



# City of Richmond Housing Rehabilitation Program

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*General Specifications for Rehabilitation*

May 2022

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# City of Richmond

## Housing and Community Development

### *SINGLE FAMILY HOUSING REHABILITATION PROGRAM*

#### General Conditions

1. **Scope** of the work shall include all labor, materials, equipment, permits, drawings, and services necessary for the proper completion of the rehabilitation of the property identified in the “WORK WRITE-UP”.
2. **Work Write-Up** shall take precedence over this General Specification and when in conflict, the material, equipment, or workmanship called for in the “Work Write-Up” will be provided.
3. **Drawings** of floor plans, if any, are diagrammatic only, illustrating the general intention of the owner; they do not show all the work required, exact dimensions, or construction details.
4. **Changes in the work** including substitutions of materials, change in the scope or workmanship required by these specifications, which may be proposed by the contractor, or found necessary or desirable as the work progresses, shall be in writing with price change given, and shall be signed by the contractor and the owner and approved by the Housing and Community Development Department of the City of Richmond (HCD) before any work incidental thereto is started.
5. **Workmanship** shall be in accordance with the standards of the several trades set forth in “Quality Standards for the Professional Remodeler” published by the National Association of Home Builders Remodelers Council. If a standard of workmanship is specified in the Work Write-Up the standard in the Work Write-Up shall prevail. **Caution** shall be exercised by contractors attempting to do work beyond their skills. Contractors that desire to do vinyl installation, floor covering, shingles, kitchen cabinets, bath cabinets, drywall, painting, staining, window glazing, etc., are cautioned that the quality level and workmanship must be equal to skilled trades standards. Work that is performed by the contractor which does not meet these quality levels will not be acceptable.
6. **Materials** shall be new, in good condition, and of standard grade unless otherwise agreed to in writing before their delivery to the job.

7. **Repairs** shall be made to all surfaces damaged by the Contractor resulting from his work under this contract at no additional cost 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 or loose, or rotted parts shall be removed and replaced, and the finished work shall match adjacent work in design and dimension.
8. **Inspection of the work** during normal working hours by authorized inspectors shall be permitted by the Contractor, and the work shall be subject to the inspector’s approval, acceptance of the homeowner and the HCD.
9. **Subcontractors** shall be bound by the terms and conditions of these specifications insofar as such apply to their work. But this shall not relieve the General Contractor who was awarded a contract, from the full responsibility to the Owner for the proper completion of all work to be executed under such contract and he shall not be released from the responsibility by any sub-contractual agreement he may make with others.
10. **Bids or proposals** will be submitted at the Bidder’s risk and the Owner reserves the right to reject any or all bids or proposals.
11. **Building codes of** all work to be done shall be subject to the regulations of the current Building Codes and General Specifications as may be interpreted by the Building Inspection Department (PDR) and HCD respectively.
12. **Clean-up** and removal from the site of all debris and waste materials resulting from his or her work, shall be the responsibility of the Contractor who will, haul off debris on a weekly basis and upon completion of the work, leave the premises in broom clean condition.
13. **Trade names** are used in the basic specification to establish the quality and type of material required; the exact material to be used on a specific property will be described in the “Work Write-Up” for the particular property.
14. **Adjacent property** when the adjacent property is affected or endangered by any work done under the contract, it shall be the responsibility of the Contractor to take whatever steps are necessary for the protection of the adjacent property and to notify the owner thereof of such hazards.
15. **Replace** and provide a new substitute.
16. **Install** to set in position and connect or adjust for use.
17. **Complete** having all necessary or normal parts.

# General Specifications for Comprehensive Housing Rehabilitation

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## SECTION 01 - FOOTINGS

1. Pier and wall footings are to be sized in accordance with state building code requirements. The top of footing shall be kept horizontal. The bottom of footings must be founded on undisturbed earth. Corners of footings to be cut square.

Concrete shall meet the following standards: **VCC – 2018 Section R403**

Cement shall be ASTM C-150-47 Type 1.

Coarse aggregate shall be hard, durable, uncoated crushed stone or gravel free from deleterious substances and conforming to ASTM C-33; well graded, minimum size  $\frac{1}{4}$ ", maximum size  $1\frac{1}{2}$ " or  $\frac{3}{4}$  the distance between reinforcing or  $\frac{1}{5}$  the minimum dimension of the forms, whichever is smaller.

Fine aggregate shall be clean, sharp sand conforming to ASTM C-33, and graded from No. 4 to No. 100.

Minimum compressive strength shall be 2,500 psi. at 28 days.

Dry premixed concrete shall not be used.

Do not pour concrete when the temperature is below 35 F. and falling or when freezing is predicted within the ensuing 24 hours. Maintain 50 F. temperature around all concrete for 48 hours after pouring.

Surface concrete shall be float finished.

Reinforcing bars, if called for, to be ASTM A615, Grade 40 billet steel deformed in accordance with ASTM A305. Metal shall be clean and free from scale or coatings that will reduce bond.

Backfill around footings after piers or walls are built.

**\*An approved inspection by the City of Richmond inspections department shall be completed and forwarded to HCD before proceeding to the next stage in the project**

## SECTION 02 - MASONRY WORK

1. Face brick shall conform to ASTM C-62, Grade MW. All brick or block shall match adjacent work unless the wall is to be painted or plastered.

Patented mortar shall be used and mixed in the correct proportions as recommended by the manufacturer. Sand to be fine aggregate, clean, and sharp, meeting the requirements of ASTM C-144.

No masonry work shall be done when atmospheric temperature is below 32 degrees F., and falling, or when freezing weather is predicted within the ensuing 72 hours. Anti-freeze compounds or other admixtures will NOT be permitted.

Walls shall be reinforced with standard 16" on center. Back-up units shall be sized to bond with four units.

Steel lintels, if specified, shall be painted with metal paint before installation. Lintels to bear on wall at least 4" at each end.

Walls and piers shall be capped with solid masonry in compliance with the VCC-2018. New work shall be toothed into existing walls. Minimum specified compressive strength of 1,500 psi.

2. Painting shall be done only after joints have been raked out to a minimum depth of ½" and wet. All joints shall be filled with mortar and shall match existing joints.

## SECTION 03 - PARGING

1. Parging shall be done if necessary or in Work Write-Up. The temperature of the surrounding air shall not be less than 40 degrees F. during application and for at least 48 hours thereafter. Apply in two (2) ¼" thick coats; the second coat shall not be applied sooner than seven days after the first coat. Before applying the second coat, the surface shall be dampened evenly to obtain uniform suction. Minimum thickness of ½".
2. Sure Wall: Do not apply the material if the temperature will be freezing within the next 48 hours. Dampen the wall just before applying the material. (Avoid saturating the masonry units.) Spread the mix with a finishing or plasterer's trowel into open joints and complete over the block or brick to a minimum thickness of 1/8". Apply a second coat after the first coat has taken its initial set

and can support the second coat; usually after 20 to 30 minutes. If the second coat is not applied within 48 hours of the first coat, a liquid concrete bonding adhesive must be added to the material.

