or lead based compounds.
   b. All materials shall be delivered to the jobsite in their original unopened containers bearing the manufacturer's original label.
   c. Paints and materials used shall Benjamin Moore, Sherwin-Williams, or approved equal, unless otherwise specified. Contractor grade paints will only be allowed when specified in the Work Write-up or approved in writing by the rehab specialist.
   d. Priming over unpainted wood surfaces shall be performed using high quality oil-based primer prior to the application of finish coatings.

3. The following Interior paint schedule shall be followed unless otherwise specified in the Work Writeup (match to existing when applicable):

   - woodwork & trim — latex enamel, semi-gloss*
   - walls @ kitchens / bathrooms — latex enamel, eggshell or semi-gloss*
   - walls @ all other rooms — latex flat wall*
   - ceilings — latex flat ceiling white
   - wood finish — clear varnish or polyurethane (matte, semi-gloss, or gloss)

4. The following exterior paint schedule shall be followed unless otherwise specified in the Work Writeup (match to existing when applicable):

   - siding — latex or acrylic semi-gloss or eggshell*
   - masonry — latex or acrylic flat or eggshell*

• trim	exterior latex semi-gloss or gloss*
• finished wood	spar varnish (ONLY)
• concrete	(new work) oil or acrylic concrete *stain* (existing) latex or acrylic floor coating*

***** When painting over existing oil-based paint surfaces, an oil-based primer designed to receive latex paints must be applied prior to the application of latex enamel.

NOTE: *All* exterior paints and stains MUST include an effective mildewcide additive, such as M-1 or equivalent other, in ALL finish coats, in accordance with manufacturer's instructions. Evidence of additive shall be required on site by the applicable inspector at the time of pre-finish inspection, as well as on the contractor's material invoice.

5. Preparation: Interior / Exterior

   a. All surfaces to be painted shall be cleaned free of mold, mildew, dirt, dust, grease, oil, crayon, graffiti, chalk, loose and/or flaking paint and any other contaminants which tend to interfere with proper adhesion and good aesthetic results. When cleaning methods fail to remove bleeding compounds, an appropriate effective stain sealer application is required; however, the City will NOT accept the cover-up of removable stains with a stain sealer in lieu of proper cleaning in any case without prior approval from the rehabilitation specialist.

   b. Exterior surface preparation must be followed by an inspection by the rehab representative before the application of finish coats is begun.

   c. Exterior painted surfaces, when attached to the main residence, shall be properly prepared by scraping and washing with high pressure equipment, using an appropriate mix of household bleach and T.S.P., Jomax, or equivalent cleaner in order to remove all unsound surface material. Where previous paint coats have chipped and peeled, the edges shall be sanded down, spackled and feathered, or otherwise treated or removed to obtain a smooth surface before new paint is applied. Any paint removal methods used must not leave surfaces in scratched, scarred, or visibly altered condition. Bare spots shall receive at least one coat of primer.

d. All gaps or open joints shall be caulked. Unused and/or superfluous hardware such as screen holders, hooks, wires, screws and etc., shall be removed and their holes filled. Holes in non-primed surfaces must not be filled until after primer application. Filler used must be putty or non-shrinking spackling compound. Any tree sap streaks or bleeding knots in wood shall be primed using shellac or other effective sealer before paint application. All areas shall be protected during painting operation, including shrubbery.

6. Application

a. Paint application shall ONLY occur when temperatures are at or above 40 degrees Fahrenheit. Paint shall be applied according to manufacturer's recommendations and result in full coverage, leaving no streaks, shadows, or other blemishes.

b. For all interior applications, unless otherwise specified, the standard shall include one primer coat and one or more finish coats *to cover*. For all exterior applications, unless otherwise specified, the standard shall include one primer coat and two finish coats. All coats are to be thoroughly dry before applying succeeding coats in accordance with manufacturer's recommendations.

c. The contractor shall cover areas and/or move objects or vulnerable property which is adjacent to the work area so as to prevent damage. Any damage to such objects or property shall be repaired or replaced at the contractor's expense. All paint spatters shall be removed from all doors, window glass, screens, masonry units etc. at the conclusion of the work.

d. Proper attention to the maintenance of adequate ventilation shall be maintained at all times during the application and curing process of paints, thinners, solvents, and other caustic materials.

