



GENERAL REHABILITATION SPECIFICATIONS MANUAL

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The West Virginia Housing Development Fund is an Equal Housing Opportunity Lender

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GENERAL SPECIFICATIONS

DIVISION 1--GENERAL

SECTION 1A DEFINITIONS

1. "HDF" means the West Virginia Housing Development Fund or its authorized representative.
2. "Contractor" means the individual or firm contracting with the Owner for performance of any or all of the work specified by the Work Write-Up.
3. "Owner" means the person, persons or their authorized representative identified as such on the Work Write-Up and contracting with the Contractor for performance of the prescribed work.
4. "Building Code" means the current West Virginia State Building Codes, which include: 2015 International Building Code, 2015 International Residential Code (with exceptions), 2015 International Property Maintenance Code, 2009 International Energy Conservation Code, 2015 International Plumbing Code, 2015 International Mechanical Code, 2015 International Fuel Gas Code, 2015 International Existing Building Code, 2015 NFPA Life Safety Code, 2014 National Electric Code, and 2009 ANSI A117.1 American National Standards for Accessibility & Usable Buildings.

SECTION 1B REFERENCES/STANDARDS

All work to be performed and materials supplied shall conform to the standards of the following professional societies.

1. Concrete work shall conform to the standards of the American Concrete Institute (ACI).
2. All masonry work shall be installed in accordance with the National Concrete Masonry Association.
3. Steel work shall conform to the standards and grading rules of the American Steel Association.
4. Plywood shall conform to the grading rules of the American Plywood Standards Committee.
5. Lumber shall conform to the grading rules of the American Lumber Standards Committee.
6. Roof shingles shall carry an Underwriter's Laboratory label for conformance to the fire resistance standards, and shall conform to the Asphalt Roofers Manufacturer's Association.

7. Other materials shall meet the standard under the specification division as specified.
8. All electrical work shall be installed in accordance with the 2014 National Electric Code.
9. All plumbing shall be installed in accordance with the 2015 International Plumbing Code.
10. All heating systems or shall be installed in accordance with ASHRAE, the 2009 International Energy Conservation Code, the 2015 International Mechanical Code and Fuel Gas Code.
11. All construction work shall comply with the 2015 International Building Code, the 2015 International Residential Code, the 2015 NFPA Life Safety Code, and the 2009 ANSI A117.1 American National Standards for Accessibility & Usable Buildings.
12. Energy Star Certified homes, Version 3, National Program Requirements.
13. ASTM--94 Specifications for ready mixed concrete.
14. ASTM--C150 Specifications for Portland cement.
15. ASTM--C270 Specifications for mortar for unit masonry.
16. ASTM--A185 & A615 concrete reinforcing.
17. ASTM--C1116 fiber reinforcing in concrete.
18. ACI--318 concrete reinforcing.

SECTION 1C GENERAL SPECIFICATIONS FOR HOUSING REHABILITATION

These General Rehabilitation Standards provide minimum specifications for items, materials, and installation to be furnished under the construction contract for the rehabilitation of residential properties. These minimum standards are designed to ensure that properties are free of foreseeable hazards and adverse conditions that may affect the life, health, and safety of the occupants. These specifications were prepared by HDF Technical Services staff for use in the housing rehabilitation projects that utilize federal funding for HUD-administered housing projects. Any questions on the intent or interpretation of these specifications shall be referred to the Technical Services Department for clarification.

SECTION 1D CODES, ORDINANCES, AND STANDARDS

Work required by the Work Write-Up or any specifications shall be performed in accordance with all applicable codes (current State Building Code), ordinances, and these attached General Rehabilitation Standards (GRS) prepared by the HDF. If a contradiction exists between the Codes and the Work Write-Up or the GRS, the requirement of the Code will apply, except when the

requirement of the Work Write-Up or the GRS exceeds those of the Codes. In that case, whichever requirement in the Work Write-Up or the GRS is most stringent will apply. The current West Virginia State Building Code includes the following standards: 2015 International Building Code, 2015 International Residential Code (with exceptions), 2015 International Property Maintenance Code, 2009 International Energy Conservation Code, 2015 International Plumbing Code, 2015 International Mechanical Code, 2015 International Fuel Gas Code, 2015 International Existing Building Code, 2015 NFPA Life Safety Code, 2014 National Electric Code, and 2009 ANSI A117.1 American National Standards for Accessibility & Usable Buildings. All above-noted Codes, specifically the International Building Code and International Residential Code, will be simply referenced as the Building Code throughout these GRS.

SECTION 1E GENERAL CONDITIONS

The work shall include all labor, materials, equipment, permits, work write-ups, and drawings for the completion of the work identified and reasonably inferred as necessary to produce the intended results by the Contract Documents. The intended results shall correct all health and safety (life threatening) issues; major systems issues (structural; roofing; cladding; windows; doors, plumbing; electrical; and heating, ventilation, and air conditioning); lead-based paint hazards; accessibility concerns; and any applicable disaster mitigation issues. The remaining useful life of the major systems must be determined for rental housing and a capital needs assessment will be required for projects of 26 units or more. The major systems for homeownership housing must have a minimum remaining useful life span of 5 years.

SECTION 1F PERMITS, BONDS, LICENSES, AND INSPECTIONS

Any and all permits, bonds or licenses required for the execution of the work specified by the Work Write-Up shall be obtained and paid for by the Contractor prior to the start of that work. Contractors and subcontractors are responsible for obtaining any progress or final inspections from the local jurisdiction's building departments and the HDF. Failure to call for the required inspections or proceeding without inspection, such as covering work without approval and deviating from approved plans and specs, may result in violations that could include no payment. Upon project completion, each unit must be decent, safe, sanitary, and in good repair. Each unit must comply with the items contained in the Housing Quality Standards and Uniform Physical Conditions Standards. These items include the following.

1. **Exterior:**
 - A. **Foundations:** All foundations must be sound and free from hazards.
 - B. **Stairs, Porches, and Rails:** All stairs, porches, and rails must be sound and free from hazards.
 - C. **Roof and Gutters:** The roof and gutters must be sound and free from hazards.
 - D. **Exterior Surfaces:** All exterior surfaces must be sound and free from hazards.
 - E. **Manufactured Homes:** Units must be properly set, contain permanent foundations, and be tied down.
 - G. **Fencing and Gates:** All fencing and gates must be sound and free from hazards.

- H. Grounds and Storm Drainage: Proper drainage must be provided, no erosion present, and no overgrown vegetation present.
- I. Mailboxes and Signs: No missing or damaged components should be present.
- J. Market Appeal: Site should be free of litter and any visible graffiti.
- K. Parking Lots and Drives: All parking lots and drives must be sound and free from hazards.
- L. Play Areas and Equipment: Play areas and equipment should be safe and free of any hazards.
- M. Refuse Disposal: Site should be free of hazards and adequate storage for refuse must be provided.
- N. Retaining Walls: Retaining walls must be sound and free from hazards.
- O. Walks, Steps, and Ramps: All walks, steps, and ramps must be sound and free from hazards.

2. **Interior:**

- A. Living Room: Is a living room present?
- B. Kitchen: Is a kitchen present?
- C. Bath: Is a bathroom present?
- D. Other Rooms Used for Living: Are other rooms used for living present?
- E. Electric: Is the electrical system free of hazards? Does each room have two working outlets or one working outlet with one working light fixture?
- F. Window: Is at least one window present? Windows must be free of deterioration and missing or broken panes.
- G. Doors: All doors must be sound and free of hazards or deterioration.
- H. Security: All windows and doors that are accessible from the exterior must be lockable.
- I. Ceiling: All ceilings must be sound and free from hazards.
- J. Walls: All walls must be sound and free from hazards.
- K. Floors: All floors must be sound and free from hazards.
- L. Stove/Range: Unit must have a working stove or range free from hazards.
- M. Refrigerator: Unit must have a working refrigerator free from hazards.
- N. Sink: Unit must have a permanently-attached sink and in good working order with hot and cold water.
- O. Dishwasher and Garbage Disposal: If dishwasher and garbage disposal are provided, they must be in working condition and free of hazards.
- P. Space for Storage, Preparation, and Serving Food: Adequate space for storage, preparation, and serving food must be provided.
- Q. Toilet: A toilet must be present and in good working condition.
- R. Lavatory: A lavatory must be present, permanently attached, and in good working condition with hot and cold water.
- S. Tub/Shower: A tub or shower must be present and in good working condition with hot and cold water.
- T. Ventilation: A window must be provided in the bath or a mechanical exhaust system in good working condition. Mechanical ventilation must discharge air to the exterior.

- U. Smoke Detectors: At least one battery-operated smoke detector or hard-wired smoke detector in working order must be provided on each level of a unit.
- V. Heating: Heating adequately capable of providing heat to all rooms, free from hazards, and properly ventilated as necessary must be provided.
- W. Water Heater: All water heaters must be properly located, installed in a safe manner, and not contain any hazards.
- X. Plumbing: The plumbing system must be free of leaks and corrosion. The system must be an approved public or private system.
- Y. Sewer: The sanitary system must be properly connected to an approved public or private system.
- Z. Call for Aid: All call for aid or emergency call systems must be operable.

3. **Health & Safety:**

- A. Access: Must be able to enter a unit without passing through another unit.
- B. Exits: Acceptable fire exits must be provided from a unit that is not obstructed.
- C. Infestation: All units must be free of infestation from rodents, vermin, insects, and other pests.
- D. Garbage and Debris: The site and units must be free of all litter, garbage, and debris.
- E. Interior Stairs/Common Halls: All areas must be safe and free of hazards.
- F. Other Interior Hazards: All areas must be safe and free of hazards.
- G. Elevators: All elevators must have a current inspection certificate and be in safe, working condition.
- H. Air Quality: The site and units must be free of any air pollutants that threaten the occupants' health.
- I. Site and Neighborhood: Site and neighborhood must be free from any health and safety issues.
- J. Flammable and Combustible Materials: Properties must not contain any type of improperly-stored flammable and combustible materials.
- K. Lighting: Site and unit must not contain any broken or missing light fixtures or bulbs.
- L. Emergency Power: All auxiliary lighting and exit signs must be in good working order.
- M. Fire Protection: Properties must not contain any expired fire extinguishers or missing and damaged sprinkler heads or equipment.

SECTION 1G INSURANCE REQUIREMENTS

Each contractor must carry adequate liability insurance coverage, as well as proper workers' compensation coverage. The contractor shall not commence work until he/she has obtained all insurance required.

SECTION 1H PROJECT INSPECTION

The Contractor shall visit the project site and determine any conditions which may affect his work. This shall include inspection of the site and structure(s). Any conditions affecting his work shall be taken into consideration in his bid proposal and execution of the work to be performed.

SECTION 1I STANDARDS AND WORKMANSHIP

Work required by the Work Write-Up and these GRS shall be performed with specified or approved equal materials and equipment by mechanics skilled in their respective trades. Standards for satisfactory quality workmanship shall be established by the intent of the contract, compliance with all applicable codes, ordinances, these GRS, accepted trade and industry standards, and the HDF. The Contractor shall also warrant his work against faulty materials and workmanship for a period of one year and replace same at the direction of the HDF at no cost to the Owner or HDF.

SECTION 1J MATERIALS

Unless otherwise specified, all materials and equipment incorporated in the work required by the Work Write-Up and these GRS shall be new and of the quality specified by these GRS. The Contractor shall, if requested, furnish evidence as to the kind and quality of materials. It is the intent of the Work Write-Up to permit the use of materials of any manufacturer so long as they are fully consistent with the quality and performance requirements of these GRS. Substitution shall be approved and executed by contract change order. It shall be understood that the use of materials other than those designated, without prior approval by contract change order, shall constitute a violation of the contract and that the Owner or HDF shall have the right to require the removal of such materials and their replacement with the designated materials at the Contractor's expense.

SECTION 1K WORK DESCRIPTION

A Work Write-Up for each property, identified by Owner and address, will indicate all work to be performed with locations. Locations may be related to drawings which are included as part of the Work Write-Up. Anything specified on the drawings and not listed in the Work Write-Up shall be treated as if required by the Work Write-Up. Work specified by the Work Write-Up shall comply with the requirements of these GRS. Each item of the Work Write-Up includes reference to specific requirements of these GRS. These references do not preclude the requirement to meet all other applicable requirements of these GRS. All work specified by the Work Write-Up shall include all labor, material, equipment, and permits necessary to perform the work unless otherwise specified.

If there is a conflict between the requirements of these GRS and the requirements of the Work Write-Up which may include drawings, the Contractor shall notify the HDF for a determination as to which applies.

SECTION 1L COMPLIANCE WITH MANUFACTURERS' RECOMMENDATIONS

Installation of products, assemblies, and equipment specified will be in accordance with manufacturers' instructions, recommendations, and specifications. Associated installation products, methods, and hardware shall be as recommended by the manufacturers.

SECTION 1M ENGINEERING

When engineering is required as part of the Work Write-Up, the engineering requirements shall supersede the requirements of these GRS. Engineering required for the execution of the work shall be obtained by the Owner, seller, or Contractor.

SECTION 1N PROPERTY DAMAGE AND SECURITY

The correction of any damage to the project site or adjacent properties as a result of any activities associated with the Contractor's execution of the work shall be the responsibility of the Contractor. Settlement actions for damages shall be to the satisfaction of the property Owner(s). The Contractor shall ensure security of buildings by use of existing locking devices and boarding of any openings as a result of his work. New work and newly-installed products shall be protected from damage through completion of the project. Any damage to such work or products shall be repaired or products replaced to the satisfaction of the Owner and HDF. The Contractor shall be held responsible for any damage or defacement caused in the process of delivery of materials or execution of work. Responsibility shall include the repair or replacement cost of damaged surfaces.

SECTION 1O INSTRUCTION MANUALS AND WARRANTIES

When provided by the manufacturer, the Contractor shall provide to the Owner the owner's manuals, guarantees, warranties, and certificates for furnished materials and equipment.

SECTION 1P TRASH REMOVAL

The Contractor shall remove from the site all trash, debris, and waste materials accumulated during fulfillment of the contract by the Contractor, subcontractor, and any other personnel used in the performance of the contract. Trash, debris, and waste materials awaiting removal from the site shall be controlled to avoid scattering and unsightly accumulation. The Contractor shall not use the Owner's trash facility. The premises and dwelling units shall be free from excessive accumulations of rubbish and garbage that presents a health and safety hazard. The owner must provide proper facilities for the placement of al rubbish and garbage.

SECTION 1Q MARKET APPEAL

Any unusual negative site characteristics that have a negative impact on the curb appeal of the project must be corrective. These items include deterioration of any items, graffiti, and litter.

DIVISION 2--DEMOLITION & SITE WORK

SECTION 2A DEMOLITION

Any damage or loss resulting from demolition activities shall be corrected at the expense of the Contractor. Safety conditions shall be maintained at all times, and the Contractor shall use all precautions necessary, especially at excavations, to provide the necessary protection for the Owner, the public, and inspectors visiting the site. Debris as a result of demolition shall be removed from the site, streets, adjoining walks, and properties. Debris shall be removed from the site in approved containers to legal disposal sites in accordance with local ordinances and applicable environmental regulations.

SECTION 2B EXCAVATION

Open holes and excavations as a result of demolition shall be filled with earth material free of rubbish or rocks larger than 3" in diameter. Fill shall be mechanically compacted in 6" lifts to a minimum of 90% of the maximum proctor density ASTM D-698. Fill shall not be flooded. When only a component of a structure or equipment/fixture therein is removed, it shall be removed complete without damage to other portions of the property. When any unsightly voids, holes, outlines, etc., are left as a result of such removal, they shall be repaired and finished to match adjacent materials and finishes.

SECTION 2C TREE AND SHRUB REMOVAL

Tree or shrub removal specified shall include removal of stump and roots to a depth of approximately 12" below finish grade level, backfilling of excavation, and hauling debris from site.

SECTION 2D FENCE REMOVAL

Fencing along property line shall be removed only with the written consent of the property Owner. This consent shall be obtained by the Owner and forwarded to the HDF. Fencing material, including concrete below grade, shall be removed from site.

SECTION 2E STRUCTURES

When a structure is to be demolished, the entire structure and all debris shall be removed from site, including all foundations, sidewalks, steps, retaining walls, floor slabs, etc. Demolition should begin at top levels and work down through the building. When only a portion of a structure is to be demolished, the remaining structure, including concrete portions, shall be neatly cut or finished off.

SECTION 2F INTERIOR

When interior demolition is performed, all adjacent areas and furnishings shall be protected from damage and dust. When any existing mechanical or electrical component requires relocation as a result of demolition, it shall be relocated in a functional manner.

SECTION 2G CONCRETE (WALLS, STEPS, STOOPS, WALKS, DRIVES, ETC.)

Demolition and removal of concrete shall include concrete below grade.

SECTION 2H MASONRY CHIMNEYS

When a chimney or portion thereof is removed, all resulting openings shall be filled in to match adjacent structural and finish materials so that no outlines remain. If chimney supported any shelving, rods, etc., these items shall be replaced with new material to fit new space. When a chimney is removed entirely, the chimney foundation may remain unless otherwise specified.

SECTION 2I EQUIPMENT AND FIXTURES

When an item of equipment or fixture is removed, it shall be removed complete to include all associated ducting, piping, wiring, and connections in or passing through finished spaces. When removal of any such piping, ducting, or wiring results in any abandoned lines, they shall be properly capped or terminated. Termination of lines shall be outside of finished spaces and all evidence of their existence shall be removed. When a heating system or unit is removed, it shall be removed complete to include furnace or boiler, all ducting or piping (supply and return), gas supply and flue, registers or radiators, thermostats, and all other related hardware. If the condition, installation, and location of gas supply and venting are in compliance with these general specifications and all applicable codes, they may be used for the replacement system if a replacement system is specified. When only a component of the unit is to be removed, it shall be removed complete without damage to other portions of that system.

SECTION 2J UTILITIES

When electric appliances are changed from electric to gas and installed in the same location, the existing service shall remain. When gas appliances are changed from gas to electric and installed in the same location, the existing service shall remain. Gas shall be shut off and properly capped. When the Contractor's work results in any abandoned utility or other service lines or equipment, the appropriate authority shall be notified so that the lines or equipment can be removed or properly deactivated. When the work results in any abandoned piping, ducting, wiring, fittings, or associated equipment readily visible or accessible, it shall be disconnected and removed. When an electrical box contains a device that is to be abandoned, the box shall not be used as a junction box if the cover would be in a finished space.

SECTION 2K JUNK AND TRASH

All junk and trash shall be removed and disposed in a proper manner. Area shall be raked or swept clean and level with surrounding grade. Disposal shall be in accordance with local ordinances.

SECTION 2L SALVAGE RIGHTS

Owner has salvage rights only when identified in the Work Write-Up. Unless specified in the Work Write-Up that items are to be provided to or returned to the Owner, the Contractor shall be responsible for removing and disposing of all debris.

SECTION 2M EARTHWORK

1. **Excavation**: Excavate to grades specified on the Work Write-Up. The bottoms of footing foundation trenches are to be level. Footings must rest on undisturbed natural soil or properly compacted, engineered fill. Haul all excess excavated dirt from site or as directed in Work Write-Up.
2. **Backfill**:
 - A. **General**: Backfill and grade to obtain finish grades as specified. Backfill material shall be free of organic material, construction debris, and any rocks larger than 2" in diameter. Backfill shall be placed to expose 6" of foundation while providing positive drainage away from the unit. Backfill shall not be placed on frozen or muddy surfaces.
 - B. **Compaction**: Backfill shall be compacted to a minimum of 90% of the maximum Proctor Density ASTM D-698. Compaction shall be by mechanical tamping. Water shall not be used for compacting.
 - C. **Engineering**: Engineering report shall supersede A and B.
3. **Grading and Drainage**: Site grading shall accomplish the following:
 - A. Allow drainage of surface water away from structure 6" within the first 10' (5% slope).
 - B. Avoid concentrating runoff onto neighboring properties.
 - C. Minimize erosion.
 - D. Provide wood-to-earth separation for affected structures on property.
 - E. In areas where dirt has been disturbed, the area is to be free of all rocks larger than 1" in diameter and rubbish and have a rake finish.
 - F. Swales shall be a minimum of 5' from building and contain a minimum 2% slope.
 - G. Soil shall be compacted, uniformly spread and be suitable for plant growth.

SECTION 2N DRIVEWAYS

1. **Preparation**:
 - A. Establish proper grade and drainage to include removing or providing additional soil as required to meet applicable requirements of Division 2, Sections 2B and 2M-3.

- B. The subgrade shall be evenly graded to a depth that will permit the installation of the required new materials to the desired finish grade. When establishing driveways in locations where no previous driveways have occurred, geotechnical fabric is to be placed prior to placing the first lift of stone.
 - C. Sod or vegetation shall be removed, and any soft or mucky places shall be dug out and filled with a granular material thoroughly compacted.
2. **Gravel Installation:**
- A. Gravel installation shall include edging of 4" redwood, cedar, treated wood, or galvanized metal securely staked prior to installation of gravel. Note: Edging may be omitted if edge of gravel abuts sidewalk, curb, structure, or other suitable edge.
 - B. Finish material shall be as specified and a minimum of 4" deep and spread uniformly over the entire area.
3. **New Asphalt Installation:**
- A. Asphalt pavement shall have a minimum compacted thickness of 2". Base shall be of crushed stone, gravel, or durable road material and properly compacted to 4" minimum thickness.
 - B. Asphalt material shall be obtained from a local established asphalt batch plant and asphalt driveways shall be constructed only by a contractor or subcontractor that specializes in asphalt work. Surface shall be rolled with a 5- to 10-ton roller; areas inaccessible to a power roller shall be thoroughly tamped with hot iron tamper. Asphalt shall be applied only in suitable weather conditions. The Contractor will pay special attention to properly attaching the new driveway to all existing sidewalks, porches, garage floors, and any other abutting areas.
4. **Asphalt Repair:**
- A. Bituminous paving is to be repaired by removing loose material and cleaning area with water or air pressure. Repairs are to be made with an approved asphalt patch material following the manufacturer's instructions for installation.
 - B. Existing blacktop driveway shall be resurfaced by installing and rolling 1½" of new bituminous surfacing over the existing sound base prepared as required by asphalt paving methods.
5. **Concrete Installation:** see Division 3, Sections 3A and 3C

SECTION 20 FENCING

- 1. **General:** The exact location of any new fencing shall be established by the property Owner.
- 2. **Fence Repair:** Sections of all types of fences to be repaired shall be restored to a condition comparable to new, including gates. Replacement materials shall match existing.

3. **Chain Link:**

- A. **Fabric:** Chain link fabric shall be 1-1½ gauge wire woven in a 2" galvanized mesh. Fabric shall be tied to posts and top rail with aluminum or galvanized wire.
- B. **Posts:** Line posts shall be 1 5/8" OD galvanized pipe spaced at a maximum of 10'0" on center and set in concrete a minimum of 24" below grade. End posts, corner posts, and gate posts shall be 2½" OD galvanized pipe set in concrete a minimum of 30" below grade. Holes shall be large enough to provide space for 2" of concrete around post.
- C. **Top Rails:** Top rails of 1 3/8" OD galvanized pipe shall be included in all installations.
- D. **Gates:** Gates shall be constructed of 1 3/8" OD galvanized pipe with welded or factory fitted joints. Fabric in gates shall be same as fence.
- E. **Fittings and Hardware:** Fittings and hardware shall be either galvanized steel, aluminum, or galvanized malleable metal. Provide and install all fittings and hardware for a complete installation.

4. **Wood:**

- A. **Material:** Fencing components shall be of material specified.
- B. **Fasteners:** Nails, staples, bolts, etc. shall be galvanized or cadmium plated.
- C. **Posts:** Posts shall be 4" x 4" spaced a maximum of 8'0" on center and set in concrete a minimum of 30" below grade. Concrete shall be sloped ½" from post to finished grade. Posts shall be set on 6" of gravel at bottom. Hole shall be large enough to provide space for 4" of concrete around post.
- D. **Rails:** Fences with vertical board facings shall have 2" x 4" rails. Two rails are required for fences up to 6'0" high. Rails shall be securely fastened to posts to rigidly support all loads.
- E. **Facing Boards:** Facing boards shall be of the style specified. Facing boards with knots exceeding 1/3 of board width will not be accepted. When style of fence is such that boards may be fastened to either side of posts, the Contractor shall have the Owner specify the selected side in writing.
- F. **Gates:** Gates shall match the fence in which they are placed and shall include all hardware necessary for the specific application. Hinges shall be bolted to both support post and gate. Gates shall be constructed to withstand normal usage and shall include a minimum of one cross brace secured by a gusset at each end.

SECTION 2P

LANDSCAPE WORK

- 1. **Tree and Shrub Placement:** Plants shall be nursery grown, sound, healthy, vigorous, free from plant diseases and insects or their eggs, and shall have normal, healthy root systems.
- 2. **Tree and Shrub Pruning:** Trees and shrubs shall be pruned in accordance with accepted nursery practice. Broken and disfigured branches shall be removed. When limbs larger than 2" in diameter are removed, the butt ends that remain on the tree shall be properly sealed. Pruning shall ensure adequate clearance from structures and utility lines. All new trees are to be staked in place until such time as the root ball has imbedded into the existing soil.

