

**SNOHOMISH COUNTY URBAN COUNTY CONSORTIUM
REHABILITATION STANDARDS FOR
HOME-FUNDED PROJECTS AND PROGRAMS
February 26, 2014**

INTRODUCTION

This Manual was prepared for use by Snohomish County Office of Housing and Community Development, the City of Everett, and affordable housing developers, owners, and sponsors, for all HOME-assisted properties that are rehabilitated with HOME Investment Partnerships Program (HOME) funds administered through the Snohomish County Urban County Consortium. The Manual provides the minimum acceptable material, equipment and workmanship standards for items to be furnished and installed under the rehabilitation specifications. These Rehabilitation Standards are intended to ensure that housing rehabilitated with HOME funds is decent, safe, sanitary, and non-luxury housing with suitable amenities. Work items for which a performance standard does not appear in this Manual shall be performed by craftsman skilled in their respective trades in accordance with the best practices of the trade. The city or organization awarded HOME funds must ensure that the HOME-assisted properties meet these Rehabilitation Standards.

The contractor(s), including general contractors and any subcontractors, shall be responsible for furnishing all labor, material, equipment and services necessary for and incidental to completion of all repairs and rehabilitation as listed in the Work Specifications and described in these Rehabilitation Standards.

All work shall be subject to a final inspection by a Building Inspector associated with the local jurisdiction as required by local codes when a building permit is required. Standards for satisfactory completion shall be determined by the intent of the Contract, all applicable building code requirements, the Work Specifications and these Rehabilitation Standards. All work found to be unacceptable shall be repaired or corrected at the contractor's expense.

In addition to these rehabilitation standards, housing rehabilitated with HOME funds must also meet other property standards required under the HOME regulations. This includes compliance with 24 CFR 92.251 which, in part, requires housing rehabilitated with HOME funds to meet all applicable state and local codes, ordinances, and zoning ordinances and to meet accessibility requirements under certain federal statutes and regulations. This also includes compliance with lead-based paint requirements under 24 CFR 92.355 and 24 CFR Part 35. The specifications for bidding should incorporate both the minimum property standards and these Rehabilitation Standards.

Pursuant to new HOME regulations enacted on July 24, 2013, this Manual is anticipated to be revised in the future in order to incorporate additional property standards for housing rehabilitated with HOME funds which are anticipated to go into effect by January 24, 2015.

USE OF THESE REHABILITATION STANDARDS

Descriptions in these Rehabilitation Standards are grouped by trade. See the Table of Contents for a breakdown of trades. For example, a description of work relating to DOORS & WINDOWS is found starting on Section # 800.

Example:

800.70 INSTALL NEW LOCKING WINDOW HARDWARE

This description would be found under Section #800. - DOORS & WINDOWS.

INTENT OF THESE REHABILITATION STANDARDS

The contractor shall be responsible for furnishing all labor, material, equipment, and services necessary for, and incidental to completion of all repairs as listed in the repair specifications, or described in these rehabilitation standards. Work items for which a performance standard does not appear in this manual shall be performed by craftsman, skilled in their respective trades, in accordance with the best practices of the trade. All work shall be subject to final inspection. Standards for satisfactory completion shall be determined by the intent of the contract, all applicable Building Code requirements, the repair specifications, and these Rehabilitation Standards. All work that does not meet the standard for satisfactory completion or inspection shall be repaired or corrected at the Contractor's expense.

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100 - PEST CONTROL

100.10 PEST CONTROL

All chemical applications, fungicide or insecticide shall be made by a pesticide applicator licensed by the State of Washington.

Apply treatments according to National and Washington State Pest Control Standards and Procedures.

Provide a certificate from the company applying the pest control chemical treatment as to the applicability, content, and date of the application.

100.20 PEST INSPECTIONS

The same company (person) shall perform preliminary and final inspections unless otherwise authorized by the Rehabilitation Inspector/Advisor.

200 - GRADING AND LANDSCAPE

200.10 EXCAVATION

Remove earth to a depth of 4 inches below finish Grade for all new sections of concrete walks. Remove earth to a depth of 10-inches below finish grade for all new sections of concrete driveways and parking areas, to a depth of 6 inches for new asphalt driveways and parking areas, and to a depth of 4-inches for new gravel surface driveways and parking areas.

200.20 BACKFILL

Backfill material shall be clean and free of debris, with no wood scraps. Backfill material placed against newly damp proofed surfaces shall be an appropriate sand-gravel mix for proper soil drainage. Backfill material shall be carefully placed against walls and shall be well compacted. Fills having a depth of in excess of 30-inches shall be placed in layers 12-inches in thickness or less, and each layer shall be well compacted. Where applicable, the top 4-inches (3-inches under sod) shall be topsoil suitable for plant growth.

200.30 GRADING (YARDS)

No wood surfaces shall be closer than 6-inches to any soil.

Scheduling a yard to be graded does not necessarily imply that the pitch of the entire yard is to be changed. It usually means that various lumps, depressions and irregularities are to be raked smooth.

Rough grading shall establish a sub-grade parallel to and approximately 4-inches below the proposed finish grade. Where necessary, it shall be scarified to prevent slippage of the topsoil. Finish grading shall ensure that surface and groundwater does not collect either under slabs or at the outside face of basement and foundation walls. If possible, all surfaces adjacent to foundation or basement walls shall be sloped a minimum of 1/4-inch per foot to insure adequate surface runoff. Surface waters shall be properly routed within the limits of the property to lower elevations off the lot (public rights-of-way or easements) or to drainage systems on the lot. In the case of multiple lot grading, drainage swales may be located along property lines for the mutual benefit of adjoining properties. In no case shall surface waters be diverted onto adjacent private property. Topsoil shall be a minimum of 4-inches (3-inches under sod) of compacted soil, uniformly spread to provide a smooth surface. All topsoil shall be completely free of stones and debris and shall be suitable for plant growth. No finish grading shall be done until the ground is frost-free.

200.40 GRADING (CRAWL SPACES)

No wood surfaces shall be closer than 6-inches to any soil. Wood joists shall not be closer than 18 inches to earth and a girder no closer than 12-inches. Entire surface shall be reasonably level when grading is complete. When a suspended furnace is installed in a crawl space, there shall be an unobstructed 24-inch wide by 36-inch high passageway to the unit. The furnace itself shall not be closer than 18-inches to earth and shall have a 12-inch clearance on all sides, except that clearance on control side shall be 18 inches.

200.50 REGRADING GRAVEL SURFACES

Remove any large rocks or foreign material. Where substantial depressions exist, remove existing gravel and fill with dense, well-drained soil. Replace gravel and grade to obtain uniform surface. Top with cinders, crushed slag, rock or gravel in sufficient amount to achieve a total depth of 4 inches.

200.60 GRAVEL SURFACE

New driveways shall be at least 10 feet wide, or wider if required by local codes. Driveway approaches shall have flared entrances or radii as required by local codes for safe and convenient ingress and egress. Provide proper grade so that the under-carriage or bumpers of cars entering driveways do not make contact with the surface of the driveway approach. The size of new parking areas shall be as indicated on the drawings.

Gravel surfaces shall not be installed on grades in excess of 7/8-inch per foot. Subsurface shall be well drained, undisturbed or sufficiently compacted to prevent uneven settlement, and uniformly graded 4-inches below finish grade. The area shall be treated with a herbicide in accordance with the manufacturer's directions. Precautions shall be taken to protect adjacent surfaces and existing vegetation, both during and following application. Permanent side forms (treated 2 X 4's) may be used to reduce the spread of the gravel. The surface shall be cinders, crushed slag or rock, or gravel no less than 4-inches in depth.

200.70 SODDING LAWN

New sod shall be nursery grown, fresh cut and healthy. Sod shall be at least one inch in uniform thickness. Grass seed may be used depending on the season and is up to the discretion of the Rehabilitation Inspector/Advisor.

Lawns shall be sodded only during the appropriate seasons, when the soil is frost-free and weather conditions are favorable. First make sure that the areas to be sodded are properly graded. Next, remove existing grass, weeds, debris and rock. Then, when the soil has the proper moisture content, spread fertilizer over the area to be planted and rake it into the soil. Lightly roll ground in two directions with a lawn roller. Next install sod, starting at the base of any slopes and paralleling contours. Strips shall be tightly joined; butter and end joints shall be staggered. Sections shall be heavily watered following placement and again when the entire installation is completed. A few days after installation, sod shall be rolled lightly and again watered thoroughly.

200.80 TRIMMING TREES AND SHRUBS

Trees and shrubs shall be trimmed in accordance with accepted nursery practice. Branches shall be cut back to balance the root system. Broken and disfigured branches shall be removed. When limbs larger than 2-inches in diameter are removed, the butt end of the branch remaining on the tree shall be sealed. Neither branches nor limbs should obstruct the use of sidewalks or driveways.

200.90 SHRUB PACKAGE

The shrub package shall be planted only during appropriate seasons, when the soil is frost-free and weather conditions are favorable. Plants shall be nursery grown, healthy, well branched and free from scars, injurious diseases and insects. Plants shall be balled and burlapped or

container grown. Excavation for planting shall be at least 6- inches deeper than the depth of the ball or container. Plants shall be set in an upright position and at, or slightly -below, nursery levels. Root ball shall be left intact; container shall be removed. The backfill shall be moist planting soil firmly compacted around the roots. Form an earth saucer for watering and cover with a 2-inch mulch of peat moss, well-rotted manure or native organic material. The shrubs shall be watered immediately after the planting is completed.

200.100 SHRUB REMOVAL

When shrubs are to be removed, they shall be removed complete with roots. Any depressions shall be filled with topsoil and the entire area raked smooth and clean.

200.110 TREE REMOVAL

Tree removal does not include removing the stump unless its removal is also listed in the work schedule.

When trees are to be removed, they shall be cut down to a point as close to the finish grade as possible. All debris shall be removed and the entire area shall be raked and/or broom-swept clean.

200.120 STUMP REMOVAL

When a tree stump is to be removed, all visible traces shall be removed to a point at least 4-inches below the finish grade. Backfill remaining holes with topsoil. The entire area shall be raked smooth and broom-swept clean. Re-seed the area.

300 - FENCES AND GATES

300.10 REPAIRING AN EXISTING FENCE

Existing sections of all types of fences to be repaired shall be restored to a condition comparable to new.

300.20 CHAIN LINK FENCE

When, applicable, remove existing sections of fence complete with posts as per drawing or work schedule. Concrete footings shall be removed to a point at least 4-inches below the finish grade. New chain link fence shall be constructed of hot dipped galvanized wire mesh fabric, posts and rails. Line posts shall be 1-5/8 inch O.D. pipe. Top rails shall be 1-3/8 inch O.D. pipes. Corner, end and gate posts shall be 2-inch O.D. pipe. Post spacing shall be of equal distance and shall not exceed 10 feet on center. Line posts shall be set a full 18 inches into 8-inch top diameter concrete footings that extend at least 24 inches below grade. Corner, end and gateposts shall be set a full 18 inches into 12-inch top diameter concrete footings that extend at least 24 inches below grade. Footings shall be crowned and smooth at the top. Wire fabric shall be #11 gauge woven into 2-inch mesh selvage shall be knuckled. The completed fence shall match existing sections or stand 48 inches above the finish grade. The height may change depending on the codes in the communities where the fence is being built.

300.30 WOOD FENCE

When applicable, remove existing sections of fence complete with posts as per drawing or work schedule. Concrete footings shall be removed to a point at least 4 inches below the finish grade. New wood fence shall be constructed to be compatible with both the type of the subject dwelling and the surrounding residences. The completed fence shall match existing sections or stand 4 feet above the finish grade. Solid screen privacy fences shall not exceed 4 feet in height when located in front yards; 6 feet for side or rear yards. Cedar posts shall be treated with preservative and set in concrete footings not less than 2 feet below finish grade. Post spacing shall be determined by the fence style chosen but shall, in all cases, be at intervals

insuring lateral stability. All nails shall be hot dipped galvanized with zinc coating or other material made to be outside in the weather.

300.40 REPAIRING EXISTING GATES

Existing gates of all types to be repaired shall be restored to A-1 condition comparable to new. Hinges and gate latch shall be repaired or replaced as necessary. Hardware shall be zinc-plated or other material made to be outside in the weather. All gates shall operate easily and properly.

300.50 CHAIN LINK GATES

New chain link fence gate shall be of the same construction as chain link fence described on Section # 300.30, except that both top and bottom selvage shall be knuckled. New gateposts may be required. Gate shall be swing type, with latch.

Vehicle gates shall be of a width appropriate to their intended use. All gates shall operate easily and properly.

300.60 WOOD GATES

New wood gates shall be of the same style and construction as wood fence and shall be mounted on new gateposts where necessary. Gates shall be swing type with latch; all hardware shall be hot dipped galvanized with a zinc coat of 1.0 ounce per square foot or other material made to be outside in the weather. Hardware includes hinges, latches, bolts, or springs.

Vehicle gates shall be of a width appropriate to their intended use. All gates shall operate easily and properly.

400 - DEBRIS

400.10 GENERAL INSTRUCTIONS

The contractor shall be responsible for removing all debris from the property.

Demolition work shall conform to the requirements of all applicable codes, ordinances and utility company regulations. When items are scheduled to be removed, they shall be removed complete. Any surfaces scheduled to remain that are damaged by the demolition work shall be repaired to match the adjacent existing surfaces or the new finishes as applicable. All companies or authorities owning conduits, wires or pipes running over or under the property shall be notified so that appropriate arrangements can be made for the removal of any utilities and the capping of any pipes that are to be abandoned. All removed public services shall be checked to see that they have been effectively plugged up or cut off. Similarly, conduits, drains, pipes and wires that are to remain on the property or that serve adjacent properties shall be carefully protected or be rerouted. Existing shrubs protected until demolition is complete and the site is cleared.

Material on the site that is designated to be removed shall become the property of the contractor to sell or dispose of to his best advantage. The demolished material shall be placed in neat piles and stacks while awaiting disposal. So that the premises will not acquire a disorderly or unsightly appearance, all demolished materials, removed sections of pavement, broken up concrete, curbs, gutters and sidewalks shall be removed from the premises within a reasonable time.

Areas of grass killed by demolition or by the storage of debris and other materials shall be raked clean and re-sodded or seeded. All debris must be removed prior to final inspection and all areas shall be left in a neat condition. Combustible materials or rubbish shall not be burned on the premises. During the performance of the work of this section, the areas being demolished and any materials being loaded into trucks for disposal shall be sprinkled as necessary to reduce dust in the air and prevent annoyance to the area.

400.20 PORCHES AND FRAME ENCLOSURES

Protect all wall openings until they can be enclosed.

Backfill and grade the yard as necessary. Exposed areas, where appropriate and now part of the yard, shall have 3-inches of topsoil and shall be sodded.

See Section 200 - GRADING AND LANDSCAPE for further description.

400.30 RADIO/TV ANTENNAS

When scheduled to be removed, radio or television antennas shall be removed from the roof together with any guy wires or ropes attached to the antennas. When the antennas and guy wires or other supports are removed, care shall be taken not to leave any nail holes in the roofing that will leak water into the house. All holes and any other damage to the roofing shall be repaired as necessary.

400.40 STRIPPING INTERIOR SURFACES

Remove finish materials from walls and/or ceilings. When plaster is to be removed, it shall be removed complete with latching and fastenings. Also remove all unnecessary nails and makeshift shelving.

500 - CONCRETE, MASONRY AND CAST STONE

500.10 GENERAL INSTRUCTIONS

The load bearing capacity of the soil shall determine the type of footing, foundation or slab system used according to locally adopted building codes. Soils of low bearing capacity necessitate provisions for greater load distribution. On fill material, footings shall extend to undisturbed soil unless the fill has been sufficiently compacted to insure against excessive differential or overall movement of the structure. Refer any questions to the local building department.

Concrete shall be standard, air-entrained Portland Cement Concrete with water cement ratios as recommended by the Portland Cement Association for the particular application. Aggregate shall be clean and free from organic or other harmful material. No concrete shall be placed on extremely wet or frozen ground, and no concrete shall be placed when the temperature is less than 40 degrees F or greater than 90 degrees F, unless it is properly protected and controlled for such weather in accordance with the recommendations of the American Concrete Institute and the Portland Cement Association. Formwork shall be true to lines and grades and be properly braced and rigid to prevent displacement. Forms shall be constructed so as to not damage concrete when being removed. Concrete shall have proper slump when placed in forms. Concrete for footings and porch-deck slabs shall have a 1-2 inch slump; concrete for sidewalks, driveways and slabs on grade shall have a 2-4 inch slump. However, in no case shall the slump be more than 4-inches. Concrete shall not be deposited in forms from a height greater than 3-feet. All concrete shall be vibrated to prevent honeycombing. After placement, concrete shall be screeded to proper elevation. During cold or hot weather, steps shall be taken to maintain appropriate curing temperature and rate of water evaporation. After forms are stripped, honeycombed or defective work shall be immediately repaired. After the rods have been removed, holes shall be plugged or patched with the proper mortar mix. Quality and finish shall be in accordance with recognized standards.

Upon completion of work, concrete surfaces shall be swept clean. All loose concrete particles, mortar, plaster and other foreign matter shall be removed and concrete slabs shall be washed with water. After drying, the slabs shall be swept clean.

Contractor shall do all cutting and patching into concrete or masonry surfaces as required for the job. The Contractor shall fire-stop all openings where pipes or ducts pass through walls or floors.

500.20 REPLACE CONCRETE - INSTALL NEW CONCRETE

"REPLACE" implies removal of existing sections of damaged concrete, preparation of the sub-grade, and pouring of new concrete. "INSTALL NEW" implies excavation, preparation of the sub-grade, and pouring of new concrete.

Good sections of concrete are sometimes scheduled to be replaced, such as when basement walls are to be damp-proofed.

Concrete that will be cut, broken or removed and which is to be bonded to new concrete in any location shall be neatly cut using concrete cutting saws. The sawcut shall be made deep enough into the concrete being cut to ensure that the subsequent breaking and removal of the remaining section will not result in the cracking, spalling or chipping of an exposed surface or edge. The balance of the breaking shall be carefully done to ensure that exposed or structural parts are not cracked or damaged. Any surfaces to be bonded against shall be prepared by shipping and thorough washing. Exposed sawcut edges that will be treated as expansion or tooled control joints shall have the sharp sawcut edge eased with a power hand grinder to approximate the rounding made by an edging tool.

500.30 PATCHING CONCRETE

Remove spalled or loose concrete in squared-off sections using a masonry saw or chisel. Edges shall be dovetailed so that the opening at the bottom is larger than the opening at the top. Provide wire mesh reinforcement for holes greater than 6-inches X 6-inches. Apply a coat of concrete bonding agent prior to application of new flash patching material. Floor slabs and exterior-wearing surfaces shall be float finished. Deck slabs shall be steel troweled.

500.40 CONCRETE SIDEWALK

The sub-grade shall be well drained, uniformly graded and compacted. New concrete shall be at least 4-inches thick. Contraction joints shall be provided at approximate 4-foot intervals and expansion joints at entrance platforms and at intersections with driveways or other walks. Width of new concrete sections shall match existing sections except where the new main walks shall be 36-inches wide and new secondary walks shall be 30-inches wide, unless otherwise specified. Wearing surfaces shall receive a float finish.

500.50 CONCRETE DRIVEWAY

The sub-grade shall be well drained and uniformly graded. New concrete driveways shall be placed on a well-compacted 4-inch gravel base. Concrete shall be at least 6-inches thick. Contraction joints shall be provided at approximate 10-foot intervals and expansion joints at intersections with public walks, curbs and garage or carport slabs. Width of new concrete sections shall match existing except that new driveways shall be at least 10-feet wide, or wider if required by local codes. Finish surfaces shall receive a float finish and be true to cross section and grade. Concrete shall be kept moist for a period of three (3) days to ensure proper curing.

500.60 CONCRETE DRIVEWAY APPROACH

Construction of a new driveway approach shall be the same as for new concrete driveway. In addition, entrances shall be flared or have adequate radii for safe and convenient ingress and egress. Provide proper grade so that the under-carriage or bumpers of cars entering the driveway do not make contact with the surface of the driveway approach.