B. <u>SPECIAL SURFACES</u>

1. Asbestos Siding

Asbestos siding must be prepared for paint application by removal of all chalking and dirt, by means of washing with high pressure equipment using an appropriate mixture of bleach and tri-sodium phosphate (T.S.P.). After surfaces have been prepared for painting, the contractor shall call for an inspection before paint is applied. All surfaces to be painted shall receive an appropriate primer coat followed by one or more coats of top grade exterior acrylic latex paint labeled for asbestos siding, to cover.

2. Porches & Floors

Paint and stain coats shall be allowed to dry at least 24 hours between applications. Interior floors may be coated with polyurethane finish when applied in at least three successive coats with light sanding between coats to remove any rough spots.

3. Concrete & Masonry

   a. *Unpainted concrete* (new work), unless otherwise specified, shall be coated ONLY with quality ***concrete stain***.
   b. All *unpainted masonry* (block, brick, etc.) shall be primed with a minimum of one coat of masonry primer. All *painted* masonry and concrete surfaces shall be wire-brushed and/or scraped free of loose material followed by spot-priming as required with an appropriate quality primer. Voids and other surface defects shall be patched, allowed to dry, and primed prior to painting.

4. Metals

   All rust must be removed or neutralized prior to the application of finish paint on metal surfaces. Finish materials used shall be Rustoleum or equivalent rust-inhibitive product. Galvanized metal shall be allowed to weather 120 days or shall be treated with a vinegar wash or zinc chromate solution 14 days prior to finish coat application.

5. Vinyl (or “plastic”)

   These surfaces must be cleaned as specified in general above and coated with a quality acrylic latex paint. Usually vinyl surfaces do not require priming, however, the contractor is responsible to ensure adhesion of any applied finish materials.

6. Other Miscellaneous Surfaces

   Surfaces not specified herein or specifically addressed in the Work Write-up, which are of any questionable nature as to the material and/or application methods required, shall be brought to the attention of the rehabilitation specialist for specification.

11 - ELECTRCAL

A. STANDARDS

1. Standards/General Requirements

The Contractor shall comply with all local building codes, as well as the regulations of the National Board of Fire Underwriters, as adopted by the local governing authority.

The Electrical Contractor shall secure and pay for all permits required by any of the foregoing authorities. All work must be done by licensed electrical contractors and final certificates of approval or completion must be submitted before payment will be made for electrical work.

2. Inspections

The *electrical* contractor is responsible for all code inspections that are required and must complete all work accordingly. After the official letting of a rehabilitation contract, the responsibility for the successful acceptance of all electrical work by the Electrical Inspection Department of the City of Montgomery shall be that of the *general* contractor.

3. Service & Supply

Any electrical service which is deemed unsafe and/or not in compliance with electrical code shall be replaced. All service panels shall be minimum 100 amps, 120/240 volt, three-wire grounded, and fitted with appropriate circuit breakers. All circuits shall be *neatly* labeled, balanced and installed with provisional space for at least two additional future circuits. No handwritten labels will be accepted.

B. MATERIALS

1. Materials, fixtures, devices and equipment shall be Underwriter's Laboratory listed.

2. New outlet and junction boxes may be non-metal construction as allowed by local code.

3. Wiring

a. All newly installed conductors shall be copper. All boxes and raceways shall be appropriately sized per code according to the number of wires passing through and terminating therein.
b. Wiring shall be concealed, wherever possible. When wiring *must* run exposed, it shall be enclosed in rigid metal conduit or wire mold, or as required by code, and firmly attached to ceilings and walls with approved fasteners. NOTE: Any wiring to be installed using EMT wire mold must be approved by the rehabilitation representative.
c. No aluminum wiring is permitted except as service feed where permitted by code.
d. In the replacement of fixtures or devices where the existing wiring is deteriorated to the extent that malfunctioning is likely, wiring shall be replaced to code with new material to the next outlet source.