3. **Existing Shrubs:** Plants should be dug up and prepared for storage in a proper manner that does not damage the branches, root system, and future development of the plant. The plant should be protected from drying out.
4. **Sodding:**
 - A. **Preparation:** Preparation for sodding shall include:
 - (1) Removal of all vegetation to ground level.
 - (2) Removal of all rock and rubbish, rototilling, and raking to provide a smooth, firm base.
 - (3) Establishment of proper grade and drainage including removal or addition of suitable soil as required for finish, sodded surface to meet requirements of Section 2M-3 of this Division.
 - B. **Material:** Sod shall be a strain or blend of strains of Kentucky Blue Grass and supplied by a turf farm whose sod meets the requirements of the American Sod Producers Association.
 - C. **Installation:**
 - (1) Sod shall be installed within time limit set forth by turf farm supplying sod.
 - (2) Fertilize as recommended by turf farm supplying sod (one application required).
 - (3) Provide property Owner with warranty and written care and maintenance instructions supplied by turf farm.
5. **Lawn Reconditioning:** Lawn reconditioning shall consist of the following:
 - A. **Preparation:** Preparation for seeding shall include:
 - (1) Raking all debris from area to be reconditioned and scratch surface as required.
 - (2) Fertilizing with starter fertilizer as recommended by seed producer.
 - (3) Topsoil shall be used to establish the finish grade and be evenly spread to a minimum of 2-4”.
 - B. **Material:** Seed shall be a strain or blend of strains of Kentucky Blue Grass as recommended by local suppliers.
 - C. **Placement:** Placement of seed shall include:
 - (1) Spreading seed and raking in accordance with seed provider’s instructions.
 - (2) Providing initial watering.
 - (3) Providing property Owner with written care and maintenance instructions from seed producer.
6. **Rock:** Rock installation shall consist of the following:
 - A. **Preparation:** Preparation for rock shall include:
 - (1) Establish proper grade and drainage including removal or addition of soil to meet requirements of Section 2M-3 of this Division.
 - (2) Grade the subgrade evenly to a depth of 4” below desired finish grade.
 - B. **Placement:** Placement rock shall include:
 - (1) Edging installation, if specified, shall be securely staked prior to installation of rock.

- (2) Subgrade covering installation of 6 mil visqueen over entire subgrade prior to installation of rock.
- (3) Finish material placement a minimum of 4" deep and spread uniformly over entire area.

SECTION 2Q ACCESS

Access to each dwelling unit must be free of any obstructions and is required from parking areas or other amenities on site. Access to the unit must also be private. A building must contain an alternate means of exit in case of fire. The emergency exit from a building may consist of fire stairs, another door, or windows. The emergency exit must not be blocked.

SECTION 2R PLAYGROUND/PLAY AREAS

Existing playground or play areas must be maintained in decent and safe condition. All equipment must be free from any defects. The areas must contain mulch and be enclosed by a fence capable of supporting all loads.

SECTION 2S POOLS

Swimming pools, decorative fountains, or retention ponds must be enclosed by a fence suitable to prevent unwanted activities or unsupervised children access to those areas. Entrance locations must have acceptable locking hardware.

SECTION 2T SITE AND NEIGHBORHOOD

The site and neighborhood must be reasonably free from disturbing noises or other dangers to the health, safety, and general welfare of the occupants. The site and neighborhood may not be subject to serious adverse natural or manmade environmental conditions, such as dangerous walks or steps, flooding, poor drainage, sewer hazards, mudslides, air pollution, noise, vermin, or fire hazards.

DIVISION 3--CONCRETE

SECTION 3A GENERAL REQUIREMENTS

1. **Preparation:**
 - A. Concrete work shall include all excavation, backfill, and compaction required for complete job. Surfaces adjacent to concrete shall be restored to match adjacent surfaces, unless otherwise specified.
 - B. Sod and vegetation shall be removed and any soft or mucky places shall be dug out and filled with granular material thoroughly compacted.
2. **Concrete Design:**
 - A. Concrete shall reach the following minimum compression strengths within 28 days.
 - (1) Concrete walls and interior slabs: 2500 pounds per square inch (psi).
 - (2) Driveways, curbs, sidewalks, patios, porches and garage floors: 3000 psi.
 - B. All cast-in-place concrete shall be from a local, established concrete plant that can provide specified design mixes and supply product data if necessary.
 - C. All slab-on-grade concrete will be placed on a minimum of 4" of compacted, crushed stone.
3. **Form Work:**
 - A. **Walls:** Cast-in-place concrete shall be formed with wood; steel; aluminum; plastic; a composite of cement and foam insulation; or a composite of cement and wood chips. Forms shall be substantially free of surface defects and sufficiently tight to prevent leakage. They shall be properly braced and tied to maintain the design position and shape. Form ties shall be steel; solid plastic; foam plastic; a composite of cement and wood chips or foam plastic; or other suitable material capable of resisting the fluid pressures of fresh concrete. In no case shall supporting forms or shoring be removed until sufficient strength has been obtained to support the member's weight and any superimposed loads. Form ties shall be removed to a point flush with concrete surface or recessed and grouted.
 - B. **Flat Work:** Cast in place flat work shall be formed with 2x material or steel forms, except that flat work more than 4" above grade shall be formed with the same materials noted above for walls. Forms shall be properly braced and tied to maintain the design position and shape. In no case shall supporting forms or shoring be removed until sufficient strength has been obtained to support the member's weight and any superimposed loads.
4. **Mixing:** Unless prior approval is obtained in writing from the Owner with HDF concurrence, all concrete shall be ready-mixed and transported to the site by an established ready-mix company. All concrete exposed to freezing is to have 5% +/- 1% air added to the mix.

5. **Reinforcement:**

- A. **Walls:** Concrete stem foundation walls shall have a minimum of one #4 bar within 12" of the top of the wall and one #4 bar located 3"-4" from the bottom of the footing.
- B. **Flat Work:** Concrete floors, walks, decks, porches, patios, and driveways shall have reinforcing materials. Reinforcement shall consist of reinforcing bars, steel wire, steel welded wire fabric, polypropylene fibers, or by accepted engineering practices. Block outs (12" minimum clear distance in all directions) must be installed around all valve boxes, manholes, poles, etc., encountered in walk or driveway areas. Concrete shall be placed in the blocked out areas at a point in time after the walk or driveway has been cast. Resilient bituminous fiber expansion joint must be installed around the blocked out area between the two pours.
- C. **Pads:** Unless otherwise specified, all pads must be reinforced as per Section 3A 5-B above, or by accepted engineering practices.

6. **Placing:** Concrete shall be placed continuously where possible or provide construction joints with reinforcement for transfer of stress. Concrete work shall be straight and plumb with square corners and shall be placed in such a manner that when forms are removed no honeycombs, large voids, or form marks are evident and face has a generally uniform appearance. If these requirements are not met, the Contractor shall be responsible for surfacing entire face to a uniform appearance.

7. **Protection of Concrete:** Concrete shall be protected from any weather condition which could compromise the strength or appearance of the finished concrete. The Contractor shall protect the concrete from traffic and vandalism until concrete will withstand normal traffic without damage. The Contractor shall be responsible for repairing or removing and replacing, without added cost to the Owner or HDF, any concrete, the strength or appearance of which is damaged from improper protection, workmanship or materials.

8. **Repair of Concrete Surfaces:** Repair shall be true and level with adjacent surfaces and finishes shall match existing. Repair of concrete surfaces shall include:

- A. Removing existing spalling concrete, loose concrete, or loose cement coating.
- B. Cleaning area to ensure good bonding of patch material.
- C. Wetting the surface and keeping moist during entire process.
- D. Filling all voids and cracks with a mixture of concrete and bonding agent placed in accordance with manufacturer's recommendations.
- E. Repairing any existing cement coating.

SECTION 3B CONCRETE WALLS

1. **Concrete Foundation Walls:**

- A. Cast-in-place foundation walls must be a minimum of 8" thick and a maximum of 4'0" in height. Foundation walls over 4'0" in height shall be constructed in accordance with accepted engineering practices and shall include installation of all recommended

foundation drain systems. Installation shall include sump pump and pit when required to get water to grade.

- B. The top of finish walls shall be such that no more than two sill plates are required to maintain finish floor elevation. Beam pockets shall be formed and beam support shall be provided.
- C. When constructing a foundation for an existing structure, the new foundation shall be placed so that vertical alignment with the existing exterior walls and corners is achieved.

2. **Concrete Retaining Walls:**

- A. Retaining walls not laterally supported at the top must not exceed 2'0" in height.
- B. Walls over 2'0" in height shall be constructed in accordance with accepted engineering practices.

3. **Piers:** Piers shall be a minimum of 12" in diameter and 36" in depth unless otherwise specified.

SECTION 3C CONCRETE FLAT WORK

1. **Concrete Walks, Ramps, Steps, Stoops, Patios, Driveways, and Aprons:**

- A. Total thickness of all concrete shall be 4" minimum. Exposed surfaces shall be free of honeycombs, voids, and form marks and have a generally uniform appearance. Provide exterior flat concrete with light broom finish. Proper drainage shall be maintained away from all building walls with a minimum slope of 1/8" per foot. Edges shall be tooled with a device designed specifically for this purpose.
- B. Concrete walks shall be a minimum of 36" wide, unless otherwise specified. When walk joins steps that are wider than walk, the walk shall be tapered to step width from a point approximately 48" from steps. Score sidewalks with 1/2" control joints at a maximum of 5'0" on center and provide 1/2" x 4" resilient bituminous fiber expansion joints at points where walk abuts existing concrete.
- C. Score driveways and patios with 1/2" control joints at a maximum of 10'0" on center in both directions. Provide and install 1/2" x 4" resilient bituminous fiber expansion joints every 20 linear feet (lf) of driveway and at points where driveway and patios abut existing concrete. Control joints are to be tooled in place at the time of the placement or saw cut as soon as the concrete will withstand the weight of the workman and saw.
- D. Vehicle garage door apron shall be poured flush with garage floor, and extend 1' to each side of garage door opening and extend out 2' flush with driveway grade. Slope aprons away from the garage at a minimum of 1/4" per foot.

2. **Interior Concrete Floors:**

- A. Floors shall have steel trowel finish, smooth, and free from trowel marks. Aggregate shall be tamped away from surface using tools designed for this purpose. A 4" base course and 6 mil vapor barrier with joints lapped 6" are required for interior slabs on grade. Interior concrete floor slabs shall be a minimum of four inches (4") thick, with

one-half inch ($\frac{1}{2}$ ") x four inch (4") resilient bituminous fiber expansion material at perimeter of floor and at any other structural elements.

- B. Concrete floors shall be finished (except where floors are shown to slope to drain) with a maximum one-quarter inch ($\frac{1}{4}$ ") variation in an eight foot (8'0") distance in any direction.
- C. Garage floors shall be sloped for drainage to overhead door opening and include a concrete apron (see paragraph 1 of this section).

SECTION 3D SIDEWALKS, CURBS, CURB RAMPS, AND DRIVEWAY APRONS

Sidewalks, curbs, curb ramps, and driveway aprons located within public street or alley rights-of-way must be designed and constructed in accordance with local jurisdiction requirements. Handicapped-accessible curb ramps of a type and design approved by the local jurisdiction must be provided at all street and alley intersections. The portion of driveway aprons located within a public street or alley right-of-way must be constructed of concrete with a thickness of 6" minimum. All work taking place within a public right-of-way must be approved by the local jurisdiction, and the Contractor shall be responsible for obtaining such approval.

DIVISION 4--MASONRY

SECTION 4A GENERAL REQUIREMENTS

1. **Placing:** Masonry shall be laid in running bond with level courses, uniform joints, square corners, and plumb verticals. Joints to be struck flush where covered with finish or not exposed to view and with a concave tool where exposed. When new and existing masonry are joined, transition shall be structurally sound and watertight, and if exposed, shall be uniform in appearance. Work shall include all necessary anchors, lintels and ties.
2. **Cold Weather Precaution:** Masonry work shall be protected from any weather condition which could compromise the strength or appearance of the finished work.
3. **Mortar:** Masonry mortar shall be mixed using a masonry cement specifically designed for this application. Type S or M mortar shall be used for reinforced masonry, masonry below grade, and masonry in contact with earth. Type N mortar shall be used for above-grade load-bearing and non-load-bearing walls and for interior partitions.

SECTION 4B FOUNDATIONS AND RETAINING WALLS

1. **Preparation:** Masonry work shall include all excavation, backfill, reinforcing, coring, etc. as specified:
Foundation Walls: Masonry foundation walls must be a minimum of 8" thick and wall heights must comply with section R404 of the IRC, or be constructed in accordance with accepted engineering practices. Foundation walls that enclose usable or habitable space below grade must include damp-proofing, a foundation drain system, or a sump pump and pit when required to get water to grade. All joints in all locations are to be fully bedded and tooled whether they are visible or not.
2. **Retaining Walls:**
 - A. Retaining walls not laterally support at the top must not exceed 2'0" in height.
 - B. Walls over two feet 2'0" in height shall be constructed in accordance with accepted engineering practices.
3. **Piers:** Masonry piers must not exceed 10 times their least dimension. Isolated piers must be grouted solid unless their unsupported height is less than 4 times their least dimension. Hollow piers must have a 4" pier cap or solid masonry unit or have the top course of the pier filled with grout or concrete.
4. **Mortar:** Masonry mortar shall be mixed using a masonry cement specifically designed for this application. Type S mortar shall be used for reinforced masonry, masonry below grade, and masonry in contact with earth. Type N mortar shall be used for above-grade load-bearing and non-load-bearing walls and for interior partitions.

SECTION 4C

REPAIR OF EXISTING

1. **Walls**: When repair of existing masonry is specified all materials and installation methods used shall match existing materials and finishes as closely as possible. Any or all of the following methods, as required, shall be used to achieve this.
 - A. **Tuck Pointing**: When tuck-pointing is required the work shall include:
 - (1) Removing existing mortar to a minimum of 3/4" and all loose and deteriorated mortar.
 - (2) Cleaning joint edges to ensure good bonding.
 - (3) Wetting the surface and keeping moist during the entire process.
 - (4) Forcing mortar into joints with caulking tool.
 - (5) Striking joint to seal and blend in with existing.
 - (6) Cleaning entire surface to remove all mortar from face of masonry (brick, rock or stone).
 - B. **Resetting Existing Units**: Existing masonry units may be reused if undamaged and clean.
 - C. **Parging**: When parging is required, the work shall have a uniform and even finish and shall include:
 - (1) Brushing and washing down entire surface to remove loose and deteriorated material.
 - (2) Keeping surface damp while applying parging.
 - (3) Coating entire surface with skim coat of masonry mixed at a ratio of three parts sand and one part masonry cement.
 - D. **Shotcrete**: When shotcreting is required, refer to International Building Code ("IBC"), 2015 Edition, Section 1910, Page 427, the finish shotcrete surface shall not contain sags, segregation, honeycombing, sand pockets, or other obvious defects.
2. **Chimney**: When a chimney is to be repaired, this includes tuck pointing, replacing damaged or missing masonry and parging, and installing a new cap and/or flue extension where necessary. Chimney caps are not to be less than 4" thick at their thinnest location.

DIVISION 5--METALS

SECTION 5A RAILINGS AND HANDRAILS

Railings shall be custom manufactured and securely anchored. Prefabricated railing kits may be acceptable only when approved by the Owner and HDF. Joints are to be rigid and dressed down to a smooth, even surface. Railings shall be painted with one coat of metal primer and two coats of suitable finish paint.

SECTION 5B FOUNDATION AND ATTIC VENTS

1. **General**: When openings for vents are constructed care shall be taken to avoid unnecessary damage to adjacent components.
2. **Foundation Vents**: Foundation vents shall have a means of closing and shall be screened with corrosion resistant wire mesh. Vents shall not be placed in close proximity to existing or new plumbing. Vents shall be standard quality brands designed for the specific application.
3. **Attic Vents**: Attic vents called for shall be screened with corrosion resistant wire mesh and shall provide protection against entrance of rain or snow. Vents shall be standard quality brands designed for the specific application.

DIVISION 6--CARPENTRY

SECTION 6A FRAMING

1. **General:** Framing specified shall ensure that the construction provides safe support of all design loads and a suitable base for attachment of finish material. Framing lumber shall be identified by the Grade Mark of a recognized grading association. Framing shall be level and plumb, and where possible all corners shall be square. Window and door openings shall be level, plumb, and square. Engineering requirements shall supersede all requirements of this section.
2. **Sill Plates:** When new sill plates are specified, closed cell foam weatherstripping, grout, or other gasket material shall be installed under the new plates. The new plates must be attached to the foundation with ½" bolts spaced 6' on center with at least one bolt within 12" of each corner and a minimum of 2 bolts per plate. Sill plates shall be protected against decay and termites.
3. **Posts and Beams under Floor Joists:** Posts and beams shall consist of:
 - A. Three 2" x 8" or 2" x 10" members fastened together to form a beam or the equivalent.
 - B. Posts of 4" x 4" wood, 3" pipe, or general unit masonry construction spaced in accordance with the IRC are acceptable. Wood posts or pipes must be fastened to both beam and pad with brackets designed for the specific application. Installation shall assure that all beam member joints break over support posts and all points of contact with beam are shimmed for solid bearing.
 - C. Pads supporting each post 16" square x 16" deep poured-in-place concrete with two horizontal #4 rebar in each direction. Top of pad shall be level and provide a smooth surface to install block for masonry piers, brackets for wood posts, or to properly attach steel posts.
4. **Floor Framing:** For new floor systems, joist size and spacing shall be as specified in the Work Write-Up. When additional floor framing is necessary, new joist size shall be consistent with existing members.
5. **Subflooring:** Subflooring shall be plywood OSB (oriented strand board) or waferboard. Subflooring shall be glued and nailed. When matching existing, new subfloor shall provide a uniformly smooth transition.
6. **Furring and Leveling of Existing Floors:**
 - A. Remove all base and trim so that new floor sheathing will contact wall.
 - B. When leveling of floor(s) is specified, floor shall be leveled to the high point of the area being leveled unless otherwise specified. When leveling is specified for a particular room, it shall extend into any new and existing closet or pantry located in or adjacent to that room.

- C. When leveling of floor(s) is specified, continuous furring strips shall be used. Furring material shall be of structural grade and shall be installed to obtain a structurally sound and level surface for installation of finished flooring (see Division 9, Section 9E).
 - D. When furring strips run parallel to existing floor joists, they shall be installed directly over floor joists.
 - E. Contact shall be maintained the entire length of the continuous furring strip between the existing floor and furring strips and the furring strips and new floor sheathing.
 - F. The spacing of the furring strips and sheathing shall conform to the requirements of the IBC or IRC for spacing and sheathing thickness.
 - G. Sheathing shall conform to subflooring requirements of paragraph 5 above.
 - H. If shimming is necessary, shimming material shall be a structural material with full bearing.
7. **Changes in Floor Level:** When leveling the floor in one area causes level differences from adjacent floors of more than 1/2", this change shall take place at openings. When such a change in levels does occur, the transition shall be made as follows:
- A. When the difference is 3" or more, treat as a step with a vertical riser. Finish of riser shall be the same as adjoining wall or either of the two adjacent floors. Owner and HDF shall approve finish prior to installation.
 - B. When the difference is less than 3", provide a tapered rise compatible with adjacent floors constructed of solid material. Finish of tapered rise shall be the same as adjacent floor finish, unless otherwise specified. Slope shall not exceed one in five.
8. **Walls:**
- A. New walls shall be constructed of 2" x 4" studs at 16" on center, continuous length from soleplate to double top plate and all ends shall be cut square. Wall framing shall include blocking for all planned accessories. Location of all openings shall be as per drawings. Exterior walls shall have two continuous beads of caulking applied between soleplate and subfloor.
 - B. When furring of walls is specified, all furring material shall be of structural grade and shimmed as needed to obtain a rigid and plumb surface for installation of finish material.
9. **Ceiling Framing:**
- A. Framing members for new ceilings in existing spaces shall be properly sized for span and spaced 16" on center. Members shall be anchored to provide a rigid level plane with provision for perimeter nailing of wallboard.
 - B. Additional framing members for reinforcement shall be properly sized, located, and anchored to meet the structural requirements of the Building Code.
 - C. When intermediate beams are added to support ceiling joists, the beam shall be continuous between supporting members, properly sized, located, and anchored to meet the structural requirements of the Building Code. When the beam is installed in a finished space, it shall be finished to match adjacent surfaces, unless otherwise specified.

10. **Rafters and Trusses**: Rafters and trusses shall be set to provide an even plane for roof sheathing so that finished roofing has an even surface and provides a smooth transition between existing and new roofing. Rafter size and spacing shall be as specified. Rafters shall run full length without joints. When roof trusses are specified, they shall be engineered and approved drawings must be submitted showing compliance with the 2015 IRC.
11. **Roof Sheathing**: Roof sheathing shall be plywood or OSB (oriented strand board). When matching existing sheathing, transition shall provide a uniformly smooth surface.
12. **Wood Decks, Ramps, Steps, Railings, Retaining Walls**:
 - A. **Material**: Decks, ramps, steps, and railing structural components shall be approved construction grade lumber. Decking, stair treads, all guardrail components, and handrails shall be redwood, treated wood, or weather-resistant composite material. Fasteners shall be galvanized or cadmium plated. Material used shall be free of loose or missing knots. Redwood shall be sealed (see Division 9 Section 9C). Retaining wall components shall be designated for landscape use by the manufacturer.
 - B. **Construction**: Construction details shall be in accordance with the Work Write-Up and/or drawings, if applicable.
13. **Repair of Framing and Structural Members**: When the repair of framing or structural members is specified, the repair shall achieve the strength and load bearing capacity of the original member.

SECTION 6B PORCHES, STOOPS AND DECKS

1. **Replacement of Components (Flooring, Ceiling, Columns, Railings, Steps, and Skirting and Lattice)**: Replacement of any components shall be with like material in style, size, and installation unless otherwise specified. Finger joint material may be used when painted. New unfinished material shall be primed or sealed and ready for final finish. Members shall be securely fastened and installed to meet at even levels and cut to abut uniformly adjacent members.
2. **Repair**: When repair of components is specified, it shall consist of matching existing materials in size, style, and finish including decorative and ornamental moldings. Repair shall include all material and methods necessary to achieve uniformity between new and existing members.

SECTION 6C INTERIOR TRIM, CLOSET COMPONENTS AND SHELVING

1. **Material**:
 - A. New interior trim shall match predominant existing material in size, style, and finish, including any decorative and ornamental molding. Trim material shall be kiln dried or otherwise seasoned solid wood. Synthetic wood or veneered trim shall not be accepted. Trim material shall be dressed free of tool marks and other objectionable

defects. When finish is to be natural or stain, trim material shall be stain grade. Finger joint material shall not be accepted. When trim is to be painted, material may be finger joint.

- B. Clothes closet, pantry closet, and open shelf material shall be 3/4" x 12" minimum wood bullnose or vinyl-covered wired shelving unless otherwise specified. Linen closet shelf material shall be 3/4" x 16" minimum wood bullnose with a minimum of five shelves. Shelves shall be painted to match adjacent finish. Closet shelf wall support shall be 1" x 4" material secured to solid backing or appropriate wire shelf brackets. Clothes closet rod shall be 1" diameter wood or metal, supported on ends with manufactured wall brackets. Rod shall not be painted. All fasteners will be attached to studs or proper blocking for all shelves. No drywall anchors will be accepted in shelving support.
- C. When closet rod and shelf are to be lowered, the height shall be coordinated with the Owner and HDF.

2. **Installation:**

- A. Trim members shall be securely fastened tight to wall and installed to run true to line, meet at even levels to adjacent corner members, and all line cuts and miters shall be even so as to abut uniformly to adjacent members. This work shall be accurately and neatly performed and the joints shall be secured to prevent separation. Trim shall be joined only at corners except for runs in excess of 12'0", in which one splice will be permitted midway of run. Casings around all openings shall be joined only at corners. External corners shall be mitered and internal corners shall be mitered or coped. Splicing of trim shall be done with mitered joints over solid backing. Fasteners used in installation shall be set below the surface. Holes shall be filled smooth with surface. When material is to be stained, fill shall match stain color.
- B. Continuous support secured to solid backing shall be installed at ends and back of closet shelves. Clothes closet shelf and rod shall have a center support bracket if span is more than (5'0"). Bracket shall be specifically designed for shelf and rod installation and securely fastened to solid backing and installed level. Rod shall be installed at a height of 56" above floor unless otherwise specified.
- C. Pantry closet and open shelves shall have center support brackets if span is more than 5'0". Bracket shall be specifically designed for shelf installation and securely fastened to solid backing.

- 3. **Repair:** Existing interior trim which is broken, splintered, cracked, chipped, warped, or otherwise defective shall be replaced or repaired with new material. Repair shall include all materials and methods necessary to achieve uniformity between new and existing members. Installation shall conform to all requirements of this section unless otherwise specified.

SECTION 6D INTERIOR WALL PANELING

- 1. **Material:** See Work Write-Up.

2. **Installation:** Paneling shall be installed on solid wall surfaces. It shall not be fastened directly to furring strips or open framing. Any holes in existing wall material with an area exceeding one square foot to include holes from construction activity shall be repaired. Paneling shall be installed plumb and level. When paneling abuts trim it shall be tightly fitted. Exposed paneling edges shall not be accepted.
3. **Repair:** Repair of wall paneling shall consist of securing loose wall paneling and components.

SECTION 6E INTERIOR SOFFIT

When repair of interior soffits is specified, it shall provide construction that will support all design loads and provide a suitable base for attachment of cabinets. Framing shall be level and plumb. When soffits are specified, the finished edge shall project a minimum of 1½" past the finished edge of the wall cabinet. Soffit edges shall run parallel to wall cabinets. Soffits shall have a minimum of ½" drywall, taped and finished to match adjacent surfaces.

SECTION 6F KITCHEN, BATH AND UTILITY CABINETS

1. **General:**
 - A. Cabinets shall conform to ANSI A161.1 "Recommended Minimum Construction and Performance Standards for Kitchen Cabinets". Cabinets shall be certified by the National Kitchen Cabinet Association.
 - B. No plastic or vinyl transfer finishes shall be accepted. No plastic drawers, drawer fronts, or doors shall be accepted.
 - C. Wall and base cabinets shall be of the same construction and same outside appearance.
 - (1) Face frames shall be solid 3/4" thick hardwood.
 - (2) Sides of cabinets shall be a minimum of 3/8" plywood and prefinished to match cabinet front when exposed.
 - (3) Tops and bottoms shall be a minimum 3/8" thick plywood or medium density fiberboard.
 - (4) Cabinets shall have backs constructed of a minimum 1/8" hardboard.
 - (5) Interior of all cabinets shall have a melamine finish.
 - (6) Shelves shall be a minimum of 5/8" thick medium density fiberboard surfaced with a melamine finish.
 - D. Cabinet installations shall include all accessories, operating and mounting hardware, filler strips, panels, and molding provided by the cabinet manufacturer for complete installation.
 - E. When utility or pantry cabinets are specified, they shall match kitchen cabinets in style and finishes.
2. **Installation:**
 - A. Cracks and voids in walls and floor and at junction of walls and floor shall be permanently filled and sealed prior to installation of cabinets.