**Hairline Cracks:** Dust dry Sure Wall into the crack.

**Large Cracks:** If the crack is less than ¼” and is caused by movement of the block or brick, fill it with exterior grade caulking.

**Repairing Damaged Areas:** Chisel the coating from the area to be repaired and one inch back into the unaffected surface. Apply freshly mixed Sure Wall to the damaged area, blending into surrounding surfaces.

**Painting:** Water emulsion masonry paint can be applied to the finished material. Paint is not to be applied before the recommended 48-hour curing time.

## SECTION 04 - CONCRETE WORK AND FOUNDATIONS

1. Stone fill under all concrete floor slabs on grade shall consist of #57 stone placed directly on the compacted subgrade. Stone shall be 4” in compacted thickness. Vapor barrier shall be .006 mil polyethylene, with joints lapped at least 12”. Wire mesh reinforcing expansion strips shall be non-extruding, asphalt-impregnated, ½” fiberboard. Slab-on-grade floors shall be insulated around the perimeter of the floor with rigid type insulation having a minimum R-value of 3.75. Insulation shall extend 24” under the slab and turn up at foundation wall. Concrete to receive a steel trowel finish.
2. Cement shall be cement meeting requirements of ASTM-C-150, Type I or II. Sand shall be clean, sharp siliceous material free from silt, loam, clay, or other deleterious materials, and shall meet the requirements of ASTM-C-33. Coarse aggregate shall be crushed rock or washed gravel, dense and hard in accordance with ASTM-C-33 and graded from course to fine. Maximum size coarse aggregate shall be 1 ½” in footings and 1” in all finished concrete (walks, porches, etc.). Concrete shall meet a min. specified compressive strength as shown in Table R402.2 (VRC-2018) Water shall be clean and potable.

Wire mesh reinforcing, if specified, shall be 6/6 10-10 welded steel wire fabric, conforming to ASTM-A-185. Sides and ends shall be lapped at least 6”.

No concrete work shall be done when atmospheric temperature is below 40 degrees F. and falling, or when freezing weather is predicted within the ensuing 72 hours. Concrete is to have a troweled finish and be level +/- ½” except where the floor drain is installed. All concrete shall receive an application of curing compound. All exposed surfaces of concrete shall be protected



from premature drying and freshly placed concrete shall be protected from rain. Minimum compressive strength shall be 3,000 psi. At 28 days. Dry premixed concrete shall not be used.

3. Sidewalk and driveway concrete to receive light broom finish. Walk to be scored at intervals of approximately 5'. Soil is to be graded against concrete after stripping forms. Backfilled and graded area to be seeded, fertilized, and strawed.
4. Repair any cracks in the foundation with approved concrete filler or mortar.
5. Install new automatic foundation vents were needed.

## SECTION 05 - ACCESS DOORS AND CRAWLSPACE

1. Access doors to have 2" x 4" or 2" x 6" pressure-treated pine frames, ¾" A.C. pressure-treated exterior plywood doors, T-strap hinges, hasps, and turnbuckle shall be hot-dipped galvanized. Trim outside with 1" x 4" trim. The door to have continuous stops around the inside of the frame, recessed so that the outside of the door will be flush with the frame. "X" bracing on the door is required. Paint doors, frames, and trim with two coats of paint, inside and outside.
2. Install new 6-mil poly vapor barrier wall-to-wall coverage , remove all debris from crawl space
3. Install poly AFTER termite treatment.

## SECTION 06 - PEST CONTROL

1. Termite treatment is to be done by a professional pest control operator properly licensed and bonded, as set forth in the Rules and Regulations of Virginia Structural Pest Control Committee. The owner shall be furnished with a certificate of treatment which shall warrant against termite infestation for a period of 1 year and provide that any damage caused by termite infestation will be repaired or replaced at the expense of the pest control operator. The certificate of treatment shall give the owner the option of renewal of warranty for 4 additional years.
2. Powder post-beetle treatment is to be done by a professional pest control operator, properly licensed and bonded.
3. A copy of the extermination contract and extermination certificate will be delivered to the Community Development Office (HCD) prior to the final payment being made.

## SECTION 07 - FLOOR FRAMING AND INSULATION

1. New Joists and girders shall be No. 2 dimension Douglas Fir, Construction Grade, Southern Yellow Pine No. 2, or Engineered I Joists. Lumber shall be air or kiln-dried, with a moisture content not exceeding 19%. Floor framing under bathrooms and other areas exposed to excessive moisture shall have wood preservative treatment. All joint and girder spans shall meet current codes.
2. Sills should be replaced with members of nominal size which will match as closely as possible the existing ones and shall be shimmed to fit properly. Sills shall have wood preservative treatment to protect against decay and insect attack. Treatment shall be in accordance with the specifications of the American Wood Preservers Association.
3. New insulation for walls shall be R-13, crawlspace R19, Attic R-38

## SECTION 08 - SUBFLOORING

1. Subflooring shall be 7/8 exterior grade plywood. Nail boards with 8d galvanized nails or 6d threaded nails, providing nails at 4" intervals. Gun-applied construction adhesive is required at joints and contact points between plywood and joists. Install plywood with outer piles at right angles to the joists and staggered so that the end joints in adjacent panels bear on different joists.
2. Subflooring spacing shall follow Table R503.1, VRC-2018, depending on the deflection
3. \*An approved inspection by the City of Richmond inspections department and /or HCD shall be completed and forwarded to HCD before proceeding to the next stage in the project

## SECTION 09 - PORCHES, COLUMNS, AND RAILINGS

1. Use 5/4" pressure-treated severe weather decking, Per sections R317,R318 & R317.1.1 Composite deck boards per section R510. Fasteners per Table R507.2.3
2. Remove, cut, re-nail, patch, or whatever else is required to obtain a smooth surface on the existing porch ceiling. Remove any ceiling molding, Install 3/8" A.C. exterior plywood, spacing joints as evenly as possible. Install 1/4" thick lattice strips over joints. Trim perimeter with 2" bed mold. Prime and paint two coats per Painting Specifications.