500.70 CONCRETE PARKING AREA

Construction of new parking area shall be the same as for new concrete driveway. Size shall be as indicated on the drawings.

500.80 SKIRT FOOTINGS (TRENCH FOOTING)

Concrete footings supporting block skirts shall be built to local building codes.

500.90 PIER AND COLUMN FOOTINGS

Concrete footings supporting masonry piers or columns shall be built to local building codes.

Concrete footings supporting wood piers shall be built to local building codes.

Bottom dimensions will vary with the footing design. Provide steel pin for anchoring pier.

500.100 STEP STRINGER FOOTINGS (TRENCH FOOTING)

Concrete footings for cast stone or concrete steps shall be built to local building codes.

500.110 STEP PAD

The concrete step pad supporting the first riser and tread shall be at least as wide as the steps and be a minimum of 4-inches thick.

500.120 STANTON OR POST FOOTINGS (UNDERPINNING)

Cut out a 12-inch by 12-inch section of floor slab using a masonry saw or chisels. Edges shall be dovetailed so that the opening at the bottom of the slab is larger than the opening at the top. Remove enough earth to pour new concrete footing. The new footing shall sit on a 4-inch sand and gravel sub-grade. Provide wire mesh reinforcement as necessary. Footings will be built to local building codes.

Provide steel pins for anchoring post. Float finish the surface.

500.130 CONCRETE PIER BLOCK (PLINTH)

New pier block shall be a pre-cast or poured unit and shall be anchored to the existing slab.

Pier blocks shall extend 4-inches above the finish floor elevation. Provide steel pins for anchoring post.

500.140 POURED CONCRETE STEPS

New concrete steps shall be as wide as the sidewalk or at least 3-feet wide. Steps shall be built to local building codes.

Rise and run shall be uniform throughout flight. Provide 1/8-inch pitch for drainage. Wearing surfaces shall be steel troweled.

500.150 CAPPING CONCRETE FLOOR AND DECK SLABS

Clean floor or deck of all loose, damaged or spalled concrete and apply a coat of concrete bonding agent prior to application of new concrete. New topping shall be a minimum of 2-inches thick. Install new pier blocks as necessary. Raise floor drains or drain spout as necessary. Slope basement floor to existing floor drains and slope garage floor to code approved floor drains or to the vehicle door; floats finish surface. Slope the deck slab to drain away from the foundation wall and steel trowel the surface.

500.160 CAPPING AREA WAY BASES

Clean base of all loose, damaged or spalled concrete and apply a coat of, concrete bonding agent prior to application of new concrete. New topping shall be a minimum of 2-inches thick. Raise drains as necessary. Slope the base to existing drain and float finish surface.

500.170 CONCRETE, DECK SLAB

New concrete deck slab shall be a minimum of 4-inches thick. When the span of the deck is greater than 42-inches, it shall be reinforced with 6-inch X 6-inch, No. 10 wire mesh. Edges of sections of wire mesh shall lap one full mesh or 6 inches. Lap shall be tied together. Provide flashing between the slab and wood construction. Slab shall be anchored to or supported at

foundation walls by anchors on piers built with the wall. Slope the deck slab to drain away from the foundation wall. Wearing surfaces shall be steel troweled.

500.180 CONCRETE FLOOR SLAB (ON OR BELOW GRADE)

Base for slab shall be well-compacted 4-inch sand-gravel sub-grade. Provide polyethylene vapor barrier between sub-grade and slab. Vapor barrier is not required for garage floor slab. Footings will vary with the type of slab, but shall extend at least 12-inches below grade. Unless fill has been compacted, assuring uniform slab support, slabs on fill shall be supported by concrete or masonry piers or intermediate foundation walls resting on undisturbed soil. New concrete slab shall be a minimum of 4-inches thick. It shall be reinforced with 6-inch x 6-inch, No.10 wire mesh. Edges of sections of wire mesh shall lap one full mesh or 6-inches. Lap shall be tied together. Install one-inch rigid insulation board at the perimeter of the slab. Where applicable, slope concrete to floor drains. Float finish the surface.

500.190 EXTERIOR STUCCO PLASTER

Remove all damaged stucco. Repair metal lath or wire fabric as necessary. Over wood frame construction, apply new three-coat finish with a minimum thickness of 7/8-inch. Over masonry surfaces apply new two-coat finish with a minimum thickness of 5/8-inch. Top-coat shall match existing in texture and finish. Do not apply stucco plaster when the temperature is less than 40 degrees F or when the temperature is not expected to remain above 40 degrees F or when the temperature is not expected to remain above 40 degrees F until initial set.

500.200 POURED CONCRETE RETAINING WALL

New walls shall be gravity or cantilever type. They shall be structurally sound and durable. Design walls to resist the lateral pressure exerted by the earth behind the wall, including that material above the top of the wall. All walls shall conform to local code requirements.

500.210 POURED CONCRETE FOUNDATION WALL

New walls shall conform to local code requirements. Footing dimensions shall be determined by the thickness of the wall. Footings shall be keyed for lateral stability. Provide reinforcement as necessary. Concrete shall be poured continuously and constantly to remove air pockets. Where continuous pouring is impossible, provide construction joints with reinforcement for transfer of stresses. All wall openings shall be properly reinforced. Any existing walls, intersecting walls, porch and entrance slabs, and areaways shall be anchored to the new wall. The top of the foundation wall shall be carefully finished and leveled for the sill plate. The exterior face of the wall shall have at least one coat of bituminous damp-proofing material from footing to finish grade. New drain tile shall be properly placed at the perimeter of the footing and connected, as required by local code, to a storm sewer system, natural outlet or drywell. Backfill material shall be an appropriate sand-gravel mixture for proper soil drainage. Where applicable, top 3-inches shall be topsoil suitable for plant growth. Replace sod or seed as necessary.

500.220 GENERAL INSTRUCTIONS

Existing masonry units may be reused if undamaged and cleaned. New masonry units shall be true to size without cracks, chips, or other defects. New masonry units shall match existing as close as possible. Where fresh masonry joins existing masonry, the exposed surface of the set masonry shall be cleaned and lightly wetted so as to obtain the best possible-bond with the new work. Repair or replace flashing as necessary. Lay masonry units plumb, square, and properly anchored. Lay all courses with a full mortar bed and tool all exposed joints. Mortar shall be protected from freezing until it has set. Thoroughly clean all exposed new face brick with a proper solution of muriatic acid. Keep acid away from metal work.

Contractor shall do all cutting and patching into concrete or masonry surfaces as required for the job. He shall fire-stop all openings where pipes or ducts pass through walls or floors.

500.230 CLEAN AND SCRUB FIREPLACE

Scrub the inside of all unpainted fireplaces per specifications.

500.240 TUCK-POINTING

Tuck-point all joints and cracks from which the mortar has eroded, deteriorated, or fallen out. In all cases, the masonry shall be watertight and uniform in appearance. The color of mortar used for tuck-pointing shall match existing as closely as possible. Remove all excess mortar.

500.250 REBUILDING/BUILDING NEW PIERS AND COLUMNS

Remove damaged pier or column. Provide new footings where none exist and build new or rebuild existing piers and columns as scheduled. Size shall match existing, but the dimensions shall be adequate to support the loads imposed. Provide steel reinforcement where necessary. New hollow masonry piers and columns shall be filled with concrete.

500.260 CONCRETE BLOCK RETAINING WALL

New walls shall be structurally sound and durable. Design walls to resist the lateral pressure exerted by the earth behind the wall, including the material above the top of the wall. Walls shall be constructed in accordance with the recommendations of the National Concrete Masonry Association. They shall have a 6-inch wide layer of gravel, crushed rock or sand between the earth and the wall, extending the full height of the wall. Block shall be set in full mortar beds with joints tooled smooth, except where the exposed surface is to be parged. Reinforce block laterally and vertically as necessary and fill cavities containing reinforcement with mortar. Place weep holes 10-feet on center. The top course shall contain a bond beam or be capped to provide a finished surface. All walls shall conform to local code requirements.

500.270 CONCRETE BLOCK FOUNDATION WALL

Block face shells shall provide a 1-1/2-inch wide mortar bed. Joints shall not exceed 3/4-inch and shall be tooled smooth, except those on the exterior face being parged. The joint between wall and footing shall be tight and have a cove of elastic caulking compound on the exterior side. Stack bond shall be laterally reinforced every second course. Provide other reinforcement as necessary. Location of control joints shall be determined by the height of the wall. The top course shall be filled or capped. Walls shall be bonded or anchored to existing and intersecting walls. Porch and entrance slabs and areaways shall be anchored to the wall. All openings in the wall shall be reinforced and set with keys. The exterior face shall be covered with at least one coat of Portland cement parging no less than 3/8-inch thick, and shall have at least one coat of bituminous damp-proofing material from footing to finish grade. New drain tile shall be properly placed at the perimeter of the footing and connected, as required by local code, to a storm sewer system, natural outlet or drywell. Backfill material shall be an appropriate sand and gravel mixture for proper soil drainage. Where applicable, top 3-inches shall be topsoil suitable for plant growth. Replace sod or seed as necessary. All work shall conform to local code requirements.

500.280 CHIMNEY REPAIR

When a chimney is scheduled to be repaired, it shall be repaired as necessary. This includes tuck-pointing, replacing damaged masonry, replacing metal flashing as necessary, and installing a new cap and/or flue extension where necessary.

500.290 CHIMNEY FLUE EXTENSION

Remove damaged top section. Carefully bed in mortar a new section of fire-clay flue lining on the lower section. Joints shall be close fitting and left smooth on the inside. The top of the flue lining shall be at least 4 inches above the top of the chimney. Metal flues may also be used.

500.300 GENERAL INSTRUCTIONS

All cast stone units shall be fabricated of concrete or other approved materials providing the required strength, durability, and fire resistance. They shall be reinforced where necessary.

When cast stone units are replacing existing masonry, remove the damaged unit and prepare the adjoining surfaces for the installation of a new unit.

Replacement units shall match existing in dimension and appearance as closely as possible.

500.310 CAST STONE CHIMNEY CAP

The new cap shall be at least 2-inches thick at the outside edge and shall slope away from the flue.

500.320 CAST STONE STEPS

New step unit shall include precast stringers, stringer footings and cast stone steps. New step unit shall be as wide as the sidewalk or at least 3-feet wide. Rise and run shall be uniform throughout the flight. Steps shall be pitched for drainage. Concrete stringer footings shall be built per local building code.

500.330 MASONRY PORCH

New porch shall be built complete, including trench footings for porch skirt and step stringers, a cast-in place concrete deck slab built to local building code. The block skirt shall conform to previously mentioned standards and code for masonry construction.

500.340 MASONRY PORCH REMOVAL

Remove all visible evidence of porch to a point at least 4-inches below finish grade. Work shall be done with a minimum of damage to the main structure.

Protect all wall openings until they can be enclosed. See also Section # 400 – DEBRIS.

Backfill and grade as necessary. Exposed areas, now part of the yard, shall have 3-inches of topsoil and shall be sodded or seeded. See Section # 200 - GRADING & LANDSCAPE for further description.

600 - PROOFING AND WATERPROOFING

600.10 DAMPPROOFING

All walls to be dampproofed shall be prepared as necessary prior to application of the dampproofing material. Repair all loose or defective mortar joints and cracks in exterior foundation walls. Exterior foundation walls of masonry construction shall be damp-proofed by applying appropriate waterproofing material per industry standards. Exterior foundation walls of concrete construction shall be damp-proofed by applying one coat of an approved bituminous material at the manufacturer's recommended rate. If drain tile is in good condition, it may be reinstalled. Damaged drain tile shall be replaced. Where none exists, new drain tile shall be properly placed at the perimeter of the footing and connected, as required by local code, to a storm sewer system, natural outlet or drywell. Backfill material placed against newly dampproofed surfaces shall be an appropriate sand-gravel mix for proper soil drainage. Where applicable, top 3-inches shall be topsoil suitable for plant growth; replace sod or seed as necessary. Adjacent materials, which have been soiled by dampproofing, shall be cleaned immediately and all surfaces shall be left in a neat condition.

600.20 WATERPROOFING

First repair all loose or defective mortar joints and cracks in surfaces to be waterproofed. Then clean all dirt, oil, loose particles, concrete laitance, paint, adhesives, etc. from surfaces. Wire

brushing, sand blasting and acid bathing are acceptable methods of cleaning. Surfaces treated with acid must be thoroughly washed with clean water.

Apply two-coat application of Xypex Concentrate and Modified, or equal, as per manufacturer's recommendations. After treatment, the surfaces shall be kept moist for at least two days to aid curing. Adjacent materials, which have been soiled by waterproofing, shall be cleaned immediately and all surfaces shall be left in a neat condition.

Alternate waterproofing of concrete floors can be processed with procedures developed by the industry.

700 - ASPHALT

700.10 RESURFACING DRIVEWAY AND APPROACH

Resurfacing a driveway shall consist of placing a new wearing surface on an existing asphaltic concrete driveway. Work shall not be done in inclement weather. Patch and fill cracks, holes and depressions to obtain a smooth surface. Sweep and clean all surfaces thoroughly and apply a coal tar emulsion bond coat as per manufacturer's recommendations. New wearing surface shall be not less than 1-1/2 inches, when compressed, of hot asphaltic concrete. Apply two seal coats. The finish pavement shall be warped smoothly for drainage and show a close grained, uniform and smooth surface free of depressions. The weight of the wearing surface after rolling shall be at least 18 pounds per square foot. The driveway shall not be used until the pavement has set for at least 48 hours.

700.20 ASPHALTIC CONCRETE SURFACES

New driveways shall be at least 10-feet wide, or wider if required by local codes. Driveway approaches shall have flared entrances or radii as required by local codes for safe and convenient ingress or egress. Provide proper grade so that the under-carriage or bumpers of cars entering driveways do not make contact with the surface of the driveway approach. The size of new parking areas shall be as indicated on the drawings.

Final pavement surface shall be near level with adjacent finish grade. Subsurface shall be well drained, undisturbed or sufficiently compacted to prevent-uneven settlement, and uniformly graded. The area shall be treated with a herbicide in accordance with the manufacturer's directions. Precautions shall be taken to protect adjacent surfaces and existing vegetation, both during and following application. Formwork shall be used, no rolled edges allowed. The base course of crushed stone or gravel (1-1/2 inch or less in diameter) shall be no less than 2-1/2 inches deep and shall be rolled following placement. This course may be omitted where the sub-grade is undisturbed sand and/or gravel. The top course of crushed stone or gravel (5/8 inch or less in diameter) shall be no less than 1-1/2 inches deep. It shall be shaped to provide uniform surface draining with a slope of at least 1/4-inch per foot. The wearing surface shall be not less than 2-inches, when compressed, of hot asphaltic concrete. Apply two seal coats. Asphaltic concrete shall not be placed in inclement weather. The finish pavement shall be warped smoothly for drainage and show a close grained, uniform and smooth surface free of depressions. The weight of the wearing surface after rolling shall be at least 24 pounds per square foot. The driveway shall not be used until the pavement has set for at least 48 hours.

800 - DOORS AND WINDOWS

800.10 GENERAL INSTRUCTIONS

Doors, windows and hardware not scheduled for repairs or replacement are assumed to be in place and to operate properly.

Whenever window assemblies, sash or doors are being replaced, frames, headers and sills shall be repaired as necessary to provide a square, plumb, level and rigid enclosure for the new installation. Install new item as per manufacturer's recommendations. Flashing shall be repaired or replaced as necessary. All openings between wood, masonry and metal shall be caulked with a high quality paintable sealant. Openings wider than 1/4-inch shall be filled with low expanding foam and/or backer rod within 1/4 inch of the surface and then filled with sealant. All new sash or doors shall fit tightly in their frames and shall operate smoothly and easily. Contractor shall repair or replace all trim incidentals to the operation of the sash or doors. New windows shall be double paned, white vinyl windows w/Low E coating, argon filled, and Super Spacers or equivalent to meet U factor ≤ 0.30 , and SHGC ≤ 0.30 ; windows will also carry a lifetime warranty unless otherwise specified.

All hardware within a room shall be similar in style and finish. New finish hardware shall be furnished with the necessary screws, bolts or other fastenings of a suitable size and type to anchor the hardware in position for heavy use and long life. The finish hardware shall be securely fitted on properly prepared surfaces in conformity with the hardware instructions and templates. Carpentry cuts for the finish hardware shall be carefully and accurately made. New doorknobs shall be positioned at the height of the existing doorknobs in each building and the other hardware positioned in accordance with good general practice.

800.20 NOTE

All exterior doors, except service doors for unheated garages and other out buildings, shall be fully weather-stripped. Out swing doors shall be outfitted with security hinges to prevent removal of door from the exterior and hinges rated for exterior applications (corrosion proof).

Except where not required by local code, all doors between a carport or garage and the house shall have self-closing hardware.

For all doors, casing, trim that are naturally finished "stain grade wood" shall be used otherwise MDF or Finger jointed wood may be speced out. When door is to be painted, it may be paint grade.

800.30 REPAIRING/REALIGNING GARAGE DOORS

Repair or replace tracks, rollers, hinges and all other operating hardware as necessary. Then adjust springs and hardware so that the doors operate smoothly and easily.

800.40 GARAGE DOOR HARDWARE

New latch lock shall engage both sides of door when closed. Door shall key outside, but shall lock and unlock from both inside and outside. The outside lock handle shall have a weather resistant finish.

800.50 GARAGE DOOR

New door shall be sectional roll-up type, either flush or panel style; type shall be appropriate to the location of the garage and compatible with the style of the house. Nominal door thickness of sectional door shall be 1-3/8 inches; panels shall be galvanized steel or aluminum. Door shall be installed complete with galvanized or zinc plated latch lock and hardware. Counterbalance spring may be extension or torsion type. Bottom edge of door shall have a vinyl weather seal. When the door is closed the gap at the top and sides shall be no larger than 1/2-inch.

800.60 ENTRANCE LOCKSET HARDWARE

A new entrance lockset shall have a weather resistant finish. Cylindrical lock shall key outside with turn button on the inside; lock shall have dead pin. Install new escutcheon plates when replacing existing hardware. Provide floor, base, or hinge doorstops on all exterior door installation, unless otherwise specified.

New hardware for double doors shall include the repair or replacement of flush or surface mounted bolts.

800.70 EXTERIOR JAMBS AND STOPS

New door jambs and stops shall be solid wood or composite; finger jointed material is acceptable.

800.80 METAL DOOR THRESHOLD

New metal threshold shall be aluminum or metal, water return type, with integral weather stripping and shall fit watertight with door. Caulk at exterior edge. Threshold may be solid vinyl threshold designed for use at exterior doorways.

800.90 EXTERIOR DOOR WEATHER STRIPPING

New weather stripping shall be 7/8-inch wide, .006 inch thick, cushion bronze or interlocking aluminum type. It shall be installed continuous around door casing to prevent infiltration of dust, water and wind.

800.100 EXTERIOR DOOR

New door shall be 1-3/4 inch weather resistant; solid core wood door, insulated steel or fiberglass, or other as specified. Door shall be installed complete with new entrance lockset hardware and self-closing hardware where required. Door shall be weather-stripped and shall be hung with three, pre-finished, 4-inch butt hinges.

800.110 PRE-HUNG EXTERIOR DOOR

A new pre-hung door package shall include door, jamb (casing), stops, trim, threshold and all hardware. Type of door shall be as specified. Door shall be weather-stripped when it opens to the outside and finish trimmed. Finger jointed casing or trim is acceptable.

800.120 DEAD BOLT LOCKS

Dead bolt locks shall have a minimum of 9/16, throw. Operated by key from outside and thumb turn from inside. Bolt automatically dead locks when fully thrown. On new installations, lock shall be keyed alike with entrance lockset, unless otherwise specified.

800.130 NOTE

Interior doors in new construction shall be a minimum of 6'-8", high, except that sliding or bi-fold doors for closets may be 6'-0" in height when the depth of closet is 32-inches or less; doors shall be a minimum of 2'0" wide for closets and 2'-6" wide for all other uses.

800.140 CHECK, FIT AND FREE DOORS

Doors shall be made to operate smoothly and easily. Where necessary, trim doors to allow the circulation of air back into the warm air furnace.