4. Devices & Fixtures

a. All newly installed receptacles shall be three-prong type, properly grounded to the outlet box or ground wire. All newly installed metal outlet boxes shall be properly grounded.
b. Light fixtures shall be as specified in the Work Write-up; selection shall be only as chosen and approved in writing by the owner and so specified, according to the budgetary schedule provided by the contractor. Any material costs above and beyond the established budgetary limits will be paid by the homeowner. The contractor shall furnish and install all old or new lighting fixtures complete to provide a finished operating fixture at each location as specified.
c. All kitchens shall have at least one separate 20 amp GFCI circuit. When two usable countertop surfaces are separated by a sink, each surface shall be equipped with an appropriate type outlet.

5. Warranties

The contractor shall provide the owner with all of the applicable manufacturer's guarantees, warranties, notices and manuals as supplied by the manufacturer covering the materials and/or equipment installed during the course of the work.

C. <u>INSTALLATION</u>

1. A qualified electrician shall oversee all drilling, cutting and patching required for the installation of the work of this section. The contractor shall ensure that all work, fixtures and materials are protected at all times during the duration of the work. All repairs and/or patching shall be of the same or equivalent materials, finish and workmanship as the original work. If repairs fail to meet the rehabilitation representative's approval, the repairs may be completed by others at the contractor's expense.

2. In *installing* a fixture or device specified as “new with wiring”, the item shall be installed complete with all wiring and accessories incidental to its proper functioning, including all lamps or bulbs.

3. When *replacement* of an item is specified, the existing item shall be removed and a new fixture or device shall be installed and connected to the existing wiring.

4. When *relocation* of an item is specified, it shall be removed and a new fixture or device shall be installed complete in a more appropriate code-approved location.

5. When *removal* of an item is specified, it shall be completely removed from its location and repairs to the former location shall be made according to the standards as stipulated in 3.a. above. If the existing outlet box and wiring cannot be removed, a blank cover plate shall be installed.

12 – HEATING, VENTILLATING AND AIR CONDITIONING (HVAC)

A. HVAC GENERAL REOUIREMENTS

The work of this section shall conform to the applicable requirements of the local building code.

1. Permits, licenses and inspections required for the work of this section shall be secured and paid for as a part of the work of this section. The *HVAC contractor* is responsible for all code inspections that are required and must complete all work accordingly. After the official letting of a rehabilitation contract, the responsibility for the successful acceptance of all HVAC work by the Building Inspection Department of the City of Montgomery shall be that of the *general contractor*.

2. Workmanship shall be the best standard practice of the trade. A qualified mechanical technician shall perform all drilling, cutting and patching required for the installation of the work of this section. All repairs and/or patching shall be of' the same materials, finish and workmanship as the original work. When repairs fail to meet the rehab representative's approval for these standards, the repairs may be completed at the contractor's expense.

3. The contractor shall provide the owner with all of the applicable manufacturer's warranties, guarantees, notices and manuals as supplied by the manufacturer covering the materials and/or equipment installed during the course of the work.

B. FURNACES GENERAL

1. The specification, "*install furnace system complete*" shall refer to the complete installation of the furnace, thermostat, all necessary accessories and controls, main disconnects to electricity and/or gas, all wiring, complete ductwork system including flue pipe and adjustable registers or grilles.

2. The specification, "*install new furnace*" shall refer to the replacement of an existing furnace with a new one of similar size and type, including a new standard thermostat, retro-fitted to the existing ductwork system.

3. The contractor performing any furnace work shall be a licensed mechanical contractor. A final certificate of acceptance from the City of Montgomery Building Department must be presented before payment will be made for permitted mechanical work.

4. Material

Unless otherwise specified, furnaces shall be new natural gas fired forced air type, equivalent or better than original and of appropriate capacity and size to maintain an indoor temperature of 70 degrees Fahrenheit at a level 30” above the floor throughout the structure, when the external temperature is at 0 degrees Fahrenheit.