3. Remove existing concrete or masonry porch flooring; fill and tamp fill under the floor if required; form edges of the floor, install a minimum of 4" thick concrete floor reinforced with wire mesh; let concrete floor project approximately 1-1/2" beyond foundation and slope floor approximately 1/4" per foot, smooth and trowel finish on slab and edges.
4. Wrought iron corner columns to have 1" square framing members with scroll design and socket mounts; each side of the column shall be at least 9" wide. Columns are to be prefinished and touched up after installation or primed and painted as per Painting Specifications.
5. Wrought iron porch railings to have 1-1/4" by 7/8" top and bottom rails, with spindles not more than 4" apart, anchored to house, columns, or floor, as applicable. Railings to have intermediate supports spaced not more than 5' apart. Posts shall be at least 1-1/4" square. Railing is to be prefinished and touched up after installation, or primed and painted as per Painting Specifications.
6. Railings are required on ALL steps regardless of code requirements

\*An approved inspection by the City of Richmond inspections department and /or HCD shall be completed and forwarded to HCD before proceeding to the next stage in the project

## SECTION 10 - STEPS

1. Wood steps to have treads of two 2" x 6" spaced 1/8" apart, 5/4" pressure-treated decking, or composite deck boards overhanging the front of stringer 1". Maximum riser to meet code. Use minimum of three stringers supported on concrete footings at ground level. Wood to be pressure treated Yellow Pine. Stringers to be 2" x 12" nominal size.
2. Wrought iron handrail to be approximately 36" high. Railing to have 1-1/4" by 7/8" top and bottom rails, with spindles not more than 4" on center and intermediate supports spaced not more than 5' apart, anchored to house, columns, or floor as applicable. Posts shall be at least 1-1/4" square. Railing is to be prefinished and touched up after installation or primed and painted as per Painting Specifications. Frames to be welded.
3. \*An approved inspection by the City of Richmond inspections department and/or HCD shall be completed and forwarded to HCD before proceeding to the next stage in the project

## SECTION 11 - ROOFS

1. Use 30# builders felt or Synthetic underlayment with 2" top lap and 4" side lap. Laminated Architectural roof shingle, self-sealing, conforming to Underwriters Laboratories, Inc., Standard UL 55B Class C; furnish 30-year guarantee from the material supplier. Fiberglass shingles to be 215#, self-sealing, conforming to Federal Specifications SS-S-294 A Type 1 and SS-S-001534 Class A Type 1; furnish a minimum 30-year guarantee from the material supplier. Install with galvanized or aluminum nails, of a size recommended by the manufacturer. Protect existing shrubs, yards, and buildings. Clean up and haul off old roofing, nails, paper, etc. Ice and water guard shall be placed in all valleys and around all roof penetrations. **NOTE:** Ice and water guard shall be full width – 36".
4. Mushroom-type ventilators to have throat openings of 8" to 10". Space as directed on the roof near the ridge of the house. Ridge vents to be enamel baked on finish aluminum. Soffit vents to be aluminum with the backing screen.
5. Turbine ventilators to have 12" throat openings. Space as directed on the roof near the ridge of the house. Use the manufacturer's base unit and install it to make it watertight.
6. Power roof ventilator to be installed on the roof near the ridge of the house. Installation includes all flashing, wiring, manual on/off switch, and adjustable thermostat. The motor must be permanently lubricated and thermally protected and have Underwriters Laboratories' approval. The hood shall be constructed of aluminum or flame-retardant ABS plastic. Air outlets shall be screened.
7. Haul off old roofing; protect shrubbery, yard, and other improvements.
8. Ventilation of attic space (or equivalent) is to meet VEC – 2018, VRC - 2018
9. Metal flashings are to be installed at all chimneys, valleys, and all junctions of roofs with walls. Step flashings to be 0.024" or thicker galvanized iron. All other flashings and metal eaves strips shall be 0.019 or thicker aluminum with a white baked-on enamel finish. All chimneys are to be flashed and counter flashed. Counter flashing shall be keyed into masonry joints. Base flashing shall turn up under counter flashing a minimum of 3". Seal Flashings with clear silicone caulking. Rubber sleeve-type flashings are to be used at all vent pipes.

## SECTION 12 - ROOF TRIM

1. Fascia boards shall be redwood, Douglas fir or hemlock, Grade B or better, or Southern Yellow Pine #1. Rafter ends shall be trimmed as necessary before installation of the fascia

board to obtain a straight line. The fascia boards shall be nailed to the rafter ends with two 8d galvanized or aluminum nails. Fascia boards shall be primed with one coat of paint immediately after installation.

2. Soffits shall be 3/8" thick AC exterior plywood. Soffits shall be fastened to 2" x 4" lookout boards at each rafter with galvanized or aluminum nails. A smooth horizontal surface shall be maintained. Soffits shall be primed with one coat of paint immediately after installation.
3. Soffits shall be .019" thick aluminum alloy with a baked-on finish, "Alcoa", "Alcan" or equal, rib, or V-groove type. The color shall be selected by the owner and have a 20-year paint guarantee. Soffits shall be applied according to the manufacturer's specifications. Nailing shall be done in a manner to allow expansion and contraction of the metal. A smooth horizontal surface shall be maintained.

\*An inspection by the City of Richmond (HCD) department shall be performed after the removal of the current roof and necessary repairs to rafters and decking have been made before proceeding to the next stage in the project.

## SECTION 13 - GUTTERS AND DOWNSPOUTS

1. Aluminum gutters and downspouts shall have a baked-on enamel finish 20-year paint guarantee and shall comply with the Architectural Aluminum Manufacturer's Association Latest Specifications for Aluminum Gutter and Down Spout systems, AAMA 1405.1. Gutters and downspouts shall comply with the standards for roof Drainage Products, Commercial Standard CS 244-62 of the U.S. Department of Commerce. Use continuous lengths as much as possible. Use 3" x 4" rectangular or 3" round downspouts spaced to adequately carry off water. Securely fasten gutters and downspouts with hidden fasteners to the house with approved anchors spaced not more than 32" apart. ALL downspouts shall have extensions to drain whereas not to create a hazard – Minimum slopes 6" within the first 10'

## SECTION 14 - EXTERIOR WALLS

1. Hardboard siding shall be 12" wide factory primed "Hardie" brand or equivalent and comply with the standards for Hardboard Siding PS 60-73 of the U.S. Department of Commerce. The bottom edge shall be at least 7/16" thick. Existing walls shall be made as even as possible by furring, blocking, and cutting prior to the application of hardboard siding. Vertical wood strips are to be used at all outside corners. Fasten siding with 8d galvanized or aluminum nails with 3/16" heads. Paint two coats as per Painting Specifications.