800.150 PASSAGE SET HARDWARE

New passage set hardware shall be pre-finished. Door to bathrooms or toilet rooms shall have a privacy lock push button on the inside. Doorstops shall be installed for all interior doors, unless otherwise specified. New hardware for double doors shall include the repair or replacement of flush or surface mounted bolts.

800.160 MISCELLANEOUS DOOR HARDWARE

Miscellaneous hardware to be replaced shall include self-closing hardware for exterior doors where required, finger pulls for sliding doors, knobs or pulls for bi-fold doors, and push plates, when scheduled to be installed. New hardware shall be polished brass or brushed aluminum finish. All miscellaneous hardware within a room shall be similar in style and-finish.

800.170 INTERIOR DOOR JAMBS AND STOPS

New door jambs and stops shall be clear grain materials if millwork is stained. Primed MDF materials are acceptable where millwork will be painted.

800.180 HOLLOW CORE INTERIOR DOOR

New door shall be 1-3/8 inch or 1-3/4 inch wood door. Door shall be installed complete with new passage set hardware and shall be hung with two, pre-finished, 3-1/2 inch butt hinges.

800.190 SOLID CORE INTERIOR DOOR

New door shall be similar to hollow core door described above, but with hardware appropriate to its location and use.

800.200 PANELED WOOD INTERIOR DOOR

Replacement door shall match existing as closely as possible. Door shall be installed complete with new passage set hardware and shall be hung with two, brass or brushed aluminum finish, 3-1/2 inch butt hinges.

800.210 WOOD FRENCH DOOR

New door shall be installed complete, including glass, with new passage set hardware and shall be hung with two, brass-or brushed aluminum finish, and 3-1/2 inch butt hinges.

800.220 LOUVERED WOOD DOOR

New door shall be slat-type, ventilating wood door. Slats shall be straight or round edge. Doors shall be installed complete with new hardware. All hardware shall be polished brass or brushed aluminum finish.

800.230 WOOD PRE-HUNG INTERIOR DOOR

New pre-hung door package shall include wood door, jamb (casing), stops, trim and all hardware. The type of door hung shall be as scheduled. Door opening shall be trimmed.

800.240 BI-FOLD DOORS

New bi-fold doors shall be 1-3/8 inch wood doors or as scheduled. When scheduled, louvered doors shall be full louvered types; install complete with all new hardware. All hardware (doorknobs, hinges, etc.) shall be polished brass or brushed aluminum finish.

800.250 BI-FOLD DOORS AND ASSEMBLY

New bi-fold doors and assembly shall include doors, aluminum track and trim, and all hardware. Type of door shall be as scheduled. When scheduled, louvered doors shall be full louver type. The opening shall be trimmed as necessary for the installation of the new assembly.

800.260 SLIDING DOORS

New doors for bypassing installations shall be 1-3/8 inch wood doors. New doors for pocket installations shall match other interior doors, or be as specified. Doors shall be installed complete with new hardware. Two recessed door pulls (large diameter type) and one door stop shall be pre-finished.

800.270 SLIDING DOOR ASSEMBLY (BY-PASSING TYPE)

New sliding door assembly shall include 1-3/8 inch wood doors, top roller assembly and floor guide, and all hardware. The opening shall be trimmed as necessary for the installation of the new assembly.

800.280 SLIDING DOOR ASSEMBLY (POCKET-TYPE)

New sliding door assembly shall include 1-3/8 inch wood door, pocket assembly, top roller assembly and floor guide, and all hardware. The opening shall be trimmed as necessary.

800.290 GLASS IN DOOR WALLS

When either the sliding or fixed panel of a door window is scheduled to be replaced, the new glass shall be at least 3/16 inch tempered safety glass, double paned insulated glass.

800.300 SLIDING SCREEN PANEL IN DOOR WALL

Screening shall be 18X16 gray fiberglass screen cloth or 18X16 anodized aluminum screen cloth.

800.310 NEW SLIDING GLASS DOORS

Doors shall be constructed from vinyl. All frame and panel members shall be mechanically joined and scaled in a self-aligning and rigid manner to assure a neat and weather tight construction. Sliding panels shall have fully adjustable sealed ball bearing steel rollers. Channel shall be weather stripped with silicone treated polypropylene to assure maximum weather seal. Sliding panel shall be provided with positive action locking devices in a deluxe handle assembly. The latch shall be operable only from the inside of door with provision for attachment of a 5-pin tumbler cylinder lock for operation from exterior.

800.320 GLASS FOR SHOWER STALL DOOR AND TUB ENCLOSURE

When sliding panels for tub enclosures or shower doors are scheduled for replacement or repair the new glass shall be a minimum of 3/16 inch full tempered glass.

800.330 DOUBLE-SLIDE TUB ENCLOSURE

New enclosure shall be double-slide type. The frame or top channel, jamb channels and water-stop shall all be anodized aluminum. Each sliding panel shall have one towel bar. A new tub enclosure shall fit watertight.

800.340 SHOWER STALL DOOR AND ASSEMBLY

New shower stall door assembly shall include stiles, head rail, threshold, door and all operating hardware. Door shall open outward. Hinge shall be continuous piano-type. Metal shall be extruded anodized aluminum, satin finish. Door shall be glazed with obscure glass. New assembly shall fit watertight.

800.350 CHECK, FIT AND FREE WINDOWS

Sash painted shut shall be freed and sash and its operating hardware shall be readjusted for smooth and easy operation. Sash locks that are not scheduled to be replaced shall be repaired or realigned as necessary to firmly secure windows. Sash cranks missing for casement, awning or jalousie type windows shall be replaced as necessary. Finish and style of new hardware shall match existing as closely as possible.

800.360 LOCKING WINDOW HARDWARE

All window hardware within a room shall be uniform in style and finish, no mixture allowed. New hardware shall not be painted. When locking hardware is scheduled to be replaced, the finger lifts and pulls shall also be replaced. New hardware shall be polished brass or brushed aluminum finish.

800.370 WINDOW STOPS, STOOLS AND APRONS

New wood trim shall be solid wood or MDF materials as specified. Clear grain wood is to be used if natural finish. MDF or finger jointed material for paint grade application.

800.380 WINDOW SASH

Replacement sash shall match existing as closely as possible. Install new sash as per manufacturer's recommendations, complete with new operating hardware. Operable sash shall have some means of being secured. The sash shall fit tightly in frame to prevent infiltration of dust, water and wind. A new sash shall operate smoothly and easily.

800.390 WOOD UPPER AND LOWER SASH

A new sash shall be stock one-over-one type, with spring or tension counterbalances. Window lifts and locking hardware shall be polished brass or brushed aluminum finish.

800.400 WOOD BASEMENT WINDOW SASH

New sash shall be top-hinged and shall swing into room. Windows shall be hung with two primed steel, 2-1/2 inch butt hinges. Locking hardware shall be polished brass or brushed aluminum finishes.

800.410 WINDOWS AND ASSEMBLIES

A new window and assembly shall include sash, jamb (casing), mullions, frame, stiles, sill, stool, apron and all trim as appropriate to the particular type. Finger jointed material (for jamb, apron, etc.) is unacceptable when wood is exposed to moisture or when it is to be natural finish.

Windows and assemblies shall be installed complete with all operating hardware and all sash shall fit tightly in frames.

A new sash and assembly shall match the existing in style and finish unless in the bathroom or otherwise specified on the drawings. New windows in tub and shower areas shall be small vinyl sliding windows, at least 2-square feet in area.

800.420 VINYL WINDOWS AND ASSEMBLIES

New white vinyl windows shall be manufactured with Low E glazing, argon filled, and Super Spacers or equivalent to meet the following criteria (U factor ≤ 0.30 SHGC ≤ 0.30). If internal grids are installed they shall be allowed only on the front of the home or to match existing, or with current Washington State Energy Code. The windows will also carry a lifetime warranty (Ply-Gem, Milgard, Jeld-Wen, etc.).

All operating sash shall be fully weather stripped. All sashes shall be able to be easily removed from the inside for maintenance and reglazing. When appropriate to the installation, new vinyl assemblies shall have a vinyl exterior surround designed to form an integral union with the existing frame and be joined in a manner as to prevent any water or air infiltration. Installation shall be consistent with manufacturer's installation instructions and AAMA 2400-2 and/or 2410-03, Standard Practice for Installation of Windows, as applicable. After installation, new windows shall be thoroughly cleaned.

800.430 REPLACEMENT WINDOWS

Replacement windows shall be Class 30 unless otherwise specified. All meeting rails shall be interlocking and weathertight. The factory shall provide weep holes. All sashes shall be able to be easily removed from the inside for maintenance and reglazing. After installation, new windows shall be thoroughly cleaned with plain water.

800.440 SKYLIGHTS

Skylights shall be fully tempered glass, heat-strengthened glass, wired glass or approved rigid plastics meeting IRC requirements of Section R301.2.1.2. Skylights set at an angle of less than 45 degrees from the horizontal plane shall be mounted at least 4 inches above the plane of the roof on a curb constructed of materials as required for the frame. Approved rigid plastic domes to be used on slopes less than 15 degrees. Skylights installed at a slope of 15 degrees or more from the vertical plane shall be fully tempered glass, heat-strengthened glass or wired glass. Installation shall meet all current manufacturers' specifications. Skylights shall be Velux, Western, Milgard, Andersen or pre-approved equal.

900 - STORMS AND SCREENS

900.10 STORM DOOR REPAIR

When a storm door is scheduled to be repaired, locking hardware, safety door check, closure and threshold (where applicable) shall be inspected for damage and shall be repaired or replaced as necessary. Door shall operate smoothly and fit weather tight in frame.

900.20 STORM DOORS - ALUMINUM OR VINYL

New storm doors shall be aluminum, fiberglass or vinyl. All meeting rails shall be interlocking and weathertight. All sashes shall be easily removed for maintenance and reglazing or repair; with safety glass. Screening shall be 18 X16 gray fiberglass screen cloth or 18 X 16 anodized aluminum screen cloth. Door shall be weather-stripped at bottom rail or an aluminum threshold with integral weather-stripping shall be provided. Door shall lock with a turn button on the inside but need not be keyed. All storm doors shall have safety door checks and closures. Frame shall fit weathertight in existing masonry or wood frame.

900.30 STORM AND SCREEN INSERTS

Frames for storm and screen inserts shall be aluminum, fiberglass or vinyl. Glass and screening shall be the same as described below. Replacement inserts shall fit tightly in existing tracks or be neatly fitted to windows with the appropriate hardware so that they can be removed with a minimum of effort.

1000 - DRYWALL

1000.10 NOTE

Quantities listed in the Work Schedules are approximate and are only intended to lead the contractor to the area(s) needing repair. Small quantities of drywall (for example, 2-square feet) can hardly be repaired. Therefore the contractor shall replace as much drywall as is necessary to make satisfactory repairs.

When installing new drywall over existing surfaces, it is not intended that the plaster will be removed. However, if plaster is removed, either because it is severely damaged or because the contractor would rather remove it, then it becomes his responsibility to insulate any exterior walls. See description of "Insulation" on Section # 1500.

1000.20 DRYWALL

Drywall for new installations (over framing members) shall be 1/2-inch on walls and ceiling, except that for installations requiring a 1 hour fire rating, drywall shall be 5/8 inch "Fire stop" or as required by local code. Drywall over existing wall and ceiling surfaces shall be 1/2-inch except that 3/8 inch may be used on ceilings when the finish surfaces will be smooth and free of bulges.

New drywall shall be tapered gypsum wallboard. When going over existing surfaces, first remove all damaged plaster and fur walls or ceilings so that the finished product is properly aligned. For all installations, edges and ends of wallboard shall occur on framing members, except those edges and ends which are perpendicular to the framing members. To minimize end joints, use wallboard for maximum lengths. Wallboard shall be first applied to ceiling, then to walls. When both sides of partitions are to receive wallboard, stagger joints on opposite sides. Protect all vertical exterior corners with corrosion-resistant metal corner beads or tape on corners. When butting up to the existing, trim, cut the drywall carefully and use casing beads for all exposed edges. Where surfaces are to be painted or wallpapered, joints shall be taped and both joints and nail depressions shall have three coats of joint cement (spackling paste) applied as per the manufacturer's recommendations. All edges shall be feathered.

Finished surfaces shall be sanded smooth and left straight and well aligned. Optional finish for ceilings (except in kitchens, bathrooms, utility rooms, etc.) may be texture spray. Texture spray shall be medium texture, hard finish only - no coarse, polystyrene or other soft finish allowed. After taping and finishing drywall, prime ceilings with a PVA primer or equivalent. Then apply texture spray as per manufacturer's recommendations.

Paint may be added to the mixture when approved by the manufacturer; coordinate color with the painter. No finishing of drywall shall be done unless inside temperature is at least 55 degrees F. This temperature shall be maintained during and up to completion of finishing, including drying. Moisture-proof drywall shall be used in areas subject to moisture, in bathrooms and in laundry and kitchen areas adjacent to sinks. All edges holes and joints shall be treated with a water-resistant sealant designed for this purpose. Conventional wallboard tape shall not be used.

1000.30 SPRAY TEXTURE FINISH

New spray texture finish shall meet the same requirements as outlined above.

1100 - SIDING

1100.10 NOTE

Remove all damaged sections before repairing existing siding. Wall sheathing beneath must be solid; repair or replace as necessary. New siding shall match existing as closely as possible. Replace all trim incidentals to this repair and caulk as necessary.

1100.20 WOOD CLAPBOARD

Replace asphalt-saturated felt or housewrap as necessary. New bevel siding can be either lapped or rabbet, depending upon the particular installation; minimum lap siding shall be 1-inch. Nail siding to each stud with corrosion-resistant nails. Nails shall be long enough to penetrate at least 1-inch into studs. Butt joints of siding shall occur over studs; stagger the joints in adjacent pieces.

1100.30 WOOD SHINGLES AND SHAKES

Replace asphalt-saturated felt or house-wrap as necessary. Use corrosion-resistant nails or staples for single and double coursing should be long enough to penetrate sheathing. When siding is double coursing, attach under-course with one or more 3d nails or staples. Joints shall be no closer than 1-1/2 inches to joint of under-course in the same course. Break joints in next course of single coursing at least 1-1/2 inches. Provide starter course at bottom of wall.

1100.40 CEMENT BOARD SKIRTING (Panels)

New siding shall be 5/16-inch Hardiplank cement board siding or equal. Cement board installed over rotted existing wood skirting and/or in contact with soil will not be allowed. When skirting is scheduled to be replaced remove existing skirting completely. Install sufficient, treated, framing or backing for new cement board. Any wood shall be at least 6-inches above grade unless ground contact rated.

1100.50 CEMENT SHINGLE SIDING

New sections of cement siding shall be attached to sheathing with corrosion-resistant small head nails. Nails shall be long enough to penetrate sheathing. Embed siding in the caulking compound whenever siding butts against wood trim or masonry. Install asphalt-saturated, coated backer strips behind each vertical joint; minimum lap shall be 1/2 inch.

1100.60 SIDING AND TRIM - ALUMINUM OR VINYL

When a house is scheduled to be resided, the openings shall be trimmed out with aluminum or vinyl as specified and all existing wood trim (fascia, soffit, corner, etc.) shall be covered with aluminum or vinyl unless otherwise noted.

When replacing damaged sections of siding replace vapor barrier as necessary. When installing new siding, existing surfaces shall be made smooth and all rotted material shall be removed and replaced; apply building paper, house-wrap, or felt over existing siding. All accessories used for the installation of new siding shall be provided installing as per manufacturer's recommendations. Provide for the escape of water vapor by ventilating each space behind siding. Ventilation may be obtained by weather protected horizontal openings or by the installation of siding over furring. Starter strip of siding shall be separated from foundation wall by a layer of sheathing paper or by a heavy bituminous coating. Ends of siding abutting wood trim shall be squarely cut and tightly fitted. Siding over heads of openings shall be installed as flashing and drip unless separate aluminum flashing is used.

1100.70 HARDBOARD LAP SIDING

New hardboard lap siding shall be factory primed or can be pre-finished. Nominal thickness of siding shall be 7/16 inch. Install new siding by using furring strips over existing siding or by first removing it and then applying new siding. All existing material to remain must be solid to provide a firm and adequate nailing base. Use building paper or felt wind barrier when siding is installed directly to studs or over wood sheathing. Install siding butt joints over studs; adjacent pieces shall just touch lightly.

Stagger joints in adjacent pieces; minimum lap of 1-inch. Nail the siding with corrosion resistant or stainless steel nails. Nails shall be long enough to penetrate at least 1-inch into studs. Inside corners shall be wood. Outside corners can be metal or wood. Trim all openings and install flashing as necessary. Shim siding that butts against trim and caulk with a high quality paintable sealant.

1200 - TILE

1200.10 NOTE

The contractor shall make sure that the joints where bathroom floors meet walls are watertight.

1200.20 CERAMIC TILE

When repairing existing tile, first remove all cracked, loose, chipped or otherwise defective tile then repair. Scratch plaster coat setting bed or wallboard as necessary to provide a level surface for installation of new tile. When repairing floor tile, wash adjacent areas with an approved solution to remove any oil film present. New tile being installed next to existing tile shall match existing as closely as possible in size, color, texture and glaze. When replacement tile does not match existing in size, replace complete rows or areas. Carry rows and areas into corners.

All tile, whether replacement or new, shall be installed in the following manner. Base surface shall be smooth and plumb or level. Base for floor tile shall be underlaid as described in Section # 1300.60. Prior to application of adhesive, surface to receive tile shall be sealed with a water-resistant sealer compatible with the adhesive to be used. Sealer shall provide a firm and durable bond to the base material. Tile adhesive shall be a chemical resistant, water cleanable tile-setting epoxy. Tile adhesive may be used as the sealer when designed for this purpose but must be applied in a separate coat. Apply adhesive to entire surface to be tiled with a notched spreader blade. New wall tile shall be standard grade, 4-1/4 X 4-1/4-inch glazed ceramic tile.

Tile shall extend to a point at least 6 feet above the floor in the shower area and to a point at least (1) one course above the floor on the other bathroom walls. New floor tile shall be standard grade, glazed ceramic mosaic or ceramic tile. All tile installations shall be properly trimmed using caps, bases, etc. "floating method" shall set tile. Allow at least 24 hours for evaporation of volatiles from adhesive prior to grouting. Then joints shall be thoroughly saturated and washed out with clean water. All tile joints shall be filled with grout. Joints between tub and tile and joints between tile and any dissimilar material shall have a color matched siliconized sealant. Force grout into joints taking care that no open joints are left. Joints shall than be properly sponged and tooled. New tile and any surrounding surfaces soiled during the repair work shall be cleaned immediately. Covering with a heavy non-staining building paper shall protect floor tile until the building is ready for its final clean up. At the option of the contractor, ceramic tile may be set by cement mortar method.

1200.30 CERAMIC BATH ACCESSORIES

When ceramic bath accessories are scheduled to be repaired, contractor shall inspect the bathroom and shall reset, repair or replace those items which he finds to be defective. Replacement accessories shall match existing as closely as possible. Ceramic bath accessories shall be vitreous china; metal bath accessories shall be chrome-plated brass. New bathroom accessory package shall include one bathtub soap holder with grab bar, one toilet tissue holder, two conveniently located towel bars (24-inch and 18-inch), one robe hook for door and new shower curtain rod for bathtub. Color of new ceramic accessories shall match new wall tile.

1300 - FLOORS

1300.10 NOTE

The contractor shall make sure that the joints where bathroom floors meet with the walls are watertight.

1300.20 CARPET OR TILE STOP

New divider edge shall be aluminum, approximately one inch wide. It shall be attached with countersunk Flathead aluminum screws. Divider edge for resilient flooring may be a standard preformed vinyl strip cemented to the floor. Tile stop for bathroom flooring shall be threshold as described below.

1300.30 THRESHOLD AT BATHROOM DOORWAY

New metal threshold shall be aluminum and shall prevent water used for cleaning and water from flooded fixtures from flowing into adjacent rooms or areas. It shall be attached with countersunk flathead aluminum screws. New threshold may be solid vinyl threshold designed for use at bathroom doorways.

1300.40 STAIR EDGING

New stair tread nosing shall be aluminum or rubber or vinyl. Nosing shall be installed on each tread and landing. Install as per manufacturer's recommendations.