5. Installation

a. Installation shall comply with National Fire Protection Standards (NFPA) and the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) guide of the Warm Air Heating and Air Conditioning Association as modified/approved by local code authorities.
b. All work performed in the assembly, erection, installation and connection of equipment shall be in accordance with the manufacturer’s recommendations. Mechanical equipment shall be so located, positioned and installed such that inspection, routine maintenance, repair and/or replacement is possible without removing items of structural or permanent construction. All approved gas burners shall bear the manufacturer’s identification markings, the burner trade name and the model or size number and shall be UL listed.

C. HEATING

All heaters shall conform to the current, applicable local code.

1. Gas

a. No non-vented gas heaters shall be accepted unless specified. Any illegal non-vented space heaters discovered in a residence or outbuilding shall be brought to the attention of the rehabilitation representative.
b. The specified model shall be installed in the area designated, and tested for proper operation.
c. All gas installations shall be performed by a qualified technician and shall include all new connection tubing, fittings, and flue pipes. Except for water heaters, all gas fired equipment must provide ONLY full cut off electronic ignition systems.

2. Electric

The specified model shall be installed in the area designated, followed by thorough testing for proper operation. Space heaters shall only be used on separate dedicated circuits rated for the appropriate amperage required.

3. Heater Repair

Heaters shall be thoroughly cleaned and all worn or damaged parts, fittings and accessories removed and replaced, the entire unit tested and left complete in perfect working condition, including thermostat, wiring, and all necessary controls. Cleaning shall include, but not be limited to the heat exchanger, burners, motor and blower. Existing inoperative thermostats shall be replaced with new standard thermostats and tested to ensure proper functioning of heating system.

D. DUCTWORK

1. Standards

a. Sizing: ductwork shall be of size and material as recommended by the HVAC equipment manufacturer, and appropriately sized according to accepted trade standards for flow capacity so as to correctly and efficiently serve the equipment to which it is attached.
b. Supply: an adjustable register or grille shall be provided to each supply outlet in all rooms.
c. Return: the contractor shall ensure that provisions are made for sufficient return air flow capacity in order to allow efficient and correct operation of the heating or cooling system. No return air from any living unit shall be recirculated and supplied to any other separate or connected living unit.

2. Installation / Repair

a. When any new or existing duct joint is assembled, re-assembled, or sealed in the process of repair and/or connection to any new or used mechanical equipment, and whether they be supply ducts or return air ducts or chases, such joints shall be fastened securely with appropriate screws or metal tabs and sealed after assembly using mesh tape and MASTIC SEALANT. No exceptions will be made to this rule. Duct tape and/or foil tape shall not be accepted without prior approval from the rehabilitation representative.
b. Insulation shall be applied to all supply ducts in unheated attic spaces, ventilated crawl spaces, on cold side of stud spaces in exterior walls, and other exposed locations to prevent excessive heat loss. Insulation may be omitted from ducts in crawl spaces having insulated walls.

3. Duct Extensions

Extensions to existing duct systems shall only be made when specified or approved by the rehabilitation specialist and only after the existing duct systems have been comprehensively cleaned and sealed professionally.

4. Duct Cleaning

The installation of any new ductwork and/or new heating or cooling equipment which requires connection to an existing duct system must also include the professional cleaning of the entire existing system. The cost for duct cleaning may be included in the contractor's bid proposal as a separate line item if necessary; no bids for such work will be accepted as complete without the inclusion of duct cleaning, unless otherwise specified.

E. THERMOSTATS

All furnaces shall be equipped with a thermostat located on an inside wall, and properly sealed behind to prohibit drafts through interior wall. Verify location with the Rehabilitation Representative. Honeywell or approved equal.

F. WIRING

All wiring for furnaces shall be in accordance with the local Electrical Code.

G. SERVICING

1. Gas Furnaces and/or Wall Heaters

The specification, "*clean furnace or heater*" shall include: cleaning the burners, combustion chambers, and flue of gas fired heating units, adjusting the flame and pilot, and correctly setting the fan limit control and high limit control switches. Also included will be to clean and oil blowers and motors and to install a new return air filter. The contractor shall operate each unit long enough to establish and verify its proper operation and settings, including automatic parts and controls.