2. Vinyl siding shall comply with the standard ASTM D 3679 – D 4477. The color shall be selected by the owner. Siding shall have at least a 50-year guarantee. Siding shall have a minimum thickness of .035". Existing walls shall be made as even as possible by furring, blocking, and cutting prior to the application of siding. Siding shall be applied according to the manufacturer's instructions. Install all necessary corners, angles, stops at windows, doors, etc. and all matching accessories to make a first-class job. Nailing should be at approximately 16" intervals with aluminum nails. Siding posts and trim shall be installed strictly in accordance with the manufacturer's instructions.
3. Vinyl trim shall comply with the standards ASTM D 3679 – D 4477. Trim shall have at least a 50-year guarantee. Includes all items where applicable, such as corner boards, fascia boards, eaves or gutter boards, gable trim, window trim and sills, soffits, and louver trim. This is meant to cover all exposed wood trim on the house. Soffits shall have a minimum thickness of .045". Perforated soffits shall be used at intervals designated by the Building Inspector. Vinyl trim shall be installed strictly in accordance with the manufacturer's instructions. Caulk as necessary.
4. All replaced fascia boards and windows will be wrapped with a PVC-Coated aluminum wrap in a vinyl siding replacement project.
5. Non – Fire rated exterior walls can be 5/8 exterior-rated OSB board
6. Fire-rated walls must be 5/8 Exterior rated drywall on the outside and 5/8 Type X drywall on the inside creating a fire-rated assembly ( Walls parallel to and within 5' of the property line )
7. Preexisting windows in a fire-rated wall must be provided with a residential sprinkler head

\*An approved inspection by the City of Richmond inspections departments (PDR) & (HCD) shall be performed before proceeding to the next stage in the project.

## SECTION 15 - DOORS

1. Work includes the removal of existing doors and jambs, installation of the new jamb, casings (both sides), trim, butt hinges, lock set, door, wide aluminum threshold with vinyl insert and weather stripping on exterior doors, and any required repairs to the adjoining surfaces. All woodwork and repaired adjoining surfaces are to be finished. Fill and seal all gaps, cracks, and voids prior to installing interior trim. For replacement door units confirm or install vapor barrier.
2. Exterior doors shall be 1-3/4" thick, solid core. All exterior doors shall be hung on three 4" x 4" butt hinges and shall be provided with "key in knob" lock sets, Deadbolt shall be thumb

bolt. All new locks shall be keyed alike. Doors shall be prime painted immediately following installation, then painted two coats as per Painting Specifications.

3. Interior doors shall be 1-3/8" thick. Interior doors shall be installed with two butt hinges 3-1/2" x 3-1/2" and "passage lock" sets. Bathroom doors and bedroom doors shall be provided with "privacy lock" sets. Closet doors shall be provided with "closet lock" sets.
4. Solid and hollow core flush doors shall conform to the standards of the National Wood Manufacturer's Association IS-1 and have face panels of "Good" grade or better. Wood panel doors shall conform to Department of Commerce CS-120 and be Grade No. 1. Exterior doors shall be treated with a water-repellant preservative.
5. Work includes installation of insulated metal door unit, pre-hung in a metal frame, installed according to manufacturer's instructions. Door to have a self-sealing bottom door sweep and magnetic weather stripping. Door and frame have an enamel acrylic finish. Door is to be complete with all hardware.
6. Deadbolt locks to have a case-hardened rim and throw bolt at least 1" long. Locks on solid doors, to have a thumb turn on inside.

## SECTION 16 - WINDOWS

1. Window installation includes frame, casing, & stops a complete job. Windows shall match existing windows in detail and dimension unless otherwise specified. Windows shall be vinyl double hung & double pane Low -E. (Window locks are to be included in hardware; brass, bronze, or gunmetal finish acceptable.) New windows to meet or exceed the current building code for Zone 5, including R-value and U factor.
2. Glass replacement shall be single strength, clear; Grade B conforming to Federal Specifications DD-G-451 C. Putty shall be DAP 33 or equal. Glass in wood windows shall be bedded in putty and secured in place with glazier points and face puttied. All excess putty shall be removed, and all glass left clean.
3. Sash replacement includes new glass and resetting of existing hardware. Window sash shall match existing window sash in detail and dimension unless otherwise specified. Prime paint wood windows immediately upon installation; follow with two coats of paint in accordance with Painting Specifications.
4. All replaced windows will be wrapped with a PVC-Coated aluminum wrap.

## SECTION 17 - STORM AND SCREEN DOORS

1. Aluminum storm and screen doors shall be pre-hung on the frame. Extruded door frame shall be at least 1-1/4" thick, with top rail and stiles at least 2" wide. The minimum thickness of structural members shall be .055". Doors shall be fully weather-stripped. Storm door glazing shall be tempered glass or acrylic plastic. Screening shall be vinyl-coated fiberglass or aluminum wire. Glass and screen inserts shall be removable. This specification includes the installation of all hardware including hinges, latch lock, mechanical closure, and storm check. Storm and screen doors shall conform to the latest specifications of the Architectural Aluminum Manufacturer's Association AAMA 1102.06 (ANSI-A134.4).

## SECTION 18 - STORM WINDOWS AND SCREENS

1. Aluminum storm windows with screens shall be of the triple-track type, fully weather-stripped with interlocking inserts. The frame shall be of extruded aluminum. The minimum thickness of structural members shall be .045". Storm window glazing shall be B quality or better. Screening shall be vinyl-coated fiberglass or aluminum wire, 14 x 18, or finer mesh size. Windows shall be capable of being locked in at least four positions. This specification includes installation according to the manufacturer's specifications. Storm windows with screens shall conform to the latest specifications of the Architectural Aluminum Manufacturer's Association AAMA 1002.8 (ANSI-A134.3).
2. Screening shall be vinyl-coated fiberglass or aluminum wire. 14 x 18 or finer mesh size.

## SECTION 19 - GYPSUM WALLBOARD (Sheetrock)

1. Wallboard shall be gypsum wallboard shall be installed to industry standards. All sheetrock installed in bathrooms shall be moisture-resistant and sheetrock installed in the tub/shower areas shall be mold & moisture-resistant.

Joint tape and compound should conform to American Society of Testing Materials Standard C-475, Treatment Materials for Gypsum Wallboard, and be applied according to the manufacturer's specifications.

Inside corners shall be reinforced with tape embedded in the joint compound. Outside corners shall be protected by wallboard corner beads for finishing with joint treatment. Corner



beads shall be finished with two coats of joint compound. Extend electrical outlets and switch boxes to accommodate gypsum wallboard.

## SECTION 20 - PLASTER

1. If lath is in sound condition, nail securely and apply plaster. Wood lath shall be wetted down prior to applying plaster. If lath is in poor condition, remove and replace it with expanded metal lath. Use 4-mesh rib lath, installed according to the manufacturer's directions. Nail to studs or block out with 2" x 4" lumber as needed. Fasten with 4d nails spaced approximately 6" center to center. Gypsum plaster materials shall be standard commercial brands. Mix and application of gypsum plasters shall be in accordance with American Standards Association No. A42.1, American Standard Specifications for Gypsum Plastering. Apply plaster in 3 coats or in 2 coats double up work, minimum thickness 1/2".