1300.50 UNDERLAYMENT

All new underlayment shall be plywood, cross-banded plywood or approved backer material. It shall bear the label of a recognized grading association as to grade and type; type and grade shall be suitable for its intended use. Minimum thickness: plywood shall be 3/8-inch except that 1/4-inch plywood may be used over plywood sub-flooring or T& G boards not more than 3-inches wide. Plywood shall be interior type (ACX) underlayment except that plywood for bathrooms and utility rooms shall be cross-banded plugged underlayment. 1/4-inch

underlayment shall be securely nailed every 3-inches O.C. at the perimeter and every 6-inches O.C. at intermediate supports. 3/8-inch underlayment shall be securely nailed every 6-inches O.C. at the perimeter and every 8-inches O.C. at intermediate supports. Use ring shank corrosion resistant fasteners or staples.

When finish flooring (ceramic tile, carpeting or resilient flooring) is to be installed directly over subflooring, sub-flooring shall be combination sub-floor underlayment plywood. Types and grades shall be the same as for plywood underlayment. Plywood shall be 1/2-inch thick over joists 16-inches O.C.; 5/8-inch thick over joists 20-inches O.C.; and 3/4-inch thick over joists 24-inches O.C. Sub-flooring shall be securely nailed every 6-inches O.C. at the perimeter and every 10-inches O.C. at intermediate supports.

1300.60 CARPETING

New carpeting shall be 100% continuous filament nylon, with jute and latex backing, over 8 pound rubber carpet cushioning. Carpeting shall be at least 32-ounce pile and 1/8 inch gauge, with at least 8-1/2 stitches/inch. Carpeting shall conform to FHA UM-44B specifications. Prior to installation, contractor shall check that floors have been re-nailed to eliminate all squeaking; to the greatest extent possible. All rough edges at joints in underlayment shall be sanded smooth. Carpet stripping shall be "Robert's Tackless Stripping" or equal. Carpeting shall be installed smooth and even over all surfaces to be covered. It shall be cut evenly and close fitting to walls and all other projections. It shall be cut to fit closely to and through thresholds where carpet joins together in doorways. Cross seams shall be held to an absolute minimum. All carpet shall be lined up so that all lines (weaving) of carpet match as woven both width and length. The finished installation shall be free from scraps, ripples, scallops and puckers. Carpet stops shall be installed at all exposed edges and changes of material. After installation has been completed, clean all dirt and debris and clean any spots from carpet with proper spot remover. Remove all loose threads with sharp scissors and vacuum clean carpeting. Lay non-staining building paper.

1300.70 RESILIENT FLOORING

New installations shall be as listed in the work schedules. The materials may include asphalt tile, sheet vinyl, laminate, or VCT plank flooring. When sheet vinyl is being installed in-areas of excessive moisture i.e. bathrooms and utility rooms the vinyl shall be installed seamless if feasible. Only water-resistant laminate flooring may be used in kitchen, baths, or laundry rooms.

New asphalt tile shall be 1/8-inch thick, 9-inches X 9-inches or 12-inches X 12 inches, residential grade new sheet vinyl shall be at least .065 - .070 inch thick. Laminate flooring installed will carry an AC2 wear layer rating and be moisture resistant when used in kitchens or baths. When damaged or missing tiles are to be replaced, new tile shall match existing in type, size, thickness, color, pattern and texture.

All surfaces to receive resilient flooring shall be dry, clean and level. All cracks depressions and voids shall be filled or repaired. Concrete floors shall not vary from a level surface more than 1/8 inch in 10 feet in any direction. Where leveling is required, leveling latex for concrete shall be used. Prime concrete slabs on grade or below grade with a cutback before applying adhesive. For all installations use an adhesive recommended by the resilient flooring manufacturer and apply as per instructions. Before being set, tile shall be removed from the boxes and scrambled to achieve a thoroughly variegated appearance in the finished installation. Tile shall be laid starting at the center of the room and working towards the walls; scribe flooring to walls where necessary. All new flooring shall extend under base shoe molding. The color transition between rooms with different floor colors shall occur at the center of the door when the door is closed. Resilient flooring shall be laid with tight joints at all points of contact. Tile stops shall be installed at all exposed edges and changes of material; bathroom doorways shall have threshold as described above; and stair treads shall have edging as described above. When

resilient flooring has been sufficiently sealed, the floor shall be cleaned, lay building paper or equal for protection.

1300.80 COVE BASE

New base shall be 4-inch or 5-inch rubber or vinyl cove base, as is required for the particular installation. Use an adhesive recommended by the manufacturer. Base shall be neatly installed and be firmly cemented to walls and floor. Joints where bathroom floors meet walls shall be watertight. Base shall not be "Quiki-Stik" type. Color shall match new or be compatible with existing resilient flooring.

1300.90 SANDING AND REFINISHING HARDWOOD FLOORS AND STAIRS

Prior to sanding, contractor shall check that floors have been re-nailed to eliminate all squeaking; to the greatest extent possible. All nails shall be countersunk and their holes shall be filled. Floors shall be swept clean before and after sanding. Floors shall be machine-sanded beginning with No. 2 paper and graduating to No. 00. Where machine sanding is impossible, they shall be hand scraped and hand sanded to give a smooth even finish. A minimum amount of wood surface shall be removed. Stain new sections of wood flooring as necessary to match existing. Where flooring is open grain wood, apply one coat of a paste wood filler, rub in filler across the grain and then with the grain. Remove excess filler and allow drying thoroughly. Then apply one coat of penetrating floor sealer and two (2) coats of clear spar varnish, or equal. Alternate finish may be combined sealer and varnish or liquid polyurethane finish. Apply as per manufacturer's recommendations. Furnish and lay building paper to protect floor finish.

1300.100 ENGINEERED OR LAMINATE FLOORING

Installation site should have a consistent room temperature of 60-75 degrees F and humidity of 35-55% for 14 days prior, during and until occupied, to allow for proper acclimation of flooring. The building should be closed with all doors and windows in place. All concrete, masonry, drywall, paint and other "wet" work should be thoroughly dry before installation of flooring. Wood subfloor must not exceed 13% moisture content.

Prior to installation, clean, scrape, smooth and sweep all subflooring surfaces. Level flooring to within 1/8" in 6', sand high areas and joints if necessary. If low areas are to be filled, do not apply more than 1/8" at a time of cementitious leveling compound or milk additive latex patch with a minimum 3,000-PSI compressive strength. Follow instructions of leveling compound manufacturer. Screw down any loose areas in subfloor that squeak. Replace any water-damaged, swollen or delaminated subflooring or underlayment. Installation over concrete will require a 6 mil. poly film and/or manufacturers underlayment designed for use over concrete; consult installation requirements for manufacturers recommendations.

Install flooring perpendicular to floor joists and existing wood flooring whenever possible. If installing parallel with existing wood flooring, it may be necessary to install an additional 1/4" layer of plywood to stabilize the flooring. Installation of flooring should be parallel to the longest wall for best visual effect. Undercut all door casings to accommodate the width of flooring in order to allow for flooring to be installed under trim. Stagger end joints in adjacent rows a minimum of 6". Allow 1/4" around entire perimeter of flooring for expansion. Install necessary reducer strip, threshold, T-molding and base molding as recommended by manufacturer. Install all flooring as per current manufacturer's specifications.

Upon completion, clean flooring with the manufacturer recommended wood flooring cleaner. Cover flooring with drop cloths to protect finish.

1400 - INSULATION

1400.10 BUILDING INSULATION

1. Application:

All provisions of the general procedures shall apply to all sections of insulation specifications.

2. Codes:

Compliance with locally adopted public codes or regulations affecting work under these specifications shall be required. Where local codes or regulations permit lower standards than required by these specifications, the standards contained herein shall govern. Community Development does not assume responsibility for enforcing or determining compliance with local codes, regulations, or interpretations.

3. Materials and Appliances:

Unless otherwise stipulated, the contractor shall furnish all materials, labor, tools, services, and equipment necessary for the execution and completion of all work under these specifications. All materials shall be new and both workmanship and materials shall be of good quality.

4. Workmanship:

All work shall be done in a workmanlike manner, using craftsmen skilled in their trades. The contractor shall be prompt and on schedule and complete work in the time frame agreed upon.

5. Post Installation Procedures:

The contractor shall keep the premises from accumulation of waste materials or rubbish caused by his employees or work, and at the completion of the work, he shall remove all his rubbish from and about the residence and all his tools, scaffolding, and surplus materials and shall leave his work area "Broom Clean" or its equivalent, unless more exactly specified.

The contractor will complete the warranty showing, the R-Value of materials installed in ceilings, walls, under floors, ducts, and water pipes; the date the insulation was installed; and print his company name, address, sign it and submit copies to the customer, the general contractor, and to Community Development Program. If insulation is to be blown, contractor must submit manufacturer's recommended coverage for both ceiling and wall applications, amount of bags used, and R-Value installed. The contractor will be required to install additional material if the specified R-Value has not been obtained.

6. Thermal Insulation:

Materials installed as insulation must have a thermal equivalence rating of R-38 for ceilings; R-21 for walls or to the full depth of the stud; and R-30 for floors. Duct insulation shall have a minimum of R-8 insulation with all seams in "hardpipe" sealed with mastic or equal. R-21 for access doors and R-4 insulation pipe wrap for exposed water pipes.

All Electric Homes:

Materials installed, as insulation must have thermal equivalence ratings as follows:

Ceilings - R-38 unless architectural barriers preclude installation of same in which case insulate to the maximum extent possible.

Exterior walls - insulate all exterior walls to R-21 or to the full depth of the stud unless walls have previously been insulated. Use H.D. R-15 insulation in homes with 2x4" wall cavities.

Exterior Floors - insulate all exterior floors to a minimum R-30 unless to do so requires major alteration of the existing framing. If the existing framing precludes insulation to R-30, install insulation to the maximum extent possible.

Exterior windows - install doubled-glazed, one-half inch air space windows and if in metal frames, the frames shall be thermally insulated.

7. Vapor Barriers:

When vapor barriers are attached to the insulation material, these barriers should be installed toward the warm side (winter conditions).

Batt facings (paper backed) shall be lapped on the faces of studs to provide continuity of the barrier.

A continuous ground cover vapor barrier of 6-mil polyethylene must be applied over the entire ground surface to assist in keeping crawl space humidity at a safe level. This ground cover must overlap twelve inches along the ground, and go up the sides at least four inches. After the material is in place, bricks or other small masonry pieces should be used to prevent movement of the barrier.

8. Insulation Standards and Procedures:

Nailing or stapling wire or nylon mesh directly to the bottom of the joist. Mesh must be tight on post and beam construction. Extra support (lath) may be required to prevent sagging.

Using heavy gauge wire or nylon twine: Lace wire or twine back and forth between nails placed in the-bottom of joists to support the material. Wire can also be placed perpendicular to the joist. In both cases, the wire must be tight and spaced close enough to prevent any sagging and to support the ends of butted material. The installed insulation must always rest on the suspension system. Pull the insulation down onto the suspension system prior to leaving the crawl space.

Using wood lath (wood strips): Nail strips to the bottom of the joist, spaced to prevent sagging. The insulation should be turned up at the header, or small pieces of insulation should be cut and attached to the header to avoid heat loss through the header.

Make sure insulation maintains the proper clearances (approximately two inches) from all energy producing devices (such as, but not limited to motors, transformers, and exposed wiring), to prevent damage to the device and prevent an increased fire hazard due to the retention of heat.

Make sure there is proper crawl-space ventilation and that the insulation does not cover or block the ventilation system in any way.

Normal application of insulation in walls assumes drilling through the siding and wall material. However, if the customer specifically asks that the siding be removed before drilling, the customer must pay the cost of the work over the amount stated for insulation in the contract.

After the insulation has been blown into the wall cavities, each hole must be plugged. Use only wooden or plastic plugs. Plugs need not be vented if wooden plugs are used, the plugs should be sanded down to the surface of the wall siding. If the customer provides the paint, the wooden plugs will be touched up to match the existing paint. The contractor will be required to return to the job site to fill any wall cavity found empty.

Blown in insulation is not allowed where "live" knob and tube currently exist in the wall cavities or in the attic space as stated in the National Electrical Code 2008 (NEC) 324.4. Existing knob and tube that exists must be certified "dead" by a licensed electrician or protected in such a way to allow air space around the wires prior to any insulation installation in these areas.

1500 - CARPENTRY

1500.10 ROUGH WORK

Rough work includes the repair or replacement of all framing members; the repair or replacement of all seriously damaged or otherwise defective structural members; some cutting through joists and other structural members to provide for new or replacement plumbing stacks, drains, piping, duct work, etc. the framing of new walls, including sheathing and insulation for exterior walls; the building of new garages and carports; the installation of new access panels or doors to crawl spaces, attic spaces and bathtub plumbing; the repair or the building of new wood porches, including framing, columns, deck, ceiling, railings, skirt and steps; the rebuilding of stairways; the repair or installation of folding stairs; the repair, replacement or installation of softwood and plywood sub-flooring; the insulation of walls, ceilings and floors; the installation of vapor barriers; and the replacement or installation of miscellaneous metal items. It is the intent of these specifications that all walls, ceilings and floors are returned to a solid condition.

1500.20 FINISH WORK

Finish work includes the repair, replacement or installation of finish trim (exterior and interior); the repair or installation of wood paneling; repair and installation of waterproof material; repair or installation of acoustic suspended ceilings, repair or replacement of hardwood and softwood flooring including re-nailing and leveling of all finish floors; repair of hardwood and/or softwood stairs; repair or installation of shelving, clothes poles and hook strips for closets; repair or installation of built-in cabinet work; repair or installation of kitchen cabinets and countertops; installation of kitchen appliances; installation of range hoods; repair or installation of handrails, railings and ornamental metalwork, installation of new medicine cabinets and bathroom accessories. It is the intent of these specifications that all wood surfaces (excepting pre-finished ones) shall be left in a condition for finishing.

1500.30 MATERIALS

Framing Lumber:

All softwood framing lumber used for floor, ceiling and roof framing shall be at least Hem-Fir No. 2 grade. Framing lumber used for exterior walls and interior partitions shall be at least standard or stud grade.

Framing lumber of any softwood species except hemlock may be used provided members have sufficient strength and-rigidity to support the design load and are suitable for the attachment of wall finish materials. Framing lumber for girders, beams, posts, columns, and other structural members shall be of a species and grade which will provide sufficient strength and rigidity to support the design load without exceeding the allowable stresses consistent with good engineering practice. All framing lumber shall be identified by the grademark of a recognized grading association. The moisture content of the lumber shall not exceed 19% at the time of installation. New lumber in contact with masonry or concrete shall be pressure treated. All framing members shall be accurately fitted and securely connected to each other.

Board Lumber:

The grade of board lumber shall be suitable for its intended use. In general, loose knots or knotholes shall not exceed 1/3 of the width of the piece. Boards with defects may be used if the defects are sawn out. Lumber shall bear the label of a recognized grading association. Moisture content in the framing members shall not be above normally accepted standards.

Plywood:

Plywood shall be Douglas Fir and shall bear the label of a recognized grading association as to grade and type. Type and grade shall be suitable for its intended use.

Sheathing paper shall be a vegetable fiber building paper (waterproofed, water repellent and fire resistant), Grade C or D, or accepted building wrap materials (Tyvek or equal).

Finish Lumber:

All finish lumber shall be dressed free of tool marks and other objectionable defects. Lumber for exterior trim and millwork shall be kiln-dried or otherwise seasoned; moisture content shall not be above normally accepted standards. All wood for interior wood trim shall be thoroughly kiln-dried to withstand dry artificial heat; it shall not be installed until all plaster is thoroughly dried out. Exterior wood trim and millwork shall be at least #2 Spruce or cedar. New wood for interior trim shall match existing as close as possible in shape, size and species; MDF and finger jointed trim may be used if painted and not susceptible to water or moisture.

1500.40 ITEM REMOVAL

When items are to be removed, they shall be removed with a minimum amount of damage to the surrounding surfaces. See also Section #400 - DEBRIS.

Exterior Entrance Doors & Windows (frame construction only):

After removing doors or windows and their assemblies, the remaining openings shall be framed and filled with R-21 insulation or to the greatest extent possible.

Stud Wall Partitions:

When bearing walls are removed, proper size headers shall be installed.

1500.50 EXTERIOR WALL SHEATHING

New exterior wall sheathing shall be no less than 7/16" OSB or 1/2" CDX Plywood.

1500.60 ACCESS PANELS

New access panels shall be 1/2" plywood with beveled edges; plywood shall be ACX interior type. Access panels to attic spaces above shall be lay-in types. Access panels for electrical or plumbing shall be attached with screws and grommets.

1500.70 FRESH AIR SOURCE

A fresh air source shall be provided for warm air furnaces having no access to fresh air. Acceptable sources of fresh air are louvers installed near the units or windows located in the vicinity of the units.

1500.80 REBUILDING WOOD STAIRWAYS

When rebuilding wood stairways, existing lumber in good condition may be reused however new stairs must be brought up to current codes. Worn stair treads shall not be reused. New treads shall be 3/4" to 1 1/8" OSB or match existing, depending on the stairway construction. Exterior stairways exposed to the weather shall have lumber of natural resistance to decay or be pressure treated.

1500.90 SUB-FLOORING

New sub-flooring shall be wood board or plywood. Wood boards shall be 3/4-inch thick with a maximum width of 8 inches. Plywood shall be Interior type underlay, except that sub-flooring serving as combination sub-floor underlay in bathrooms and utility rooms shall be Exterior type, C-C plugged underlay. Plywood shall be 1/2-inch thick over joists 16 inches O.C.; 5/8-inch thick over joists 20-inches O.C. and 3/4-inch thick over joists 24-inches O.C. However when finish floor is hardwood strip flooring nailed at right angles to joists, 1/2-inch thick plywood maybe used over joists up to 24-inches O.C. sub-flooring shall be securely nailed every 6-inches O.C. at the perimeter and every 10-inches O.D. at intermediate supports.

1500.100 CAST IRON STANTION (PIPE COLUMN) AND WOOD POST

All existing stantions whether wood, cast iron or screw-jack type shall have footings. Screw-Jack stantions improperly installed shall be either repaired or replaced with new cast iron stantions. New wood posts shall sit at least 2-inches above concrete slab or rated for ground contact.

Columns-supporting wood beams shall be installed with approved metal connectors and fasteners. Size of new column shall be adequate to bear the load placed on it. Columns supporting steel beams shall be welded to beam or have column cap anchored to beam. Stantions shall be installed with a steel or cast iron base; anchor bases with bolts or embed in concrete at least 2 inches. Anchor wood post to footing.

1500.110 VENTS AND SCREENED OPENINGS

Houses built over crawl spaces shall be properly ventilated. Provide no less than (one) 1 square foot of net area for each 150 SF of under-floor area. Openings shall be located to insure cross ventilation. All openings shall be screened with 1/4-inch corrosion resistant wire mesh screening and properly trimmed-out. Also see description of Section # 1600.60 "Roof Vents" under ROOFING.

Garages with openings into dwellings shall have fixed louvered or screened openings to the outside openings shall be located within 6 inches of the floor. Provide 60-square inches per car.

1500.120 VAPOR BARRIER

All chemical pest control treatment shall be done prior to installation of vapor barrier. All debris shall be removed from crawl space and ground shall be reasonably level. Vapor barrier shall be black 6-mil polyethylene film secured with rocks approximately every 8-feet.

1500.130 WOOD TRIM AND MILLWORK

Exterior wood trim which cannot be repaired by simple re-nailing shall be replaced. Existing interior trim which is broken, splintered, cracked, chipped, warped or otherwise defective shall be replaced with new material. Where drywall is being installed over existing wall finish, room shall be re-trimmed (including door and window casings) as necessary. New interior trim shall match existing except that if pattern cannot be matched, hemlock or fir may be substituted; all trim within a room shall be similar.

When practical, new trim and millwork shall be delivered ready to be put in place. Moldings shall be clean-cut and sharp. Single lengths of wood shall be used whenever practical. Splicing or piecing of finish work shall be done with mitered joints over solid backing. Finger jointed material is unacceptable for natural finish wood trim. The woodwork shall be installed level and plumb, be scribed neatly to the walls and be secured firmly in place; set exposed casing nails 1/8 inch deep. The scribing, mitering and joining shall be accurately and neatly performed; joints shall be properly secured to prevent separation. External corners shall be mitered. Protect finish woodwork until time for painting.