- B. Where existing cabinets are removed and the area is not covered by new cabinets, the walls, floor, and trim shall be finished to match adjacent finishes.
 - C. Cabinet doors shall be properly aligned and drawers shall operate freely. Hardware shall operate smoothly and easily. Cabinets shall be installed straight, level, plumb and be securely anchored with screws of proper size and quantity. Cabinets on either side of an appliance shall align front and top. Cabinets shall be secured to each other and to the wall by counter sinking screws neatly through the rails and stiles of the cabinets. Any screw not penetrating solid material shall be removed. Holes and any damage to the interior finish shall be filled and refinished.
 - D. When shims are used in leveling cabinets, they shall be securely fastened and capable of supporting loads.
 - E. When trim exists where new cabinets are to be installed, base and trim shall be cut and removed to avoid scribing cabinets. Base and trim shall be fitted tightly and neatly to newly installed cabinets.
 - F. When cabinet installation is not tight fitting at floors, walls and ceiling, continuous molding shall be installed.
 - G. Openings necessary for plumbing and mechanical components shall be cut so that a properly-sized escutcheon or trim will conceal the opening(s). If structural integrity of the cabinet is diminished as a result of cutting, such openings shall be reinforced.
3. **Replacement and Repair of Components:** When replacement of cabinet components is specified, components to be replaced shall be consistent in style, material, and finish with existing cabinet. When repair of cabinet components is specified, repair shall restore component to its original appearance, structural integrity, and operation.
4. **Alterations & Removal:** When wall cabinets are to be lowered, the height shall be coordinated with the Owner and the HDF. When existing countertops are to be supported as a result of base cabinet removal, see the work write-up or drawings. When reconstruction of base cabinets is specified, see the work write-up or drawings.

SECTION 6G COUNTERTOPS

1. **General:** Countertops shall be shop built. Surfaces shall be minimum 1/16" thick high-pressure plastic laminate. Laminate shall be applied to all exposed edges. Countertops shall have a minimum 4" backsplash. End splash shall be installed where countertop abuts walls or built-in cabinet work. If top consists of more than one section, sections shall be assembled to achieve a structurally sound, rigid, single-unit top. Joints shall be tight, aligned, and smooth. Countertop allowance shall include the retail cost of the complete top ready for installation.
2. **Installation:** Edges that abut walls or other cabinets shall be scribed to fit tight to that surface. Countertop abutting walls shall be fitted with a maximum 1/8" opening prior to caulking. Caulking shall be uniformly applied and finished to be neat and smooth. No molding will be accepted. Openings cut and holes drilled for plumbing fixtures, electrical

components, and appliances shall be neat and close fitting. Tops shall be secured to cabinet with screws installed into core of top through base cabinet.

3. **Repair**: Repair of countertops shall consist of the following:
 - A. Adhering all loose laminates and other coverings with a product specifically designed for this purpose.
 - B. Securing loose top to cabinets.
 - C. Removing deteriorated sealant at walls and around plumbing fixtures replacing with new sealant specifically designed for this purpose. Sealant shall be uniformly applied and finished to be neat and smooth.

SECTION 6H STAIR OPENINGS, STAIR UNITS, HANDRAILS AND GUARDRAILS

1. **General**: The design, construction, and installation of all stair units shall be the responsibility of the Contractor. If code requirements preclude installation of stair unit in a specified location, the Contractor shall notify the local jurisdiction before constructing the stair unit. Stair units may be job built or pre-manufactured and shall include landings as required. When the construction of a new stair opening or modification of an existing stair opening (including modifications for head room) is specified, it shall include all framing necessary to modify the existing, or create a new opening sized to accommodate the existing or specified stair unit and provide all necessary clearances. Structural members shall be approved construction-grade materials; for exterior stairs, fasteners shall be galvanized or cadmium plated. Material used for stair units shall be free of loose or missing knots. Unless otherwise specified, new stair units shall have treads and risers for closed construction and stair treads shall be 5/4" material pre-manufactured for this application. New stair unit installations shall include new handrail and appropriate hardware. Handrail shall be 1¼" to 2" in circular cross section or have a perimeter of at least 4" and not more than 6". The handrail must be continuous the full length of the stairs, ends must be returned to the wall or post, and the rails must be mounted so a space not less than 1½" is present between the wall and handrail. Handrails shall be finished with a natural finish unless otherwise specified. Finger joint material may be used only when handrails are to be painted. When guardrails are specified, they shall consist of posts, rails, balusters, and necessary hardware, or finished frame walls.
2. **Installation**: Stair units shall be installed plumb and level; treads shall be level and each riser shall be plumb. Where stair units meet wall surfaces, transition shall include finish wood molding or continuous skirtboard. Handrail installations shall meet applicable code requirements. Handrail brackets shall be screwed to structural members or to securely anchored backing.
3. **Repair**: When repair of a stair unit, handrail, or guardrail is specified, it shall include the repair or replacement of any damaged, deteriorated, or missing component or portion thereof. This shall include the repair or replacement of any associated brackets, screws,

and hardware. Components shall be returned to a like-new and structurally-sound condition. Repairs shall match existing materials in style and finish.

DIVISION 7--MOISTURE PROTECTION

SECTION 7A DAMPPROOFING

Dampproofing shall be applied in conjunction with new foundation construction when specified and conform to IRC requirements and accepted engineering practices.

Foundation walls that enclose interior space or floors below grade shall be dampproofed from the top of the footing to the finished grade. Areas with a high water table that enclose interior space and floors below grade must be waterproofed in the same manner. Dampproofing consists of 3/8" parging that is covered with a bituminous coating, acrylic cement, surface-bonded cement, or any waterproofing method noted below. Waterproofing consists of two-ply hot-mopped felts, 55-lb. roll roofing, 6 mil polyvinyl chloride, 6 mil polyethylene, 40 mil polymer-modified asphalt, 60 mil flexible polymer cement, 1/8" cement fiber-reinforced waterproof cement, or 60 mil solvent-free liquid synthetic rubber.

SECTION 7B PERIPHERAL DRAINS AND SUMP PUMP SYSTEMS

1. **Peripheral Drains:** Peripheral drains shall be installed in conjunction with new foundation construction when specified and conform to IRC and accepted engineering practices. Drains shall be required around all foundations that enclose habitable or usable space below grade and in areas with a high water table.
2. **Sump Pump Systems:** When a new sump pump system is specified where none exists, it shall include sump pit with container and cover designed for this application, sump pump, all electrical connections, and discharge drainage to exterior of structure. Sump pit container shall be a minimum of 18" diameter by 24" deep, designed for this application. Sump pumps shall be submersible type, minimum 1/3 horsepower (hp), automatic control, and UL approved. Discharge line with check valve shall extend from the pump through the exterior wall at a height to permit discharge into a splash block set on grade. A concrete splash block shall be included as part of this installation. When a new sump pump is to be installed in an existing system, existing components of the system shall be inspected and repaired or replaced to ensure proper operation. Pump shall be piped with solid PVC pipe only for the discharge line from the pump.

SECTION 7C CAULKING

1. **General:** The requirements of this section shall apply to all interior and exterior work where caulking is common practice to provide a finished product or in preparation for final finish. This includes new work, repairs and alterations, and preparation for painting.
2. **Material:** Caulking shall be acrylic latex caulk unless otherwise specified.

3. **Preparation:** Surfaces to which caulking is to adhere shall be clean, dry, frost free, and sound. Loose material shall be removed prior to application. Joints greater than 3/8" in depth shall be partially filled with a rope or yarn backup (backer rod) material as recommended by the manufacturer of the caulking.
4. **Application:** Caulking shall be handled according to the manufacturer's written instructions. The completed application shall provide a weathertight surface. The caulking shall be uniformly applied and the finished surface shall be neat and smooth.

SECTION 7D INSULATION

1. **General:** When space limitations will not allow sufficient insulation to meet the "R Value" required by this section, these spaces will be insulated to achieve the highest "R Value" possible. The Contractor shall provide a certification of "R Value" for all insulation to the Owner and the HDF.
2. **Material:** Insulation shall be standard quality brands of batt, blanket, or loose thermal insulating materials fully suitable for the particular installation. Insulation shall be delivered to the site in manufacturer's original packaging with seals unbroken and labels intact. Insulation materials shall be noncombustible, nontoxic, and shall not attract insects or vermin.
3. **Installation:**
 - A. Attics (rooms or spaces immediately below the roof) shall be insulated to meet the International Energy Conservation Code. A minimum value of R-38 is required pending HDF review. Attic insulation shall be installed between all heated and unheated spaces. Refer to specifications or Work Write-Up.
 - B. Exterior wall cavities shall be insulated to meet the International Energy Conservation Code, to include all voids between framing and window and door units when exposed. A minimum of R-20 or R-13 + R-5 is required pending HDF review and location of unit. If finished wall surfaces must be disturbed for installation, surface shall be repaired and finished so that no evidence of work is apparent. Refer to specifications or Work Write-Up. See Appendix 3.
 - C. Exterior crawl space walls shall be insulated to meet the International Energy Conservation Code. A minimum value of R-19 to R-30 is required pending HDF review and location of unit. Floors over exterior space must be insulated as attic spaces as noted in Section 7D-3A. Refer to specifications or Work Write-Up.
 - D. Required clearances shall be maintained between mechanical and electrical components and insulation. See Appendix 3.

SECTION 7E

ROOFING

1. **General:** (see requirements of Division 7, Section 7F)
 - A. **Preparation:** Roofing installations shall include the removal of any existing material to meet local code requirements (see Division 2, Section 2A). When roof sheathing is exposed, secure any loose sheathing, and replace defective with material of same thickness to establish a firm, true base. When installation is over existing roofing, set protruding nails, nail down loose roofing, and replace curled or warped roofing material to achieve an even surface. Clear roof surface of debris. Roofing installations shall include new roof jacks. Should the home already have two or more layers of roofing, all previous roofing will be removed prior to installing a new roof.
 - B. **Repair:** Color and design of roofing material shall match existing adjacent roofing as closely as possible.
2. **Shingle Roofing:**
 - A. **Material:**
 - (1) 3-tab shingles shall be a minimum of 235 lbs. per square.
 - (2) T-lock asphalt shingles shall be a minimum of 240 lbs. per square.
 - (3) 3-tab fiberglass shingles shall be a minimum of 225 lbs. per square.
 - (4) T-lock fiberglass shingles shall be a minimum of 225 lbs. per square.
 - (5) Wood shingles shall be No. 1 cedar shingles with a minimum of 205-225 lbs. per square.
 - B. **Installation:**
 - (1) When asphalt shingles are to be installed over existing roofing, a minimum of 30 lb. roofing felt shall be applied prior to installation.
 - (2) When asphalt shingles are to be installed directly over roof sheathing, a minimum of 15 lb. roofing felt shall be applied prior to installation.
 - (3) Shingles shall run true to horizontal line, meet at uniform levels at ridges, be cut and properly fitted adjacent to protruding members and other shingles with allowance for thermal expansion, and true to a set line in valleys and along eaves and rakes. Shingles adjacent to eaves and rakes shall be adequately nailed along same.
 - (4) New shingles shall extend ½" beyond rake and eave edges.
3. **Roll Roofing:**
 - A. **Material:**
 - (1) Mineral-surfaced, single-coverage asphalt roll roofing shall be a minimum of 90 lbs. per square.
 - (2) Mineral-surface, double-coverage asphalt roll roofing shall be a minimum of 110 lbs. per square.
 - B. **Installation:**
 - (1) Roll roofing shall be run true to horizontal line, be cut even, and properly fitted to adjacent protruding members.
 - (2) Roll roofing shall be cemented and securely nailed.

- (3) Roll roofing installations shall include a minimum of 15 lb. felt and 9" edge strips. Edge strips shall overhang eaves and rakes 1/4" to 3/8".

4. **Built Up Roofing:**

- A. **Material:** Built-up roofing felt shall be 15 lb. fiberglass. Cement shall be hot bituminous asphalt. Cant strips shall be installed at all vertical intersections.
- B. **Installation 3-Ply:** Built-up roofing shall be composed of 3 plies of felt, alternating with hot layers of asphaltic cement. A final layer of 9/16" roof aggregate shall be applied to a hot layer of flooded asphaltic cement.
- C. **Installation 4-Ply:** Built-up roofing shall be composed of 4 plies of felt, alternating with hot layers of asphaltic cement. A final layer of 9/16" roof aggregate shall be applied to a hot layer of flooded asphaltic cement.

5. **EPDM Rubber Roofing:**

- A. **Material:** All materials by Firestone Building Products.
- B. **Installation:** As per manufacturer's specifications.

SECTION 7F SHEET METAL

1. **Roof Flashing:**

- A. Roofing installations shall include new valley flashing and other flashing necessary to achieve a weather-tight installation.
- B. Valley flashing shall be metal flashing material minimum No. 28-gauge galvanized sheet gauge corrosion resistant metal; other flashing shall be No. 26-gauge galvanized sheet corrosion resistant metal. Installation shall be in accordance with industry standards. Installation shall achieve weather-tight performance without the use of excessive and unsightly mastics.
- C. Shingle and roll roofing installations shall include style "A" metal drip edge along all eaves and rakes, drip edge shall not be installed in less than 4'0" lengths. Overhang of all existing roofing shall be trimmed back to allow proper installation of drip edge.
- D. Built up roof installations shall include gravel stop along all edges, flashing at vertical intersections, and parapet wall caps.

2. **Gutters and Downspouts:**

- A. **General:** Gutters shall be installed so that water flow from roof will be caught by the gutters. Each downspout shall drain a maximum of 600 square feet of roof area and downspouts shall be spaced to drain a maximum of 30 linear feet of gutter. Downspouts that discharge onto a roof shall terminate with an elbow a maximum of 1" above roof. Downspouts shall be located so that water will be diverted a minimum of 30" away from structure and will drain away from the foundation without draining onto adjoining properties.
- B. **Material:** Gutters shall be seamless 5" K Style. Galvanized steel gutter material shall be a minimum of No. 26 gauge. Aluminum gutter material shall be a minimum of .027

inches in thickness. Downspouts and downspout extensions shall be 3" x 2" corrugated rectangular material to match gutters. Splashblocks shall be precast concrete.

- C. **Installation:** Gutters shall have a uniform slope at the rate of one-sixteenth inch (1/16") per foot to downspout. Gutters shall be installed under drip edge when it exists. Hangers shall be securely fastened and shall be spaced a maximum of 36" on center. Strap hangers shall be concealed under roofing material. Corners and drops shall be fastened with sheet metal screws and end caps shall be stapled or crimped. Corners, drops, and end caps shall be sealed to be watertight using a mastic designed for this purpose. Downspouts shall be securely fastened at top and bottom; if over 10'0" in length, a third intermediate fastener shall be installed equal distance between top and bottom fasteners. Elbows shall be fastened with sheet metal screws and downspouts shall terminate with an elbow. Installation of gutters, downspouts, and accessories shall be in accordance with trade standards. Galvanized gutters, downspouts, and accessories shall be primed and painted (see Division 9, Section 9C).
- D. **Repair:** Repair of gutters shall include removal of all debris from gutters and realignment to achieve pitch for proper drainage. Loose gutters and downspouts shall be securely anchored and resealed. Splash blocks or extensions shall be provided and installed where missing. Repairs shall be with materials to match existing.

SECTION 7G EXTERIOR SIDING

1. General:

- A. **Preparation:** Preparation for siding installation shall include securing any loose wood members and replacing defective members with like material prior to installing new siding. Any existing caulking which will interfere with proper installation of new siding shall be removed. New wood furring shall be installed as required to ensure finish wall is reasonably plumb and even. Air/water infiltration paper will be installed per manufacturer's recommendations. The back side of all exterior wood siding and trim will be primed

B. Installation:

- (1) Siding shall be installed to run level, plumb, and true to line, and meet at even levels at corners and existing siding. Siding abutting trim and adjacent siding shall be squarely cut and properly fitted.
- (2) Caulking shall be installed around all openings and abutting wood trim. Color of caulking shall match finish color of siding.
- (3) Installation shall include all flashing, trim, and accessories necessary for a finished, weather-resistant product. Surface preparation and installation of siding, flashing, and accessories shall be in accordance with manufacturer's recommendations.
- (4) New unfinished lap and plywood siding shall be primed or sealed ready for final finish.

- 2. **Lap Siding:** Vertical joints shall be staggered so that any two joints will be separated by at least two siding strips. Short pieces of siding shall not be concentrated in one area. Corner

trim shall fit tightly and true to vertical line of structure. Insulated backer shall be installed with all metal and vinyl siding.

3. **Repair**: When repair of siding is specified, it shall consist of the repair or replacement of any damaged or deteriorated siding members. Finish and design and siding material shall match existing adjacent siding as closely as possible. Siding used for repair or to fill in voids shall be laced into existing siding so that vertical joints shall have a minimum horizontal separation of 24".

SECTION 7H SOFFIT, FASCIA, AND EXTERIOR TRIM

1. **General**: Members shall be securely fastened and installed to run true to line and meet at even levels at corners. Cuts and miters shall be even so as to abut uniformly to adjacent member. New unfinished material shall be primed or sealed and ready for final finish.
2. **Wood**:
 - A. **Fascia and Trim**: New material shall be redwood or clear pine, unless otherwise specified. Corners and in-line joints shall be mitered.
 - B. **Soffit**: New soffit material shall be a minimum of three-eighths inch (3/8") exterior grade plywood, plugged, and sanded unless otherwise specified. Fascia shall be plowed to receive soffit.
3. **Vinyl and Metal**: Vinyl and metal members shall be installed per manufacturer's recommendations with all accessories necessary for a complete installation. Backing materials shall be as recommended by manufacturer.
4. **Repair**: When repair of components is specified, it shall consist of matching existing material in size, style, and finish including decorative and ornamental molding. Repair shall include all materials and methods necessary to achieve uniformity between new and existing members.

DIVISION 8--DOORS, WINDOWS, GLASS, SCREENS, ANDREA WELLS; CRAWL SPACE, CELLAR, BASEMENT, AND ATTIC ENTRIES

SECTION 8A DOORS AND FRAMES

1. **General**: Whenever door units are installed, frames, sills, and thresholds shall be plumb, level, square, and rigid. Frames shall be sized to fit the opening and wall thickness. Whenever doors are installed in existing frames, frames, sills, and thresholds shall be repaired as necessary to provide square, plumb, level, and rigid openings for the new installation. New doors shall fit properly in their frames and shall operate smoothly and easily. Contractor shall repair any voids or holes left as a result of removing existing hardware. When openings are constructed or existing openings modified, headers shall be provided to maintain the structural integrity of the wall and be in compliance with applicable codes. Care shall be taken to avoid unnecessary damage to adjacent components. In the event that damage occurs as a result of construction, damaged components shall be repaired or replaced to match existing in style and finish. When opening modification results in voids in adjacent surfaces, voids shall be filled to achieve uniformity between new and existing materials.
2. **Repair of Existing Doors, Frames and Hardware**: When repair of any door unit component is specified, it shall consist of ensuring that the component specified functions properly. Any damaged or deteriorated portion of the component shall be repaired or replaced and finished to match existing.
3. **Enlargement of Door Opening**: When existing door openings are enlarged as specified, it shall consist of providing properly sized framing materials to the opening to support all imposed loads. Headers and jack studs must be sized and constructed in compliance with the building code or by accepted engineering practices.
4. **Replacement of Door Components**: When replacement of any door unit component is specified, it shall consist of removing the damaged component and installing a like component that provides all functions, style, and finish of the original. Replacement component shall be adjusted to function properly.
5. **Finishes**: New doors shall be finished (see Division 9, Section 9C).
6. **Exterior Doors**:
 - A. **Material**:
 - (1) **Doors**: 1 3/4" solid core exterior grade, faced veneer of wood, masonite, or metal.
 - (2) **Glass/Glazing**: (see Section 8C)
 - (3) **Frame**: One-piece clear pine rabbeted frame, may be finger joint if painted.
 - (4) **Casing**: Casing shall match existing exterior and interior materials, style, and finishes (see Division 6, Section 6C, and Division 7, Section 7H)

- (5) Hardware: Residential grade (Kwick-Set or equal) consisting of 1½ pair of 4" x 4" butts, key-in-knob entry lockset and single throw deadbolt keyed alike, one-way viewer, and one wall or floor stop.
- (6) Weatherstripping: Residential quality weatherstripping of magnetic, vinyl, or aluminum with neoprene seal.
- (7) Threshold: Aluminum or wood with vinyl insert or aluminum or wood in conjunction with vinyl door sweep.
- B. Installation: Openings between door casing and exterior wall material shall be caulked with a paintable silicone sealant. When accessible, voids between door unit and framing shall be insulated. Doors shall be weather tight with a weather tight threshold. Installation shall be in such a manner that side and head margins are uniform. Bottom shall clear finish floor through entire swing. Complete exterior door unit shall consist of door, rabbeted jamb, butts, casings on both sides, key-in-knob entry lockset, weatherstripping, threshold, and door stop as described in paragraph 6A. Installation will include drip cap over door. Exterior door installation shall include door and all hardware and weatherstripping as described in paragraphs 6A,(1.),(5.),(6.).

7. **Interior Doors:**

A. Passage Doors: Material:

- (1) Door: 1 3/8" minimum thickness, hollow core wood veneer or solid core wood veneer.
- (2) Frame: One-piece clear pine or mahogany frame, may be finger joint if painted.
- (3) Casing and Stops: Casing and stops shall match existing materials, styles, and finishes (see Division 6, Section 6C).
- (4) Hardware: Residential grade (Kwick-Set or equal); bath doors shall have privacy lockset, all others shall have passage set. Installation shall include one pair of 3½" x 3½" butts and one wall or floor mounted doorstop.
- (5) Threshold: Beveled solid wood.

B. Bifold and Bypass Doors: Material:

- (1) Door: 1 3/8" minimum thickness, hollow core wood veneer or 1" minimum solid wood or metal.
- (2) Frame: One-piece clear pine or mahogany frame, may be finger joint if painted.
- (3) Casing: Casing shall match existing materials, styles, and finishes and include trim to conceal track (see Division 6, Section 6C).
- (4) Hardware: Hardware necessary for a complete installation, to include pulls and guides.

C. Pocket Doors: Material:

- (1) Door: 1 3/8" minimum thickness, hollow core wood veneer or solid core wood veneer.
- (2) Frame: Opening shall be finished with clear pine or mahogany frame, may be finger joint if painted.
- (3) Casing: Casing shall match existing materials, styles, and finishes (see Division 6, Section 6C).

- (4) Hardware: Hardware necessary for a complete installation, to include pulls. Bath doors shall have privacy lock set designed specifically for this application.
 - D. Accordion Doors: Material:
 - (1) Door: 1 3/8" minimum thickness, wood or vinyl.
 - (2) Frame: Opening shall be finished with clear pine or mahogany frame, may be finger joint if painted.
 - (3) Casing: Casing shall match existing materials, style, and finishes and include trim to conceal track (see Division 6, Section 6C).
 - (4) Hardware: Hardware as provided by the manufacturer for a complete installation.
 - E. Installation: Complete interior door units shall consist of all materials as described under specific door headings above and shall be installed in such a manner that side and head margins are uniform and will remain so with normal use. Door shall clear finish floor through entire swing or motion. Interior door installation shall include all hardware as described in applicable "Hardware" paragraphs above.
8. **Glass Doors for Tub and Shower Enclosures:**
- A. Material:
 - (1) Frame: Jambs, head rails, and sills shall be extruded anodized aluminum.
 - (2) Doors: Frame or frameless, maximum two-panel door for tub enclosure.
 - (3) Glass and Glazing: (see Section 8C)
 - B. Installation: Shower stall door and tub enclosure assemblies shall consist of all components provided by the manufacturer for the specific model and application, to include all jambs, head rails, sills, door, and all operating hardware. New assembly shall be watertight.
9. **Storm and Screen Doors:**
- A. Wood Storm Doors: Material:
 - (1) Door: Frame shall be 1 1/8" thick select clear kiln dried ponderosa pine with interchangeable glass and screen inserts sized for secure tight fit. Screen wire shall be 16 x 18 heavy duty aluminum mesh (see Section 8D).
 - (2) Frame: To be installed in existing finished opening.
 - (3) Hardware: Machine-finished plated thumb latch, no key locking handle, air-draulic closure, and corrosive-resistant metal chain. Easy change locking latches for glass and screen interchanging; three 3" x 1 1/2" brass-plated hinges for half surface, face mount, or offset installation.
 - (4) Weatherstripping: Full perimeter weatherstripping of wood with neoprene or wood with wool pile. Door to have bottom sweep fitted weathertight.
 - B. Aluminum Storm Doors: Material:
 - (1) Door: 1 1/4" maximum and 1 1/16" minimum extruded hollow shape, 6063-T6 alloy aluminum, minimum .055 thickness. Door shall be self-storing. Screen wire shall be 16 x 18 heavy-duty aluminum mesh (see Section 8D).
 - (2) Frame: Frame shall be aluminum Z-bar type.