## SECTION 21 - WALL PANELING AND WALLPAPER

1. Paneling shall be 3/16" thick prefinished plywood or 1/4" thick hardboard (Masonite or equal). Composition or pressboard paneling is not acceptable. Prefinished paneling shall conform to the standards of the U. S. Department of Commerce PS 51-71 for Hardwood and Decorative Plywood and have a Class C flame spread rating. Paneling should be applied in accordance with the manufacturer's specifications. If nails only are used, fasten with 1-1/4" long nails spaced 6" apart at the edges and 12" apart elsewhere. Use prefinished, color-coordinated nails, or cover holes with stick putty made to match the paneling. If adhesive is used, apply with a caulking gun. Prefinished moldings, if used, shall be wood base or flexible plastic.
2. Existing trim (except ceiling) shall be left in place, and paneling shall be carefully fitted around all doors and window casings and butted against the baseboard.
3. Use pre-pasted paper or paste specified for use by the manufacturer of wallpaper. Apply according to standard practice, including overlapping seams at corners. The paper shall be carefully trimmed where it meets all adjoining surfaces. Carefully match patterns at all seams.

## SECTION 22 - WATER RESISTANT WALL FINISHES

1. 3/8" AC exterior plywood to be nailed to studs and blocking with 6d galvanized nails spread approximately 7" apart. Finish material to be installed according to manufacturer's specifications. Glue to plywood underlayment using a waterproof adhesive.

2. Tile to be glazed finish, standard grade as defined by the American National Standards Institute. Tile to be set in mastic adhesive complying with National Standard Institute A-136.1 and applied according to manufacturer's instructions. Grout all joints using latex, epoxy, or mastic material. Clean up all surfaces after installation.

## SECTION 23 - CEILING FINISHES

1. Suspension grids shall be of the inverted "T" type. Grid shall be 2' x 4' or 2' x 2' with longitudinal dimension of tile running longitudinally with room.
2. Suspension grids shall be of the type that does not show after the installation of the tile, similar to Armstrong "Integrid Installation System".
3. Use "L" type wall angles on all walls, nailed to each stud. Use splice plates at all splices of tees. Fasten screw eyes to joists, with spacing not to exceed 48", and hand tees using 12 gauge or thicker annealed wire. Install cross tees to fit panels. The ceiling should be hung as close to the old ceiling as possible, with net height after installation to be not less than 7'-6". Tile to be white or off-white, with surface pattern to be selected by the owner. Any tile damaged during installation shall be replaced.

## SECTION 24 - VINYL FLOORING

1. Plywood underlayment shall be 1/4" thick or as specified and nailed with 4d ribbed nails, slightly recessed and spaced not more than 4" center to center. Fill and sand underlayment joints and nail heads to provide a smooth even base.
2. Color and pattern of cushioned sheet vinyl flooring are to be selected by the owner. Flooring to go under all fixtures. Before spreading adhesive, be sure the underlayment is completely clean and dry. Use a water-resistant adhesive recommended by the flooring manufacturer and apply in accordance with the manufacturer's instructions. Seams will be permitted only if room dimensions are larger than the stock sizes of flooring material. Any seams shall be placed in inconspicuous locations, away from heavy traffic areas. Seams shall be welded together. Fitting and cutting shall be done carefully to produce a workmanlike job. Use aluminum edge trim at doors.

Install new 3/4" round shoe moldings, which shall be painted or varnished prior to installation. Miter or cope all corners and joints. Reinstall any fixtures removed. Thoroughly clean the floor of any adhesive.

3. Color and pattern of floor tile are to be selected by the owner. Flooring to go under all fixtures. Before spreading adhesive, be sure the underlayment is completely clean and dry. Use a

water-resistant adhesive recommended by the flooring manufacturer and apply in accordance with the manufacturer's instructions. The tile shall be carefully laid out so that the first rows of tile on the opposite sides of each room are of the same width. Lay the tile straight and true. Fitting and cutting shall be done carefully to produce a workmanlike job.

Install new ¾" quarter-round shoe molding, which shall be painted or varnished prior to installation. Miter or cope all corners and joints. Reinstall any fixtures removed. After floors have set sufficiently to become seated, wash with a neutral cleaner, apply one coat of high-grade water emulsion wax, and buff.

4. On concrete floors, remove grease, dirt, and other substances from the concrete base. Patch any cracks, holes, or other irregularities using a mastic underlayment containing Portland, gypsum, or aluminous cement with a chemical binder such as latex, asphalt, or polyvinyl acetate resins. Trowel to a smooth, hard finish. After patches are completely set, prime concrete in accordance with the manufacturer's recommendations
5. Laminated flooring in kitchens, bathrooms, laundry, and utility rooms shall be waterproof, Laminate flooring in other areas shall be water resistant

**\*\*Sections 15-23\*\* require an on-site inspection by HCD, before proceeding to the next phase of the project \*\***

## SECTION 25 - CARPETING

1. Carpet padding and carpet shall comply with FHA Standards ULM-44A, "Use of Materials" for moderate traffic areas.

Use a tack strip along all walls.

Cut off doors as necessary to clear the carpet. Install metal carpet strips where the carpet abuts other types of flooring surfaces. Carpet installed in closets of rooms where the carpet is specified. All carpet is laid by a professional carpet installer.

## SECTION 26 - PAINTING

- 1. All interior wood surfaces shall be painted with a Low – VOC paint and shall be thoroughly scraped and sanded to remove loose, cracked, and scaly paint and rough spots. Where previous paint coats have chipped and peeled, the edge shall be sanded down to obtain a smooth surface before new paint is applied. Thoroughly wash the siding before painting. Scrub any mildewed areas, using a solution of trisodium phosphate.

Reset any loose nails; fill holes with putty and sand to provide a smooth surface. Caulk all windows and doors with silicone or butyl-type compound. Use a caulking gun and apply uniformly.

All units built pre-1978 must be tested for lead-based paint.

Contractors performing work on units built pre-1978 must be RRP (Lead Renovation, Repair and Painting) The company must be Firm Certified by the State. (As Applicable)

Interior surfaces to be painted shall have all cracks and indentations filled with spackling or joint compound, and then lightly sanded to provide a smooth surface.

All areas not being painted shall be always protected with drop cloths. Any surfaces damaged by painters shall be repaired or replaced. All window glass shall be left clean and free of paint, putty, and labels. Windows shall be in operable condition.

All paint and other finishing materials shall be of the best quality, Low – VOC. All paint shall be delivered to the site in manufacturer's sealed containers. Each container shall be labeled, giving the manufacturer's name, type of paint, color, and instructions. Paint shall be used without thinning. Paint is to be applied in dry weather, within an air temperature of 50 degrees to 95 degrees F. Finished work shall be uniform, of approved color, smooth, and free from runs, sags, defective brushing, and rolling. Make edges of paint adjoining other materials or colors sharp and clean.

2. Set all exposed nail heads to recess below the wood surface. Sand floors to remove an existing finish, using fine sandpaper for final sanding. Apply polyurethane finish in two coats, allowing ample time to dry between the first and second coat.