1500.140 WATERPROOF MATERIAL

Where scheduled to be installed new, waterproof material on walls shall be plastic laminate unless otherwise specified. Install plastic laminate as per manufacturer's instructions. Plastic laminate shall extend to a point at least 6-feet above the floor in the shower area and at least 4-feet above the floor on the other bathroom walls if applicable.

1500.150 ACOUSTICAL TILE CEILING

Replacement tile for the repair of acoustical tile ceilings shall match existing. Furring strips shall be repaired or replaced as necessary.

New Installation:

First, do a room layout so that tiles for parallel edge rows are approximately the same width. Attach tile with staples or nails to furring strips as per manufacturer's recommendations. Tile shall be a 1/2-inch hardwood fiberboard. Size shall be 12- inches X 12-inches, 12-inches X 24-inches or 16-inches X 16-inches. Joints shall be tongue and groove with beveled edges; finish shall be vinyl latex coating. Finished ceiling shall be level to the greatest extent possible.

1500.160 SUSPENDED PANEL CEILING

Replacement panels for the repair of suspended ceilings shall match existing. Grid system components shall be repaired or replaced as necessary.

New Installation:

First, do a room layout so that tiles for parallel edge rows are approximately the same width. Install grid system components as per manufacturer's recommendations. Lay in ceiling panels. Panels shall be 1/2-inch hardwood fiberboard or translucent plastic as scheduled. Finish for fiberboard shall be vinyl latex coating. Size shall be at least 24-inches X 24-inches. Edges shall be square. Materials for the grid system components shall be residential industry standard in enameled white. Finished ceiling shall be level.

1500.170 HARDWOOD-FLOORING

All defective hardwood flooring shall be taken up from the sub-floor, using care not to rip up or break the tongues from the flooring strips or pieces that are intended to be reused. Flooring shall be shimmed where necessary and be properly secured at points of bearing. The entire floor (both existing and repaired) shall then be inspected for protruding nails and nails found to have popped out shall be countersunk. Replacement flooring shall match existing. New strip flooring shall be a minimum material thickness of 25/32-inch or as required to match existing.

1500.180 CLOSET ROD AND SHELF

Unless otherwise specified, all clothes closets shall have one clothes pole and one shelf. New shelf shall be 1-inch X 12-inch (nominal dimension) hemlock, 3/4-inch X 12-inch particleboard or 3/4-inch X 12-inch plywood with 1x3" wood edge installed on the front edge. See further description of shelving below. Rod shall be wood or finished metal. Provide intermediate support for rods and shelves over 4'.0" long. New closet rod and shelf may be combination metal rod and shelf.

1500.190 SHELVING

Unless otherwise specified, new shelving shall be 3/4-inch #2 fir, 3/4-inch edge banded particleboard, or 3/4- inch A-B interior plywood (exposed edges faced with solid wood edge material). Each shelf in closets or storage rooms shall be supported on a continuous wood cleat at the walls; where hook strips occur under a bottom shelf, the shelf may be supported on the hook strip. The shelving shall be securely braced against warping and sagging and scribed to the adjacent construction. Intermediate supports shall be provided for shelves over 4'0" long.

1500.200 MISCELLANEOUS CABINET

Miscellaneous hardware to be replaced shall include various knobs, catches, drawer slides, drawer rollers, etc. for built-in cabinet work. When scheduled to be installed, any of the above found to be worn, defective or missing shall be replaced. New hardware shall be polished brass or brushed aluminum finish. All miscellaneous hardware within a room shall be similar in style and finish mixing painted with unpainted hardware is unacceptable.

1500.210 KITCHEN CABINET HARDWARE

When scheduled to be replaced, missing or defective hardware shall be replaced to match existing. However, if hardware cannot be matched, then all finger pulls, knobs, catches, etc. shall be replaced of all the same style and finish. New hardware shall be pre-finished.

1500.220 REPAIRING CABINET WORK

All damaged or missing doors, drawers, shelving, and hardware (not including pulls or knobs) shall be repaired or replaced as necessary. Doors shall be properly aligned and shall operate freely. Drawer guides or slides shall be repaired or replaced as necessary so drawers slide or roll easily. When applicable replace or use center guides to eliminate lateral wobble.

1500.230 KITCHEN CABINETS

Contractor shall verify (field dimensions) all cabinet and countertop dimensions, prior to ordering, listed in the repair specifications and shown on any drawings. Face frames and drawer fronts shall be hardwood construction with the exception of Foil Overlay Door styles (MDF). Door styles shall be limited to panel style or solid wood. Generally raised panel doors are not allowed unless using matching existing styles of cabinetry or home style. Should new cabinets adjoin existing acceptable cabinets, the new cabinets shall match the existing in general construction style and appearance (finish). When existing cabinets to remain are painted, then new wood cabinets need not be pre-finished. Otherwise style and finish shall be as listed in the repair specifications.

Both wall and base cabinet assemblies shall consist of individual units (modular) joined into continuous sections. All units shall be fully enclosed with backs, bottoms and panels, and tops for wall cabinets. Face frames, when used, shall be of necessary thickness to provide rigid construction. Corner and lineal bracing shall be provided as necessary to insure rigidity and proper joining of components. Fixed shelves shall be recessed into grooves in the ends and in the fronts and backs or be supported by cleats all around. Adjustable shelves shall be supported on ends. Base cabinets designed to rest directly on the floor shall provide for a toe space at least 2-inches deep and 3-inches high. All exposed construction joints shall be fitted in a workmanlike manner, nails set and holes filled. Swinging doors shall have a device sufficient to hold doors closed. Device may be spring catch, magnetic catch, self-closing hinges or equivalent. Doors shall be properly aligned and operate freely. When appropriate to their design, doors and drawers shall have brass finish, or aluminum, pulls and knobs. Cabinet finish shall be clean and free from scratches and other defects. Cabinet units shall be installed level, plumb, and true to line fastened securely down to the floor and wall surfaces. Use closer, filler strips and finish moldings as necessary for sanitary and appearance purposes. Upper cabinets over range space shall be at least 18-inches high. Upper cabinets over refrigerator space shall be at least 12-inches high.

1500.240 COUNTERTOPS

Unless otherwise specified, countertop material shall be securely bonded to ¾" ACX plywood or other equivalent material. Top material shall be High Pressure Laminated sheet at least 1/16-inch thick. Countertop shall be custom made (on site) with 1 ½" self-edge and 4" backsplash typically the same material. All trim for the backsplash (cove, cap, etc.) shall be extruded aluminum or PVC.

Should new countertop adjoin existing countertop, the new material shall match the existing in pattern, colors and finish.

Pre-fabricated countertops shall be installed according to manufacturer's recommendations.

1500.250 HANDRAILS, RAILINGS, AND ORNAMENTAL METALWORK

At least one handrail, the full length of the flight of stairs, shall be provided for each interior stairway.

Wood Banisters:

All damaged, missing and broken balusters shall be repaired or replaced. New balusters shall match existing as closely as possible.

Wrought Iron Metal (Railings & Columns):

New ornamental metal railings and columns shall be installed complete with all posts, rails, pickets, base plates, rail supports, etc. Posts shall be a minimum of 1-inch square heavy gauge steel tubing, balusters a minimum of ½” square stock, and handrails shall conform to all current code specifications. Metal shall be wrought and cast iron or as scheduled. All railings shall be between 34 and 38 inches in height with spacing between balusters no more than 4”.

Ornamental iron shall be factory primed or factory finished. All units shall be of all welded construction.

1500.260 BATHROOM ACCESSORIES

New bathroom accessory package shall include bathtub soap holder, toilet tissue holder, two towel bars (24-inch and 18-inch), one robe hook for door and new shower curtain rod for bathtub. All bathroom accessories shall be pre-finished.

1500.270 BATHTUBS WITH SHOWER DIVERTERS

All bathtubs equipped with shower diverters shall be supplied with shower curtain and rod. Curtain rod for corner style bathtub shall be wrap-around type.

1500.280 MEDICINE CABINET

New medicine cabinet shall be sized appropriately to the vanity that it is installed over. All exposed surfaces shall be pre-finished or painted, with the exception of mirrors which shall have capped, polished, or beveled edges. Medicine cabinet shall be centered over vanity cabinet, unless otherwise specified.

1500.290 VENTED RANGE HOOD ONLY

New range shall be 30- or 36-inches wide standard builder’s model or equal. All hoods shall be vented to the outside using 3 1/4x10” square ducting or a minimum of 6” round pipe. All ductwork shall be “hard pipe”, insulated as needed, and installed per current local codes.

1600 - ROOFING

1600.10 GENERAL INSTRUCTIONS

When an existing roof is scheduled to be removed, it shall be stripped complete down to wood sheathing or roof deck. The only exception is when there is only one layer of 3-tab roofing that is in lying flat and in reasonable shape as determined by the Home Inspector.

New roofing installations and the repaired portions of existing roofs shall conform to the requirements for an Underwriters' Laboratories, Inc., Class C Label or better roof.

Prior to repair or re-roofing, contractor shall examine roof and determine that all repairs affecting his work have been completed as scheduled. When a new Class B chimney, vent stack, roof vent, etc., is scheduled to be installed, the contractor shall cooperate with other contractors in installing sheet metal flashing and counter flashing. This contractor shall also repair or replace all damaged, deteriorated or missing flashing incidental to the repair or new installation.

Contractor shall seal all roof openings and exposed roof edges with plastic asphalt cement as necessary to ensure watertight joints. Roofing shall be applied in accordance with the on-the-job recommendations of the manufacturer of the roofing materials once it has been started; the roofing application shall not be delayed, except when absolutely necessary due to inclement weather. Each layer of roofing felt shall have been surfaced or glazed with bitumen by the end of the working day.

All materials shall be installed by a factory approved installer and installed to current manufacturers specifications. All work shall be installed per IRC Sections 901-905.

1600.20 PLYWOOD OR OSB SHEATHING

New sheathing shall not be less than 7/16"-inch structural-interior or exterior type, except that 3/8-inch structural-interior or exterior type may be used over existing wood board sheathing. Exterior type shall be used when surfaces such as overhangs or ceilings in carports or porches are exposed to weather. Plywood shall be installed with outer plies at right angles to rafters or joists, and all sheathing shall be staggered so that end joints in adjacent panels break over different supports. Plywood sheathing may be attached with power-driven galvanized wire staples when complying with FHA UM-25a specifications.

1600.30 NOTE

The quality of materials and workmanship for repair work shall meet the same standards as new installations described elsewhere. Contractor shall make all repairs or replacements necessary to roofing, flashing, drip edges, cant strips, gravel stops, etc. to provide a waterproof installation. When removing damaged sections of existing roofing, replace asphalt-saturated felt as necessary. Color, size, texture and type of new asphalt shingles, sections of rolled roofing, pieces of slate or clay tiles, sections of metal roofing, and wood shakes shall match existing as closely as possible.

1600.40 CAULKING

All loose, brittle, cracked, rotted and broken sealant shall be removed. Apply new sealant at all roof openings and exposed roof edges as necessary. New sealant shall be compatible with the flashings, trim, and roofing products. Clean immediately any brick, concrete or woodwork soiled during caulking. It is the intent of these specifications to have all exterior openings properly sealed whether previously sealed or not.

1600.50 FLASHING

All damaged, deteriorated or missing metal roof flashing and trim shall be repaired or replaced as necessary. New flashing shall be aluminum or galvanized sheet metal. Aluminum shall be a minimum thickness of .019-inch; galvanized metal shall be a minimum thickness of .024-inch. Piping passing through the roof shall be re-flashed with one-piece metal flashing and cover or two piece flange and sleeve flashing. All pipe vent jacks shall be the combination galvanized metal base with a polyethylene sleeve. New metal drip edge shall be at least 1- 1/2 inches wide. New metal gravel stop shall be at least 1-1/2 inches wide. Roof valleys will be flashed with galvanized or aluminum ("W" valley flashings). Valley metal shall extend at least 8 inches from the center line each way for asphalt/composition shingles; 11 inches from the center line each way for wood shingle/shake, slate or tile. Minimum valley metal overlap of not less than 4 inches. The valley metal flashing shall have a 36-inch-wide underlayment directly under it consisting of 15# felt, asphalt roll roofing or ice barrier running the full length of the valley. Painted galvanized metal or aluminum valleys shall be used with wood roofing. Nails shall be corrosion-resistant threaded nails and shall be long enough to penetrate through sheathing. It is the intent of these specifications to have all exterior openings properly flashed whether previously flashed or not.

1600.60 ROOF VENTS

All separate attic spaces, which are sealed off from the rest of the house, shall be cross-ventilated. Ventilators shall prevent the entrance of rain and snow. Ratio of total net free ventilating area to area of ceiling shall be not less than 1/150, except that the ratio may be 1/300 if a vapor barrier is provided on the warm side of the ceiling or if at least 50% of the required ventilating area is provided by ventilators located in the upper portion of the space. Attic space which is suitable for future habitable rooms shall have at least 50% of the required ventilating area located in the highest part of the ventilated space. New louvers shall be aluminum, galvanized sheet metal, or wood to match existing.

1600.70 ASPHALT SHINGLE REPAIR

Since new shingles shall match existing in type, repair procedure may vary from that for re-roofing with new seal downs. Therefore, install new shingles as per manufacturer's recommendations to provide a watertight Class C Label roof.

1600.80 BUILT-UP ROOFING REPAIR (HOT ROOF)

Remove existing gravel and broom clean roof area. Cut and repair all blisters with hot asphalt. Reinforce low spots. Apply one ply of 40# asphalt-saturated felt. Minimum end lap shall be 4-inches; minimum side lap shall be 8-inches. Cover felt with two moppings of asphalt. Average mopping coats shall be 25# asphalt. Replace gravel stops at exposed edges of built-up roofing as necessary. All stops shall be properly secured and lapped sections shall be sealed with plastic, roofing cement. Mop all edges thoroughly and re-apply gravel.

Where roof drains occur in built-up roofing, the roofing for a distance of approximately 18-inches in all directions from the drain shall be pitched towards the drain. Pitch shall be uniform. Contractor shall repair roof drains as necessary.

1600.90 NOTE

All new roofing installations shall have new metal flashing at chimney, vent stacks, valley, sidewall, headwall, and counter-flashings. Also install new flashing at all valleys and where siding and roofing material meet.

Asphalt shingle roofing and new rolled roofing shall not be placed over more than two layers of existing roofing. If the new roofing would be the third layer of roofing or if existing roofing is brittle or cupped, strip existing roof complete down to wood sheathing. Repair existing sheathing, including rafters, or roof deck as necessary.

1600.100 ASPHALT AND FIBERGLASS SHINGLE ROOFING

All new roofing projects shall use 30-year Architectural style (laminated) shingles (Pabco, Certainteed, Owens Corning or approved equal), except when repairs require matching existing materials. Three-tab roofing shall not be installed on slopes of less than 4-inches/foot; Architectural style may be applied to slopes as low as 2-inches/foot provided the shingles are approved self-sealing type or are hand sealed and are installed over two layers of 15# felt.

New roof shingles after application shall provide at least double coverage at all points, including both eave and rake edges. Replace metal drip at exposed edges as necessary. New roof underlay shall be one layer of 15# asphalt-saturated felt, with the exception of 30# to be used from the eave edge to a point not less than 12-inches beyond the inside face of the exterior wall. Low slope installations (3-4 inches/foot) shall have double layer 15# asphalt-saturated felt over entire roof surface. All felt to have 2 inches overlap horizontally and 4 inches vertically. Felt overlap will be no closer than 2-feet at rake end of roof, if closer, overlap will be cemented together. New shingles shall be Architectural (laminated) type, with a minimum 30-year warranty. They shall be self-sealing type or may be tabbed with cement or butt stapled to resist wind damage. Minimum exposure shall be 5-inches; minimum headlap shall be 2-inches; if current manufacturer's specifications differ, manufacturer's specifications shall prevail. Exposure shall be not less than that required for UL Class C Label. Starter course of shingles and rake shingles shall project over eave or rake edges approximately 1/2-inch, with self-sealing or tar strip being no greater than 3/4 inch from edge of eave or rake. If gable end has no overhang, provide additional trim piece as necessary so roofing can project at least 1-1/2 inches beyond face of siding. Nails shall be corrosion-resistant roofing nails, minimum 12 gage, with a 3/8" head, and shall be long enough to penetrate sheathing or roof boards. Install to current Manufacturer's specifications.

1600.110 ASPHALT ROLL ROOFING

New roofing shall be mineral surface asphalt roll roofing, with a minimum weight of 90# per square. Coverage and underlay shall be the same as for asphalt shingle roofing described above. The endlap shall be 19-inches minimum for a 3-foot wide roll. Starter strip and edges of roofing shall project over eave or rake edges approximately 1/2-inch. Nails shall be corrosion-resistant roofing nails and shall be long enough to penetrate sheathing or roof boards.

1600.120 BUILT-UP ROOFING (HOT ROOF)

Remove existing gravel and broom clean roof area. Cut blisters and reinforce low areas. Apply two (2) plies of 15# asphalt-saturated felt. Each ply shall be mop-coated with 25# asphalt. Then apply one (1) ply of 45# asphalt-saturated felt and hot mop with 60# asphalt. Endlap of plies shall be 4-inches; side lap shall be 8-inches. All gravel stops shall be properly secured and lapped sections shall be sealed with plastic roofing cement. Mop all edges thoroughly and apply 300# gravel. All materials shall be installed by a factory approved installer and installed to current manufacturers specifications.

1600.130 NEW SHINGLE OR SHAKE ROOFING

New roofing shall be No. 1 grade red cedar or as schedules. Shingles shall be tapered. Both shingles and shakes shall be all edgegrain and all-heartwood. Underlay, 30# roofing felt, shall be used for wood shake installations. Use 36-inch wide starter strip at eave edge and 18-inch strips over top portion of each course of shakes. First course of both shingles and shakes shall be double. Exposure shall be determined by type and length of roofing. Extend roofing beyond the eave edge about 1-1/2 inches and beyond rake edge about 3/4 inch. Spacing between adjacent shingles or shakes shall be 1/4-inch. Stagger joints in adjacent courses 1-1/2 inches; alternate course joints should not align. Roofing shall be attached with corrosion-resistant nails, minimum 7/32" head, and long enough to penetrate sheathing. Use no more than two (2) nails per shingle or shake.

1600.140 NEW TORCHDOWN ROOFING

New torchdown roofing material shall be installed by an approved installer, with insurance certifications, according to current manufacturer recommendations and/ All work shall be installed per IRC Sections 901-905..

1700 - GUTTERS & DOWNSPOUTS

1700.10 NOTE

Old storm drains not in use shall be capped.

1700.20 CLEANING AND TIGHTENING

All joints shall be made watertight as necessary. All gutters and downspouts shall be securely connected and firmly supported or fastened. Cleaning shall take place just prior to FINAL INSPECTION.

1700.30 SPLASH BLOCKS

New splash blocks shall be cast resin or equal and at least 8-inches by 24-inches.

1700.40 GUTTERS & DOWNSPOUTS

New gutters and downspouts and all accessories shall be, as listed in the work schedules, either seamless aluminum, or steel. Aluminum shall be baked enamel finish with corrosion preventative coating on inside surfaces. Galvanized metal may be baked enamel finish with corrosion preventative coating on inside surfaces. All joints, connections and splices shall be made watertight by soldering or sealing with liquid aluminum and/or by using watertight slip

joints manufacturer for this purpose (for metal) or by setting joints in white lead and approved sealants.

New aluminum and steel gutters shall be 5-inch O.G. ("K" style). Minimum thickness of aluminum shall be .027 inch; metal shall be 26-gauge. All metal gutters shall be attached with aprons and hangers or combination hangers every 24 inches on center. No exposed straphangers shall be used. Corners shall be "Hand" mitered. Maximum lengths shall be used for all types of gutters. Gutters shall be installed with proper pitch to downspouts.