- (3) Hardware: Machine finished plated thumb latch, no key locking handle, air-draulic closure, and corrosive resistant metal chain. Hinges shall be four Oilite bearing Z-bar type.
 - (4) Weatherstripping: Full perimeter weatherstripping of nylon electropile with waterproof backing. Door to have expander and vinyl bottom sweep.
 - C. Vinyl Storm Doors: Material:
 - (1) Door: Frame shall be 1¼" maximum and 1 1/6" minimum by 3", extruded hollow shape rigid vinyl. Door shall be self-storing. Screen wire shall be 16 x 18 heavy-duty aluminum mesh (see Section 8D).
 - (2) Frame: Frame shall be vinyl Z-bar type.
 - (3) Hardware: Machine finished plated thumb latch, no key locking handle, air-draulic closure, and corrosive resistant metal chain. Hinge shall be full length.
 - (4) Weatherstripping: Full perimeter weatherstripping of nylon electropile with waterproof backing. Door to have expander and vinyl bottom sweep.
 - D. Wood Screen Doors: Material:
 - (1) Door: Frame shall be 1 1/8" select clear kiln-dried ponderosa pine. Screen wire shall be 16 x 18 heavy-duty aluminum mesh (see Section 8D).
 - (2) Frame: To be installed in existing finished opening.
 - (3) Hardware: Machine finished plated thumb latch, no key locking handle, air-draulic closure, and corrosive resistant metal chain. Three, 3½" x 1½" brass-plated hinges for half surface, face mount, or offset installation.
 - E. Installation: Complete storm screen door units shall consist of all components as described under materials listings for the specific type of door listed above. Swing of door shall be approved by Owner.
10. **Door Openers**: When an automatic door opener is specified, it shall include the installation of a 110-volt electrical outlet connected to an existing circuit and located within 18" of the door opener unit. Exact location shall be coordinated with door opener installer. Installation of electrical wiring and apparatus shall comply with the requirements of Division 16, Section 16A. When an automatic door opener is specified, it shall be installed according to manufacturer's installation instructions using only specified or supplied hardware. Installation shall be accomplished by the supplier's installer. Installation of an automatic door opener shall include the removal of storm door if existing. Removal shall comply with requirements of Division 2, Section 2A.
11. **Overhead Garage Door**:
- A. Material: When an overhead door unit is specified, it shall include four-section door, all tracks and track hangers, rollers and lifting hardware, keyed locking hardware, stop molding with weather seal, tension springs and hardware, and bottom weather seal. Overhead garage door shall be wood, masonite, or steel and when of sandwich construction shall have a minimum 1 3/8" thick polystyrene insulating core. When overhead garage door is of single skin and frame construction, it shall have a minimum frame thickness of 1 3/8" with a polystyrene insulating backing. When overhead garage

door is of wood construction with recessed panels, it shall have a minimum frame thickness of 1 3/8".

- B. Installation: Overhead garage doors and their components shall be installed to fit and operate correctly. Overhead garage doors shall be weather tight with particular emphasis given to seal at floor. Overhead garage door tracks shall be securely anchored and rigidly installed.

SECTION 8B WINDOWS AND FRAMES

1. Primary Windows:

A. Complete Window Units:

- (1) General: Complete window units shall include casing, sill, stool, apron, lifts, locks, screens, and all hardware necessary for a complete installation. Frames shall be sized to fit the opening and wall thickness. Style and finish of window unit will be identified Work Write-Up. When an opening is constructed in a concrete or masonry wall, the rough opening shall be constructed with redwood, pressure treated lumber, or minimum 16-gauge hollow metal. When openings are constructed or existing openings modified, headers shall be provided to maintain the structural integrity of the wall. Care shall be taken to avoid unnecessary damage to adjacent components. In the event that damage occurs as a result of construction, damaged components shall be repaired or replaced to match existing in style and finish.
- (2) Finishes: New wood window units shall be finished (see Division 9, Section 9C).
- (3) Materials:
 - a. Window Units: Wood, aluminum, vinyl, vinyl clad (see Work Write-Up).
 - b. Casing: Casing shall match existing exterior and interior materials, style, and finishes (see Division 6, Section 6C and Division 7, Section 7H)
 - c. Hardware: Hardware shall be residential grade and shall be designed for the application.
 - d. Glass and Glazing: (see Section 8C)
- (4) Installation: Whenever complete window units are installed, units shall be plumb, level, square, and rigid. Unless otherwise specified top of window unit shall align with existing windows in room. Voids between window unit and framing shall be insulated. Joints on exterior walls between window unit and wood, masonry, or metal shall be caulked with a silicone sealant. Window units shall have a drip cap and be weather tight.

B. Replacement Window Kits and Replacement Sash:

- (1) General: Replacement window kits shall include jamb liners, sash with glass and glazing, clips, fasteners, hardware, screens, and other accessories as supplied by the manufacturer for proper installation. In addition, new side and head stops, both interior and exterior, shall be included. Replacement sash shall include new sash milled to match existing with glass and glazing, operating mechanism, and hardware to match existing. Replacement window kits and replacement sash shall

be fitted properly in the existing frames and shall operate smoothly and easily. New wood shall be finished to match existing frame (see Division 9, Section 9C).

(2) **Materials:**

- a. Window Sash: Wood, aluminum, vinyl, vinyl clad (see Work Write-Up).
- b. Hardware: Hardware shall be residential grade and shall be designed for the application.
- c. Glass/Glazing: (see Section 8C)

(3) **Installation:** Whenever replacement window kits or a replacement sash are installed, existing frame shall be repaired as necessary to provide square, plumb, level, and rigid opening for new installation. Contractor shall repair or replace damaged trim incidental to the window. Replacement window kits shall be installed in accordance with manufacturer's recommendations.

C. **Repair of Existing Sash, Frames, and Hardware:** When repair of any window unit component is specified, it shall consist of ensuring that the component specified functions properly. Any damaged or deteriorated portion of the component shall be repaired or replaced and finished to match existing.

D. **Replacement of Window Components:** When replacement of any window component is specified, it shall consist of removing the damaged component and installing a like component that provides all functions, style, and finish of the original. Replacement component shall be adjusted to function properly.

2. **Storm Windows:**

A. **General:** Storm windows shall be self-storing combination storm and screen units. Window shall be installed straight, plumb, and level in existing openings to ensure a weather tight enclosure and shall be securely anchored in accordance with the manufacturer's recommendations and be easily operable. Frame and sash member joints shall be mitered, neatly fitted, and securely fastened together with plated screws or welded joints. Weep holes shall be provided in frames. Storms and screens shall be compatible with the primary window operation and shall be neatly fitted with appropriate hardware so that the sash and screen can be removed from the inside. Installation shall include screens and necessary hardware. Exterior of primary windows and frames shall be cleaned prior to installation of storm windows. After installation all storm windows and their screens shall be thoroughly cleaned without using abrasive cleaning agents.

B. **Aluminum Storm Windows:**

- (1) **Material:** Window frames shall be extruded mill finish aluminum 6063 T6 alloy with nominal wall thickness of .055". Screens shall be standard mill or charcoal aluminum. Weatherstripping for interlocking panels shall be nylon electropile with waterproof backing. Aluminum windows shall conform to the Aluminum Window Manufacturer's Association standards (see Section 8C).
- (2) **Installation:** Windows shall be installed over a bead of silicone caulking with plated screws finished to match frame. Caulking shall ensure a weather tight installation.

C. Vinyl Storm Windows:

- (1) Material: Window frames shall be welded vinyl extrusion of one-piece construction. Screens shall be standard mill or charcoal aluminum. Weatherstripping for interlocking panels shall be nylon electropile with waterproof backing (see Section 8C).
- (2) Installation: Windows shall be installed over a bead of silicone caulking with plated screws finished to match frame. Caulking shall ensure a weather tight installation.

D. Replacement of Storm Window Components: When replacement of any storm window component is specified, the new component shall match the original in all aspects.

E. Repair of Existing Storm Windows: When repair of any storm window component is specified, it shall consist of ensuring that the component specified functions properly. Any damaged or deteriorated portion of the component shall be repaired or replaced.

SECTION 8C GLASS AND GLAZING

1. General: Glass shall be PPG, LOF, or equal. Thickness and type of glass and glazing shall be as recommended by the manufacturer for the specific application. Bathroom windows shall be glazed with obscure glass. Upon completion all glass shall be free of cracks, rattles and be clean.
2. Exterior Doors: Door lights shall be insulated glass installed to be weather tight.
3. Glass Doors (Tub and Shower Enclosures): Glass in tub and shower enclosures shall be safety-tempered glass.
4. Storm Doors: Storm door glass shall be double-strength tempered safety glass.
5. Primary Windows: Complete window units and replacement window kits shall have a minimum of ½" insulated glass. Unless otherwise specified, replacement sash, glass and glazing shall match existing.
6. Storm Windows: Storm window glass shall be double-strength.
7. Replacement: Glass replacement shall include the removal of all broken glass, old putty, and debris from window sash. Unless otherwise specified, replacement glass and glazing shall match existing in type, style, thickness, and installation. Glass set in metal with glazing clips shall be back-puttied with putty appropriate for the purpose, or set in neoprene glazing bed. Glass set in wood shall be secured in place with glazing points and faced puttied. Glazing compound shall be a quality commercial non-lead brand.

SECTION 8D

WINDOW SCREENS AND FRAMES

1. **General:** Whenever window screens are specified, they shall be constructed and installed to match existing in material, fabrication, operation, hardware, and finish. If existing screens are not present, screen frames shall be constructed of 1 1/16" x 2 1/2" select clear kiln dried ponderosa pine. For screens exceeding 4'0" in either dimension, an intermediate member of the same size shall be installed. Frames shall be constructed with rabbeted joints to provide a square and rigid frame. Screen mesh shall be 16 x 18 heavy-duty aluminum tightly stretched and secured to frame. Mesh edge shall be concealed with 1/2" half round molding.
2. **Repair:** When repair of any window screen component is specified, it shall consist of ensuring that the component specified functions properly. Any damaged or deteriorated portion of the component shall be repaired or replaced.

SECTION 8E

AREA WELLS

1. **General:** The size of area wells required for egress shall be determined by applicable code requirements. The size of non-egress area wells shall be established by the width of the window and depth below grade. Width from foundation wall for non-egress area wells shall be 24" unless otherwise specified. The top of area wells shall be a minimum of 2" above grade. Area wells shall be securely fastened to the foundation wall at the top, bottom and intermediately. Area wells shall have a minimum of 8" of crushed stone the top of which shall be a minimum of 4" below window sill. Unless otherwise specified, area well covers shall be pre-manufactured. Metal grills shall be No. 9 gauge expanded metal with reinforced edge. Area well covers shall be secured and if used on egress window, shall be easily released. When the depth of the area well is greater than 44", a permanently-attached egress ladder shall be installed. When area well is constructed of wood, the ladder shall be wood; when constructed of metal, the ladder shall be metal. When constructed of masonry or concrete, the ladder may be wood or metal.
2. **Wood Area Wells:** When the width of area well exceeds 40", the area well shall be constructed of treated material 6" x 6" minimum. Corners furthest from the foundation wall shall be laced and corners adjacent to foundation wall shall be stacked. Number 4 rebars shall be driven continuously through all members to a depth of 24" below well bottom at all four corners. Posts adjacent to foundation wall shall be 2" x 4" minimum and anchored to foundation wall. When the width of area well is less than 40", the walls may be 2" x 6" material stacked on edge. Wall members shall be redwood or treated material. Posts furthest from foundation wall shall be 4" x 4" installed a minimum of 24" below well bottom. Posts adjacent to foundation wall shall be 2" x 4" minimum and anchored to foundation wall.
3. **Metal Area Wells:** Metal area wells shall be one-piece corrugated galvanized 20-gauge metal manufactured for this specific application.

SECTION 8F

CRAWL SPACE, CELLAR, BASEMENT, AND ATTIC ENTRIES

1. **Interior**: When the construction of a new interior crawl space, cellar, or attic entry is specified, it shall include cutting of opening, framing of opening, entry cover with hardware, trim, and finishes necessary for a complete, functional, and structurally-sound installation. Finishes shall match surrounding finishes.
2. **Exterior**: When the construction of a new exterior crawl space, cellar, or basement entry is specified, it shall include excavation, entry well, cutting of opening, framing of opening, entry cover or door unit with hardware, trim, flashing, and finishes necessary for a complete, functional, and structurally-sound installation. Construction of entry well shall include provisions for drainage.
3. **Ladders and Stairs**: When a ladder is specified, it shall be wood or metal and permanently fastened and structurally sound to provide safe access. When stairs are specified, they shall be constructed of wood or concrete and installed in compliance with all other requirements of these specifications.
4. **Repair**: When repair of any entry component is specified, it shall be returned to a like-new and structurally-sound condition. This shall include the repair or replacement of any associated hardware. Repairs shall include all material and methods necessary to achieve uniformity between new and existing materials.

DIVISION 9--FINISHES

SECTION 9A STUCCO

1. **General:** When stucco is specified, installation methods and materials used shall adhere to trade standards. All materials shall be products manufactured for the specific application. Finish stucco surfaces shall be true and uniform. Work shall include preparation necessary for existing work to receive and adjoin new work. Installation shall include wire lath, ties, and fasteners. Appropriate metal bead or stop shall be installed at all edges and corners. Expansion joints shall be placed to minimize stress within the stucco finish from structural movement. Stucco shall not be applied when temperature of surrounding air is below 40 degrees Fahrenheit and falling, unless precautions against freezing are provided.
2. **Repair of Existing Stucco:** When stucco repair is specified, work shall include the removal of damaged stucco. Repair shall include new lath and stucco to match adjoining work in finish texture and color.

SECTION 9B DRYWALL

1. **General:** When removal of existing wall or ceiling material is specified, all materials necessary to achieve a solid, sound surface for installation of new drywall shall be removed. When removal of existing wall material is specified on exterior walls prior to installation of new wallboard, exterior walls shall be insulated as required (see Division 7, Section 7D-3B). When removal of existing wall material is specified on walls where handrail brackets, grab bars, etc., are located, solid blocking shall be installed prior to installation of new drywall. Preparations for wallboard installation shall include all furring and shimming necessary to achieve a straight and plumb surface. Except for overlay installations, all new wallboard shall extend behind trim. Trim shall be tight to face of wallboard without damage or distortion to trim installation. Any drywall treatment, preparation, or installation specified in a given room shall include closets and pantries in or adjacent to this room unless otherwise specified. Fasteners of adequate length to penetrate framing members by a minimum of 3/4" shall be used. When overlay or new drywall is specified, unless otherwise specified, trim shall remain in place. When trim is to be removed and reinstalled, care shall be taken to avoid damage or scarring trim material. In the event a member is damaged, it shall be replaced with a like member. Trim shall be marked and identified for reinstallation in the same location. Reinstallation shall comply with requirements of Division 6, Section 6C. When trim is to remain, wallboard shall be cut to fit tightly against trim. When wallboard projects beyond trim, a transitional molding shall be installed to complement existing trim. When overlaying existing walls or ceilings, it is intended that the wall and ceiling materials will not be removed. However, if the Contractor elects to remove it, then it becomes his responsibility to comply with any additional requirements of the Building Code to include insulating exterior walls as required (see Appendix 4; Division 7, Section 7D; and Division 13, Section 13A). Drywall contractor shall protect adjacent areas, furnishings,

fixtures, electrical cover plates, finished hardware, heater covers, and grills from splattering, spillage, or damage during wallboard installation and from taping and texturing applications.

2. **Material:** Wallboard shall be ½" on walls and ceilings, with tapered edges unless otherwise specified. Wallboard installed in bathrooms shall be water-resistant. Type "X" fire-rated wallboard shall be installed where required by applicable codes. Nails or screws shall be treated to prevent rusting or spotting.
3. **Installation:** Care should be taken to stagger and minimize end joints. Wallboard shall be first applied to ceiling, then to walls. When both sides of partitions are to receive wallboard, joints on opposite sides shall be staggered. Wallboard shall be carefully fitted and sized prior to fastening in place. Edges and ends of wallboard shall occur on framing members, except those edges and ends which are perpendicular to the framing members. Electrical boxes and mechanical openings shall be flush with finished wallboard surface. Exposed exterior corners shall be protected with metal corner bead. Wallboard joints and inside corners shall be covered with a tape and compound designed for this specific purpose. Drywall compound shall be applied in accordance with the manufacturer's recommendations to include maintaining the minimum temperature during curing. Drywall application shall include the filling of all holes, gouges, and imperfections with drywall compound. Drywall work shall provide a true, even, smooth plane that when finished reveals no joints, fastener heads, or holes under normal lighting and viewing conditions. Texture shall be uniformly applied to the entire surface.
4. **Repair:** Repairing damaged areas shall include removing damaged material to framing on two opposite sides of damaged area and replacing with like material securely fastened to framing. Tape and finish to match adjacent surfaces and finishes with no visible signs of repair.

SECTION 9C

PAINTING

1. **General:**
 - A. **Material:** Paint materials shall be standard quality brands and fully suitable for the intended purpose. Paint materials shall be delivered to site in manufacturer's sealed containers with original labels. The printed instructions shall clearly identify the suitability of the material for the type of exposure, surface to be covered, and type of service to which paint will be subject. Special consideration shall be given to ensure that the new finish will adhere to and be compatible with the existing surface. The Contractor shall furnish the Owner with color samples and the color selected by the Owner shall be initialed by both parties and a copy provided to the HDF. No lead-based paint shall be used.
 - B. **Preparation:** All surfaces must be repaired, clean, and in a paintable condition prior to the start of any work. All new materials will be primed and have two finish coats applied. Painting contractor shall apply paint or finishes only to surfaces prepared in

accordance with this section. Painting or finishing of any surface by the painting contractor shall be considered acceptance that the surface preparation will provide for a first class job. Painting contractor shall protect vegetation, adjacent areas, and furnishings from splattering, spillage, or damage during painting. Contractor shall be responsible for paint removal or repair of damage to the Owner's satisfaction. Finish hardware, electrical cover plates, heater covers, and grills shall be removed prior to painting surrounding surfaces or otherwise protected. Painting contractor shall, after conferring with Owner, remove all abandoned hardware, including hooks, screws, nails, anchors, wire, etc. and set nails and fill holes. Painting contractor shall ensure that all surfaces to be finished are free of peeling, blistered, or crazed paint; foreign material; minor holes, cracks, or irregularities; and must be clean, smooth, and dry. Repair and patchwork shall be made with material appropriate for the specific application to achieve a sound repair. When preparing masonry for paint, remove any surface effervescence with a product designed for this purpose. Any area to be painted showing signs of mold or mildew shall be treated with a good fungicide and all areas shall be thoroughly dry before painting. Upon completion, the entire area shall be cleaned and left in a neat condition.

- C. Application: Each coat of paint shall be well brushed or rolled on, worked out evenly and allowed to dry before subsequent coat is applied. Finish work shall be uniform in color; smooth and free from defects; and smooth and free of brush marks, lap marks, bleeding, ghosting, and shadowing. Edges where paint adjoins other materials or colors shall be sharp and clean. New and previously-unpainted hardware, hardware accessories, electrical fixtures, switches, and receptacle and cover plates are not to be painted. Items of this nature previously painted shall be painted to match surrounding finish except when items are plated metal, in which case, old paint shall be removed. When doors are finished, top, bottom, and side edges shall be included. When windows are finished, bottom of lower sash rail and meeting faces of the meeting rails shall be included. The painting contractor shall verify in writing with the Owner which windows are not operable before painting and will not be responsible for making those windows operable. Failure to do so may require the painting contractor to make all windows operable. Windows that are operable before painting will be operable after painting. Bare wood shall be primed and painted, except that to be stained or clear sealed.

2. **Exterior:**

- A. General: Exterior painting shall be done only during favorable weather. Oil paint shall be applied when the temperature is above 40 degrees Fahrenheit, latex paint shall be applied when the temperature is above 50 degrees Fahrenheit and is expected to remain so for three hours after application. Temperature minimums shall be surface temperatures as well as air temperatures. Previously-painted windows, doors, and their trims are part of exterior painting, including those found behind storm windows or doors. Wood screen and storm window frames shall be included in exterior painting. If either is stored at the time, it is the Owner's responsibility to make them available to the Contractor. Previously-painted foundations, decks, concrete porches, and stoops shall be part of exterior painting. Natural finished items are not to be painted unless

specifically noted. When new gutters and downspouts are specified, the existing fascia and any new fascia shall be painted prior to installation of the new gutters. Exterior metal and plastic surfaces shall be painted, including railings, roof flashing, chimneys, chimney caps, and mechanical components. Exterior painting shall include as many as three different colors, as selected by Owner.

- B. Material: In addition to the requirements of Section 9C, 1, exterior paints shall have a minimum of 35% plus or minus 2% volume of solids for the paint.
- C. Preparation: Sanding, wire brushing, scraping, and power washing are acceptable methods of cleaning. Joints and seams shall be caulked prior to painting to achieve a weather-tight and smooth finish. Loose or deteriorated putty, including points, for sash shall be replaced.

3. **Interior**:

- A. General: Finishes specified in a particular room shall extend into any new and existing closet, built in cabinets or pantry located in or adjacent to that room. Walls, ceilings, and previously painted doors, windows, trim, and shelving shall be included. Natural finished items are not to be painted unless specifically noted. Cabinet doors, and drawers shall be closeable and operable after painting. Interior painting shall include as many as two different colors per room as selected by Owner to a maximum of six colors for the entire interior.
- B. Material: In addition to the requirements of Section 9C, 1, interior paints shall have a minimum of 30% plus or minus 2% volume of solids for the paint. Finishes used in kitchens, baths, and utility areas shall be durable and washable.
- C. Preparation: It is not intended that wood surfaces scheduled for refinishing or painting be completely stripped down to bare wood. Rather, it is intended that scratches and other surface blemishes be treated so as to make them unnoticeable. When wallpaper exists on a surface that is to be painted, it shall be the responsibility of the general contractor to determine the appropriate preparation so that the final finish is in compliance with all requirements of this Section.

- 4. **Cabinets**: Peeling, blistered, or crazed paint shall be removed. Preparation of cabinet surfaces shall include filling of all voids, holes, cracks, surface irregularities, and unevenness of existing paints so as to be unnoticeable after final finish is applied. Special attention shall be given to the removal of grease, mildew, and other foreign matter unique to kitchen and bath locations. When cabinets are finished, interior, shelves, doors, and drawers shall be included. Wall cabinet tops, when there is no soffit, bottoms and exposed ends, including stove and refrigerator cavities, shall be included. When cabinet doors or drawers are finished, all surfaces inside and out shall be included. After refinishing all cabinet doors and drawers shall operate smoothly, easily, and close tight.
- 5. **Gutters, Downspouts, Flashing, Vents and Metal Railings**: New metals not previously painted shall be primed with a rust-preventing metal primer manufactured for the specific application. Previously-painted metals shall be spot primed where necessary. Finish shall inhibit rust and be manufactured for the specific application.

SECTION 9D

WALL COVERING (CERAMIC TILE AND WALLPAPER)

1. **General:** All surfaces to be covered shall be clean, smooth, and free of foreign material, holes, cracks, and irregularities and must be dry. Adjacent areas and furnishings shall be protected from splattering, spillage or damage during installation.
2. **Ceramic Wall Tile:**
 - A. **Preparation:** Existing walls shall be treated with a water-resistant sealant designed specifically for this purpose.
 - B. **Material:** Tile and grout shall be suitable for the area and application. Adhesives and other application materials shall be those recommended specifically by the manufacturer of the tile. Tile allowance shall include the retail cost of the tile only. Tile will be installed on properly-installed cement-based backer board.
 - C. **Installation:** Where possible, lay out work so that no tile less than 1/2 size occurs. The adhesive shall be applied to the entire surface to be tiled with a notched spreader blade. Tile shall be set by "floating method"; surface of tiles shall be flush. In shower area height of last course of tile shall extend a minimum of one full tile above showerhead. Tile shall extend into window recesses (sill and sides) at same height as wall tile. Tile installations shall be trimmed with tile specifically designed for the application. Joints shall be uniform, shall align vertically and horizontally and be plumb and level. Tile joints shall be filled with white grout unless otherwise specified. Joints between tub and tile and between tile and any dissimilar material shall be sealed with a tub and tile sealant. Joints shall be sponged and tooled.
 - D. **Repair:** When repairing an existing tile wall, remove all cracked, loose, chipped, or otherwise defective tile. Repair sub-surface wall material as necessary to provide a smooth and water-resistant surface for installation of replacement tile. New tile being installed next to existing tile shall match existing as closely as possible in size, color, texture and glaze. Existing tile may be cleaned and reused when feasible. When repairing and sealing grout, remove all loose and deteriorated grout and sealant prior to installing new. Installation shall conform to all requirements of this section.
3. **Wallpaper:**
 - A. **Preparation:** Existing surfaces shall be prepared to ensure that the seams or any other features of any existing wall covering will not be visible through new covering. Sealant shall be applied as recommended specifically by the manufacturer of the wall covering. Surfaces shall be coated with sizing as recommended by the manufacturer of the wall covering. Special consideration shall be given to ensure the new covering will adhere to and not affect the stability of the existing surface.
 - B. **Material:** The type of paper used shall be suitable for the area and application. Wall covering allowance shall include the retail cost of covering only.
 - C. **Installation:** Wall covering surface shall be smooth, tight, and free of bubbles. Paper shall be plumb with seam type recommended by the manufacturer. Abutting seams shall be tight and patterns shall align. Edges shall be fitted tightly against all trim. Edges where wall covering adjoins other material or finishes shall be sharp and clean.

Wallpaper shall be installed behind all wall and ceiling accessories (grills, cover plates, fixtures, etc.).

- D. Repair: Repair of wallpaper surfaces shall consist of adhering wallpaper with product specifically designed for this purpose.