Before proceeding with painting, color samples shall be shown to the owner for his selection. Only premixed colors shall be used. Only one wall color and one ceiling color shall be designated for each room

The contractor shall be responsible for sealing any greasy or soiled surfaces prior to painting as necessary, to prevent any bleeding effect.

No lead base paint shall be used.

All paint shall meet and exceed the U. S. Department of Housing and Urban Development National Specifications System for Acquired Home Properties Catalogue of Specifications (HUD-9767).

## SECTION 27 - ATTIC ACCESS

1. Access door to the attic space shall be constructed of a minimum of  $\frac{3}{4}$ " thick material (plywood) for the door panel and select grade pine for the casing. Material to be suitable grade for interior use. Door to be framed to ceiling joists. Opening to 22" x 30".
2. Insulation to be stapled to the back of the door panel that is the equivalent of the attic insulation. Framing is to be installed so that "blown-in" or loose insulation will not fall through the door opening.
3. Finish is to match the color and finish of the ceiling.

## SECTION 29 - INTERIOR TRIM

1. All interior trim shall be approved materials. All joints shall be carefully fitted, with mitering of external angles and coping of internal angles. Millwork with hammer indentations or blemishes will not be accepted.

\*An approved inspection by the City of Richmond (HCD) department shall be performed before proceeding to the next stage in the project.

## SECTION 30 - PARTITIONS

1. Framing to be 2" x 4" studs, sole plates, and double headers, with not more than 19% moisture content. Spaced not more than 16" OC. Cover with  $\frac{1}{2}$ " thick gypsum wallboard on both sides unless otherwise noted. Tie into existing walls and ceiling with joint tape and compound. Install base and shoe molding in the remainder of the room. Install ceiling molding to match existing ceiling molding in the remainder of the room.
2. In clothes closets, install a 16" wide shelf with a minimum of 8" clear space above the shelf. Install  $\frac{3}{4}$ " diameter pipe for clothing rod with a minimum of 2" clearance below the shelf.
3. In linen closets, install five 16" wide shelves spaced approximately 12" in center. The bottom shelf shall be between 18" and 24" above the floor and the top shelf shall have at least 8" of clear space above the shelf.

4. Any relocation or removal of partitions includes the relocation and/or removal of all piping, plumbing fixtures, and electrical wiring.

## SECTION 31 - CABINET WORK

1. Cabinets shall comply with requirements of the American National Standards Institute ANSI a 161.1 “Recommended Minimum Construction and Performance Standards for Kitchen Cabinets”. Cabinets shall be installed level, plumb, and true, in accordance with the manufacturer’s specifications. Cabinets shall be attached with screws to studs or other framing members. Trim out all joints between cabinets and wall and ceiling with prefinished trim. The cabinet door and drawer faces to be solid wood.

## SECTION 32 - HANDICAP FACILITIES

1. Handicap rails to be stainless steel, 1-1/2” outside diameter. Rails shall be mounted parallel to the floor, with 1-1/2” clearance between rail and wall. Rails shall be fastened to support a 250-pound load. Mounting heights and lengths shall be in accordance with ANSI – A117. 1 - 2009

## SECTION 33 -PLUMBING

1. Plumbing fixtures and materials shall comply with and be installed in accordance with the VPC – 2018 / IPC - 2018. Handicap bathrooms shall comply with ICC/ANSI - A117.1. All piping shall be installed in a manner to not cause critical damage to structural members.
2. Kitchen sink shall be 20-gauge, type 302 nickel chrome stainless steel complete with basket strainer. The sink shall comply with U. S. Commercial Standard CS 243-62. Mount the sink to the countertop with trim and fittings as recommended by the manufacturer. This item includes new trap and basket strainers
3. Single lever sink supply fitting shall have at least an 8” long swing spout, aerator, and lever control sprayer. Fittings whose principal components are plastic may not be used.
4. Hot water heater to have vitreous porcelain enamel tank lining, blanket type glass fiber insulation, drain valve, temperature, and pressure relief valve with a drain line to pan equipped with a drain to exterior of the structure. Water heater to have a minimum five-year warranty, 40-gallon capacity minimum. Units installed in the kitchen area shall be a tabletop model.

5. Washing machine outlet box shall be equipped with cutoffs and hammer arrestors
6. Hose bibs shall be of the Frostproof type with backflow protection.
7. Lavatory to be white. This item include es new trap.
8. Lavatory faucet to have an aerator. Valves to have renewable slots and indexed metal handles. Fittings whose principal components are plastic may not be used.
9. Water closet shall be complete with seal, supply line with valve stops, and all other fittings. Color to be white. Flow rate to be 1.6 gallons per flush.
10. Toilet seat to be high-strength solid plastic, equipped with removable and replaceable bumpers. Hinges to have internal metal post-reinforcement. Color of the toilet seat to be white.
11. Cast iron or similar product tub to have slip-resistant surface. Color to be white.
12. Fiberglass tub/shower to be white. Install in accordance with the manufacturer's instructions.
13. Bath and shower faucets shall be operated by means of a diverter spout. If new fittings are to be installed in the lavatory, they shall be of the same design and style as those used for the tub. Fittings whose principal components are plastic may not be used.
14. Water service shall be  $\frac{3}{4}$ " copper or CPVC or PEX as specified and installed according to local codes. Connect to the water meter and run to the new main cut-off valve inside of the house. Work includes excavation, backfilling, reseeding, fertilizing, and strawing of all affected areas.
15. All trim items to include towel bars, toilet paper holders, mirrors Etc...

## SECTION 34 - ELECTRICAL

1. Provide a circuit index on the service panel showing which lines are served by each circuit breaker. Panel to have main breaker and a minimum of 16 circuits. Tie in existing and new circuits. Service panel to have the main cut-off.
2. Bathroom exhaust fan shall be 50 CFM (minimum) and ducted to the outside with necessary flashing. Work includes all wiring, including the wall control switch.
3. Bathroom fan/light exhaust fan shall be ducted to the outside with necessary flashing. Work includes all wiring, including wall switch control.

4. Range hood fan shall be 100 CFM (minimum) and have two-speed fan and lights controlled by separate switches. Filter to be aluminum mesh grease filter. The fan may be ducted to outside, with necessary flashing. Work includes all wiring.
5. All new wiring shall be installed in compliance with the applicable provisions of the current edition of the National Electric Code - 2017. All electrical fixtures shall carry the seal of approval of Underwriter's Laboratories.

Wiring shall be concealed to the maximum possible extent. Use non-metallic sheathed cables with copper conductors. All cutting of walls, floors, ceilings, and partitions for the passage of electrical work, the closing of superfluous openings around same in connection with electrical work, and the removal of all debris caused thereby shall be performed by the Contractor performing the electrical work. Replacement receptacles shall be safety receptacles per code. Lighting fixtures shall be complete with compact fluorescent bulbs, glassware, mounting hardware, frames, and trim, stems, ballasts, and sockets to provide a complete operating fixture at each location.