2. Metal Duct Systems and Registers

The specification, *"clean & service duct system"* shall include the removal of all registers or grilles and vacuum clean all horizontal ducts. Grilles/registers shall be cleaned or replaced with new ones.

3. Central Air Conditioning and/or Heat Pumps

The specification, "*service*" shall include the replacement of filters and worn belts, the lubrication of all moving parts and cleaning all dust, etc., from condenser and evaporator coils; the contractor shall also check the refrigerant charge and temperature differential, as well as clean out the grilles of the condensing unit.

4. Air Conditioners (window/wall units)

Proper standards for service shall include thorough cleaning and to leak-check the copper connector and pump down valves at the condenser and evaporator, and to charge the cooling system with the proper refrigerant to afford sufficient running capacity for maximum cooling efficiency.

13 - PLUMBING

A. PLUMBING STANDARDS

1. General

a. The workmanship, methods used, and materials installed as a part of the work of this section shall comply with all requirements of the Plumbing Code as adopted by the local governing authority.
b. All plumbing work shall be done by a licensed plumbing contractor and the final certificate of acceptance and completion must be presented before payment will be made for plumbing work.
c. All equipment and items installed under this section shall operate safely, without leakage, flow restriction, undue noise, vibration, corrosion or water hammer.
d. Unless otherwise specified, the term, "*plumbing*" shall refer to all supply (gas and water) and service (sewer & drain) lines and their appointed fixtures, devices and fittings both inside the dwelling, and outside, from the dwelling to their respective connections to the utility mains and/or meters.

2. Contractors Information

a. The plumbing contractor shall be responsible to obtain all permits and call for all inspections required in performing the work of this section.
b. The plumbing contractor shall verify that all service and supply mains to existing buildings are adequate for the specified repairs and/or additions, notifying the rehabilitation representative of any inadequacies, *prior* to submitting a bid to the general contractor.
c. After the official letting of a rehabilitation contract, the responsibility for the successful acceptance of all plumbing work by the Plumbing Inspection Department of the City of Montgomery shall be that of the general contractor.
d. The Contractor shall furnish all necessary and required instruments, gauges, and equipment for testing of the work done, and shall perform those tests as required by the code enforcement authorities.
e. Any equipment, materials or work found to be defective during testing shall be replaced with new and re-tested until proven satisfactory, at the contractor's expense.
f. All drilling, cutting and patching necessary for the proper installation of work under this section shall be done by the Contractor. All patching shall be of the same materials, workmanship and finish as the original work and shall accurately match all surrounding work as closely as possible.

g. Any plumbing item, system, or part thereof which is broken, disconnected due to damage or not to remain in use shall be removed and discarded by the contractor.

h. The contractor shall ensure that all work, fixtures and materials are protected at all times during the duration of the work.

i. The contractor shall provide the owner with all of the applicable manufacturer's guarantees, warranties, notices and manuals as supplied by the manufacturer covering the materials and/or equipment installed during the course of the work.

B. ROUGH PLUMBING

1. When rough-in for new equipment requires connections to the existing plumbing system, the Contractor shall obtain all necessary specification data such as locations, sizes, connections, fittings, and arrangements needed to assure the proper installation of that equipment.

2. All excavation and backfill necessary for the installation of new underground piping shall be a part of the work of this section. All work shall be done without critical damage to structural members. All backfill, unless otherwise specified, shall be compacted and smoothed to grade. The contractor shall be responsible for settling of backfill as a result of inadequate placement or compaction.

C. MATERIALS

1. Piping & Related Fittings

a. Drain, Waste, & Vent (DWV)

(1) New soil and waste piping *under* the building *up to a point within 2 fee*t *outside* of the building foundation wall shall be service weight cast iron soil pipe and fittings or approved DWV plastic pipe and fittings conforming to the applicable requirements of local Plumbing Code.