New downspouts shall be 2-inch X 3-inch corrugated rectangular or 3-inch corrugated round. Minimum thickness of aluminum shall be .019 inch. Minimum thickness of galvanized metal shall be 26 gauge. Downspouts shall be properly attached to gutters and be securely fastened with strap or cast hangers at top and bottom. Provide at least one additional hanger for every 6-feet of downspout. New downspouts, which tie into storm drains, shall be installed with round to square adapters or as needed. Where water runs onto splash blocks, downspouts shall be provided with extension pieces (elbows).

1800 - PAINTING

1800.10 PAINTING PREPARATION - EXTERIOR SURFACES

Previously painted wood trim, millwork, wood siding, masonry, metal work, and all other surfaces to be painted shall be thoroughly cleansed of peeling, blistered or crazed paint, dirt, dust, grease, rust and all other foreign matter. Safe treatment methods for removal of defective paint include wet scraping, wet sanding, chemical stripping off site, replacing painted components, scraping with an infrared or coil-type heat gun with temperatures below 1,100 degrees Fahrenheit; HEPA vacuum sanding; HEPA vacuum needle gun; and abrasive sanding with HEPA vacuum. Covering of defective paint surface with: durable materials such as wallboard or vinyl siding with joints sealed and caulked. Prohibited treatment methods include: open flame burning or torching, machine sanding or grinding without a HEPA local exhaust; abrasive blasting or sandblasting without a HEPA local exhaust; heat guns operating above 1,100 degrees Fahrenheit or charring paint; dry scraping or dry sanding except in conjunction with heat guns or within one foot of electrical outlets; and paint stripping in a poorly ventilated space using a volatile stripper that is a hazardous substance.

Secure loose material and reset nails as necessary. Also remove all miscellaneous nails, hooks, screws, tacks, etc. Remaining holes, those no larger than a dime, shall be filled with linseed oil putty or caulking compound, depending on the surface material. All vents in surfaces to be painted shall first be swept clean and have paint-plugged squares removed. (If any area to be painted shows signs of mildew, those areas shall be treated with a good fungicide and the entire area shall be thoroughly dry before painting is begun).

1800.20 PAINTING PREPARATION - INTERIOR SURFACES

All surfaces shall be smooth prior to painting or finishing. Previously painted wood trim, millwork, shelving, ceilings, walls, and all other surfaces to be painted or finished shall be thoroughly cleansed of peeling, blistered or crazed paint, dirt, dust, grease and all other foreign matter. Pay particular attention to painted wood trim and doors and windows. Safe treatment methods for removal of defective paint include wet scraping, wet sanding, chemical stripping off site, replacing painted components, scraping with an infrared or coil-type heat gun with temperatures below 1,100 degrees Fahrenheit; HEPA vacuum sanding; HEPA vacuum needle gun; and abrasive sanding with HEPA vacuum. Covering of defective paint surface with: durable materials such as wallboard or vinyl siding) with joints sealed and caulked. Prohibited treatment methods include: open flame burning or torching, machine sanding or grinding without a HEPA local exhaust; abrasive blasting or sandblasting without a HEPA local exhaust;

heat guns operating above 1,100 degrees Fahrenheit or charring paint; dry scraping or dry sanding except in conjunction with heat guns or within one foot of electrical outlets; and paint stripping in a poorly ventilated space using a volatile stripper that is a hazardous substance..

Secure loose material and reset nails as necessary. Also remove all miscellaneous nails, hooks, screws, tacks, etc. from walls and millwork. Remaining holes, those no larger than a dime, shall be filled with spackling compound or linseed oil putty, depending on the surface material. Seal all irremovable grease spots or stains with shellac so that they do not 'bleed' through new paint. Kill stain or seal all varnished wood before painting so that the desired coverage is obtained. If any area to be painted shows signs of mildew, those areas shall be treated with a good fungicide and the entire area shall be thoroughly dry before painting is begun.

1800.30 PAINT

The quality of all paints and related materials shall equal or exceed those of well know and reputable manufacturer's. All paint shall be of high quality and be better than builder grade level. Paint shall be understood to include paints but also primers, enamels, sealers, stains and other coatings, plus all paint accessory materials.

All paints shall be prepared and mixed by professional suppliers and/or the manufacturer. The addition of interior oils or other thinners and quick drying additives shall not be allowed. No adulterations of any kind shall be permitted except as specifically recommended by the manufacturer. (Exterior and interior paints, primers, enamels and related painting materials shall contain no more than six one-hundredths of 1% per centum lead by weight (calculated as lead metal) in the total non-volatile content of the liquid paints). Primer and finish coats should be from the same manufacturer for compatibility and best paint adherence. Certain finish coats are formulated to serve as primers and may be so used when applied in accordance with manufacturer's recommendations. Colors shall be factory mixed.

1800.40 PAINTING

Paint shall not be applied until all surfaces are thoroughly dry, excepting certain masonry paints formulated for application to wet surfaces. Contractor shall assume the responsibility for such conditions and shall make good any work executed prematurely. Any work, which is damaged by contractor's employees, or for any reason is unacceptable, shall be repaired or redone to match the surrounding areas. No exterior painting shall be done when the surfaces are damp, or during cold or rainy or frost weather. No painting shall be done unless the temperature is between 50 degrees F and 100 degrees F and is expected to remain so for a period of at least twenty-four hours. New and previously unpainted hardware, hardware accessories and electrical fixtures are not to be painted, and when all the receptacles and cover plates within a room are new, they shall not be painted. Switches and their cover plates shall never be painted. Painter shall remove these items as necessary, reinstalling them when their work is completed. Square foot coverage per gallon shall be as recommended by the manufacturer. Paint shall have easy brushing properties. Paint shall be kept well stirred during use and be screened free of skim, lumps and foreign matter. Neither paint, nor the residue thereof, shall be used after it has caked or hardened. Paint shall be worked into all corners, voids and joints. All surfaces other than those of metal items shall receive at least two (2) coats of Paint and all coats shall be thoroughly dry prior to application of the next coat. Additional coats may be required if the finish surface does not provide acceptable coverage or hiding. Finished work shall be uniform, free of 'runs and sags,' smooth, free of brush marks and of uniform color. Where paint adjoins other materials or where different colors meet, the edges of the paint shall be sharp and clean. Upon completion, the entire area shall be cleaned and left in a neat condition.

1800.50 EXTERIOR WOOD, TRIM, MILLWORK AND SIDING

Sand all new millwork prior to application of primer or stain. Reset all loose nails and putty all nail holes and minor cracks in wood with lead putty after spot priming these areas with exterior oil base primer. Apply one coat of exterior oil base primer to all new and bare wood surfaces. Then apply two coats of exterior paint to all previously painted or primed wood surfaces. Wood shall be painted or finished with brush only. All painting shall be completed as specified in the work repair specifications.

1800.60 EXTERIOR STUCCO PLASTER

When stucco plaster is scheduled to be painted, application and type of paint shall be the same as for exterior masonry walls. Paints formulated for alkaline surfaces are recommended.

1800.70 CONCRETE AND MASONRY SURFACE

Apply at least two coats of resin-emulsion paint, solvent rubber paint or floor and deck enamel to concrete decks and steps. If oil base paint is used, neutralize surface before painting. New masonry shall be thoroughly cured (at least 30 days) prior to painting. Apply at least two coats of polyvinyl acetate emulsion paint on masonry wall surfaces to be painted.

1800.80 EXTERIOR ENTRANCE DOORS

Natural finish-doors are not to be painted unless painting of them is specified. First prepare existing doors to receive new finish. All door edges shall be eased. Edges, including the top and bottom, shall receive the same finish as the faces. A natural finish for new doors shall be one coat of water repellent preservative and at least two coats of spar varnish formulated for exterior use. Natural finish for existing doors shall be at least two coats of spar varnish formulated for exterior use. Paint for new doors shall be one coat of exterior primer and two coats of exterior paint. Paint for existing doors shall be two coats of exterior paint.

1800.90 EXTERIOR WOOD STEPS AND DECK

Caulk joints between wood surfaces and walls with a silicone sealant as necessary. Reset all loose nails. Apply one coat of exterior oil base primer to all new and bare wood surfaces at least two coats of floor and deck oil base enamel designed for exterior use. If specialty paint products are used, follow the manufacturer's recommend coverage and application techniques.

1800.100 AWNINGS, METAL RAILINGS, METAL SIDING AND OTHER MISCELLANEOUS METAL

New wrought iron if not factory painted shall be primed with at least one coat of zinc chromate primer. Spot prime all other metal with zinc dust, zinc oxide primer where necessary. Then apply at least one coat of a rust inhibitor, exterior oil base, enamel paint.

1800.110 STRUCTURAL STEEL

New structural steel shall be primed or be factory coated prior to installation. After thoroughly cleaning structural steel, spot prime bare areas with a zinc chromate primer. If steel is exposed, then apply at least one coat of rust inhibitor, exterior oil base, enamel paint. Color shall match adjacent wall.

1800.120 NOTE

When a room is scheduled to be either painted or painted with some items to be refinished, walls, ceilings, doors, windows (including those surfaces exposed by opening) trim, cabinet work, miscellaneous shelving, etc. shall be painted and/or refinished as described below. A closet is considered to be part of the room in which it is located, and closet rods and shelving (unless pre-finished metal either new or in good condition) and bracing and drawers shall also be painted. Natural finish items are not to be painted unless painting of them is specifically noted.

1800.130 STAIRS & LANDING

Painting: Reset loose nails. Sand all surfaces as necessary to provide reasonably smooth surfaces. Then apply at least two coats of floor and deck oil base enamel.

1800.140 INTERIOR WOOD TRIM, MILLWORK, PANELING, CABINET WORK, AND SHELVING

It is not intended that cabinetwork and other 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. Stain or prime and finish as necessary.

Painting: Sandpaper new millwork prior to application of primer. Reset loose nails. All nail holes shall be filled and sanded prior to painting. If new wood is open grain type, fill or seal surfaces to prevent grain rising. Apply one coat of a suitable primer to all new and bare wood surfaces. Then apply at least two coats of interior semi-gloss enamel (latex base) to all surfaces except kitchen cabinets. Kitchen cabinets shall be painted with two coats of interior semi-gloss enamel (oil base). Color shall match adjacent wall surfaces, unless scheduled otherwise.

Natural Finish: Sand all new millwork prior to application of stain. All wood to be refinished shall be first prepared as necessary to receive new finishes. Loose nails shall be reset and all holes shall be filled with linseed oil putty. If new wood is open grain type, surfaces shall be filled or sealed to prevent grain rising. New or bare wood shall be stained to match existing as closely as possible. All natural finish wood shall receive at least two coats of varnish, shellac, lacquer or clear plastic coating as appropriate to its intended use.

1800.150 WOOD WINDOWS AND INTERIOR DOORS

Painting: All door edges shall be eased. If new wood is open grain type, fill or seal surfaces to prevent grain rising. Apply one coat of suitable oil base primer to all new and bare wood surfaces. Then apply at least two coats of interior semi-gloss enamel to all surfaces. Edges - top, sides and bottom shall be painted the same as the door faces.

Natural Finish: All door edges shall be eased. Apply one coat of penetrating sealer to all trimmed door edges. All interior doors, if not pre-finished, shall receive at least two coats of varnish. Edges - top, sides, and bottom shall be finished the same as the door faces.

1800.160 DRYWALL OR PLASTER WALLS AND CEILINGS (EXCEPT IN KITCHENS/ BATHROOMS)

Note that certain types of texture finish ceilings cannot be satisfactorily painted with roller or brush. These surfaces, and these surfaces only, shall be spray painted. Hairline cracks and scraper dents shall be spackled and sanded. Open cracks shall be raked out and damaged plaster shall be removed. Apply new plaster in coats thin enough to prevent shrinkage. All repair work when completed shall match existing surfaces, present a neat appearance and be free of hairline cracks and bulges. All surfaces shall be washed prior to painting. New plaster or drywall shall receive a first coat of interior latex paint and at least one additional coat of interior latex or oil base paint. Previously painted surfaces shall receive at least two coats of interior latex base or oil base paint. Unless specified, all closets shall be painted the same color as the adjoining room.

1800.170 WEATHER CONDITIONS FOR EXTERIOR PAINTING

No exterior painting shall be done when the surfaces are damp, or during cold or rainy or frost weather. No painting shall be done unless the temperature is between 50 degrees F and 100 degrees F and is expected to remain so for a period of at least twenty-four hours. Specialty paint products may be used upon approval.

1900 - HEATING

1900.10 SCOPE

It is the intent of these specifications and the Work Specifications that the following heating systems be placed in a proper and legal operating condition or be replaced by a new forced warm air heating system.

- Gas-fired forced warm air
- Electric forced warm air
- Electric wall, baseboard or radiant heating

It is further intended that heating units more than "15 years old" be rewired to meet current code requirements and have all new controls installed; including thermostat.

It is the intent of these rehab standards and the Work Specifications that all exhaust fan ductwork be repaired as necessary and that exhaust fans and ductwork be furnished, installed and connected up for bathrooms and other similar rooms without the required natural ventilation.

1900.20 GENERAL INSTRUCTIONS

Incidental items not mentioned in these rehab standards or listed in the work specifications that can legitimately and reasonably be inferred to belong to the work described or be necessary in good practice to provide a complete system shall be furnished and installed as though called out in every detail.

All materials, equipment, piping, fittings, fixtures, etc., shall conform to the latest A.N.S.I. (American National Standards Institute), A.S.T.M. (American Society for Testing Materials), A.S.M.E. (American Society of Mechanical Engineers), and F.S. (Federal Specifications) standards. All equipment and materials used shall be new and clearly marked to permit identification of manufacturer, model and type.

The contractor shall furnish all instruments, gauges and equipment required for testing and shall perform those tests required by the related authorities. Equipment, materials or work found to be defective during testing shall be replaced by new work and be re-tested until proven satisfactory.

The contractor shall be responsible for securing all permits, approvals, inspections and licenses required for the work of this section.

Except as modified herein, the construction and installation of all equipment, accessories and appurtenances shall comply with the published standards, requirements and recommendations of the National Fire Protection Association and National Board of Fire Underwriters.

All equipment and items installed under this section shall operate safely and without leakage, undue wear, noise, vibration or corrosion.

All drilling, patching and cutting necessary for the proper installation of work under this section shall be completed and/or supervised by the contractor. All patching shall be of the same materials, workmanship and finish as the original work and shall accurately match all surrounding work.

Equipment shall be rigidly installed and so connected as not to exert undue strain on fuel piping or other connections.

All piping, ductwork and equipment shall be installed without critical damage to structural members.

The contractor shall provide sleeves as required and, upon completion of rough-in work, sleeves shall be made sound and fire-tight.

The contractor shall install chrome-plated escutcheons where exposed piping passes through floors, walls and ceilings.

The entire new and existing installation shall be left in a neat, clean and usable condition.

1900.30 REMOVING HEATING UNITS OR SYSTEMS

When a steam or hot water system is scheduled to be removed, the boiler, piping, radiators or convectors, and all equipment incidental to its operation shall be removed complete. When a heating unit is scheduled to be removed, the furnace or boiler and all equipment incidental to the operation shall be removed complete. This shall include all trunk lines or other exposed ductwork that is scheduled to be replaced.

Oil tanks, which are no longer functional, when above ground, shall be removed completely, and when buried shall be properly decommissioned by a licensed professional.

NOTE: When asbestos material is present, contractor shall be responsible to have it removed by a firm licensed for asbestos handling.

1900.40 NEW HEATING UNITS

A new furnace shall be installed complete with new disconnect switch, flue pipe, and all controls, wiring, accessories, valves and fuel piping necessary to make the unit operational.

Heating units shall be on separate circuits (if one does not already exist) from the panel box to a junction box located near the heating unit. New units shall have ratings sufficient to ensure proper heating of all habitable rooms within the living unit they are intended to serve. Such determinations shall be made in accordance with the best practices of the National Warm Air Heating and Air Conditioning Association, the Institute of Boiler and Radiator Manufacturers, or the "Guide" of the American Society of Heating. This shall include heat loss calculations when required by the local authorities. Furnaces shall be able to maintain a room temperature of 70 degrees (F) at a point three feet above the floor in all habitable rooms. 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.

All work performed in the assembly, erection, installation, connection, etc., shall be in accordance with the manufacturer's recommendations and local codes. Mechanical equipment shall be so installed and located that inspection, routine maintenance, repair and/or replacement is possible without removing items of permanent construction. Listed furnaces shall be installed in accordance with their listing. Unlisted warm air furnaces shall be installed with a minimum clearance of 6-inches between the top bonnet plenum (or between the top of any extended plenum or duct within 3-feet of such furnace) and any combustible material. All approved gas burners shall bear the manufacturer's identification marking, the burner trade name and the model number or size installed.

1900.50 DUCT WORK AND REGISTERS

Sheet metal shall be not lighter than 26 gauge galvanized sheet metal. The sheet metal work shall be accurately formed, be fitted snugly, have exposed edges folded under at least 1/2-inch

and leave no sharp corners exposed. All ductwork shall be properly supported with hangers or floor rest channels. No new ductwork shall be installed as exposed ductwork in finishing rooms, including closets, unless so noted in work specifications.

Balancing dampers shall be installed and/or ductwork shall be sized to control the flow of air to all supply registers. Dampers shall be labeled, indicating the rooms served.

New supply outlets shall be no closer than 6-inches to any wall. Supply outlets on outside walls should be located in front of windows. All supply registers shall be equipped with shutoff dampers. Return air inlets shall be located in walls or in floors, as is appropriate to their size and function.

Supply ducts in crawl spaces and unheated attic spaces shall have 2-inch flexible blanket insulation. When ducts are used for cooling, insulation shall be covered with a sealed joint vapor barrier.

1900.60 CLEANING AND ADJUSTING HEATING UNITS

When heating units are scheduled to be cleaned and adjusted, the contractor shall thoroughly clean and adjust the system so that it is operating properly. When necessary, replace the thermostat. On forced air systems this shall include cleaning the blower motor. Also install new air filters and replace blower motor belts as necessary. Ductwork shall be cleaned and vacuumed at all accessible openings. Special attention shall be paid to duct runs with floor registers. Also clean the flue, pipe and chimney.

1900.70 CONTROLS/CONTROL PACKAGES

When heating unit controls are scheduled to be repaired and/or replaced, the contractor shall examine all the controls for that particular unit, including the thermostat, and repair or replace those controls found to be defective operating and limit or safety devices shall be AGA approved or UL listed.

1900.80 ELECTRIC BASEBOARD HEATING

Prior to installation, provide heat loss calculations as required by local authorities. New baseboard shall be able to maintain a temperature of 70 degrees F at a point three feet above the floor in all habitable rooms without overloading or scorching walls. New heaters shall be medium density type, limited to 250 watts per foot of baseboard. Where possible, install on outside walls and under windows. Each room shall have its own thermostat or thermostats, except for bathroom heaters designed for manual switch operation. Thermostats shall be separate from baseboard and located, not above baseboard, but on inside walls adjacent to doors.

1900.90 FAN FORCED ELECTRIC HEATERS

Fan forced electric heater shall be installed in accordance with the manufacturer's recommendations and code requirements. Each unit shall have a wall mounted thermostat unless otherwise specified.

1900.100 EXHAUST FAN AND VENTED RANGE HOOD

Ventilating equipment shall comply with, and be tested and rated in accordance with Air Moving and Conditioning Association Bulletin 210. Evidence of compliance will be a Home Ventilating Institute or Manufacturer's label showing capacity. Ductwork where required shall be designed for the shortest practical run to the exterior. Exhaust fans shall discharge directly to outside air. Discharge openings through roofs or exterior walls shall be protected against the entrance of rain and snow. Exhaust fan units shall be installed complete with louvers or back draft dampers which will automatically close and prevent a reverse flow of air when fan is not in operation.

When a bathroom exhaust fan is scheduled to be installed new, it shall be installed complete with switch, ductwork and all accessories. Fan motor shall be moisture proof and UL listed. Air delivery of fan unit shall be no less than 60 CFM; fan shall provide a minimum of eight (8) air changes per hour.

When a kitchen exhaust fan is scheduled to be installed new, it shall be installed complete with switch, ductwork and all accessories. Fan motor shall be UL listed. Fan shall be wall switched, unless integrated; switch shall be separate from light switch. Air delivery of fan unit shall be no less than 90 CFM; fan shall provide a minimum of 15 air changes per hour. Range hoods shall be installed complete with ductwork and all accessories. Unit shall include recessed light and removable, washable grease filter.