6. Smoke detectors shall be of the ionization type-dual chamber, be in accordance with code requirements and have Underwriter's Laboratories, Inc. approval. Detectors shall be permanently wired to 120-volt electrical system and have LED to indicate power on if required. Detectors shall have provisions for testing. Detectors shall carry a one-year limited warranty.
7. Meter base/unit/panel replacement shall include wall and siding repair.
8. Installation of baseboard heat shall require upgrading of services to 200 amps.
9. All new electrical outlets in the bath & kitchen shall be ground fault installation. All new bedroom outlets shall be Arc fault protected
10. Carbon monoxide detectors to be in accordance with code requirements, and have Underwriter's Laboratories, Inc. approval. Detectors shall have provisions for testing. Detectors shall carry a one-year limited warranty.
11. Battery-operated smoke detectors shall be used where direct wired is not required

## SECTION 35- HEATING

1. Furnace installation shall include wall-mounted programmable digital thermostat, wiring, piping, and ducts. The furnace must be capable of maintaining 65 degrees F. in every habitable room. The furnace shall be equipped with a temperature-actuated limit control. All



wiring shall be installed in conformity with the current edition of the NEC - 2017. Furnaces shall have an approved cut-off valve for the fuel supply at the furnace. Units are to be brand and size specified in Work Write-Up or are to be approved by the Community Development Office. New HVAC systems to be Energy Star rated or as specified.

2. All ducts in the crawlspace and in the attic shall be insulated to R-8 (minimum). Ductwork shall be adequately supported. Duct outlets shall be located as close to the interior surfaces of the outside walls as possible. All joints, connections, and fittings shall be sealed with appropriate mastic per code.
3. Installation of the oil tank and piping shall comply with NFPA Standard No. 31. Oil tank shall be sturdily mounted on legs and painted with two coats of aluminum paint.
4. Electrical baseboard heaters to be installed to comply with the current edition of the NEC - 2017. Units shall meet the standards of the National Electrical Manufacturer's Association and be U.L. listed. Heating units shall be securely fastened to the wall and installed in accordance with the manufacturer's instructions. Heaters shall be complete with line voltage baseboard thermostats. Heater is to be approximately 1' per 25 square feet of room length.
5. Bathroom wall heaters shall be located as far as practicable from plumbing fixtures and at least 30" from the tub or shower. Wall heaters shall have a polished aluminum reflector, aluminum grill, and thermostat with an "off" switch.

## SECTION 36 -CHIMNEYS, FLUES, AND VENTS

1. Haul off all debris. Cap off with galvanized iron which extends at least 8" below the chimney on all sides and is fastened to the chimney. Replace any missing roof sheathing. If existing roof shingles are to remain, patch in new shingles to match the existing as closely as possible.
2. Caulk all joints with butyl caulking compound. All chimneys shall have metal counterflashing built-in on all sides.
3. Fasten to the top course of the chimney with the correct opening for the draft.
4. Flues and vents shall be of the material, size, arrangement, and installation to comply with the Virginia Building Code and with local building codes (fire safety). Tradesman and contractors should refer to building codes for appropriate flue material for appliances.

5. New flue liners and fireplace inserts shall be permitted and inspected

**\*\*Sections 30-36; Requires an on-site inspection by The City of Richmond Building inspections department and approved reports sent to (HCD), to proceed to the next phase of the project\*\***

## SECTION 37 - SITE IMPROVEMENTS

1. Chain link fence to have corner posts at least 2-1/2" in diameter. Line posts to be spaced not more than 10' apart and be not less than 2" in diameter. Posts to be set in concrete-filled holes at least 6" in diameter and 24" deep. Top rail to be not less than 1-5/8" in diameter. Wire fabric to be 11-1/2 gauge. All metal is to be galvanized steel or aluminum alloy.
2. Storage building shall be of double-ribbed galvanized steel construction with a gable roof. The steel shall have an undercoat, prime coat, and baked on enamel finish. The building shall have double steel sliding doors with provisions for padlocking.
3. Level site of the storage building. Install a metal floor framing system composed of steel support joists and hold-down zees to locking supports onto the bottom frame of the building. Anchor framing system into the ground with galvanized metal stanchions. Install 5/8" thick exterior plywood anchored to the metal floor framing system with metal screws.
4. Level site of the storage building. Install a wood floor framing system composed of 2" x 4" (minimum) treated southern yellow pine joists and exterior frame. Anchor framing system into the ground with galvanized metal stanchions. Install 5/8" thick exterior plywood anchored to the wood floor framing system.

## SECTION 38- INSURANCE & LICENSE

- 1- Contractors must carry Worker's Comp & General Liability- General Liability Insurance with Minimum limits of \$ 1,000,000 and Property Damage not less than \$ 500,000
- 2- Contractors working on projects of \$ 1,000 or more must be Licensed Contractors.

## GLOSSARY OF TERMS

1. Apron: <b>The flat member of the inside trim of a window placed against the wall immediately beneath the stool.</b>
2. Backboard: <b>A simple molding sometimes used around the outer edge of plain rectangular casings as a decorative feature.</b>
3. Balusters: <b>Small vertical members in a railing are used between a top rail and the stair treads or a bottom rail.</b>
4. Balustrade: <b>A railing made up of balusters, top rail, and sometimes bottom rail, used on the edge of stairs, balconies, and porches.</b>
5. Barge board: <b>A decorative board covering the projecting rafter (fly rafter) of the gable end. At the cornice, this member is a fascia board.</b>
6. Barge rafters: <b>End rafters of the gable overhang supported by roof sheathing and lookouts (Also called fly rafters.)</b>
7. Baseboard: <b>A board placed against the wall around a room next to the floor to finish properly between the floor and wall.</b>
8. Base cap: <b>Molding is used to trim the upper edge of the baseboard.</b>
9. Shoe mold: <b>Molding used next to the floor on the baseboard.</b>
10. Batten: <b>Narrow strips of wood used to cover joints or as decorative vertical members over plywood or wide boards.</b>
11. Bed mold: <b>A molding in an angle, as between the overhanging cornice, or eaves, of a building and the sidewalls.</b>
12. Blind stop: <b>A rectangular molding used in the assembly of a window frame. Serves as a stop for storm and screen or combination windows and to resist air infiltration.</b>
13. Bridging: <b>Small wood or metal members that are inserted in a diagonal position between the floor joists at mid-span.</b>
14. Casing: <b>Molding of various widths and thicknesses used to trim door and window openings at the jambs.</b>
15. Collar beam: <b>Members connecting opposite roof rafters, used to stiffen the roof structure.</b>
16. Corbel: <b>To build out one or more courses of brick or stone from the face of a wall, to form a support for timbers.</b>
17. Corner boards: <b>Used as trim for the external corners of a house against which the ends of the siding are finished.</b>
18. Cornice: <b>Overhang of a pitched roof at the eave line, usually consisting of a fascia board, a soffit for a closed cornice, and appropriate moldings.</b>
19. Cornice return: <b>That portion of the cornice that returns on the gable end of a house.</b>
20. Counter flashing: <b>A flashing usually used on chimneys at the roof line to cover shingle flashing and to prevent moisture entry.</b>