SECTION 9E FLOOR COVERINGS AND FINISHES

1. **General**: Flooring contractor shall install finish flooring materials only to surfaces prepared in accordance with the requirements of the finish material manufacturer. The placement of any finish flooring materials shall indicate the acceptance of the surface and compliance with all requirements of this section by the installer. When adhesives are used, they shall be designed for the specific application. Installation of floor coverings shall be accomplished by a skilled craftsperson. Prior to installation over concrete, all cracks, depressions, and voids shall be filled or repaired. Where leveling is required, a product designed specifically for this purpose shall be used. Concrete surface shall be sealed with a sealant designed for this application prior to installation of floor covering. Floor surfaces to receive underlayment or finish floor covering shall be dry, smooth, and clean. Floor coverings and finishes specified in a particular room shall extend into any new and existing closet or pantry located in or adjacent to the room. Floor coverings shall be cut evenly and close fitting at walls and all projections and seams shall be held to a minimum. Avoid seams in high traffic areas. Floor coverings shall be installed so that patterns align in both directions. Fill strips shall not be less than 9" in width or less than 36" in length. The transition between rooms with different floor finishes shall occur at the center of the opening or the door when the door is in the closed position. When new finish floors are specified, installation shall include trimming bottoms of existing doors that are to remain to clear new finish floor. The Contractor shall be responsible for keeping the new floor covering clean and protected from stains and all other damage until acceptance by Owner or final inspection. Patching of damaged vinyl is not acceptable. The General Contractor shall ensure care instructions for products installed are provided to the Owner.
2. **Vinyl**:
 - A. **Material**: Vinyl allowance shall include the retail cost of vinyl floor covering only.
 - (1) **Vinyl Sheet Goods**: Shall be of a reputable manufacturer and meet minimum FHA standard.
 - (2) **Base**: Rubber, vinyl, or wood.
 - (3) **Stair Nosing**: Aluminum, vinyl, or rubber.
 - B. **Installation**: Vinyl installations, except when over concrete, shall include underlayment. Existing base shoe shall be removed prior to installation of vinyl. Water closet shall be removed prior to installation of vinyl. When reinstalling water closet, a new bowl wax seal shall be installed. Seams shall be tight, straight, uniform, and welded watertight using manufacturer's seam sealer. Vinyl shall be fitted tight and sealed at tub and around all floor penetrations to be watertight. Transition from one floor covering type to another shall be made using a molding product designed for the specific materials and conditions. The vinyl installation shall include all necessary trim items including

pipe escutcheons for a complete and professional installation. Installation of vinyl floor covering on stairs shall include a nosing trim specifically designed for this purpose. Tread and risers shall be one piece with no exposed edges. Rubber and vinyl base shall be continuous between corners, and all interior and exterior corners shall be premolded. For wood baseboard or base shoe installation, see Division 6, Section 6C. After floor has set sufficiently to become seated, clean with a neutral cleaner recommended by manufacturer. Floors and rubber base shall be left clean, smooth, and free from air pockets, buckles, cracks, and exposed edges.

- C. **Repair:** Vinyl repairs shall be made using manufacturer's recommended products and procedures. Finish repair shall be smooth, even, and impervious to water. Any additional vinyl required for repair shall match all characteristics of existing vinyl and pattern shall align.

3. **Carpet:**

- A. **Material:** Carpet allowance shall include the retail cost of carpet only.

- (1) Wool, acrylic, or modacrylic pile carpet shall be 25 ounces per square yard minimum.
- (2) 100% nylon pile carpet shall be 20 ounces per square yard minimum.
- (3) Pad shall be 1/2" pad, 5 pound, rebond minimum, unless otherwise specified.
- (4) Bath and kitchen carpet shall be water resistant designed for this use and shall be installed over flooring impervious to water.

- B. **Installation:** Base shoe shall be removed prior to installation of carpet. Surface of base exposed after removal of base shoe shall be finished to match adjacent surface. Installation shall be in accordance with carpet industry practices and standards. Finished carpet installation shall be free of scallops and puckers. Fasten tack strips to the floor by the most appropriate method to give permanent holding qualities. Lay pad in the largest possible lengths and widths using the minimum number of sections and lay flat without bubbles or wrinkles. Bond pad to concrete and staple to wood floors. Lay out the pad so that seams do not fall directly under the carpet seams. Tape pad seams where necessary to ensure seams remain tight. Make carpet seams uniform, unnoticeable, and permanent by the method appropriate for the type of carpet and in accordance with industry practices and standards. Treat all joining edges, regardless of seaming method, with a seam adhesive. Seams must have a minimum breaking strength of 100 pounds per inch and must be capable of withstanding all carpet cleaning processes. Products used in the seaming process shall be appropriate for the application. After installation, remove all debris, moldings, scraps, and other foreign matter. Remove any soiled spots or adhesive from the face of the carpet with the appropriate spot remover recommended by the carpet manufacturer. Remove all loose threads and vacuum carpeting.

- 4. **Underlayment:** Unless otherwise specified, 1/4" material (Luan plywood, AC plywood, waferboard, or fiber reinforced gypsum underlayment) designed and stamped for use as underlayment shall be installed.

5. **Wood Flooring (Repair and Refinishing):**

- A. **Repair:** When patching or replacing flooring, material and installation shall match existing. Where patch is more than two boards wide, the end joints shall be staggered a minimum of 4". Sand patched area and feather into existing flooring. Stain and finish new sections of flooring to match existing.
- B. **Refinish:** Remove base shoe with care prior to sanding; save for reinstallation. Reinstall base shoe after flooring has been refinished. Reinstall base shoe, and if damaged, provide new base shoe and refinish to match existing removed (see Division 6, Section 6C). Re-nail all loose flooring, set nails, and fill all holes with a product specifically designed for this purpose. Floor surface shall be machine sanded with appropriate-grit paper to achieve a smooth uniform surface. When machine sanding is impossible, hand sand to achieve a smooth, even surface. A minimum amount of wood surface shall be removed. Apply wood filler to floor surface with a product designed for this purpose. Apply a minimum of two coats of polyurethane floor finish. When floors are to be stained, apply stain evenly.

SECTION 9F PLASTER REPAIR

General: Properly prepare the area to receive patching plaster. Proper preparation shall include the removal of loose or damaged plaster cut out to clean, sharp edges to solid lath material. The areas to be patched shall be filled by one of the following methods.

- 1. **Wallboard Method:** Areas to be patched shall be filled with a thickness of wallboard that will allow the finish plaster coat to match the adjoining surface in plane, finish, and texture. The wallboard shall be securely fastened to a solid backing.
- 2. **Plastering Method:** Surfaces to be patched shall be dampened immediately before application of the new three-coat wet plaster; all surfaces shall be smooth and free of bulges and match the adjoining surface in plane, finish, and texture.

DIVISION 10--SPECIALTIES

SECTION 10A FOUNDATION AND ATTIC VENTS

1. **General:** When openings for vents are constructed, care shall be taken to avoid unnecessary damage to adjacent components.
2. **Foundation Vents:** Foundation vents shall have a means of closing and shall be screened with corrosion-resistant wire mesh. Vents shall not be placed in close proximity to existing or new plumbing, gas meters, or furnace intake vents. Vents shall be standard quality brands designed for the specific application.
3. **Attic Vents:** Attic vents specified shall be screened with corrosive resistant wire mesh and shall provide protection against entrance of rain or snow. Vents shall be standard quality brands designed for the specific application.

SECTION 10B MEDICINE CABINETS AND BATH ACCESSORIES

1. **General:** Medicine cabinet and bath accessories shall be installed level and securely anchored using manufacturer's hardware at standard heights, unless otherwise requested by Owner. When installed over sink, medicine cabinet shall be centered above sink. Locations of accessories shall be coordinated with Owner. When "all" bath accessories are specified, the following shall be provided:
 - A. Two towel bars; one 24", one 30"
 - B. One paper dispenser
 - C. One shower rod (not required with glass enclosure)
 - D. One soap dish
 - E. When tilted extension mirror is specified, location shall be coordinated with Owner and HDF.
2. **Repair:** When repair of medicine cabinet or bath accessory is specified, repair shall restore item to its original appearance and operation and be securely anchored.

SECTION 10C HOUSE NUMBERS

When new house numbers are specified, they shall be a minimum of 5" in height, made of black- or brass-finished metal and be securely fastened with screws or nails supplied by the manufacturer.

SECTION 10D SIGNAGE AND MAIL BOXES

All signage shall be legible, include all required information, and be in good repair. When a mail box is specified, it shall be U. S. Postal-approved and if post is provided, post may be wood or

metal and shall include a platform for securing the mail box. Post shall be set in concrete and mail box shall be installed according to U. S. Postal Service requirements.

SECTION 10E GRAB BARS

When grab bars are specified, all mounting holes shall be used and each screw shall be securely anchored in solid backing. If solid backing does not exist, installation shall include the removal of existing wall or ceiling covering, installation of solid backing securely anchored to wall or ceiling framing, and the replacement of wall or ceiling finishes to original condition. Heights and locations shall be coordinated with the Owner and the HDF. Horizontal bars shall be installed level and all vertical bars shall be plumb unless otherwise specified.

DIVISION 11--EQUIPMENT

SECTION 11A APPLIANCES

1. **General**: Appliances shall be delivered to site in manufacturer's containers and protected during construction. The Contractor shall be responsible for furnishing appliances in proper operating condition and without any defects or damages including the finish. The Contractor shall provide to the Owner operation instructions, guarantees, and warranty certificates for the furnished appliances. The energy-rating label shall remain on all appliances. When relocation of existing appliances is specified, installation requirements of this Section shall be adhered to except that the requirements for all features to operate faultlessly shall apply only to those features operating prior to relocation. The Contractor shall reconnect existing appliances temporarily removed during construction.
2. **Installation**: The Contractor shall be responsible for constructing openings for built-in appliances. The installation of appliances shall include all mechanical, electrical, and plumbing service connections necessary for all features of the appliance to function properly. When new connections are required, they shall be installed behind the appliance and out of sight. Existing connections may be used if applicable code requirements are met (see Divisions 15 and 16). The Contractor shall check and make all necessary adjustments to ensure that installed appliances and features operate faultlessly. Range, refrigerator, and dishwasher shall be installed level. Installation of garbage disposal shall include wall switch above counter top backsplash.
3. **Reconditioning Range, Refrigerator, and Dishwasher**:
 - A. Reconditioning of appliances shall include assuring the proper operation of all controls, motors, and the functions of all accessories and components. Unit shall be cleaned.
 - B. Cleaning of appliances shall include the removal of all grease, oil, dirt, dust, and debris from all finishes, elements, and components of the appliance.
4. **Appliance Refinishing**: Refinishing kitchen appliances shall be accomplished by a subcontractor recognized as a professional in this type of refinishing and using products designed specifically for this application.

DIVISION 12--FURNISHINGS

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DIVISION 13--SPECIAL CONSTRUCTION

SECTION 13A HAZARDOUS MATERIALS (LEAD-BASED PAINT AND ASBESTOS-CONTAINING MATERIALS)

1. **Lead-Based Paint:** The requirements of State and federal regulations must be complied with when performing any work involving lead-based paint, including but not limited to the following activities.
 - A. **Disclosure**

A seller or lessor of target housing shall disclose to the purchaser or lessee the presence of any known lead-based paint and/or lead-based paint hazards.
 - B. **Acquisition and Federal Rehab Assistance**

In projects that are part of federally-assisted acquisition and rehabilitation, the grantee or PJ shall provide the lead hazard information pamphlet in accordance with section 35.130. Lead-based paint requirements for rehabilitation fall into three categories that depend on the amount of federal assistance provided. The three categories are: (1) assistance of up to and including \$5,000 per unit; (2) assistance of more than \$5,000 up to and including \$25,000 per unit; and (3) assistance of more than \$25,000 per unit. The type of lead-based evaluation and hazard reduction requirements is dependent on the amount of federal assistance provided per unit.
 - C. **Lead-Safe Work Practices**

Qualified Bidders: Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips by disturbing lead-based paint, which can be harmful to adults and children. To protect against this risk, the EPA requires all contractors or firms performing renovation, repair, and painting projects that disturb lead-based paint in pre-1978 homes, child care facilities, and schools be certified by EPA and that they use certified renovators who are trained by EPA-approved training providers to follow lead-safe work practices. Individuals can become certified renovators by taking an eight-hour training course from an EPA-approved training provider. Only these General Contractors who have completed a State-approved **LEAD-SAFE RENOVATOR TRAINING PROGRAM** or are licensed by the State Health Department as **LEAD ABATEMENT CONTRACTORS** are recommended to bid on HDF rehabilitation projects.
 - D. **Lead-Based Paint Removal/Abatement**

Qualified Bidders: Only General Contractors licensed by the State Health Department as **LEAD ABATEMENT CONTRACTORS** and that have been approved by the HDF.

 - (1) The lead abatement contractor will be responsible for ensuring his/her supervisors and workers attend appropriate training and hold the appropriate State licenses.
 - (2) It is the responsibility of the General Contractor to ensure that proof of the aforementioned training and licensing is provided to the HDF for the Owner and his/her workers.

- (3) When lead-based paint is to be removed from building component surfaces, the component shall remain in place when accomplishing the removal.
- E. The HDF requires that all units constructed prior to 1978 must be tested for lead-based paint that utilizes federal funding for rehabilitation.
- 2. **Asbestos-Containing Materials:** Asbestos-containing materials shall be handled and disposed of in accordance with State and Federal Regulations.
 - A. The National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations under the Clean Air Act specify work practices to be followed during demolition and renovation of all structures.
 - B. The West Virginia Department of Environmental Protection requires an asbestos inspection prior to any proposed renovation and demolition activities. The Department of Health and Human Resources (64 CSR 63) and the Division of Air Quality (45 CSR 15) regulates the abatement and disposal of asbestos-containing materials, renovation operations, and demolition activities in West Virginia.

SECTION 13B AIR QUALITY

The site and dwelling units must be free of air pollutant levels that threaten the occupants' health. The dwelling unit must be free from dangerous levels of carbon monoxide, sewer gas, fuel gas, dust, mold, and other harmful pollutants. Adequate air circulation is required in the dwelling unit.

SECTION 13C PEST CONTROL (ROACHES, TERMITES, AND VERMIN)

- 1. **Roaches:** When roach treatment is specified, it shall be accomplished by a professional exterminator company licensed to perform this type of service. Type and kind of treatment shall be determined by the professional exterminator. The Contractor shall be responsible for the initial treatment and any recommended follow-up shall be the responsibility of the Owner.
- 2. **Termites:** When termite treatment is specified, it shall be accomplished by a professional exterminator company licensed to perform this type of service. Type and kind of treatment shall be determined by the professional exterminator. The Contractor shall be responsible for the initial treatment and any recommended follow-up shall be the responsibility of the Owner.

It shall be the responsibility of the Contractor to repair or replace any damaged components caused by the treatment for termites.

- 3. **Vermin:** Any unit must be free of rodents and heavy accumulations of trash, garbage, or other debris that may harbor vermin. The unit must contain adequate barriers to prevent infestation.

SECTION 13D FIRE ALARM SYSTEM, CARBON MONOXIDE, AND EMERGENCY POWER

When fire alarm and smoke detectors are specified, they must be installed according to the Building Code. (See Division 16, Section 16B and 16C). If a hearing-impaired person is present, the smoke detectors must have an alarm for hearing-impaired persons as specified in NFPA 74. If fuel-burning appliances are provided in a dwelling unit, carbon monoxide detectors are required to be installed based on the manufacturer's recommendations. When fire sprinklers, emergency lighting, and exit signs are specified, they must be installed according to the appropriate building code. If emergency power is provided, it must be sized accordingly, operate all necessary equipment, and be installed according to the building code.

SECTION 13E FIRE PROTECTION SYSTEM

New one- and two-family dwellings over one level in height, new one- and two-family dwellings containing a basement, and new one- and two-family dwellings containing a crawl space with a fuel-burning appliance below the first floor shall provide one of the following methods for fire protection of floors: (1) a ½" gypsum wallboard membrane, 5/8" wood structural panel membrane, or equivalent on the underside of the floor framing member; (2) wood floor assemblies using dimension lumber or structural composite lumber equal or greater than 2" x 10" nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance; or (3) an automatic fire sprinkler system as set forth in section R313.2 of the 2009 International Residential Code for One- and Two-Family Dwellings. All new windows installed must meet the fire egress requirements noted in the building code.

SECTION 13F STORED FLAMMABLE MATERIALS

Flammable materials, including paint, solvent fluids, paper, gas, etc., shall not be stored or accumulated in an unsafe or unapproved manner in any dwelling unit or on site.

SECTION 13G ACCESSIBILITY

1. **Section 504 (24 CFR 8)**: The requirements of the federal regulations must be complied with when performing any work involving the new construction or alterations of existing multifamily housing.
 - A. New multifamily housing consisting of five or more units must be designed and constructed to be readily usable by persons with disabilities.
 - (1) A minimum of 5% of the dwelling units in the project must be accessible to individuals with mobility impairments. An additional 2% of the dwelling units must be accessible to individual with sensory impairments.
 - (2) The construction standard for all accessibility requirements is the Uniform Federal Accessibility Standard.
 - B. Rehabilitation indicates that if alterations are undertaken to a housing project that has 15 or more units, and the rehabilitation costs will be 75% or more of the replacement

cost of the completed project, then such projects are considered to have undergone “substantial alterations” are subject to the accessibility requirements noted in (1) for new construction above.

The construction standard for all accessibility requirements is the Uniform Federal Accessibility Standard.

2. **Americans with Disabilities Act (24 CFR 35 & 36)**: The requirements of the federal regulations must be complied with when performing any work involving the new construction or alterations of existing multifamily housing.
 - A. When public areas are altered in multifamily projects constructed on or before January 26, 1993, they must be altered in accordance with the 2010 ADA standards.
 - B. Public areas must be designed and constructed in accordance with the 2010 ADA standards in multifamily projects constructed after January 26, 1993.
3. **Fair Housing Act (24 CFR 100.205)**: The requirements of the federal regulations must be complied with when performing any work involving the new construction or alterations of existing multifamily housing.

All multifamily housing projects constructed after March 13, 1993, must comply with the seven design standards noted below:

- (1) an accessible entrance on an accessible route;
- (2) accessible public and common use areas;
- (3) usable doors;
- (4) accessible routes into and through the dwelling unit;
- (5) accessible light switches, electrical outlets, and environmental controls;
- (6) reinforced bathroom walls for grab bars, and
- (7) usable kitchens and bathrooms.

SECTION 13H DISASTER MITIGATION

These standards require housing to be improved to mitigate any potential impacts from potential disasters, such as earthquakes, hurricanes, floods, and wildfires. Improved housing must comply with State or local codes, ordinances, and any other HUD requirements. Currently new projects located in a flood hazard area will not be funded and any type of rehabilitation of existing units must comply with any State and local flood mitigation plans. The State Building Code does not require any type of wildfire, seismic, or high wind requirements for the construction of new units in West Virginia; therefore, disaster mitigation for these items are not expected. Any potential wind or storm damage to units is typically covered by homeowner’s insurance. Any other potential disaster issues will be mitigated as necessary.

SECTION 13I MANUFACTURED HOUSING

1. Construction standards for new manufactured housing units must comply with 24 CFR 32890, 24 CFR 3282, and 24 CFR 8385.

2. All manufactured housing must be installed on a permanent foundation.
3. All manufactured housing must be properly tied down.
4. All road transport accessories, such as wheel and hitching devices, must be removed.

DIVISION 14--CONVEYING SYSTEMS

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DIVISION 15--MECHANICAL

SECTION 15A GENERAL REQUIREMENTS

Equipment shall be designed for the intended applications. Equipment and items installed under this section shall operate safely without leakage, undue noise, vibration, or corrosion. Equipment shall bear a permanent and legible factory-applied nameplate to permit identification of manufacturer, model number, and type of unit. In addition, all units shall have the energy guide label approved by the Federal Trade Commission. A furnace, boiler, or water heater supported from the ground shall rest on a 4" concrete slab extending not less than 3" above the adjoining ground level. Cutting, drilling, and refinishing necessary for the proper execution of all work under this division shall be the responsibility of the Contractor. When damage to framing or structural members occurs as a result of the work, the damaged members shall be reinforced to achieve the strength and load bearing capacity of the original member. Match existing materials in size, style, and finish, including decorative and ornamental moldings. Repairs shall include all materials and methods necessary to achieve uniformity between new and existing members. Repairs shall meet all building code requirements. When a mechanical pit is specified, it shall include a concrete floor with concrete block walls constructed in accordance with drawings. If the walls exceed 44" in height, there shall be a ladder installed as part of this installation. When work under this Section results in abandoned utilities or mechanical components, see Division 2, Sections 2I and 2J.

SECTION 15B PLUMBING

1. General:

- A. Newly-installed piping shall be concealed in walls, ceilings, and floors unless passing through spaces not intended to be finished. In unfinished basements, piping locations shall be coordinated with the Owner to ensure piping will be concealed by future construction.
- B. Whenever possible, water pipes shall not be installed in outside walls, ventilated attics, or locations where freezing may occur. When it is necessary to install water pipes in these areas, they must be protected from freezing.
- C. Copper pipe connected to galvanized pipe shall be installed with dielectric connectors.
- D. Sill cocks shall be frost-free, anti-siphon, and installed a minimum of 10" above finish grade unless otherwise approved by the Owner. Installation in new location shall include water supply line.
- E. When a plumbing line is repaired, it shall be made fully functional using like materials. Damage, voids, and holes created as a result of work required under this Section shall be professionally repaired and refinished to eliminate all evidence of said work.
- F. Whenever possible, replace galvanized water piping still in service.

2. **Service Lines (Sewer, Water and Gas):**

- A. **Excavation:** Excavation requirements shall apply to the installation of all service lines. Contractor shall be responsible for the location of all underground services to the property. Excavation shall conform to all local, State, and federal requirements. Any damage or loss resulting from excavating activities shall be corrected at the expense of the Contractor. This includes, but is not limited to, sidewalks, driveways, fencing, and retaining walls. Excavation of trenches shall not undermine or disturb the stability of the building foundation. Excavated trenches shall run in a straight line and provide continuous support for piping along its full length. Trenches shall be back filled evenly using acceptable fill material and thoroughly compacted (see Division 2, Section 2M).
- B. **New Sewer Line:** When a new sewer line is specified, it shall be installed from the sewer main to inside the structure foundation. Foundation opening around the pipe shall be sealed to be watertight. Installation shall include exterior clean out and the location to be approved by Owner. When a new sewer line is specified and a grease trap is an active part of the sewer system, the grease trap will be bypassed. When a grease trap is to be bypassed, the cover shall be removed and the grease trap shall be cleaned and filled with sand. Every sewer line abandoned as a result of work by the Contractor shall be plugged or capped outside the foundation wall. Foundation openings abandoned as a result of the Contractor's work shall be plugged and sealed to be watertight.
- C. **Sewer Line Repair:** When repair of a sewer line is specified, the location of blockage or damage shall be determined by the Contractor. Information related to prior efforts to clear the line and likely location of blockage or damage may be available from Owner. Blockage or damage shall be removed by whatever means necessary. If this requires excavation and repair of sewer line, work shall comply with all requirements of this section.
- D. **Sewer Line Cleaning:** When the sewer line is to be cleaned, it shall be cleaned from the blockage to the main.
- E. **New Water Service Line:** When a new water service line is specified, it shall be installed from the water main to meter located inside dwelling. Existing exterior meters shall be relocated to interior of dwelling with exterior remote counter. Location of both shall be coordinated with Owner. Work shall include the reinstallation of curb stop valve and box. Water service lines shall be of a design and size to meet applicable code requirements.
- F. **Water Service Line Repair:** Repair of line and components shall be accomplished to achieve strengths and durability necessary to prevent leakage and maintain existing water flow. Work shall comply with applicable requirements of this Section.
- G. **Water Meter Relocation:** When a water meter is to be relocated, the new location shall be coordinated with Owner.
- H. **New Gas Service Line (when no service exists):** When a new gas service line is specified, it shall be installed from gas main to meter. Contractor shall be responsible for installation from meter to property line and for coordinating the installation from property line to gas main with the utility company. Location of gas meter shall be coordinated with Owner.

- I. Gas Service Line Replacement: When an existing gas service line is abandoned, installation requirements of Section 15B, Paragraph 2H, F shall apply. When existing gas service line is to be used as a conduit for the replacement line, the replacement line shall be installed from the gas main to meter. Meter may remain in existing location, except that meters located within structure shall be relocated to exterior. New location shall be coordinated with Owner.
 - J. Gas Meter Relocation: When a gas meter is to be relocated, new location shall be coordinated with Owner.
3. **Building Lines (Drains/Vents, Water, Gas):**
- A. Drains/Vents: When a new fixture drain line is specified, it shall be from fixture to rough plumbing connection. When drain line is exposed, it shall be chrome finished. When replacement of all drain lines is specified, new lines shall be installed from inside of foundation to all fixtures and shall include fixture traps. When replacement of the entire drain/vent system is specified, replacement shall include all new drains from inside of foundation to all fixtures, including fixture traps and vents from all fixture drains through roof. When installing or replacing a portion of the drain/vent system is specified, new material shall be connected to existing with approved methods. When repair of drain/vent line is specified, repair shall achieve strength, durability, and flow of the original line.
 - B. Water Lines: When replacement of all water supply lines is specified, new lines shall be installed from inside foundation wall, or from meter when located inside dwelling, to all existing and proposed fixtures, faucets, and mechanical equipment requiring water supply. For fixtures with shut-off valves, new valves and supply lines from valves to faucet shall be installed. New shut-off valves shall be installed symmetrically at the center line of the fixture. New water supply lines may be copper or plastic and must comply with the International Plumbing Code. When new fixture supply lines are specified, installation shall be from fixture to shut-off valve. When new fixture supply lines are specified without shut-off valves, installation shall be from the fixture to rough connection. When repair of a water supply line is specified, repair shall achieve strength, durability, and flow of original line.
 - C. Gas Lines: When replacement of existing or installation of new gas supply line is specified, new line shall be installed from nearest properly-sized supply line to appliance or equipment. Shut-off and flexible connector shall not be visible upon final installation of dryer or stove in finished areas. When repair of a gas supply line is specified, repair shall achieve strength, durability, and flow of original line.
4. **Fixtures:**
- A. General: Plumbing fixtures shall be delivered to site in manufacturer's containers and protected during construction. Fixtures and plumbing accessories shall be new and installed according to all applicable plumbing codes. Fixtures installed in a new location shall include supply lines, drains, and vents. Sinks installed in cabinets shall have chrome-finished or copper supply lines; and new chrome-finished brass shut off valves. Escutcheons shall be installed where plumbing lines pass through walls or floors of

cabinets. Fixtures with exposed supply lines shall have chrome-finished risers and new chrome-finished brass shut-off valves. Valves shall be installed at floor or wall with escutcheons so that only valves and risers are exposed. Shut-off valves are not required on claw foot tub installations. Drains and supply lines for claw foot tubs shall be chrome-finished above floor line. Fixtures with exposed drain lines shall have chrome-finished P-traps and drain pipes. When existing fixtures with lead traps or drains are replaced, lead shall be replaced with PVC or ABS plastic. When a fixture component is to be replaced, it shall be of like-quality and design of original, unless otherwise specified, and shall be installed and adjusted to operate properly. When a faucet is to be repaired, the repair shall return the faucet to its original operation.