(2) New soil and waste piping *outside* of a building *from a point no more than 2 feet beyond* the building's foundation wall to the point of connection to the service main or tap shall be schedule 40 PVC plastic or other piping acceptable to the local Plumbing Code.

b. New vent piping shall be schedule 40 PVC-DWV or cast iron, or DWV copper tubing as approved by local jurisdiction.

(1) Vent piping shall extend at least 6 inches above finish floor surfaces.

(2) Re-vent piping shall be at least 1/2 of the diameter of the drain to which it is connected or be a minimum of 1-1/4 inches in diameter.

(3) Re-vent shall be connected to the soil or waste stack only.

(4) No new vent piping shall be installed on the exterior of a building.

(5) New piping passing through the roof shall be properly flashed with a minimum .26 gauge galvanized steel flashing assembly or plastic flashing approved by local Plumbing Code. Flashing shall be set in waterproof mastic roof cement and be appropriately caulked around the vent.

c. New potable water piping shall be schedule 40 CPVC plastic or types K, L or M copper (only type K to be used below ground). Joints in the copper piping above ground shall be copper fittings attached and sealed with lead-safe solder; *no* joints in copper piping below ground or encased in concrete will be allowed.

d. New fuel gas piping shall be schedule 40 black steel pipe with standard weight malleable iron 150 psi screwed fittings sealed with appropriate thread compound, or copper or other metallic pipe as allowed by local Gas Code. All gas piping to be placed underground must be coated or sleeved against corrosion per local Fuel Gas Code requirements.

2. Fixtures

a. Type: new plumbing fixtures shall be standard builder's models unless otherwise specified. No plastic fixtures may be used.

b. Color: fixture colors shall be standard white unless otherwise specified or to match existing.

c. Installation: all fixtures shall be securely supported so that no strain is placed on the connected piping.

3. Trim

a. Finish: unless otherwise specified, all new exposed trim, fittings and pipe in finished spaces shall be chrome-plated brass or covered with chrome-plated brass sleeves. An allowed exception is that the laundry tray trim may be rough brass.

b. Stops: hot and cold water supply shut-offs for risers and for groups and/or individual fixtures are required, and shall be conveniently located and easily accessible. Shut-offs shall be installed so as to allow individual shut-off of water heaters, water closets, lavatories, bath tubs, shower stalls, kitchen sinks, ice makers and laundry trays.

c. Installation: no new trim shall be installed such that its outlet is below the rim of the fixture. All escutcheon plates shall be installed tightly and have a neat, finished appearance.

D. <u>REPLACEMENT</u>

Where an existing plumbing fixture and/or its fittings cannot be repaired to acceptable condition as determined by the rehab representative or Plumbing Inspector, new fixtures and fittings shall be installed.

1. Water Heaters

Replacement water heaters shall be new 40 gallon glass-lined, high efficiency, quick recovery units. Heater shall have a minimum five year warranty and be installed complete, equipped with a high limit safety cut-off and a pressure relief valve draining to the home's exterior.

a. Gas-fired heaters shall be provided by the contractor with new code-approved venting to the home's exterior, both for burner exhaust and for fresh combustion air when required. Gas water heaters shall not rest on the finished floor level of any enclosed space; an appropriate stand must be used, to code.
b. Electric water heaters may be used when specified, and shall be properly connected to a 220 volt dedicated circuit installed to code.
c. All attic water heaters shall be installed in a catch-pan which includes a drain to a noticeable location on the exterior of the home.

3. Kitchen Sinks

Unless otherwise specified, sinks shall be deep double-bowl stainless steel, minimum .20 gauge, or enameled steel builder's grade. Sink shall be installed complete with stops, stainless steel basket strainers, trap, outlet connections and faucet with spray. Sinks shall be appropriately sealed to countertop using trade accepted materials, per code.

4. Disposals

New garbage disposal shall be minimum ½ horsepower continuous feed type with manual reset, stainless steel shredder and corrosion resistant hopper with sound deadening mount, installed complete.

5. Lavatories

a. Wall mounted lavatories shall be minimum vitreous china, complete with wall hanger; porcelainized cast iron may be used if supplied with hanger and legs.
b. Vanity surface-mounted lavatories may be either vitreous china self-rimming type or porcelainized steel, or may be an integral bowl with a cultured marble vanity top, as specified; all lavatories shall be installed complete with stops, faucet with pop-up drain, trap, and other connections as required.