21.Cove molding: <b>A molding with a concave face used as trim or to finish interior corners.</b>
22.Crawl space: <b>A shallow space below a basement-less house.</b>
23.Cricket: <b>A small drainage-diverting roof structure of a single or double slope placed at the junction of larger surfaces that meet at an angle, such as above a chimney.</b>
24.Door jamb: <b>The surrounding case into which and out of which a door closes and opens. It consists of two upright pieces, called side jambs, and a horizontal head jamb.</b>
25.Dormer: <b>An opening in a sloping roof, the framing of which projects out to form a vertical wall suitable for windows or other openings.</b>
26.Downspout: <b>A pipe, usually of metal, for carrying rainwater from roof gutters.</b>
27.Drip cap: <b>A molding placed on the exterior top side of a door or window frame to cause water to run beyond the outside of the frame.</b>
28.Eaves: <b>The margin or lower part of a roof projecting over the wall.</b>
29.Fascia: <b>A flat board, band, or face, used sometimes by itself but usually in combination with moldings, often located at the outer face of the cornice.</b>
30.Flashing: <b>Sheet metal or other material used in roof and wall construction to protect a building from water seepage.</b>
31.Fly rafters: <b>End rafters of the gable overhang supported by roof sheathing and lookouts. (Also called barge rafter.)</b>
32.Frieze: <b>A horizontal member connecting the top of the siding with the soffit of the cornice.</b>
33.Furring: <b>Strips of wood or metal applied to a wall or other surface to even it and serve as a fastening base for finish material.</b>
34.Gable: <b>In-house construction, the portion of the roof above the eave line of a double-sloped roof.</b>
35.Girder: <b>A principal beam of wood or steel used to support concentrated loads at isolated points along its length.</b>
36.Header: <b>A beam placed perpendicular to joists and to which joists are nailed in framing for the chimney, stairway, or other opening.</b>
37.Hearth: <b>The inner or outer floor of a fireplace is usually made of brick, tile, or stone.</b>
38.Hip roof: <b>A roof that rises by inclined planes from all four sides of a building.</b>
39.Joist: <b>One of a series of parallel beams, used to support floor and ceiling loads and supported in turn by larger beams, girders, or bearing walls.</b>
40.Landing: <b>A platform between flights of stairs or at the termination of a flight of stairs.</b>
41.Ledger strip: <b>A strip of lumber nailed along the bottom of the side of a girder on which joists rest.</b>

42.Lintel: <b>A horizontal structural member that supports the load over an opening such as a door or window.</b>
43.Lookout: <b>A short wood bracket or cantilever to support an overhang portion of a roof or the like usually concealed from view.</b>
44.Louver: <b>An opening with a series of horizontal slats so arranged as to permit ventilation but to exclude rain, sunlight, or vision.</b>
45.Mantel: <b>The shelf above a fireplace, or the decorative trim around a fireplace opening.</b>
46.Muntin: <b>A small member which divides the glass or openings of sash or doors.</b>
47.Newel: <b>Any post to which a railing or balustrade is fastened.</b>
48.Ogee: <b>A molding with a profile in the form of a letter S, having the outline of a reversed curve.</b>
49.Outrigger: <b>An extension of a rafter beyond the wall line. Usually, a smaller member is nailed to a larger rafter to form a cornice or roof overhang.</b>
50.Parting strip: <b>A small wood piece used in the side and head jambs of double-hung windows to separate upper and lower sash.</b>
51.Pitch: <b>The incline slope of a roof, expressed in the inches of rise per foot of run.</b>
52.Plate: Sill plate: <b>A horizontal member anchored to a masonry wall. Sole plate: a bottom horizontal member of a frame wall. Top plate: a top horizontal member of a frame wall supporting ceiling joists, rafters, or other members.</b>
53.Rail: <b>Cross members of panel doors or of a sash. Also, the upper and lower members of a balustrade extend from one vertical support to another.</b>
54.Rake: <b>Trim members that run parallel to the roof slope and form the finish between the wall and a gable roof extension.</b>
55.Ridge: <b>The horizontal line at the junction of the top edges of two sloping roof surfaces.</b>
56.Rise: <b>In stairs, the vertical height of a step or flight of stairs.</b>
57.Riser: <b>Each of the vertical boards closes the spaces between the treads of stairways.</b>
58.Roof flat: <b>Roofs have a pitch of less than 3 inches in 12 inches.</b>
59.Saddle: <b>Two sloping surfaces meeting in a horizontal ridge, used between the back side of a chimney, or other vertical surface and a sloping roof.</b>
60.Sash: <b>A single light frame containing one or more lights of glass.</b>
61.Sill: <b>The lowest member of the frame of a structure, resting on the foundation and supporting the floor joist or the uprights of the wall. Also, the member forming the lower side of an opening, such as a door sill, windowsill, etc.</b>
62.Soffits: <b>The underside of an overhanging cornice.</b>
63.Soil cover: <b>A light covering of plastic film or similar material used over the soil in crawl spaces of buildings to minimize moisture permeation.</b>
64.Splash block: <b>A small masonry block laid with the top close to the ground surface to receive roof drainage from downspouts and to carry it away from the building.</b>

65. Stile: <b>An upright member of a panel door.</b>
66. Stool: <b>A flat molding fitted over the windowsill between jambs and contacting the bottom rail of the lower sash.</b>
67. Stringer: <b>In stairs, the support on which the stair treads rest.</b>
68. Subfloor: <b>Boards or plywood laid on joists over which a finished floor is to be laid.</b>
69. Suspended ceiling: <b>A ceiling system supported by hanging it from the overhead structural framing.</b>
70. Tread: <b>The horizontal board in a stairway on which the foot is placed.</b>
71. Trim: <b>The finish materials in a building, such as moldings, applied around openings (window trim, door trim) or at the floor and ceiling of rooms (baseboard, cornice, etc.).</b>
72. Underlayment: <b>A material placed under finish coverings, such as flooring or shingles to provide a smooth even surface for applying the finish.</b>
73. Valley: <b>The internal angle formed by the junction of two sloping sides of a roof.</b>
74. Vapor Barrier: <b>A light covering of plastic film or similar material used over the soil in crawl spaces of buildings to minimize moisture permeation.</b>