- B. Water Closets: When a new water closet is specified, it shall consist of bowl, tank, and cover constructed of vitreous china with seat and lid properly sized to fit water closet. It shall be installed with new wax ring sleeve and securely fastened with bolts and caps specifically designed for this application.
- C. Sinks: New kitchen sinks shall be stainless steel, porcelain enamel over steel, or porcelain over cast iron with a minimum depth of 8" and basket strainer(s). When a kitchen sink and faucet installation is specified, it shall include sink, sink basket strainer(s), P-trap, chrome faucet with spray (unless otherwise specified), and supply lines. New bath sinks shall be vitreous china, cultured marble, onyx, and porcelain enamel over steel or porcelain over cast iron, with waste pop-up and pop-up lever. When a bath sink and faucet installation is specified, it shall include sink, faucet with pop-up, P-trap, chrome faucet, and supply lines. Sinks are to be secured to countertop with appropriate sink fasteners and shall not be installed on post formed edge of countertops. Perimeter of sink rim shall be sealed with plumber's putty and all excess putty removed. Before installation of wall-hung sinks, the Contractor shall ensure that a minimum of 2" x 6" blocking is installed in the wall. Brackets specifically designed for the support of the sink shall be installed. When the sink design provides for support leg installation, chrome-finished support legs specifically designed for this application shall be installed.
- D. Tubs: New tubs shall be 14" minimum in height, porcelain enamel over steel, porcelain over cast iron, or fiberglass, with complete bathtub waste assembly and P-trap. Tubs shall have a slip-resistant surface unless otherwise specified. Tub shall be set level and supported at floor and wall. When a tub faucet is specified, it shall consist of valve(s) and spigots. When a combination tub/shower faucet is specified, it shall consist of valve(s), spigot, and shower head. Valves, spigots, and shower heads shall be chrome unless otherwise specified.
- E. Showers: New shower bases shall be fiberglass, plastic, or concrete with Coloroy membrane liner and ceramic finish. Complete shower base shall include waste assembly and P-trap. When a shower faucet is specified, it shall consist of valve(s) and shower head. Shower head shall be chrome finished unless otherwise specified. Shower wall finishes shall be as specified and installed according to the manufacturer's installation instruction. Shower bases shall be set level.

- F. Washer Drip Pan: New washer drip pan installation shall consist of a drip pan designed for this application, flush mounted in wall with finish trim, supply valves, and all piping and connections to building supply, drain, and vent systems.

5. **Water Heaters**:

- A. General: Water heaters shall be American Gas Association certified or UL listed and have a five-year limited warranty tank.
- B. Gas Fired: New gas-fired water heater in a new location shall include all venting flues, gas supply lines and connections, water lines and connections, gas and water shut off valves, T&P valve with drip leg, and combustion air supply. When a new gas-fired water heater is specified to replace an existing water heater in same location, it shall include gas and water connections and T&P valve with drip leg. Installation shall include the inspection of all existing venting flues, gas and water piping and valves, and combustion air supply. If necessary to meet applicable codes, the replacement or repair of these items shall be included. When a new gas line connection from water heater to shut off is specified, it may be rigid or approved flexible gas line.
- C. Electric: When a new electric water heater is specified in a new location, it shall include water line connections and valves, wiring and connections, and T&P valve with drip leg. When a new electric water heater is specified to replace an existing water heater in same location, it shall include water line connections, electrical connections, and T&P valve with drip leg. Installation shall include the inspection of all existing related wiring, water piping, and valves. If necessary to meet applicable codes, the replacement or repair of these items shall be included.

SECTION 15C PLUMBING FIXTURE REFINISHING

Refinishing of plumbing fixtures shall be accomplished by a subcontractor recognized as a professional in this type of refinishing and using products designed specifically for this application.

SECTION 15D PLUMBING

1. **Barrier-Free Water Closet**: For installation, see Division 15, Sections 15A and 15B.
2. **Barrier-Free Lavatory**: For installation, see Division 15, Sections 15A and 15B.
3. **Job-Built Barrier-Free Showers**: See Work Write-Up and Division 15, Sections 15A and 15B.
 - A. When a barrier-free shower is specified, it shall include:
 - (1) Installation of a roll-in shower base to include relocating the existing floor drain or installation of new floor drain and vent as applicable.
 - (2) When a pre-manufactured base is specified, it shall be manufactured by a recognized firm and be designed for the specific application. Base shall include pre-manufactured transition ramp designed for this application and constructed to be compatible with shower base.

- (3) When a poured-in-place concrete base is specified, it shall consist of a waterproof membrane specifically designed for this application, formed and poured concrete base with proper drainage, and ceramic tile finish. Base shall include transition ramp constructed as specified.
 - (4) Converting existing faucet to shower operation only or installation of new faucet if none exists.
 - (5) Replacement of existing shower head with new shower head or hand-held personal shower system; or installation of standard shower riser, if none exists, with shower head or hand-held personal shower system.
 - (6) Installation of additional matching tile so that shower walls are uniform and complete or installation of new tile in total shower area.
 - (7) Installation of chrome plated metal shower curtain rod if none exists.
 - B. When wall construction is specified, it shall be included and consist of all framing, drywall and finishes.
- 4. **Pre-Manufactured Barrier-Free Shower Enclosure:** Shower enclosure per manufacturer's specifications.
 - 5. **Hand-Held Personal Shower System:** When a hand-held personal shower system is specified, it shall include a diverter valve, hand-held personal shower head with wall holder, and a flexible hose with a minimum length of 108". This shall be a complete system manufactured for this application.

SECTION 15E HEATING

- 1. **Forced Air and Hot Water:**
 - A. **General:** Heating systems shall be capable of maintaining a minimum temperature of 70 degrees Fahrenheit when the outside temperature is minus 10 degrees at a point 3' above the floor in the center of all habitable rooms and other spaces. Heating systems shall be designed, installed, and balanced or adjusted to provide for the distribution of heat to all habitable rooms and other spaces in accordance with the calculated heat loss of the spaces to be heated. New units shall be sized and have ratings to ensure proper heating of all habitable rooms within the dwelling. Heat loss calculations used for this purpose shall be available upon request. When a new heating system is to be installed, Contractor shall submit a drawing showing the location of all heating system components to include the location of furnace/boiler, flue, registers/radiators, and thermostat. Design shall be submitted and approved by Owner prior to commencement of installation. If in following the requirements of this Section an existing chimney or flue is to be used, it shall be cleaned as part of the installation and, if necessary, brought into compliance with applicable codes. Supply and return piping for hot water systems and all supply duct work for warm air systems located in attic, ventilated crawl space, and other unconditioned spaces shall be insulated with material having thermal characteristics equivalent to 2" blanket insulation. Duct work and flues passing through finished areas must be enclosed. The enclosure location shall be

approved by the Owner and finished to match the adjoining surfaces. New system installations shall be complete and shall include a minimum 90% energy-efficient furnace or boiler; all venting flues, proper returns, gas connections, supply lines, valves, controls, electrical connections, thermostat, and combustion air to provide perimeter-type heating through rigid metal ducting or piping with appropriate registers or radiators. Furnaces and boilers that require drainage of evaporative water where floor drain is not available shall be equipped with a system to discharge water specifically designed for this application.

- B. Forced Air: Whenever existing ductwork is to be reused, it shall be cleaned throughout as part of new installation. Sheet metal work shall be accurately formed, fitted snugly, and properly secured. Runs, including those under base cabinets, shall be rigid metal ducting with properly-sized registers. Registers shall be installed in the floor unless otherwise specified. Supply registers shall be equipped with shut-off dampers.
- C. Hot Water: Piping shall not be installed or located where freezing may occur. Piping shall be copper. If conditions warrant, plastic piping may be used with written approval from the Owner and the HDF. Number of zones and zone layout shall be approved by Owner.

2. **Electric Units:**

- A. When a separate electric heating unit is specified, it shall be permanently installed and thermostatically controlled. Its design and location shall be approved by the Owner. Installation shall include all circuits, wiring, and connections.
- B. Electric heating unit shall be sized to meet the requirements of Section 15E, Paragraph 1A for the room where unit is installed.

3. **Service and Repair:**

- A. When servicing of a furnace or boiler is specified, it shall include the following as applicable:
 - (1) Checking and adjusting the thermostat, fan control, limit control, zone valves, and belts.
 - (2) Replacing the filter(s).
 - (3) Light cleaning and lubricating of the motor(s), pump(s), etc.
 - (4) Bleeding the air from hot water systems.
 - (5) Checking flue, gas supply lines, gas valves, and heat exchangers for leaks.
 - (6) Bringing any necessary repairs to the attention of the Owner and HDF.
- B. When a component of a heating system is replaced, it shall be of like quality and design of original and shall be installed and adjusted to operate properly.
- C. When repairs are made to the heating system, the repairs shall ensure the efficiency and integrity of the system is returned as originally installed.
- D. After servicing, the mechanical contractor shall leave a certificate on the furnace or boiler indicating his company name, the work or repair completed, and the date completed.

SECTION 15F

VENTILATION (RANGE HOODS, BATH FANS, AND DRYER VENTS)

1. **Range Hoods**: When a ducted range hood is specified, it shall include ductwork designed for the shortest practical run to the exterior and all necessary hardware and electrical connections. Range hood venting through cabinets shall be enclosed with like material purchased from cabinet manufacturer. When a ductless range hood is specified, it shall include all necessary hardware and electrical connections.
2. **Bath Fans**: When a bath fan is specified, it shall be installed with a separate wall switch, venting duct with damper, all necessary hardware, accessories, and electrical connections. Venting duct shall extend to the exterior and be protected against the elements.
3. **Dryer Vents**: When a dryer vent is specified, it shall consist of a venting duct to the exterior (maximum length of 8'0") with damper and weather cap designed for this application.
4. **Replacement of Components**: When a component of a range hood or bath fan is replaced, it shall be of like quality and design of original and shall be installed to operate properly.

DIVISION 16--ELECTRICAL

SECTION 16A GENERAL

Electrical wiring and devices installed shall be UL approved. Wiring shall be copper. Wiring installation shall be concealed in walls, ceilings, and floors. Materials and devices used shall be clearly marked to permit identification of manufacturer, model, and type. Cutting or drilling of walls, floors, ceilings, and partitions for the installation of electrical work and the closing and refinishing of openings cut for access shall be the responsibility of the Contractor. Finishes shall conform to the conditions of the surrounding areas. When damage to structural members occurs as a result of the work, the damaged members shall be reinforced to achieve the structural integrity of the original member. Existing electrical wiring and devices throughout the building which will not be used shall be disconnected and removed in all spaces that are accessible (see Division 2, Section 2J). No switches shall be installed behind a door. New devices, equipment, and fixtures shall be designed for their specific applications. New light fixtures shall include new bulbs in all sockets, size and style as recommended by manufacturer. When a doorbell is specified, it shall consist of all necessary wiring (concealed), push button located convenient to entry, transformer, and bell tones per the Work Write-Up. Location of bell tone shall be coordinated with Owner. Underground electrical installations shall include restoring excavation and surrounding area to the original condition. Where more than one living unit is supplied from a single service entrance panel, the disconnect- and circuit-protecting devices for each unit shall be clearly identified. The Contractor shall provide to the Owner, operation instructions, guarantees, warranties, and certificates for furnished devices when provided by the manufacturer.

SECTION 16B TOTAL REWIRE

When a total rewire is specified, it shall include the following:

1. **New 200 Amp Service:** New service shall include mast and wiring, meter base, and meter. If the mast penetrates the roof, a new roof jack shall be installed. Service shall include a new drop from pole to mast.
2. **New 200 Amp Distribution Panel:** New distribution panel shall include new breakers and breakers shall be identified and labeled in the service panel to indicate what they service. Location shall be coordinated with Owner, local jurisdiction, and power company.
3. **Circuit Rewiring:** Circuit rewiring shall include:
 - A. New wiring from the distribution panel to all existing openings and all electrically-operated interior and exterior devices and fixtures permanently wired into the structure's electrical system. Outlets servicing major appliances shall be relocated if necessary to ensure outlet is behind appliance and out of sight after appliances are installed. When any existing opening or device is located in violation of any applicable

codes, it shall not be rewired. When any device or fixture is in an unsafe condition, it shall not be reconnected. At the time such determination is made, it shall be brought to the attention of the Owner.

- B. Any additional openings, devices (including smoke detectors), and wiring required to meet all applicable codes (see Division 16, Sections 16 A and 16C).
- C. Any additional openings, devices, and requirements specifically specified (see Division 16, Sections 16A and 16C).
- D. New switches, outlets, and trim for all existing and added openings. Any existing decorative or custom trim plates shall be replaced only after coordination with Owner.
- E. Fixtures specified by the Work Write-Up. Fixture allowance shall be retail cost only.
- F. Where work requiring a permit occurs that have attached garages or in units with fuel-burning appliances, carbon monoxide alarms shall be provided outside of each separate sleeping area in the immediate vicinity of the bedrooms.

SECTION 16C ADDITIONS TO EXISTING SYSTEM

When additional outlets, switches, or fixtures are specified, the boxes shall be securely anchored to support devices or fixtures to be installed and shall be installed flush with finish surfaces. Openings shall be cut so that they are concealed by standard size trim plates. When additional outlets, switches, or fixtures are specified, installation shall include boxes, wiring from service feeders to boxes, grounding-type outlets and switches with trim plates, and fixtures. Devices and trim plates shall match existing in style and color. Height and alignment (horizontal or vertical) shall be consistent with similar existing devices. Location of openings shall be coordinated with Owner. Fixtures installed over sinks shall be located on center line of sinks. When an additional 220-volt outlet is specified, installation shall include box, wiring feeder from distribution panel to box, proper-size breaker, proper outlet for intended appliance, and trim plate. When smoke detectors are specified as required by the state building code, they shall be hard-wired into the electrical system. Hardwired smoke detectors are required in each bedroom, outside of each sleeping area in the immediate vicinity of each bedroom, and on each level on the unit. Smoke detectors must also be interconnected.

SECTION 16D REPLACEMENT OF EXISTING ELECTRICAL COMPONENTS

When replacement of a switch, outlet, or light fixture is specified, it shall consist of replacing the existing with new, installing in existing box, and attaching to the existing wiring. It shall also include the replacement of missing or broken trim plates. Replacement components shall match style and color of original components.

SECTION 16E SECURING ELECTRICAL COMPONENTS, FIXTURE REWIRING, AND ELECTRICAL SYSTEM REPAIRS

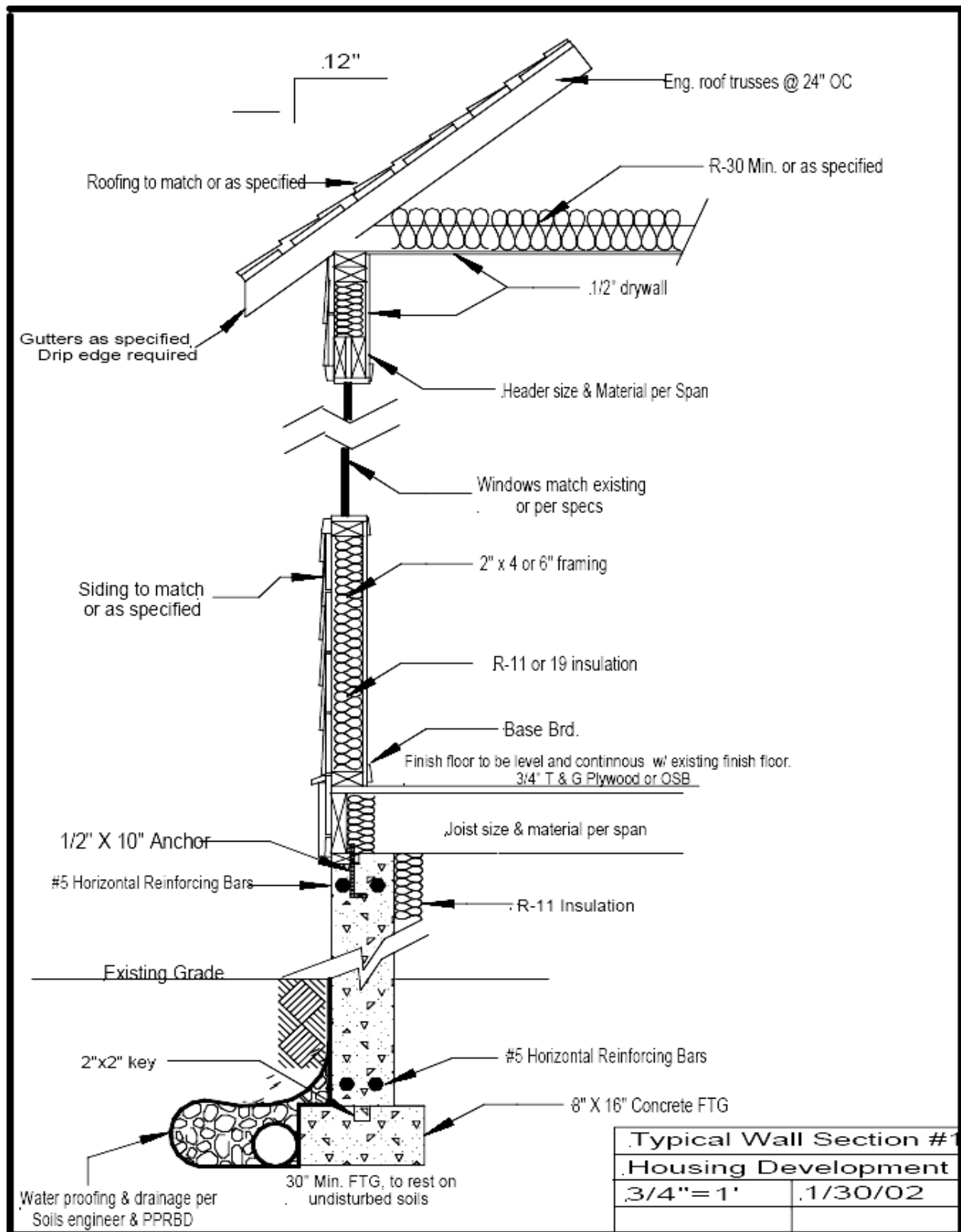
Securing of an electrical component shall consist of anchoring the device so that it is properly secured to meet the requirements of the intended use. Rewiring an existing fixture shall consist of replacing all existing wiring and damaged or broken bulb receptacles. Materials used shall

match original in style and installation. Electrical system repairs shall consist of identifying and repairing or replacing the problem component(s) so that the system functions properly.

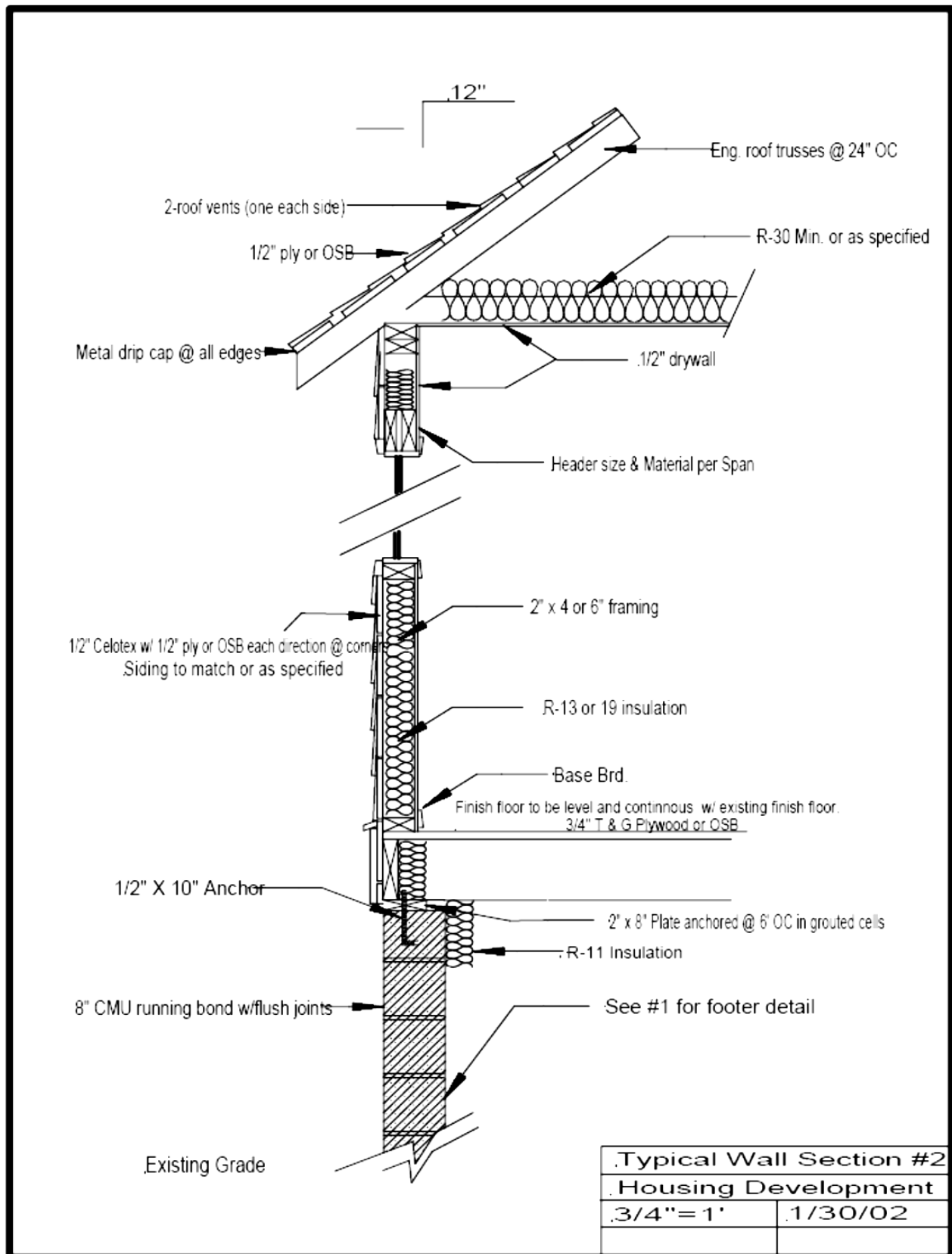
SECTION 16F DETACHED GARAGE

When the rewire of a detached garage is specified, the main structure distribution panel shall be used and the requirements of Division 16, Section 16B-3 shall apply.

TYPICAL CONCRETE WALL SECTION (not to scale)



TYPICAL BLOCK WALL SECTION (not to scale)



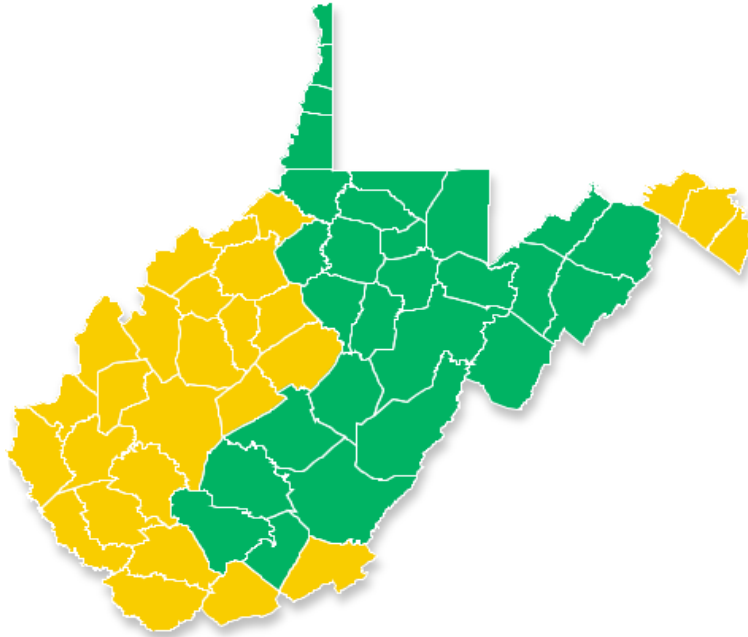
2009 International Energy Conservation Code

Residential buildings include one- and two-family dwellings, townhouses, and multifamily housing three stories or less in height. All residential buildings must demonstrate compliance with the 2009 International Energy Conservation Code, which is part of the State Building Code.

There are a couple of ways to ensure compliance with the 2009 International Energy Conservation Code. The two approaches include a prescriptive package method that lists the minimum R-value or U-factor requirement for each building component such as walls, roofs, and windows. The other method is the performance approach. This approach sets criteria using simulated energy performance analysis that includes heating, cooling, and water heating energy. This approach allows the design to be compared to a baseline or reference design to verify efficiency and annual energy use. The performance approach allows more flexibility, but requires significantly more time and effort. The prescriptive package approach is fast and easy to use, but can be restrictive because it is typically based on worst-case scenario. All units in West Virginia will be located in either zone 4 or 5. The zone the unit is constructed in dictates the level of energy efficiency required.

All energy efficiency requirements are noted in Chapter 4 of the 2009 International Energy Conservation Code. As noted above the easiest and fastest compliance tool for compliance is the prescriptive package approach. Listed below are the minimum energy efficiency requirements for all units constructed in West Virginia.