6. Water Closets

Water closets, unless otherwise specified, shall be standard water-saver type (siphon jet action) with vitreous china bowl, close-coupled tank and cover. Package shall include flanged waxed ring, anchor bolts with color-matched caps, fixture supply with stop and trim, and molded wood white seat with non-corrosive metal hinges and mounting bolts. Plastic seats are not acceptable.

7. Bathtubs

Package shall include new porcelain enameled steel or acrylic bathtub complete with pop-up waste and overflow, supply stops, washerless faucets with shower diverter or as otherwise specified, trim and fittings. The tub-to-wall transition shall be trimmed in ceramic tile or other approved water-proof material, sealed with appropriate *siliconized* "tub & tile" caulk, i.e. DAP or equivalent, neatly applied over totally clean surfaces according to the manufacturer's directions. No pure silicone caulk will be accepted.

8. Tub Surrounds

When a bathtub includes a shower valve or attachment for such or similar purposes, the walls surrounding the tub shall be covered up to a height of no less than 5'-7" form the finished floor with either ceramic tile, a pre-manufactured tub surround kit, or other approved water-proof materials as specified. Surround kits shall include new three piece fiberglass, acrylic, or cultured marble integral tub and shower wall surround kit complete with adhesive and/or sealant as required to install according to the manufacturer's recommendations. Marlite or similar paneling shall not be accepted.

9. Shower Stalls

Built-in shower stalls shall be framed as specified or designed and walled with moisture-resistant drywall, taped and finished; shower wall finish may be ceramic tile, sectional surround kits as in "7. Tub Surrounds" above or other approved waterproof material as specified or approved. Free-standing shower stalls shall be enameled metal or acrylic shower stall kit with pre-formed one-piece base complete with appropriate sealant, drain, two-valve mixer faucet with trim, and curtain rod.

E. <u>SERVICING EXISTING PLUMBING</u>

1. Water closets

The specification, "*service water closet*" shall include any one or combination of the following items as required:

a. repair or replacement of the ballcock assembly, float, flush lever and/or flush valve as required.

b. repair or replacement of the bowl, tank, lid, tank-to-bowl bolts and/or gasket.
c. fastening or re-securing a loose or leaking water closet to the floor by adjusting or replacing the flange bolts and/or wax seal.
d. replacement of a missing or existing worn, corroded or broken toilet seat with new enameled wood seat and cover.
e. repair or replacement of any or all supply parts and/or trim.

2. Faucets

The specification, "*service faucets*" shall include the repair or replacement of valve stems or parts, seats, washers, o-rings, cartridges, assemblies, hardware, and/or any other integral and operational parts of the faucet system. When standard valves are disassembled for adjustment or repair, new proper lubrication and packing material shall be applied. Packing nuts are to be re-adjusted for proper tightness and seal.

3. Sliding Tub/Shower Doors

The specification, "*service shower doors*" shall include the replacement or repair of rollers, bearings, channel, and doors or door parts as required. All channels and doors shall be restored to a clean, sound, perfectly operating adjustment and overall condition. All seals shall be watertight; integral channel drain holes shall be unobstructed.

4. Trim

The specification, "*service trim*" shall refer to the repair or replacement of any faucet handles, escutcheons, shower heads or attachments, tub spouts, trim fasteners, drains, trip levers, strainers, shower rods, sink sprayers, aerators, or other finished appurtenances or attachments to any plumbing fixture or device as required. Unless otherwise specified, all finish surfaces shall be chrome.

5. Drains

The specification, "*service drains*" shall include using the appropriate method and/or equipment to clear the drain of any obstruction to the normal and proper flow of waste as designed. When specified, rotary drain cleaning shall be performed using a power driven rotary auger drain cleaning machine, or "sewer machine". Building sewers shall be cleaned from the point of entry to the point of connection to the sewer main. NOTE: No sewer machines shall be placed upon shingled roofs for cleaning through drain & waste vents. If such procedures are used the contractor will be subject to appropriate censure measures and shall bear the full and complete expense of repairing any damages caused to the roof system. Where there is no accessible appropriate cleanout *fitting*, the contractor must contact the rehabilitation representative for an approved alternative or change order to install such fitting according to code.