2000 - ELECTRICAL

2000.10 SCOPE

It is the intent of these rehab standards and the work specifications that each of the following existing items be inspected by a qualified electrician and that any defective items either be repaired or replaced as required by local codes.

- Electrical service and panels
- Electrical wiring
- Electrical devices
- Lighting fixtures
- Electrical receptacles

It is the intent of these standards and the work specifications that any of the following items not provided for in the existing wiring of the building be furnished, installed, and connected up to the building's electrical power source.

- Exterior lights at front rear and/or side entrances.
- At least one small appliance circuit serving the kitchen area
- Separate laundry circuit with one convenience receptacle
- Separate furnace circuit
- Separate range and dryer circuits
- At least two convenience receptacles per room
- One wall switched lighting fixture or wall switched receptacle per room
(bathrooms, kitchens, dining rooms, halls and stairways must have lighting fixtures)

2000.20 GENERAL INSTRUCTIONS

Incidental items not mentioned in the specifications or listed in the Work Schedules that can legitimately and reasonably be inferred to belong to the work described or be necessary in good practice to provide a complete system shall be furnished and installed as though specified in every detail.

All material and equipment used shall conform to the latest U.L. (Underwriters, Laboratory), A.N.S.I. (American National Standards Institute), and F.S. (Federal Specifications) standards, as well as to all other applicable standards. All materials and equipment used shall be clearly marked to permit identification of manufacturer, model and type.

The contractor shall furnish all instruments, gauges and equipment required for testing and shall perform those tests required by the related authorities. Equipment, materials or work found to be defective during testing shall be replaced by new work and be re-tested until proven satisfactory.

The contractor shall be responsible for securing all permits, approvals, inspections and licenses required for the work of this section.

All new materials shall be in good condition. Each type of material shall be the same quality throughout the project.

All finished parts of the materials and equipment for the work of this section shall be protected against damage from whatever cause during the progress of the work and until final completion. All electrical materials and equipment in storage and during construction shall be covered in such a manner that no finish surfaces will be damaged-or marred.

All wiring, fixtures, switches, receptacles, etc. shall be installed complete with all accessories. The contractor shall in no case install permanent electrical equipment that may be damaged by the roughing-in for heating, ventilating, or plumbing equipment.

The contractor shall supervise all drilling, cutting and patching required for the installation of the work under this section. All patching shall be of the same materials, workmanship and finishes as the original work and shall accurately match all surrounding work.

All remaining electrical equipment and exposed wiring not in use shall be disconnected and removed.

2000.30 NEW ELECTRICAL SERVICE

New service shall be a minimum of 150 AMP or 200 AMP with electric heating, except where local jurisdictions require a minimum of 200 AMP for all new installations. Service shall include new service mast or service knob with support where necessary. Service shall be underground where required. Coordinate installation with local utility company. Locate new panel inside the house whenever possible.

New panel shall be 200 AMP with room for at least 12 circuits. Panel box shall be flush or surface-mounted as required. It shall have circuit breakers with thermal magnetic breakers. Prior approval may be required if panel is to be located on exterior of house; this panel shall be factory-built rain tight type. Panel box shall be placed in a convenient and protected location. Service equipment shall not be located in bathrooms, clothes closets, attics, above plumbing fixtures or above laundry and kitchen appliances. Sufficient clearance and accessibility shall be provided as per local codes. Each living unit shall have an individual disconnect and circuit protecting device. The disconnect and circuit-protecting devices for each unit shall be clearly identified.

Each individual power circuit shall be tested at the panel with the power equipment connected for proper operation. All circuits in the panel shall be clearly identified.

2000.40 CIRCUITS

When a living unit is being rewired, in addition to dedicated circuits serving kitchen, laundry, etc. provide as follows. For units up to 500 square feet provide at least two 15 ampere circuits for lighting and general use and one additional 15 amp circuit for each additional 500 square feet or fraction thereof.

New one-circuit service to garage shall be an independent branch circuit of 20 amp capacity. Service shall include new underground conductor, a keyless (switched) fixture for each parking space and at least one grounded (GFI) receptacle. Service shall be installed complete with all wiring and accessories.

New furnace circuits shall be an independent branch circuit of 15 or 20 amp capacity. Contractor shall wire the circuit from the breaker panel to a junction box located near the heating unit. Installation shall include disconnect switch. Coordinate installation with the heating contractor.

New laundry circuit shall be an independent branch circuit of 20-ampere capacity. Receptacle for washing machine shall be a 15 amp, 125 volt, duplex grounding type mounted on the wall behind or adjacent to each set of laundry trays. When installed new, the wall receptacle shall not be higher than 48 inches above the floor.

Provide and install dedicated appliance circuits where necessary and required by code. GFI circuit protection shall be provided for all garage, basement, crawl-space and exterior outlets. All outlets within 6 feet of a water source shall have GFI protection. All hydro-massage or Jacuzzi tubs shall have GFI protection. At least one GFI outlet shall be provided for a minimum of 10 feet and a maximum of 20 feet from pool walls (no outlet shall be allowed that is less than 10 feet from pool walls). Temporary power shall have GFI protection for all 125volt, 15, 20 and 30amp outlets.

2000.50 INSTALL NEW, REPLACE, RELOCATE AND REMOVE ITEMS

When an item is scheduled to be installed new, a new fixture, switch or receptacle shall be installed complete with all wiring and accessories.

When an item is scheduled to be replaced, the existing device shall be removed and a new fixture, switch or receptacle shall be installed and connected up to the existing wiring.

When an item is scheduled to be relocated, it shall be removed complete (or when the existing outlet box and wiring cannot be removed, a blank cover plate shall be installed) and a new fixture, switch or receptacle shall be installed complete in a code approved or more appropriate location.

When an item is scheduled to be removed, it shall be removed complete, or when the existing outlet box and wiring cannot be removed, a blank cover plate shall be installed.

2000.60 COVER PLATES

New cover plates shall finish flush with drywall, plaster or other finished surface. Color shall match receptacle or switch.

2000.70 CONVENIENCE RECEPTACLES & SWITCHES

When receptacles are scheduled to be installed new or replaced, they shall be installed complete with new cover plates. When all switches and receptacles in a room are new, they shall be off white or ivory color. New convenience receptacles shall be flush duplex receptacles. Receptacles for kitchens, bathrooms and laundry areas, whether replacement or new, shall be 3-wire "U" ground duplex receptacles; receptacles shall be grounded. New receptacles shall be conveniently spaced in each room. New receptacles shall not be located in the baseboard. Bathroom receptacles shall be GFCI protected.

2000.80 LIGHTING FIXTURES

Each lighting fixture in the unit shall be furnished with a lamp bulb or bulbs of appropriate type and wattage. New lighting fixtures shall bear either the UL or the ETL label. New exterior fixtures shall be wet location types.

2100 - PLUMBING

2100.10 SCOPE

It is the intent of these rehab standards and the work specifications that the following piping systems be placed in a proper and legal operating condition as required by local codes.

- Fuel gas piping
- Cold water piping
- Hot water piping
- Vent piping
- Drain and waste piping
- Sewer lines

It is the intent of these rehab standards and the work specifications that the following plumbing fixtures and fittings be placed in a proper and legal operating condition or be replaced with new fixtures and fittings.

- Bathtub
- Bathtub fittings
- Shower stall floor drain
- Shower stall fittings
- Toilet
- Toilet fittings
- Lavatory
- Lavatory fittings
- Kitchen sink
- Garbage disposal
- Kitchen sink fittings
- Laundry tray
- Laundry tray fittings
- Automatic washer standpipe
- Water heater
- Silcocks

2100.20 GENERAL INSTRUCTIONS

Incidental items not mentioned in the rehab standards or listed in the work specifications that can legitimately and reasonably be inferred to belong to the work described or be necessary in good practice to provide a complete system shall be furnished and installed as though called out in every detail.

All materials, piping, fittings, fixtures, etc. shall conform to the latest A.N.S.I. (American National Standards Institute), A.S.T.M. (American Society for Testing and Materials), C.S. (Commercial Standards) and F.S. (Federal Specifications) standards. All equipment and materials used shall be new and clearly marked to permit identification of manufacturer, model and type.

The contractor shall furnish all instruments, gauges and equipment required for testing and shall perform those tests required by the related authorities. Equipment, materials or work found to be defective during testing shall be replaced by new work and be re-tested until proven satisfactory.

The contractor shall be responsible for securing all permits, approvals, inspections and licenses required for the work of this section.

All replacement sewer, water and gas systems shall be installed complete and, if necessary, final connections shall be made to the sewer main, gas meter and water meter.

All equipment and items installed shall operate safely, without leakage, undue noise, vibration, corrosion or water hammer. All fixtures shall be securely supported so that no strain is placed on the connected piping. All work, fixtures and materials shall be protected at all times.

All excavation and backfill necessary for the installation of new underground piping should be included. Trenches shall be run in straight lines with the bottom properly sloped to give support to the piping along its full length. The trenches shall be backfilled evenly and be thoroughly compacted using acceptable fill materials. In no case shall the excavation for the trenches undermine or disturb the stability of the building foundations.

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

All drilling, cutting, and patching necessary for the proper installation of work under this section shall be completed and/or supervised by the contractor. All patching shall be of the same materials, workmanship and finish as the original work and shall accurately matches all surrounding work.

All work shall be done without critical damage to structural members.

Sleeves shall be provided as required and upon completion of rough-in work, sleeves shall be made sound and fire tight.

Penetration of stud and masonry walls, floors and ceilings shall be fire stopped.

All joints and connections in the plumbing and drainage system shall be gas and water tight for the pressures required by the test of the system, with the exception of those portions of the piping which are installed for the purpose of leading ground or seepage water to the underground storm drains or side sewers.

The contractor shall be required to wet test all plumbing systems at the expected working pressure of the system after repairs and/or replacements have been made.

Existing plumbing systems, or portions thereof, including building sewers (side sewers), to remain in use shall operate free of fouling and clogging, and shall not have cross-connections which may cause contamination of the water supply by being back siphoned.

Gas lines shall be blown clean with compressed air; all valves and filters shall be checked. All remaining plumbing fixtures and piping not in use shall be disconnected and removed by the contractor.

The entire new and existing installation shall be left in a neat, clean and usable condition.

2100.30 NOTE

New piping at the exterior of a building shall be at least 18 inches below grade. Piping shall run parallel to the building construction and be neat and workmanlike. It shall be concealed in walls, below the floor, above the ceiling or in furred spaces. Piping shall be properly supported and be sloped to drain. Water and gas piping shall be run level without pockets and as straight as possible. New hot and cold water supply lines shall be at least 6 inches apart where such piping is parallel. Swing joints shall provide for expansion and contraction. New soil, waste, vent and drainage piping shall be run at a uniform grade of at least 1/4-inch per foot (20 grade), unless otherwise approved by local jurisdiction. Lines under slabs shall have as short a run as possible

and the runs shall be as straight as possible. Copper piping shall be wrapped with plastic tape where it comes in contact with any metal other than brass or lead. All connections between copper or brass and steel piping shall be made with dielectric couplings. All metallic piping shall be bonded together. Screwed pipe joints shall have threads cut the full thickness with new, clean dies.

2100.40 WATER SERVICE

New water service shall be of sufficient size to permit a continuous and ample flow of water to all fixtures at all times. Frictional losses due to piping, meter, valves, fittings and faucets shall be considered when piping size is being determined. The water service pipe shall be installed in such a manner and shall possess the necessary strength and durability to prevent leakage under all likely adverse conditions, such as corrosion or strains due to temperature change, settlement, vibrations and superimposed loads.

2100.50 GATE VALVES

There shall be a readily accessible fullway gate valve on the discharge side of each water meter. There shall also be a fullway gate valve with bleeder screw on the cold water supply to each water heater at or near the water heater.

2100.60 HOSE BIBS

Two hose bibs shall be provided for each house and be located to provide a source of water for both the front and the rear of the property. The hose bibs shall be the frost proof type.

2100.70 WATER SUPPLY DISTRIBUTION PIPING

NEW HORIZONTAL RUNS: New horizontal runs shall include all water supply piping in the basement and/or crawl space plus new gate valves, pressure reducing valve when required by local code, all necessary supply shutoffs, two hose bibs and, when laundry facilities are located in the basement, automatic washer supply outlets and laundry tray fittings and rough trim. New piping shall be hard temper Type M copper tubing or flexible polyethylene pipe (PEX, Wirsbo, etc.). New branch supply piping shall be no less than 1/2 inch.

TOTAL RE-PIPE: A total re-pipe shall include all new horizontal runs and vertical risers plus new gate valves, pressure reducing valve when required by local code, all necessary supply shutoffs, two hose bibs, washer supply outlets and, where laundry facilities are existing or to be installed new, laundry tray fittings and rough trim. New piping shall be hard temper Type M copper tubing or flexible polyethylene pipe (PEX, Wirsbo, etc.). New branch supply piping shall be no less than 1/2 inch.

2100.80 CONDUCTOR BOOT

New conductor boot shall extend from top piece or hub to horizontal storm drainage piping. Connection to existing piping shall be made watertight using cement mortar, mastic or other approved material. Conductor boot shall be supported at its base to prevent tipping, settlement or frost disturbance. Re-anchor the downspout.

2100.90 STORM DRAINS

New storm drains shall include conductor boot and horizontal storm drainage piping to code approved outlet. Piping shall be cast iron, vitrified clay, concrete or plastic approved by local jurisdiction. All local ordinances regulating the disposal of storm water, including type of piping shall be followed.

2100.100 SUMP PUMPS

Discharge line of sump pump shall have an accessible backwater valve and gate valve. The connection from the discharge line to any horizontal sanitary drainage piping shall be made from

the top through a “Y” branch fitting. Sump shall be watertight and have a gas tight cover of sufficient strength to withstand normal wear. Sump shall be vented as required by local code.

2100.110 BUILDING SEWER (SIDE SEWER)

All sanitary plumbing outlets shall be connected to combined or sanitary sewer systems when they are available. New building sewer shall be constructed of plastic approved by local jurisdiction. The sewer shall be constructed with watertight joints, be on a grade of not less than 1/8 inch per foot, and be laid on a firm bed. No T's or 90-degree ells shall be used. Clean-outs shall be installed as required by code.

2100.120 CLEANOUT COVERS

Cleanout covers shall be sized according to the nominal diameter of the pipes which they serve. All removable cleanouts shall be gas and watertight.

2100.130 SOIL AND WASTE PIPING

Soil and waste piping and fittings materials shall approved by local jurisdiction.

No soil or waste pipe shall be installed or permitted outside a building or be in any place where it may be subjected to freezing temperatures, unless adequate provisions are made to protect it from frost.

2100.140 VENT PIPING (SOIL, WASTE AND VENT STACKS)

New vent piping shall be ABS plastic approved by local jurisdiction. Vent piping shall extend at least 6-inches above finish roof surfaces.

Re-vent piping shall be at least 1/2 of the diameter of the drain to which it is connected or be a minimum of 1-1/4 inches in diameter. Re-vent shall tie into the soil stack or waste stack at a point at least 6-inches above the last fixture connection to the stack. No vent piping shall be installed on the exterior of a building.

New piping passing through the roof shall be flashed with weather tight boots.

2100.150 FUEL PIPING

New fuel piping shall be black pipe or copper tubing. Pipe shall not be bent and offsets shall be made with fittings. Installation shall comply with all the requirements of the local utility company.

2100.160 NOTE

New plumbing fixtures shall be standard builder's models or equal. Fixtures shall be installed complete and ready to use. Appropriate grounds and supports shall be provided for each fixture and equipment item. Arrangements shall be made with the other trades for the installation of any build-in items, blocking or necessary supports. Coordinate installation of plumbing fixtures with flooring contractor. New and existing fixtures shall be cleaned of plaster, grease, paint and other foreign materials.

2100.170 WATER HEATERS

Water heaters shall be installed complete with wiring or fuel piping and draft diverter and vent, as appropriate to type. Water heater shall be standard builder's model, or equal, with 5-year minimum warranty. Heater shall be certified or UL listed. It shall be equipped with a temperature and pressure relief valve and an overflow pipe to within 6 inches of the floor or to location required by local code. New water heater shall comply with latest energy efficiency insulation standards.

Vent pipe shall be at least 26 gauge galvanized sheet metal. It shall have a minimum slope of 1/4-inch per foot with no horizontal length of the vent pipe exceeding 75% of the height of the chimney or vent. It shall be supported at intervals of no more than 6 feet. Flue or vent

connections shall have a diameter not less than the vent outlet of the heater. The fume pipe shall extend just beyond the fire clay flue lining, but no fume pipe shall be vented into a chimney, which is used as a fireplace.

2100.180 LAUNDRY TRAY PACKAGE

Laundry tray shall be single or double-tub type, as scheduled. Package shall include new one piece fiberglass (reinforced polyester resin) tray with integral soap dish, swing type faucet set (strainers) and strainer plug(s), trap and self-leveling legs or pedestal. Capacity of each tub shall be not less than 20 gallons.

2100.190 VANITY LAVATORY PACKAGE

Unless otherwise specified, package shall include new vanity sink base, countertop with backsplash, porcelain enameled steel lavatory, center set faucets with waste stopper, fixture stops and supplies, and trap. Quality of vanity sink base and countertop shall equal that for new kitchen cabinets and countertops.

2100.200 WATER CLOSET PACKAGE

Package shall include new vitreous china bowl (siphon jet action type) with close-coupled tank and cover, plastic seat, flange and waxed ring, bolts and caps, fixture stop and supply and float or flush valve with trip lever. The fixture shall satisfy the water conservation standards and have a flush capacity of no more than 1.6 GPF.

2100.210 BATHTUB PACKAGE

Package shall include new porcelain enameled steel bathtub, pop-up waste and overflow with trap, fixture supply shutoffs or straight valve screw shutoffs where necessary, and when scheduled, concealed shower diverter with trim and fittings. Tub will generally be recess type, but bathroom layout may require corner tub. Refer to floor plan drawings.

Junction of ceramic tile and tub shall be grouted and junction of plastic waterproof material and tub shall be caulked with a silicone rubber sealant.

2100.220 SHOWER STALL PACKAGE

Package shall include new fiberglass (reinforced polyester resin) integral shower and wall surround (including base and drain assembly), fixture supply shutoffs where necessary, diverter with trim and fittings, integral soap dish, and curtain rod. Base shall have slip-resistant surface. Install as per manufacturer's recommendations. Shower stall shall be installed on a smooth concrete or plywood sub-floor. Provide sufficient backing to support the sides of the pan and provide adequate support for the drain assembly to prevent shifting or settling. At least one layer of 15# asphalt-saturated felt shall be placed between the sub-floor and the shower pan. The shower head shall satisfy the water conservation standards and have a maximum flow capability of no more than 2.5 GPM.

2100.230 KITCHEN SINK PACKAGE

Unless otherwise specified, package shall include new porcelain enameled steel or stainless steel countertop sink as specified, swing type faucet set, removable cup strainers, fixture stops and supplies, and waste with trap. Sink shall have ledge. The entire unit shall be undercoated with sound dampening material. A new sink will generally be double compartment sink except that space restrictions may require single compartment sink. Sink shall be at least 7 1/2-inches deep.

2200 - CLEAN-UP

2200.10 GENERAL INSTRUCTIONS

All units, whether scheduled or not, shall be thoroughly cleaned prior to FINAL INSPECTION.

Remove all debris and leave all areas in a neat condition, ready for occupancy.

Clean all concrete slabs, porches and sidewalks of any adhering plaster or concrete globs.

Rake all yards and remove accumulated debris.

Place splash blocks in their proper positions.

Remove all debris from crawl spaces.

Remove any debris still remaining in the garage and house, including the attic.

Clean all windows in work areas, both inside and out, removing any paint splatters or putty marks remaining on the glass with razor blades.

Clean all electrical lighting fixtures, both on the outside and inside. Thoroughly clean all door chimes.

Carefully remove all dirt and stains from ceramic tile. Remove the paint splatters with a razor blade. Difficult-to-remove cement film or grout can be cleaned with TC-50 Ceramic Tile Cleaner and a nylon scrubbing pads or stiff brush. An acid solution shall not be used for washing ceramic tile.