- A permanent certificate must be posted in the panel box completed by the builder or project professional. The certificate must list the R-values, U-factors, SHGC of fenestration for all insulation and windows installed, and efficiencies of the HVAC system and water heating equipment.
- All joints and seams in the building thermal envelope must be thoroughly sealed to limit air infiltration and the building has been tested or visually inspected.
- All recessed lighting must be labeled and sealed.
- At least one thermostat must be provided for each separate HVAC system. A programmable thermostat is required for forced air furnaces.
- All ducts, air handlers, and filter boxes must be sealed. Testing is required for ducts installed in unconditioned space.
- All mechanical system piping carrying fluids above 105° must be insulated to a minimum of R-3.
- HVAC systems must be properly sized in accordance with M1401.3 of the International Residential Code.
- R-38 ceiling or attic insulation for zone 4 and 5.
- R-19 floor insulation for zone 4 and R-30 floor insulation for zone 5.
- Mass walls are above grade concrete, masonry, brick, or log and require R-5 continuous insulation on the interior or exterior of the unit or R-10 cavity insulation on the interior.
- Basement or crawl space masonry walls require R-10 continuous insulation on the interior or exterior of the unit or R-13 cavity insulation on the interior.
- Floor slabs require R-10 insulation for a depth of 2 feet.
- Windows must be insulated with a minimum .35 fenestration U-factor.
- Skylights must contain a minimum .6 fenestration U-factor.
- Exterior wall insulation values are dependent on zones. R-13 for zone 4 and R-20 or 13+5 for zone 5, R-13 cavity insulation and R-5 continuous insulated sheathing on exterior wall.
- Energy Star-rated appliances (dishwasher, refrigerator) and other building materials recommended. Other Energy Star-rated building materials include: air-source heat pumps, central air conditioners, gas and oil furnaces, high-efficiency hot water heaters, Energy Star-rated light fixtures (LED), and Energy Star-rated doors and windows.



Climate Zone 4 (Except Marine)	
Ceiling R-value	38
Wood Frame Wall R-value	13
Mass Wall R-value ⁱ	5/10
Floor R-value	19
Basement Wall R-value ^c	10/13
Slab R-value ^d , Depth	10, 2 ft.
Crawlspace Wall R-value ^c	10/13
Fenestration U-Factor ^b	0.35
Skylight U-Factor ^b	0.60
Glazed fenestration SHGC ^{b, e}	NR

Climate Zone 5 & 4 Marine	
Ceiling R-value	38
Wood Frame Wall R-value	20 or 13+5 ^h
Mass Wall R-value ⁱ	13/17
Floor R-value	30 ^g
Basement Wall R-value ^c	10/13
Slab R-value ^d , Depth	10, 2 ft.
Crawlspace Wall R-value ^c	10/13
Fenestration U-Factor ^b	0.35
Skylight U-Factor ^b	0.60
Glazed fenestration SHGC ^{b, e}	NR

- a. R-values are minimums. U-factors and SHGC are maximums. R-19 batts compressed into a nominal 2x6 framing cavity such that the R-value is reduced by R-1 or more shall be marked with the compressed batt R-value in addition to the full thickness R-value.
- b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
- c. "15/19" means R-15 continuous insulated sheathing on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall". 10/13" means R-10 continuous insulated sheathing on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall.
- d. R-5 shall be added to the required slab edge R-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in zones 1 through 3 for heated slabs.
- e. There are no SHGC requirements in the Marine zone.
- f. Basement Wall Insulation is not required in warm-humid locations.
- g. Or insulation sufficient to fill the framing cavity. R-19 is minimum.
- h. "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25 percent of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.
- i. The second R-value applies when more than half the insulation is on the interior of the wall.
- j. For impact rated fenestration complying with Section R301.2.1.2 of the International Residential Code or Section 1608.1.2 of the International Building Code, the maximum U-factor shall be 0.75 in Zone 2 and 0.65 in Zone 3.



National Program Requirements ENERGY STAR Certified Homes, Version 3 (Rev. 08)

Eligibility Requirements

The following homes are eligible to earn the ENERGY STAR:

- Detached dwelling units ¹ (e.g. single family homes); OR
- Dwelling units ¹ in any multifamily building with 4 units or fewer; OR
- Dwelling units ¹ in multifamily buildings with 3 stories or fewer above-grade ^{2,3}; OR
- Dwelling units ¹ in multifamily buildings with 4 or 5 stories above-grade ^{2,3} that have their own heating, cooling, and hot water systems ⁴, separate from other units, and where dwelling units occupy 80% or more of the occupiable ³ square footage of the building ⁵. When evaluating mixed-use buildings for eligibility, exclude commercial / retail space when assessing whether the 80% threshold has been met.

Dwelling units ¹ in multifamily buildings that are not eligible to earn the ENERGY STAR through the Certified Homes Program may be eligible through the Multifamily High Rise Program. For more information, visit: www.energystar.gov/mfhr/eligibility.

Note that compliance with these requirements is not intended to imply compliance with all local code requirements that may be applicable to the home to be built. ⁶

Partnership, Training, and Credentialing Requirements

Builders, Raters, and HVAC contractors must meet the following requirements prior to certifying homes:

- Builders are required to sign an ENERGY STAR Partnership Agreement and complete the online Version 3 Builder Orientation, which can be found at www.energystar.gov/homesPA.
- HVAC installing contractors are required to be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO). An explanation of this process can be found at www.energystar.gov/newhomesHVAC.
- Raters and Field Inspectors are required to complete training, which can be found at www.energystar.gov/newhomestraining.

ENERGY STAR Certification Process ⁷

1. The certification process provides flexibility to select a custom combination of measures for each home that is equivalent in performance to the minimum requirements of the ENERGY STAR Reference Design Home, Exhibit 1, as assessed through energy modeling. Use a RESNET-accredited Home Energy Rating software program to determine the ENERGY STAR HERS Index Target, which is the highest numerical HERS Index value that each rated home may achieve to earn the ENERGY STAR. ⁸
2. Using the same software program, configure the preferred set of efficiency measures for the home to be certified and verify that the resulting HERS Index meets or exceeds the ENERGY STAR HERS Index Target, as determined in Step 1.

Note that, regardless of the measures selected, the Mandatory Requirements for All Certified Homes in Exhibit 2 are also required and impose certain constraints on the efficiency measures selected (e.g., insulation levels, insulation installation quality, window performance, duct leakage). Furthermore, on-site power generation may only be used to meet the ENERGY STAR HERS Index Target for homes that are larger than the Benchmark Home and only for the incremental change in the ENERGY STAR HERS Index Target caused by the Size Adjustment Factor. ⁹

3. Construct the home using the measures selected in Step 2 and the Mandatory Requirements for All Certified Homes, Exhibit 2.
4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with RESNET's On-Site Inspection Procedures for Minimum Rated Features. ¹⁰ The Rater is required to keep electronic or hard copies of the completed and signed Rater checklists and the HVAC Design Report.

The Rater must review all items on the Rater checklists. Raters are expected to use their experience and discretion to verify that the overall intent of each inspection checklist item has been met (i.e., identifying major defects that undermine the intent of the checklist item versus identifying minor defects that the Rater may deem acceptable).

In the event that a Rater finds an item that is inconsistent with the intent of the checklists, the home cannot earn the ENERGY STAR until the item is corrected. If correction of the item is not possible, the home cannot earn the ENERGY STAR. In the event that an item on a Rater checklist cannot be inspected by the Rater, the home also cannot earn the ENERGY STAR. The only exceptions to this rule are in the Thermal Enclosure System Section of the Rater Field Checklist, where the builder may assume responsibility for verifying a maximum of eight items. This option shall only be used at the discretion of the Rater. When exercised, the builder's responsibility will be formally acknowledged by the builder signing the checklist for the item(s) that they verified.

In the event that a Rater is not able to determine whether an item is consistent with the intent (e.g., an alternative method of meeting a checklist requirement has been proposed), then the Rater shall consult their Provider. If the Provider also cannot make this determination, then the Rater or Provider shall report the issue to EPA prior to project completion at: energystarhomes@energystar.gov and will typically receive an initial response within 5 business days. If EPA believes the current program requirements are sufficiently clear to determine whether the intent has been met, then this guidance will be provided to the partner and enforced beginning with the house in question. In contrast, if EPA believes the program requirements require revisions to make the intent clear, then this guidance will be provided to the partner but only enforced for homes permitted after a specified transition period after the release of the revised program requirements, typically 60 days in length.

This process will allow EPA to make formal policy decisions as partner questions arise and to disseminate these policy decisions through the periodic release of revised program documents to ensure consistent application of the program requirements.



National Program Requirements ENERGY STAR Certified Homes, Version 3 (Rev. 08)

Exhibit 1: ENERGY STAR Reference Design Home

The ENERGY STAR Reference Design Home is the set of efficiency features modeled to determine the ENERGY STAR HERS Index Target for each home pursuing certification. Therefore, while the features below are not mandatory, if they are not used then other measures will be needed to achieve the ENERGY STAR HERS Index Target. In addition, note that the Mandatory Requirements for All Certified Homes, Exhibit 2, contain additional requirements such as total duct leakage limits, minimum allowed insulation levels, and minimum allowed fenestration performance. Therefore, EPA recommends that partners review the documents in Exhibit 2 prior to selecting measures.

Hot Climates (2009 IECC Zones 1,2,3) ¹²		Mixed and Cold Climates (2009 IECC Zones 4,5,6,7,8) ¹²			
Cooling Equipment (Where Provided)					
• Cooling equipment modeled at the applicable efficiency levels below:					
• 14.5 SEER / 12 EER AC, • Heat pump (See Heating Equipment)		• 13 SEER AC, • Heat pump (See Heating Equipment)			
Heating Equipment					
• Heating equipment modeled at the applicable efficiency levels below, dependent on fuel and system type:					
• 80 AFUE gas furnace, • 80 AFUE oil furnace, • 80 AFUE boiler, • 8.2 HSPF / 14.5 SEER / 12 EER air-source heat pump with electric or dual-fuel backup		• 90 AFUE gas furnace, • 85 AFUE ENERGY STAR oil furnace, • 85 AFUE ENERGY STAR boiler, • Heat pump, with efficiency as follows: • CZ 4: 8.5 HSPF / 14.5 SEER / 12 EER air-source w/ electric or dual-fuel backup, • CZ 5: 9.25 HSPF / 14.5 SEER / 12 EER air-source w/ electric or dual-fuel backup, • CZ 6: 9.5 HSPF / 14.5 SEER / 12 EER air-source w/ electric or dual-fuel backup, • CZ 7-8: 3.5 COP / 16.1 EER ground-source w/ electric or dual-fuel backup			
Envelope, Windows, & Doors					
• A radiant barrier modeled if more than 10 linear feet of ductwork are located in an unconditioned attic.		• No radiant barrier modeled.			
• Insulation levels modeled to 2009 IECC levels and Grade I installation per RESNET standards.					
• Infiltration rates modeled as follows:					
6 ACH50 in CZs 1,2		5 ACH50 in CZs 3,4		4 ACH50 in CZs 5,6,7	
				3 ACH50 in CZ 8	
• Windows and doors modeled, as illustrated below:					
Window U-Value:		0.60 in CZs 1,2	0.35 in CZ 3	0.32 in CZ 4	0.30 in CZs 4 C,5,6,7,8
Window SHGC:		0.27 in CZs 1,2	0.30 in CZ 3	0.40 in CZ 4	Any in CZs 4 C,5,6,7,8
Door U-value:		Opaque: 0.21	≤½ lite: 0.27		>½ lite: 0.32
Door SHGC:		Opaque: Any	≤½ lite: 0.30		>½ lite: 0.30
Water Heater					
• DHW equipment modeled with the following efficiency levels as applicable:					
Gas:	30 Gal = 0.63 EF	40 Gal = 0.61 EF	50 Gal = 0.59 EF	60 Gal = 0.57 EF	70 Gal = 0.55 EF
Electric:	30 Gal = 0.94 EF	40 Gal = 0.93 EF	50 Gal = 0.92 EF	60 Gal = 0.91 EF	70 Gal = 0.90 EF
Oil:	30 Gal = 0.55 EF	40 Gal = 0.53 EF	50 Gal = 0.51 EF	60 Gal = 0.49 EF	70 Gal = 0.47 EF
	80 Gal = 0.53 EF	80 Gal = 0.89 EF	80 Gal = 0.45 EF		
Thermostat & Ductwork					
• Programmable thermostat modeled.					
• Supply ducts in unconditioned attics modeled with R-8 insulation; all other ducts in unconditioned space modeled with R-6 insulation.					
• Duct leakage to outdoors modeled at the greater of ≤ 4 CFM25 per 100 sq. ft. of conditioned floor area or ≤ 40 CFM25.					
Lighting & Appliances					
• ENERGY STAR refrigerators, dishwashers, and ceiling fans modeled.					
• ENERGY STAR light bulbs modeled in 80% of RESNET-defined Qualifying Light Fixture Locations.					



National Program Requirements ENERGY STAR Certified Homes, Version 3 (Rev. 08)

Exhibit 2: Mandatory Requirements for All Certified Homes

Party Responsible	Mandatory Requirements
Rater	- Completion of Rater Design Review Checklist - Completion of Rater Field Checklist
HVAC System Designer	Completion of HVAC Design Report
HVAC Installing Contractor	Completion of HVAC Commissioning Checklist
Builder	Completion of Water Management System Builder Requirements

Exhibit 3: Benchmark Home ⁹

Bedrooms in Home to be Built	0	1	2	3	4	5	6	7	8
Conditioned Floor Area Benchmark Home	1,000	1,000	1,600	2,200	2,800	3,400	4,000	4,600	5,200

Effective Date

All homes with a date of final inspection on or after 07/01/2012 (i.e., the date at which all of the field inspections are complete for the home, not necessarily the date when the label is issued) shall be certified under Version 3, with the following exceptions:

- Regional program requirements and associated implementation schedules have been developed for homes in CA, FL, GU, HI, the Northern Mariana Islands, and PR.
- Version 3.1 implementation timelines have been defined for the States listed in Exhibit 4. Homes permitted prior to the implementation timeline are eligible to earn the ENERGY STAR under Version 3 of the program requirements.

EPA intends to implement the Version 3.1 program requirements for homes permitted starting one year after state-level implementation of the 2012 IECC, 2015 IECC, or an equivalent code. However, EPA will make a final determination of the implementation timeline on a state-by-state basis.

Exhibit 4: ENERGY STAR Certified Homes Version 3.1 Implementation Timeline

State	Applicable to Homes with the Following Permit Date
MA	On or after 01/01/2015
DC, IL, MD, RI	On or after 04/01/2015 (except for Calvert County and St. Mary's County in MD, for which the applicable permit date is on or after 07/01/2015)
IA	On or after 06/01/2015
DE	On or after 12/01/2015
MT, OR, WA	On or after 01/01/2016
MN, VT	On or after 04/01/2016
NV	On or after 07/01/2016
NJ	On or after 04/01/2017
TX	On or after 10/01/2017

Notes:

- A dwelling unit, as defined by the 2009 IECC, is a single unit that provides complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.
- Any above-grade story with 20% or more occupiable space, including commercial space, shall be counted towards the total number of stories for the purpose of determining eligibility to participate in the program. The definition of an 'above-grade story' is one for which more than half of the gross surface area of the exterior walls is above-grade. All below-grade stories, regardless of type, shall not be included when evaluating eligibility.
- Per ASHRAE 62.2-2010, occupiable space is any enclosed space inside the pressure boundary and intended for human activities or continual human occupancy, including, but not limited to, areas used for living, sleeping, dining, and cooking, toilets, closets, halls, storage and utility areas, and laundry areas.
- Central domestic hot water systems are allowed if solar energy provides $\geq 50\%$ of the domestic hot water for the residential units.

Required for homes permitted ¹¹ starting 07/01/2016

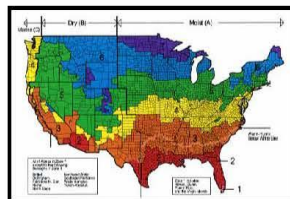
Revised 12/14/2015

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National Program Requirements ENERGY STAR Certified Homes, Version 3 (Rev. 08)

5. Units in multifamily buildings with 4 or 5 stories above-grade, including mixed-use buildings, that have their own heating, cooling, & hot water systems, separate from other units, but where dwelling units occupy < 80% of the residential (i.e., excluding commercial / retail space for mixed-use buildings) occupiable square footage of the building may earn the ENERGY STAR through either the Certified Homes Program or the Multifamily High Rise (MFHR) Program if permitted prior to July 1, 2012. Units in buildings of this type that are permitted after this date shall only be eligible to earn the ENERGY STAR through the MFHR Program.
6. Where requirements of the local codes, manufacturers' installation instructions, engineering documents, or regional ENERGY STAR programs overlap with these program requirements, EPA offers the following guidance:
 - a. Where the overlapping requirements exceed the ENERGY STAR requirements, these overlapping requirements shall be met;
 - b. Where overlapping requirements conflict with a requirement of the ENERGY STAR program (e.g., slab insulation is prohibited to allow visual access for termite inspections), then the conflicting requirement within these program requirements shall not be met. Certification shall only be allowed if the Rater has determined that no equivalent option is available that could meet the intent of the conflicting requirement (e.g., switching from exterior to interior slab edge insulation). Note that a home must still meet its ENERGY STAR HERS Index Target. Therefore, other efficiency measures may be needed to compensate for the omission of the conflicting requirement.
7. Prior to Rev. 08, homes were permitted to be certified using either a Prescriptive Path or a Performance Path. Homes with a permit date on or after 60 days after the release of Rev. 08 shall only use the Performance Path, which has been renamed the ENERGY STAR Certification Process. To minimize disruption to projects that are in process, homes with a permit date before 09/01/2015 are permitted to use a modified version of the Prescriptive Path in lieu of the Performance Path. For more information about this compliance option, visit: www.energystar.gov/v3prescriptivepath.
8. The software program shall automatically determine (i.e., without relying on a user-configured ENERGY STAR Reference Design) this target for each rated home by following the ENERGY STAR HERS Index Target Procedure, Version 3 (Rev. 08), available on EPA's website.
9. The average-size home with a specific number of bedrooms is termed the "Benchmark Home". The conditioned floor area of a Benchmark Home (CFA ^{Benchmark Home}) is determined by selecting the appropriate value from Exhibit 3. For homes with more than 8 bedrooms, the CFA ^{Benchmark Home} shall be determined by multiplying 600 sq. ft. by the total number of bedrooms & adding 400 sq. ft. A bedroom is defined by RESNET as a room or space 70 sq. ft. or greater size, with egress window and closet, used or intended to be used for sleeping. A "den", "library", or "home office" with a closet, egress window, and 70 sq. ft. or greater size or other similar rooms shall count as a bedroom, but living rooms and foyers shall not.
An egress window, as defined in 2009 IRC section R310, shall refer to any operable window that provides for a means of escape and access for rescue in the event of an emergency. The egress window definition has been summarized for convenience. The egress window shall:
 - have a sill height of not more than 44 in. above the floor; AND
 - have a minimum net clear opening of 5.7 sq. ft.; AND
 - have a minimum net clear opening height of 24 in.; AND
 - have a minimum net clear opening width of 20 in.; AND
 - be operational from the inside of the room without the use of keys, tools or special knowledge.
10. The term 'Rater' refers to the person completing the third-party inspections required for certification. This person shall: a) be a certified Home Energy Rater, Rating Field Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/newhomestraining.
Raters who operate under a Sampling Provider are permitted to verify the Minimum Rated Features of the home and to verify any Checklist Item designated "Rater Verified" using the RESNET-approved sampling protocol for homes outside California, and the CEC-approved sampling protocol for homes in CA. No parties other than Raters are permitted to use sampling. All other items shall be verified for each certified home. For example, no items on the HVAC Commissioning Checklist are permitted to be verified using a sampling protocol.
11. This Revision of the National Program Requirements is required to certify all homes permitted after 07/01/2016, but is allowed to be used for any home permitted or completed prior to this date. The Rater may define the 'permit date' as either the date that the permit was issued or the date of the contract on the home. In cases where permit or contract dates are not available, Providers have discretion to estimate permit dates based on other construction schedule factors. These assumptions should be both defensible and documented.
12. The following map illustrates the Climate Zone boundaries as defined by the 2009 IECC Figure 301.1.



WEST VIRGINIA HOUSING DEVELOPMENT FUND CONSTRUCTION INSPECTION REPORT

PROJECT DATA								
Name	Location	Program Type	# of Buildings/Units	Start Date	Completion Date	Total Construction Time		
CONTACT		AGENCY		ADDRESS			PHONE	
Date of Inspection	Amount of Advance	Weather	Temperature	Site	Progress Scheduled/Actual	Site Arrival Time	Site Departure Time	Completion Date with Extension

Type of Inspection:Work in Progress:Findings & Comments:Follow-Up Actions:Recommendations:Davis-Bacon Compliance:

INSPECTOR NAME

(title)

(date)

cc: Nate Testman
 Joshua Brown
 John Welch
 (WHDF Personnel)

*The contents of this report are intended for the sole use of the WHDF, and are not for distribution to any other parties.
 It is the responsibility of the requestor to bring any issues mentioned in the report to the attention
 of the contractor and/or architect, but the inspection report itself should not be distributed to these individuals.*

Inspection Checklist

Housing Choice Voucher Program

U.S. Department of Housing
and Urban Development
Office of Public and Indian Housing

OMB Approval No. 2577-0169
(Exp. 04/30/2018)

Public reporting burden for this collection of information is estimated to average 0.50 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless that collection displays a valid OMB control number.

Assurances of confidentiality are not provided under this collection.

This collection of information is authorized under Section 8 of the U.S. Housing Act of 1937 (42 U.S.C. 1437f). The information is used to determine if a unit meets the housing quality standards of the section 8 rental assistance program.

Privacy Act Statement. The Department of Housing and Urban Development (HUD) is authorized to collect the information required on this form by Section 8 of the U.S. Housing Act of 1937 (42 U.S.C. 1437f). Collection of the name and address of both family and the owner is mandatory. The information is used to determine if a unit meets the housing quality standards of the Section 8 rental assistance program. HUD may disclose this information to Federal, State and local agencies when relevant to civil, criminal, or regulatory investigations and prosecutions. It will not be otherwise disclosed or released outside of HUD, except as permitted or required by law. Failure to provide any of the information may result in delay or rejection of family participation.

Name of Family	Tenant ID Number	Date of Request (mm/dd/yyyy)
Inspector	Neighborhood/Census Tract	Date of Inspection (mm/dd/yyyy)
Type of Inspection Initial ☐ Special ☐ Reinspection ☐	Date of Last Inspection (mm/dd/yyyy)	PHA

A. General Information

Inspected Unit	Year Constructed (yyyy)	Housing Type (check as appropriate)
Full Address (including Street, City, County, State, Zip)		☐ Single Family Detached
		☐ Duplex or Two Family
		☐ Row House or Town House
		☐ Low Rise: 3, 4 Stories, including Garden Apartment
		☐ High Rise: 5 or More Stories
		☐ Manufactured Home
		☐ Congregate
		☐ Cooperative
		☐ Independent Group Residence
		☐ Single Room Occupancy
		☐ Shared Housing
		☐ Other

B. Summary Decision On Unit (To be completed after form has been filled out)

Pass	Number of Bedrooms for Purposes of the FMR or Payment Standard	Number of Sleeping Rooms
Fail		
Inconclusive		

Inspection Checklist

Item No.	1. Living Room	Yes Pass	No Fail	In-Conc.	Comment	Final Approval Date (mm/dd/yyyy)
1.1	Living Room Present					
1.2	Electricity					
1.3	Electrical Hazards					
1.4	Security					
1.5	Window Condition					
1.6	Ceiling Condition					
1.7	Wall Condition					
1.8	Floor Condition					

Previous editions are obsolete

Page 1 of 8

form HUD-52580 (4/2015)
ref Handbook 7420.8

* Room Codes: 1 = Bedroom or Any Other Room Used for Sleeping (regardless of type of room); 2 = Dining Room or Dining Area;
3 = Second Living Room, Family Room, Den, Playroom, TV Room; 4 = Entrance Halls, Corridors, Halls, Staircases; 5 = Additional Bathroom; 6 = Other

Item No.	1. Living Room (Continued)	Yes Pas	No Fail	In-Conc.	Comment	Final Approval Date (mm/dd/yyyy)
1.9	Lead-Based Paint Are all painted surfaces free of deteriorated paint? If not, do deteriorated surfaces exceed two square feet per room and/or is more than 10% of a component?				Not Applicable	
2. Kitchen						
2.1	Kitchen Area Present					
2.2	Electricity					
2.3	Electrical Hazards					
2.4	Security					
2.5	Window Condition					
2.6	Ceiling Condition					
2.7	Wall Condition					
2.8	Floor Condition					
2.9	Lead-Based Paint Are all painted surfaces free of deteriorated paint? If not, do deteriorated surfaces exceed two square feet per room and/or is more than 10% of a component?				Not Applicable	
2.10	Stove or Range with Oven					
2.11	Refrigerator					
2.12	Sink					
2.13	Space for Storage, Preparation, and Serving of Food					
3. Bathroom						
3.1	Bathroom Present					
3.2	Electricity					
3.3	Electrical Hazards					
3.4	Security					
3.5	Window Condition					
3.6	Ceiling Condition					
3.7	Wall Condition					
3.8	Floor Condition					
3.9	Lead-Based Paint Are all painted surfaces free of deteriorated paint? If not, do deteriorated surfaces exceed two square feet per room and/or is more than 10% of a component?				Not Applicable	
3.10	Flush Toilet in Enclosed Room in Unit					
3.11	Fixed Wash Basin or Lavatory in Unit					
3.12	Tub or Shower in Unit					
3.13	Ventilation					