6. Septic Tanks

In most cases, for the purposes of housing rehabilitation work, septic tanks will be disconnected and waste systems diverted to sewer mains. In such event the contractor shall include the proper draining and backfilling of the septic tank as part of the scope of work in connecting the home to sewer services (See 08 SITEWORK, Section N). When specified, cleaning of septic tanks shall comply with the provisions of any State, Montgomery County or City Public Act or Law and Amendments thereto, pertaining to such activity.

ABBREVIATION KEY

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturers Association
AASHO	American Association of State Highway Officials
ACI	American Concrete Institute
A.I.A.	American Insurance Association (Successor to NBFU)
AIMA	Acoustical and Insulating Materials Association (Successor to AMA and IB)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMA	Acoustical Materials Association
ANS	American National Standard
ANSI	American National Standards Institute (Successor to USAS and ASA)
APA	American Plywood Association
API	American Petroleum Institute
ASA	American Standards Association
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BMS	Building Materials and Structures (National Bureau of Standards -U.S. Department of Commerce)
BY&D	Bureau of Yards and Docks, Navy Department
CDA	Copper Development Association, Inc.
COE (CE)	Corps of Engineers (U.S. Army)
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard (U.S. Department of Commerce)
CSI	Construction Specifications Institute
DFPA	Douglas Fir Plywood Association
FAA	Federal Aviation Agency
FGMA	Flat Glass Marketing Association
FIA	Factory Insurance Association
FM	Factory Mutual Engineering Division
FPL	Forest Products Laboratory, Department of Agriculture
FS	Federal Specification
FTI	Facing Tile Institute
GTA	Glass Tempering Association
HPMA	Hardwood Plywood Manufacturers Association
IEEE	Institute of Electrical and Electronics Engineers
ILI	Indiana Limestone Institute

MFMA	Maple Flooring Manufacturers Association
MIA	Marble Institute of America
MS	Military Specification
MLMA	Metal Lath Manufacturers Association
NAAMM	National Association of Architectural Metal Manufacturers
NBFU	Nation Board of Fire underwriters (See A.I.A.)
NBGQA	Nation Building Granite Quarries Association, Inc.
NBHA	National Building Hardware Association
NBS	National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electric Code (of NBFU)
NEMA	National Electrical Manufacturers Association
NEMI	National Elevator Manufacturing Industry, Inc.
NFPA	National Fire Protection Association
N.F.P.A.	National Forest Products Association (Successor to NLMA)
NOFMA	National Oak Flooring Manufacturer's Association
NPA	National Particleboard Association
NRMCA	National Ready Mixed Concrete Association
NPVLM	National Paint, Varnish and Lacquer Manufacturer's
NTMA	National Terrazzo and Mosaic Association, Inc.
NWMA	National Woodwork Manufacturers Association
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PEI	Porcelain Enamel Institute
PS	Product Standard (U.S. Department of Commerce)
RMA	Rubber Manufacturer's Association
SCPI	Structural Clay Products Institute
SDI	Steel Deck Institute
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air-Conditioning Contractors National Association
SPA	Southern Pine Association
SPI	Society of the Plastics Industry, Inc.
SPR	Simplified Practice Recommendation (U.S. Department of Commerce)
SSPC	Steel Structures Painting Council
SWI	Steel Window Institute
T&G	Tongue and Groove
TCA	Tile Council of America
TSP	Trisodium Phosphate
UBC	Uniform Building Code (of International Conference of Building Officials)
UL	Underwriters' Laboratories, Inc.
USACE	U.S. Army Corps of Engineers
USPHS	United States Public Health Service
WCLA	West Coast Lumbermen Association
WOFI	Wood Flooring Institute
WRI	Wire Reinforcement Institute
WWPA	Western Wood Products Association