Previous editions are obsolete

Page 2 of 8

form HUD-52580 (4/2015)
ref Handbook 7420.8

Item No. 4. Other Rooms Used For Living and Halls		Yes Pass	No Fail	In- Conc.	Comment		Final Approval Date (mm/dd/yyyy)
4.1	Room Code* and Room Location ☐ Left	(Circle One) Right/Center/Left			(Circle One) Rear	(Circle One) Front/Center/Rear	____ Floor Level
4.2	Electricity/Illumination						
4.3	Electrical Hazards						
4.4	Security						
4.5	Window Condition						
4.6	Ceiling Condition						
4.7	Wall Condition						
4.8	Floor Condition						
4.9	Lead-Based Paint				☐ Not Applicable		
	Are all painted surfaces free of deteriorated paint?						
	If not, do deteriorated surfaces exceed two square feet per room and/or is more than 10% of a component?						
4.10	Smoke Detectors						
4.1	Room Code* and Room Location ☐ Rear	(Circle One) Right/Center/Left			(Circle One) Rear	(Circle One) Front/Center/Rear	____ Floor Level
4.2	Electricity/Illumination						
4.3	Electrical Hazards						
4.4	Security						
4.5	Window Condition						
4.6	Ceiling Condition						
4.7	Wall Condition						
4.8	Floor Condition						
4.9	Lead-Based Paint				☐ Not Applicable		
	Are all painted surfaces free of deteriorated paint?						
	If not, do deteriorated surfaces exceed two square feet per room and/or is more than 10% of a component?						
4.10	Smoke Detectors						
4.1	Room Code* and Room Location ☐ Rear	(Circle One) Right/Center/Left			(Circle One) Rear	(Circle One) Front/Center/Rear	____ Floor Level
4.2	Electricity/Illumination						
4.3	Electrical Hazards						
4.4	Security						
4.5	Window Condition						
4.6	Ceiling Condition						
4.7	Wall Condition						
4.8	Floor Condition						
4.9	Lead-Based Paint				☐ Not Applicable		
	Are all painted surfaces free of deteriorated paint?						
	If not, do deteriorated surfaces exceed two square feet per room and/or is more than 10% of a component?						
4.10	Smoke Detectors						

Item No.	4. Other Rooms Used For Living and Halls	Yes Pass	No Fail	In-Conc.	Comment	Final Approval Date (mm/dd/yyyy)
4.1	Room Code * and Room Location Left	(Circle One) Right/Center/Left			(Circle One) Rear Front/Center/Rear Floor Level	
4.2	Electricity/Illumination					
4.3	Electrical Hazards		☐			
4.4	Security		☐			
4.5	Window Condition					
4.6	Ceiling Condition					
4.7	Wall Condition		☐			
4.8	Floor Condition	☐		☐		
4.9	Lead-Based Paint				Not Applicable	
	Are all painted surfaces free of deteriorated paint?	☐	☐	☐	☐	
	If not, do deteriorated surfaces exceed two square feet per room and/or is more than 10% of a component?	☐	☐	☐		
4.10	Smoke Detectors	☐	☐	☐		
4.1	Room Code* and Room Location Rear	(Circle One) Right/Center/Left			(Circle One) Rear Front/Center/Rear Floor Level	
4.2	Electricity/Illumination					
4.3	Electrical Hazards					
4.4	Security					
4.5	Window Condition					
4.6	Ceiling Condition					
4.7	Wall Condition					
4.8	Floor Condition					
4.9	Lead-Based Paint				Not Applicable	
	Are all painted surfaces free of deteriorated paint?					
	If not, do deteriorated surfaces exceed two square feet per room and/or is more than 10% of a component?					
4.10	Smoke Detectors					
	5. All Secondary Rooms (Rooms not used for living)					
5.1	None Go to Part 6					
5.2	Security					
5.3	Electrical Hazards					
5.4	Other Potentially Hazardous Features in these Rooms					

Item No.	6. Building Exterior	Yes Pass	No Fail	In - Conc.	Comment	Final Approval Date (mm/dd/yyyy)
6.1	Condition of Foundation					
6.2	Condition of Stairs, Rails, and Porches					
6.3	Condition of Roof/Gutters					
6.4	Condition of Exterior Surfaces					
6.5	Condition of Chimney					
6.6	Lead Paint: Exterior Surfaces Are all painted surfaces free of deteriorated paint? If not, do deteriorated surfaces exceed 20 square feet of total exterior surface area?				Not Applicable	
6.7	Manufactured Home: Tie Downs					
7. Heating and Plumbing						
7.1	Adequacy of Heating Equipment					
7.2	Safety of Heating Equipment					
7.3	Ventilation/Cooling					
7.4	Water Heater					
7.5	Approvable Water Supply					
7.6	Plumbing					
7.7	Sewer Connection					
8. General Health and Safety						
8.1	Access to Unit					
8.2	Fire Exits					
8.3	Evidence of Infestation					
8.4	Garbage and Debris					
8.5	Refuse Disposal					
8.6	Interior Stairs and Common Halls					
8.7	Other Interior Hazards					
8.8	Elevators					
8.9	Interior Air Quality					
8.10	Site and Neighborhood Conditions					
8.11	Lead-Based Paint: Owner's Certification				Not Applicable	

If the owner is required to correct any lead-based paint hazards at the property including deteriorated paint or other hazards identified by a visual assessor, a certified lead-based paint risk assessor, or certified lead-based paint inspector, the PHA must obtain certification that the work has been done in accordance with all applicable requirements of 24 CFR Part 35. The Lead -Based Paint Owner Certification must be received by the PHA before the execution of the HAP contract or within the time period stated by the PHA in the owner HQS violation notice. Receipt of the completed and signed Lead-Based Paint Owner Certification signifies that all HQS lead-based paint requirements have been met and no re-inspection by the HQS inspector is required.

C. Special Amenities (Optional)

This Section is for optional use of the HA. It is designed to collect additional information about other positive features of the unit that may be present. Although the features listed below are not included in the Housing Quality Standards, the tenant and HA may wish to take them into consideration in decisions about renting the unit and the reasonableness of the rent. Check/list any positive features found in relation to the unit.

D. Questions to ask the Tenant (Optional)

1. Living Room

- ☐ High quality floors or wall coverings
- ☐ Working fireplace or stove
- ☐ Balcony, patio, deck, porch
- ☐ Special windows or doors
- ☐ Exceptional size relative to needs of family
- ☐ Other: (Specify)

2. Kitchen

- ☐ Dishwasher
- ☐ Separate freezer
- ☐ Garbage disposal
- ☐ Eating counter/breakfast nook
- ☐ Pantry or abundant shelving or cabinets
- ☐ Double oven/self cleaning oven, microwave
- ☐ Double sink
- ☐ High quality cabinets
- ☐ Abundant counter-top space
- ☐ Modern appliance(s)
- ☐ Exceptional size relative to needs of family
- ☐ Other: (Specify)

3. Other Rooms Used for Living

- ☐ High quality floors or wall coverings
- ☐ Working fireplace or stove
- ☐ Balcony, patio, deck, porch
- ☐ Special windows or doors
- ☐ Exceptional size relative to needs of family
- ☐ Other: (Specify)

4. Bath

- ☐ Special feature shower head
- ☐ Built-in heat lamp
- ☐ Large mirrors
- ☐ Glass door on shower/tub
- ☐ Separate dressing room
- ☐ Double sink or special lavatory
- ☐ Exceptional size relative to needs of family
- ☐ Other: (Specify)

5. Overall Characteristics

- ☐ Storm windows and doors
- ☐ Other forms of weatherization (e.g., insulation, weather stripping) Screen doors or windows
- ☐ Good upkeep of grounds (i.e., site cleanliness, landscaping, condition of lawn)
- ☐ Garage or parking facilities
- ☐ Driveway
- ☐ Large yard
- ☐ Good maintenance of building exterior
- ☐ Other: (Specify)

6. Disabled Accessibility

Unit is accessible to a particular disability. ☐ Yes ☐ No
Disability

1. Does the owner make repairs when asked? Yes ☐ No ☐
2. How many people live there?
3. How much money do you pay to the owner/agent for rent? \$ _____
4. Do you pay for anything else? (specify) _____
5. Who owns the range and refrigerator? (insert O = Owner or T = Tenant) Range _____ Refrigerator _____ Microwave ☐
6. Is there anything else you want to tell us? (specify) Yes ☐ No ☐

E. Inspection Summary/Comments (Optional)

Provide a summary description of each item which resulted in a rating of "Fail" or "Pass with Comments."

Tenant ID Number	Inspector	Date of Inspection (mm/dd/yyyy) Address of Inspected Unit	
Type of Inspection	Initial	Special	Reinspection
Item Number	Reason for "Fail" or "Pass with Comments" Rating		

Continued on additional page Yes ☐ No ☐

Uniform Physical Condition Standards - Comprehensive Listing

Page: _____ of _____

Inspectable Area: Site

Property ID / Name: _____

Inspection Date: _____

Inspectable Item	Observable Deficiency	NOD	Level			NA	H&S
			1	2	3		
Fencing and Gates	Damaged/Falling/Leaning						NLT
	Holes						NLT
	Missing Sections						NLT
Grounds	Erosion/Rutting Areas						NLT
	Overgrown/Penetrating Vegetation						
	Ponding/Site Drainage						
Health & Safety	Air Quality - Sewer Odor Detected						NLT
	Air Quality - Propane/Natural Gas/Methane Gas Detected						LT
	Electrical Hazards - Exposed Wires/Open Panels						LT
	Electrical Hazards - Water Leaks on/near Electrical Equipment						LT
	Flammable Materials - Improperly Stored						NLT
	Garbage and Debris - Outdoors						NLT
	Hazards - Other						NLT
	Hazards - Sharp Edges						NLT
	Hazards - Tripping						NLT
	Infestation - Insects						NLT
Mailboxes/Project Signs	Mailbox Missing/Damaged						
	Signs Damaged						
Market Appeal	Graffiti						
	Litter						
Parking Lots/Driveways/Roads	Cracks						
	Ponding						
	Potholes/Loose Material						
	Settlement/Heaving						
Play Areas and Equipment	Damaged/Broken Equipment						NLT
	Deteriorated Play Area Surface						
Refuse Disposal	Broken/Damaged Enclosure-Inadequate Outside Storage Space						
Retaining Walls	Damaged/Falling/Leaning						NLT
Storm Drainage	Damaged/Obstructed						
Walkways/Steps	Broken/Missing Hand Railing						NLT
	Cracks/Settlement/Heaving						
	Spalling						

- In order to accurately categorize a deficiency as a "Level 1", "Level 2" or "Level 3" (including independent Health & Safety items), you must refer to the Final Dictionary of Deficiency Definitions (PASS) Version 2.3, dated 03/08/2000. This document can be found at http://www.hud.gov/offices/reac/pdf/pass_dict2.3.pdf (325 Pages, 343 KB)

- Additional clarification to these definitions is contained in the REAC PASS Compilation Bulletin which can be found at http://www.hud.gov/offices/reac/pdf/pass_bulletin.pdf (24 Pages, 275 KB)

- Only level 3 is applied to independent Health & Safety deficiencies.

- In the H&S column, NLT is a "Non-Life Threatening" Health & Safety concern whereas LT is a "Life Threatening" concern which calls for immediate attention or remedy and will show up on the Exigent Health and Safety Report at the end of an inspection.

Uniform Physical Condition Standards - Comprehensive Listing
Inspectable Area: Building Exterior

Page: _____ of _____

Property ID / Name: _____
 Building Number: _____

Inspection Date: _____

Inspectable Item	Observable Deficiency	NOD	Level			NA	H&S
			1	2	3		
Doors	Damaged Frames/Threshold/Lintels/Trim						NLT
	Damaged Hardware/Locks						
	Damaged Surface (Holes/Paint/Rusting/Glass)						
	Damaged/Missing Screen/Storm/Security Door						NLT
	Deteriorated/Missing Caulking/Seals						
	Missing Door						
Fire Escapes	Blocked Egress/Ladders						LT
	Visibly Missing Components						LT
Foundations	Cracks/Gaps						
	Spalling/Exposed Rebar						
Health and Safety	Electrical Hazards - Exposed Wires/Open Panels						LT
	Electrical Hazards - Water Leaks on/near Electrical Equipment						LT
	Emergency Fire Exits - Emergency/Fire Exits Blocked/Unusable						LT
	Emergency Fire Exits - Missing Exit Signs						NLT
	Flammable/Combustible Materials - Improperly Stored						NLT
	Garbage and Debris - Outdoors						NLT
	Hazards - Other						NLT
	Hazards - Sharp Edges						NLT
	Hazards - Tripping						NLT
	Infestation - Insects						NLT
	Infestation - Rats/Mice/Vermin						NLT
Lighting	Broken Fixtures/Bulbs						
Roofs	Damaged Soffits/Fascia						
	Damaged Vents						
	Damaged/Clogged Drains						
	Damaged/Torn Membrane/Missing Ballast						
	Missing/Damaged Components from Downspout/Gutter						
	Missing/Damaged Shingles						
	Ponding						
Walls	Cracks/Gaps						
	Damaged Chimneys						NLT
	Missing/Damaged Caulking/Mortar						
	Missing Pieces/Holes/Spalling						
	Stained/Peeling/Needs Paint						
Windows	Broken/Missing/Cracked Panes						NLT
	Damaged Sills/Frames/Lintels/Trim						
	Damaged/Missing Screens						
	Missing/Deteriorated Caulking/Seals/Glazing Compound						
	Peeling/Needs Paint						
	Security Bars Prevent Egress						LT

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Uniform Physical Condition Standards - Comprehensive Listing
Inspectable Area: Building Systems

Page: _____ of _____

Property ID / Name: _____
 Building Number: _____

Inspection Date: _____

Inspectable Item	Observable Deficiency	NOD	Level			NA	H&S
			1	2	3		
Domestic Water	Leaking Central Water Supply						
	Misaligned Chimney/Ventilation System						LT
	Missing Pressure Relief Valve						NLT
	Rust/Corrosion on Heater Chimney						NLT
	Water Supply Inoperable						NLT
Electrical System	Blocked Access/Improper Storage						NLT
	Burnt Breakers						NLT
	Evidence of Leaks/Corrosion						NLT
	Frayed Wiring						
	Missing Breakers/Fuses						LT
	Missing Covers						LT
Elevators	Not Operable						NLT
Emergency Power	Auxiliary Lighting Inoperable						
	Run-Up Records/Documentation Not Available						
Fire Protection	Missing Sprinkler Head						NLT
	Missing/Damaged/Expired Extinguishers						LT
Health & Safety	Air Quality - Mold and/or Mildew Observed						NLT
	Air Quality - Propane/Natural Gas/Methane Gas Detectec						LT
	Air Quality - Sewer Odor Detected						NLT
	Electrical Hazards - Exposed Wires/Open Panels						LT
	Electrical Hazards - Water Leaks on/near Electrical Equipment						LT
	Elevator - Tripping						NLT
	Emergency Fire Exits - Emergency/Fire Exits Blocked/Unusable						LT
	Emergency Fire Exits - Missing Exit Signs						NLT
	Flammable Materials - Improperly Stored						NLT
	Garbage and Debris - Indoors						NLT
	Hazards - Other						NLT
	Hazards - Sharp Edges						NLT
	Hazards - Tripping						NLT
	Infestation - Insects						NLT
	Infestation - Rats/Mice/Vermin						NLT
HVAC	Boiler/Pump Leaks						
	Fuel Supply Leaks						NLT
	General Rust/Corrosion						NLT
	Misaligned Chimney/Ventilation System						LT
Roof Exhaust System	Roof Exhaust Fan(s) Inoperable						
Sanitary System	Broken/Leaking/Clogged Pipes or Drains						NLT
	Missing Drain/Cleanout/Manhole Covers						

- In order to accurately categorize a deficiency as a "Level 1", "Level 2" or "Level 3" (including independent Health & Safety items), you must refer to the Final Dictionary of Deficiency Definitions (PASS) Version 2.3, dated 03/08/2000. This document can be found at "http://www.hud.gov/offices/reac/pdf/pass_dict2.3.pdf" (325 Pages, 343 KB)
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Uniform Physical Condition Standards - Comprehensive Listing
Inspectable Area: Common Areas

Page: _____ of _____

Property ID / Name: _____
 Building Number: _____

Inspection Date: _____

X	Inspectable Item Location	Observable Deficiency	NOD	Level			NA	H&S
				1	2	3		
	Basement/Garage/Carport	Baluster/Side Railings - Damaged						
	Closet/Utility/Mechanical	Cabinets - Missing/Damaged						
	Community Room	Call for Aid - Inoperable						NLT
	Day Care	Ceiling - Bulging/Buckling						
	Halls/Corridors/Stairs	Ceiling - Holes/Missing Tiles/Panels/Cracks						
	Kitchen	Ceiling - Peeling/Needs Paint						
	Laundry Room	Ceiling - Water Stains/Water Damage/Mold/Mildew						
	Lobby	Countertops - Missing/Damaged						
	Office	Dishwasher/Garbage Disposal - Inoperable						
	Other Community Spaces	Doors - Damaged Frames/Threshold/Lintels/Trim						NLT
	Patio/Porch/Balcony	Doors - Damaged Hardware/Locks						
	Restrooms/Pool Structures	Doors - Damaged Surface (Holes/Paint/Rust/Glass)						
	Storage	Doors - Damaged/Missing Screen/Storm/Security Door						NLT
		Doors - Deteriorated/Missing Seals (Entry Only)						
		Doors - Missing Door						
		Dryer Vent - Missing/Damaged/Inoperable						
		Electrical - Blocked Access to Electrical Panel						NLT
		Electrical - Burnt Breakers						NLT
		Electrical - Evidence of Leaks/Corrosion						NLT
		Electrical - Frayed Wiring						
		Electrical - Missing Breakers						LT
		Electrical - Missing Covers						LT
		Floors - Bulging/Buckling						
		Floors - Floor Covering Damaged						
		Floors - Missing Floor/Tiles						
		Floors - Peeling/Needs Paint						
		Floors - Rot/Deteriorated Subfloor						
		Floors - Water Stains/Water Damage/Mold/Mildew						
		GFI - Inoperable						NLT
		Graffiti						
		HVAC - Convection/Radiant Heat System Covers Missing/Damaged						
		HVAC - General Rust/Corrosion						
		HVAC - Inoperable						
		HVAC - Misaligned Chimney/Ventilation System						LT
		HVAC - Noisy/Vibrating/Leaking						
		Lavatory Sink - Damaged/Missing						NLT
		Lighting - Missing/Damaged/Inoperable Fixture						
		Mailbox - Missing/Damaged						
		Outlets/Switches/Cover Plates - Missing/Broken						LT
		Pedestrian/Wheelchair Ramp						
		Plumbing - Clogged Drains						NLT
		Plumbing - Leaking Faucet/Pipes						NLT
		Range Hood /Exhaust Fans - Excessive Grease/Inoperable						
		Range/Stove - Missing/Damaged/Inoperable						
		Refrigerator - Damaged/Inoperable						
		Restroom Cabinet - Damaged/Missing						
		Shower/Tub - Damaged/Missing						
		Sink - Missing/Damaged						NLT
		Smoke Detector - Missing/Inoperable						LT
		Stairs - Broken/Damaged/Missing Steps						NLT
		Stairs - Broken/Missing Hand Railing						NLT
		Ventilation/Exhaust System - Inoperable						
		Walls - Bulging/Buckling						
		Walls - Damaged						
		Walls - Damaged/Deteriorated Trim						
		Walls - Peeling/Needs Paint						
		Walls - Water Stains/Water Damage/Mold/Mildew						
		Water Closet/Toilet - Damaged/Clogged/Missing						
		Windows - Cracked/Broken/Missing Panes						NLT
		Windows - Damaged Window Sill						
		Windows - Inoperable/Not Lockable						NLT

	Windows - Missing/Deteriorated Caulking/Seals/Glazing Compound						
	Windows - Peeling/Needs Paint						
	Windows - Security Bars Prevent Egress						LT
Health & Safety	Air Quality - Mold and/or Mildew Observed						NLT
	Air Quality - Propane/Natural Gas/Methane Gas Detected						LT
	Air Quality - Sewer Odor Detected						NLT
	Electrical Hazards - Exposed Wires/Open Panels						LT
	Electrical Hazards - Water Leaks on/near Electrical Equipment						LT
	Emergency Fire Exits - Emergency/Fire Exits Blocked/Unusable						LT
	Emergency Fire Exits - Missing Exit Signs						NLT
	Flammable/Combustible Materials - Improperly Stored						NLT
	Garbage and Debris - Indoors						NLT
	Garbage and Debris - Outdoors						NLT
	Hazards - Other						NLT
	Hazards - Sharp Edges						NLT
	Hazards - Tripping						NLT
	Infestation - Insects						NLT
	Infestation - Rats/Mice/Vermin						NLT
Pools and Related Structures	Fencing - Damaged/Not Intact						
	Pool - Not Operational						
Trash Collection Areas	Chutes - Damaged/Missing Components						

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- In the H&S column, NLT is a "Non-Life Threatening" Health & Safety concern whereas LT is a "Life Threatening" concern which calls for immediate attention or remedy and will show up on the Exigent Health and Safety Report at the end of an inspection.

Uniform Physical Condition Standards - Comprehensive Listing

Page: _____ of _____

Inspectable Area: Unit

Property ID / Name: _____

Inspection Date: _____

Building/Unit Nmbr: _____

Inspectable Item	Observable Deficiency	NOD	Level			NA	H&S
			1	2	3		
Bathroom	Bathroom Cabinets - Damaged/Missing						
	Lavatory Sink - Damaged/Missing						NLT
	Plumbing - Clogged Drains						NLT
	Plumbing - Leaking Faucet/Pipes						NLT
	Shower/Tub - Damaged/Missing						NLT
	Ventilation/Exhaust System - Inoperable						
	Water Closet/Toilet - Damaged/Clogged/Missing						NLT
Call-for-Aid	Inoperable						NLT
Ceiling	Bulging/Buckling						
	Holes/Missing Tiles/Panels/Cracks						
	Peeling/Needs Paint						
	Water Stains/Water Damage/Mold/Mildew						
Doors	Damaged Frames/Threshold/Lintels/Trim						NLT
	Damaged Hardware/Locks						
	Damaged/Missing Screen/Storm/Security Door						NLT
	Damaged Surface - Holes/Paint/Rusting/Glass						
	Deteriorated/Missing Seals (Entry Only)						
	Missing Door						NLT
Electrical System	Blocked Access to Electrical Panel						NLT
	Burnt Breakers						NLT
	Evidence of Leaks/Corrosion						NLT
	Frayed Wiring						
	GFI - Inoperable						NLT
	Missing Breakers/Fuses						LT
	Missing Covers						LT
Floors	Bulging/Buckling						
	Floor Covering Damage						
	Missing Flooring Tiles						
	Peeling/Needs Paint						
	Rot/Deteriorated Subfloor						
	Water Stains/Water Damage/Mold/Mildew						
Health & Safety	Air Quality - Mold and/or Mildew Observed						NLT
	Air Quality - Sewer Odor Detected						NLT
	Air Quality - Propane/Natural Gas/Methane Gas Detected						LT
	Electrical Hazards - Exposed Wires/Open Panels						LT
	Electrical Hazards - Water Leaks on/near Electrical Equipment						LT
	Emergency Fire Exits - Emergency/Fire Exits Blocked/Unusable						LT
	Emergency Fire Exits - Missing Exit Signs						NLT
	Flammable Materials - Improperly Stored						NLT
	Garbage and Debris - Indoors						NLT
	Garbage and Debris - Outdoors						NLT
	Hazards - Other						NLT
	Hazards - Sharp Edges						NLT
	Hazards - Tripping						NLT
	Infestation - Insects						NLT
	Infestation - Rats/Mice/Vermin						NLT
Hot Water Heater	Misaligned Chimney/Ventilation System						LT
	Inoperable Unit/Components						NLT
	Leaking Valves/Tanks/Pipes						
	Pressure Relief Valve Missing						NLT
	Rust/Corrosion						NLT
HVAC System	Convection/Radiant Heat System Covers Missing/Damaged						
	Inoperable						
	Misaligned Chimney/Ventilation System						LT

	Noisy/Vibrating/Leaking						
	Rust/Corrosion						
Kitchen	Cabinets - Missing/Damaged						NLT
	Countertops - Missing/Damaged						NLT
	Dishwasher/Garbage Disposal - Inoperable						
	Plumbing - Clogged Drains						NLT
	Plumbing - Leaking Faucet/Pipes						NLT
	Range Hood/Exhaust Fans - Excessive Grease/Inoperable						
	Range/Stove - Missing/Damaged/Inoperable						
	Refrigerator-Missing/Damaged/Inoperable						NLT
	Sink - Damaged/Missing						NLT
Laundry Area (Room)	Dryer Vent - Missing/Damaged/Inoperable						
Lighting	Missing/Inoperable Fixture						NLT
Outlets/Switches	Missing						LT
	Missing/Broken Cover Plates						LT
Patio/Porch/Balcony	Baluster/Side Railings Damaged						
Smoke Detector	Missing/Inoperable						LT
Stairs	Broken/Damaged/Missing Steps						NLT
	Broken/Missing Hand Railing						NLT
Walls	Bulging/Buckling						
	Damaged						
	Damaged/Deteriorated Trim						
	Peeling/Needs Paint						
	Water Stains/Water Damage/Mold/Mildew						
Windows	Cracked/Broken/Missing Panes						NLT
	Damaged Window Sill						
	Missing/Deteriorated Caulking/Seals/Glazing Compound						
	Inoperable/Not Lockable						NLT
	Peeling/Needs Paint						
	Security Bars Prevent Egress						LT

- In order to accurately categorize a deficiency as a "Level 1", "Level 2" or "Level 3" (including independent Health & Safety items), you must refer to the Final Dictionary of Deficiency Definitions (PASS) Version 2.3, dated 03/08/2000. This document can be found at "http://www.hud.gov/offices/reac/pdf/pass_dict2.3.pdf" (325 Pages, 343 KB)
- Additional clarification to these definitions is contained in the REAC PASS Compilation Bulletin which can be found at "http://www.hud.gov/offices/reac/pdf/pass_bulletin.pdf" (24 Pages, 275 KB)
- Only level 3 is applied to independent Health & Safety deficiencies.
- In the H&S column, NLT is a "Non-Life Threatening" Health & Safety concern whereas LT is a "Life Threatening" concern which calls for immediate attention or remedy and will show up on the Exigent Health and Safety Report at the end of an inspection.