Thoroughly clean and polish all plumbing fixtures. All portions of the toilet bowls shall be scoured clean. Drain the water tank, pat clean the inside surfaces and wipe the operating mechanism clean. Clean all laminated plastic surfaces.

Wipe clean all shelving and cabinetwork in closets, kitchens and other rooms.
Clean all floors, wet mopping or vacuuming as necessary.

2300 - LEAD BASED PAINT HAZARD REDUCTION REQUIREMENTS

LBP 100.1 INTENT

It is the intent of this supplement to provide working details to eliminate the risk of lead based paint hazards. The general contractor shall be required to provide HUD/EPA/WAC certified lead abatement sub-contractors to perform all stabilization and abatement work. This shall include all labor, materials, equipment and disposal of waste necessary and incidental to complete all repairs as stated in the bid specifications. The general contractor shall ensure that safe work practices, as defined HUD, WAC,

EPA, OSHA and WISHA, are strictly followed. Protection of the occupants and the workers during the lead hazard reduction work will be in accordance with HUD, WAC and EPA instructions.

LBP 100.2 GENERAL

The rehabilitation program, if necessary, shall provide a WAC/EPA/HUD certified Risk Assessor to monitor job progress and ensure worker and homeowner safety. The program representative

and their Consultant shall be contacted when the lead hazard reduction work has been completed and the site properly cleaned to schedule a visual inspection and required clearance sampling. During the project, the program and/or its designated consultant may issue a “stop work” order if the contractor is deemed to be in non-compliance with regulations and HUD “Safe Work Practice” techniques. Prior to continuing work, the contractor shall demonstrate that all deficiencies noted have been corrected and that proper work procedures shall be utilized for the remainder of the project. A certified Risk Assessor, retained by the program, shall perform a visual inspection and clearance sampling upon completion of the project. Sampling may include soil and wipe samples collected from the work area. If any sample is deemed unacceptable through laboratory analysis, the contractor shall re-clean the work area and an additional visual inspection and sampling shall be performed. The cost for the additional sampling and inspection shall be borne by the Contractor.

Other documents/regulations that may apply:

State of Washington Department of Community Trade and Economic Development
WAC 365-230 Accreditation of Lead-Based Paint Training Programs and the Certification of Firms and Individuals Conducting Lead-Based Paint Activities

Department of Housing and Urban Development

24 CFR Parts 35, 36, 37 HUD Lead- Based Paint Regulations
HUD Guidelines for the Evaluation and Control of Lead- Based Paint Hazards in Housing

Occupational Safety and Health Administration

29 CFR 1910 General Industry Standards
29 CFR 1910.1025 Lead Standard for General Industry
29 CFR 1910.134 Respiratory Protection
29 CFR 1910.1200 Hazard Communication
29 CFR 1910.245 Specifications for Accident Prevention (Sign and Tags)
29 CFR 1926 Construction Industry Standards
29 CFR 1926.62 Construction Industry Lead Standard

Environmental Protection Agency

40 CFR Part 261 United States Environmental Protection Agency Regulations

LBP 100.3 PAINT STABILIZATION

Paint stabilization will include removal of all loose, cracked, chipped peeling, dusting or any other deteriorated painted surfaces. Pressure washing is not acceptable. Wet scraping, wet sanding, chemical strippers, heat guns not exceeding 1,100-degrees F., and HEPA vacuum filtered needle guns are some of the approved methods for paint removal. All work shall be performed by certified lead based paint workers using HUD “Safe-Work Practices”. Clean all areas where stabilization was performed with a HEPA vacuum, then apply acceptable primer to all stabilized surfaces. All waste generated from this procedure shall be collected and properly disposed of.

LBP 100.4 PAINT OR COMPONENT REMOVAL/ABATEMENT

Prior to commencement of any abatement procedures, the certified lead abatement firm shall notify the State of Washington Department of Community Trade and Economic Development in accordance to WAC 365-230, of all abatement work to be performed. When paint or a component is specified to be removed, they are to be removed completely. Paint removal shall mean all layers of paint down to the substrate. This may be accomplished by chemical stripping, wet scraping, wet sanding, heat guns not exceeding 1,100-degrees F., or a HEPA vacuum filtered needle gun. Component removal shall include all parts of the component system. The certified lead abatement firm shall provide supervision of the project as defined in WAC 365-

230 to ensure that “HUD Safe Work Practices” are followed and that all material needing to be removed has been removed and properly disposed of.

LBP 100.5 LEAD HAZARD REDUCTION STRATEGIES AND PROCEDURES

Prior to commencement of any stabilization or abatement work, the Lead Contractor shall be responsible to notify the owner(s) and/or resident(s) of the scope of work and procedures that will be followed during the abatement or stabilization process. This is extremely important if children under six occupy or regularly visit the residence. If the resident(s) are to be relocated, they must remain off site while the job is being done and until the site has met the required clearance standards for their safe return. Relocation is not required if the lead hazard control work is very limited (for example, one room); lead hazard control work and cleanup can be done in one 8-hour day; and as long as the resident(s) have access to a kitchen, bathroom and sleeping facility.

Once the initial consultations are successfully completed, the Lead Contractor shall set-up project boundaries and containment methods that shall be employed on the job site. Project boundaries shall be clearly marked and access shall be restricted. The exterior of the building and all entrances and exits to the work area shall be clearly marked with OSHA approved signage stating “WARNING- LEAD WORK AREA- POISON- NO SMOKING OR EATING” prior to commencement of any lead hazard reduction work.

Lead Hazard Reduction procedures shall consist of the following:

Interior Containment

- Remove all possible objects from the work area. Carpeting should be removed and cleaned. Complete removal and replacement of carpeting is recommended; replacement should be of hard surface flooring (for example, tile, wood flooring or vinyl) that permits the cleaning of dust.
- Cover all remaining objects, furniture, fixtures, and objects or surfaces that would be difficult to clean with 6-mil plastic. Secure plastic with tape or staples; if staples are used, ensure that the finished surfaces are not damaged when removed.
- Openings to rooms or attached units shall be sealed off from the work area with 6-mil plastic and tape.
- Cover the entire floor of the containment area with two layers of 6-mil plastic securely taped to the perimeter walls. The top layer shall be removed with any debris that may result from lead hazard reduction work; the second layer shall be removed only after lead hazard work is completed, after containment plastic is removed and prior to final cleanup procedures.
- All windows shall be closed and forced-air heating and air conditioning systems shall be shut down prior to lead hazard reduction activities. HEPA vacuum all air intake and exhaust points inside containment areas prior to sealing off completely with 6-mil plastic and tape.
- Make routine checks of the containment to ensure the area outside the containment is not being contaminated. Make necessary repairs immediately.
- Follow OSHA requirements regarding Action Levels and Permissible Exposure Limit levels for all exposed workers by means of proper training and education of workers prior to initial job assignment, employment of a medical surveillance program, engineering and work practice controls, and respiratory protection appropriate to exposure levels as required.

Exterior Containment

- Remove all possible objects from the work area. Place 6-mil plastic as close to the building foundation as possible and secure it to the building if at all possible; secure around the perimeter with weights or stakes. For a containment that will handle liquid

waste, the plastic shall be raised around the perimeter and shall be extended far enough to contain runoff; seal all seams with tape. For a containment that will handle dry waste, the plastic shall be extended 20 feet or a distance sufficient to capture all falling dry debris as warranted by the height of the building. If a constant wind speed is in excess of 15 mph, erect a stable vertical shroud sufficient to protect the containment work site.

- Make routine checks of the containment to ensure the area outside the containment is not being contaminated. Make necessary repairs immediately.

Abatement Procedures

- A certified supervisor or project designer is required for each abatement project and shall be on-site during all worksite preparation and during post-abatement cleanup of work areas. At all other times, the certified supervisor or project designer shall be on-site or available by telephone, pager, or answering service, and be able to be present at the worksite in no more than two hours.
- All abatement procedures are to be performed inside a properly constructed containment area only and shall be conducted by a certified Lead-Based Abatement contractor and properly trained and certified workers.
- If paint is scheduled to be removed from its substrate, it may be removed by wet scraping and wet sanding, the use of a heat gun under 1100-degrees F, hand-held power tools used in conjunction with HEPA exhaust control filtration, on-site chemical strippers (using appropriate respiratory protection), or off-site chemical stripping. The use of open-flame burning or torching, uncontained hydro blasting or pressure washing, grinding, sanding or sandblasting without HEPA exhaust filtration, dry sanding or scraping (only permitted in conjunction with heat guns or around electrical outlets), the use of a heat gun over 1100-degrees F, and the usage of methylene chloride based chemical strippers are expressly prohibited.
- To control dust during abatement, mist or wet-spray the affected item and the surrounding area before commencement of abatement. Make sure to dry surrounding areas after the removal of the component(s) so as not to damage surrounding areas.
- Once you have removed a component, wrap it carefully with 6-mil plastic and seal completely with tape for proper disposal.
- If windows or doors are scheduled to be removed, the interior side of the unit shall be double covered with 6-mil plastic. The floor and/or ground immediately below the window or door shall be sufficiently covered to prevent contamination. Doors shall be tightly covered and taped around the perimeter and to the floor; windows shall be J-bagged (allows for trough at bottom of window to catch debris) and securely taped around the perimeter.
- Abatements that include paint, soil, interior dust, and exterior dust shall be completed in this order: 1) Abate lead-based paint on the outside of the building first; 2) Abate all identified lead-contaminated soil; 3) Abate exterior dust; 4) Abate interior lead-based paint; 5) Abate interior lead dust. This order of abatement shall be followed with all abatement combination possibilities.
- A thorough cleanup of the entire work area shall be conducted each and every day. This daily cleanup shall consist of the following: 1) removal of all debris; 2) HEPA vacuuming, wet cleaning, HEPA vacuuming (horizontal surfaces only); 3) cleaning the exterior directly surrounding the containment; 4) patching and repairing plastic sheeting as required; and, 5) if containments are to be left overnight, secure the containment and worksite to restrict entry.
- Enclosure- encloses a painted surface with a durable substance such as drywall, paneling, metal and vinyl siding, Hardi siding, plywood, wood or tile flooring, metal coil-stock, or some other construction material designed to last a minimum of twenty years. All enclosure products should be applied with fasteners and adhesives and installed according to current manufacturer's specifications. Before enclosing a surface, clearly mark or identify the surface as containing lead-based paint every 3' in height along the

entire length of the surface. All seams, edges and joints must be sealed or caulked to prevent dust from escaping.

- Encapsulation- coats and seals the lead-based paint with a durable coating applied as a liquid to the painted surface. To be considered an acceptable encapsulant, the coating must meet or exceed ASTM E1795-04 Standard Specification for Non-Reinforced Liquid Coating Encapsulation Products for Leaded Paint in Buildings. Encapsulants are not to be used on surfaces subject to friction or rubbing such as windows or doors. Before installing encapsulants ensure that the existing paint is stable and well-adhered to its substrate. If the existing paint is not stable and well-adhered, stabilization and priming of the surface must be done in accordance with HUD “Safe Work Practices” prior to application of encapsulant. Installation shall meet all current manufacturers’ specifications.
- Soil Abatement- replaces contaminated bare soil or permanently covers bare soil so as to be separated from human contact. If soil is to be abated, WAC 365-230 requirements for soil abatement shall be observed. Soil abatement shall be consistent with one of the following: 1) replacement with soil that has a lead concentration no greater than 250 ppm; or, 2) shall be permanently covered with a relatively impermeable material, such as pavement, asphalt or concrete. Soil that is replaced shall be installed at a level 2-inches above the previous level to allow for settling.

Interim Controls

- Interim control measures include paint stabilization of deteriorated paint, treatments for impact and friction surfaces, treatment of chewable surfaces, dust-lead hazard control, and treatments for soil-lead hazards. Interim control measures must be completed using HUD “Safe Work Practices” (24 CFR Part 35, Section 35.1350).
- Interim controls of lead-based paint hazards shall be conducted by persons who have been trained in accordance with 29 CFR 1926.59 and either be supervised by an individual certified as a lead-based paint abatement supervisor or have successfully completed a HUD-approved “Safe Work Practices” training course.
- Occupants shall not be permitted to enter the worksite during lead hazard reduction activities until after clearance has been achieved.
- A warning sign shall be posted at each entry to a room where lead hazard reduction activities are conducted when occupants are present; or at each main and secondary entryway to a building from which occupants have been relocated; or, for an exterior hazard reduction activity, where it is easily read 20 feet from the edge of the hazard reduction worksite.
- De minimis levels- HUD “Safe Work Practices” are not required when lead hazard reduction activities do not disturb painted surfaces that total more than: 1) 20 square feet on exterior surfaces; 2) 2 square feet in any one room or interior space; or 3) 10 percent of the total surface area on an interior or exterior type of component with a small surface area. (e.g., window sill, baseboard, trim).
- A thorough cleanup of the entire work area shall be conducted each and every day. This daily cleanup shall consist of the following: 1) removal of all debris; 2) HEPA vacuuming, wet cleaning, HEPA vacuuming (horizontal surfaces only); 3) cleaning the exterior directly surrounding the containment; 4) patching and repairing plastic sheeting as required; and, 5) if containments are to be left overnight, secure the containment and worksite to restrict entry.

Paint Stabilization-

- Correct all interior and exterior water leaks to the building envelope that may be causing the physical deterioration of the various substrates
- Any physical defect in the substrate of a painted surface or component that is causing deterioration of the surface or component shall be repaired before treating the surface or component. Examples of defective substrate conditions include dry-rot, rust, moisture-

related defects, crumbling plaster, and missing siding or other components that are not securely fastened.

- Before applying new paint, prepare the surface by removing all loose, chipping, cracking, peeling, or chalking paint by wet scraping and sanding, the use of a heat gun under 1100-degrees F, hand-held power tools used in conjunction with HEPA exhaust control filtration, on-site chemical strippers (using appropriate respiratory protection), or off-site chemical stripping. The use of open-flame burning or torching, uncontained hydro blasting or pressure washing, grinding, sanding or sandblasting without HEPA exhaust filtration, dry sanding or scraping (only permitted in conjunction with heat guns or around electrical outlets), the use of a heat gun over 1100-degrees F, and the usage of methylene chloride based chemical strippers are expressly prohibited.
- Clean, degloss, neutralize and rinse stabilized surfaces prior to application of primer and paint. Surfaces should be dry and free of debris prior to painting.
- Apply one coat of primer and at least one coat of paint to all surfaces that have been stabilized. Allow sufficient time for each coat of paint to dry fully. All paint shall be applied in accordance with all current manufacturers' specifications.
- Paint stabilization shall incorporate the use of HUD "Safe Work Practices" in accordance with 24 CFR Part 35.

Friction and impact surfaces-

- Examples of friction and impact surfaces include but are not limited to, windows, doors, stair treads and risers, baseboards, walls where door knobs have knocked against, drawers and cabinets, porches, decks, interior floors, and any other surface that are abraded, rubbed or impacted.
- All deteriorated paint on a friction or impact surface component that is not scheduled to be removed shall be stabilized.
- As an additional protection measure, the installation of rubber or felt bumpers at all points of friction or impact is recommended.
- Interim controls for friction or impact surfaces does not include covering of such surfaces with a coating or other treatment, such as painting the surface, that does not protect lead-based paint from impact or abrasion.
- Interim control measures for friction surfaces shall eliminate friction points or treat the friction surface so that paint is no longer subject to abrasion. For windows, install channel guides or slide systems that reduce or eliminate the abrasion of painted surfaces. If window troughs are badly weathered, cap with caulk-backed, metal coil stock or other approved material. For doors, mist and plane, or re-hang door to eliminate friction points. For paint on stair treads and floors, install a durable cover such as wood or tile, carpeting, rubber tread guards, or vinyl sheet goods. For drawers and cabinets, strip paint from drawers and drawer guides or plane impact points and repaint. Strip paint from all cabinet doors or replace doors.
- Interim control measures for impact surfaces shall protect the lead painted surface from impact. For baseboards, remove and dispose of the base shoe molding and replace it. For abraded or damaged outside wall corners, install new plastic or wood corner bead. For doors, remove and dispose of the doorstop from the jamb if possible; to prevent the door from striking a wall or baseboard install new wall or hinge mounted door stops.

Chewable surfaces-

- Chewable surfaces are required to be treated only if there is evidence that a child of less than 6 years of age has chewed on the painted surface, and lead-based paint is known or presumed to be present on the surface.
- Treatments shall make the lead-based paint inaccessible for chewing by children of less than 6 years of age by either the removal of the components completely or by means of enclosure or coatings that cannot be penetrated by the teeth of such children.

Dust-lead hazard control-

- Dust-lead hazard, as provided in WAC 365-230, shall mean surface dust in a residential dwelling or child-occupied facility that contains a mass-per-area concentration of lead equal to or exceeding $40 \mu\text{g}/\text{ft}^2$ on floors or $250 \mu\text{g}/\text{ft}^2$ on interior window sills based on wipe samples.
- All horizontal surfaces, such as floors, stairs, window sills and troughs, that are rough, pitted, or porous shall be sealed with an appropriate sealer or covered with a smooth, cleanable covering, such as metal coil stock, plastic, polyurethane, tile, wood, vinyl, laminate, or other acceptable smooth, cleanable covering.
- Dust control shall involve a thorough cleaning of all horizontal surfaces, such as interior window sills, window troughs, shelves, floors, and stairs, but excluding ceilings.
- Other potential dust traps that require thorough cleaning, other than horizontal surfaces, carpeting, rugs and mats, include radiators, floor grates and registers, drapes, blinds, upholstered furnishings and children's toys.
- Clean from top to bottom and vacuum before wet cleaning. On multistory dwellings, start at the top level in the rear room, furthest from the floors/rooms entrance and work in one direction toward the front; repeat this process for the remaining floors/rooms in sequence. Within a room start with the highest horizontal surface and work down. A typical cleaning sequence would be as follows: top of window heads, tops of sashes, mullions, and interior and exterior window sills and troughs, radiators, baseboards, floors, and finally vents/registers and horizontal components of the ventilation ducts that can be easily reached.
- When at all possible, area rugs and wall-to-wall carpeting in an area where dust-lead hazards have been identified shall be removed and replaced with smooth, easily cleanable, hard-surface flooring, such as wood, tile or vinyl sheet goods.
- All floor surfaces, including those beneath a rug shall be cleaned where possible by methods of HEPA vacuuming, wet wiping with a high phosphate or lead-specific solution like TSP, and then HEPA vacuuming again.
- If carpeting is not scheduled to be replaced, HEPA vacuum the carpeting at a rate no faster than 2 minutes per 10 square feet in a side-to-side direction, followed by another pass at the same rate in a direction perpendicular to the direction of the first vacuuming, for a total of 4 minutes per 10 square feet.
- Replace air filters in the forced air systems at the time of cleaning.

Soil-lead hazards-

- Soil-lead hazard, as provided in WAC 365-230, shall mean bare soil on a residential real property or on the property of a child-occupied facility that contains total lead equal to or exceeding 250 parts per million (mg/g) based on soil samples.
- Acceptable interim control methods for soil-lead hazards are impermanent surface coverings and land use controls. Impermanent surface covering may consist of grass, other ground covers (e.g., junipers or ivy), artificial turf, bark, mulch, and gravel. Land use controls may include fencing, warning signs, creation of alternate play areas, decking, and planting of thorny or dense shrubbery.
- Impermanent surface coverings shall be designed to withstand the reasonably-expected traffic. If the area to be treated is heavily traveled, neither grass nor sod shall be used.
- When loose impermanent surface coverings such as bark or gravel are selected, they shall be applied in a thickness not less than 6-inches deep. New bark, gravel, or other materials should not contain more than $200 \mu\text{g}/\text{g}$ of lead.
- Adequate erosion control measures shall be used in conjunction with impermanent surface coverings.
- Land use controls may be used to reduce exposure to soil-lead hazards only if they effectively control access to areas with soil-lead hazards, and only if the residents have reasonable alternatives to using the areas to be controlled.

- If land use controls are used for a soil area that is subject to erosion, measures shall be taken to contain the soil and control dispersion of lead.

Cleanup Procedures

- Occupants shall not be permitted to enter an area where lead hazard reduction work or abatement has been conducted until cleaning is completed and final clearance has been achieved.
- Clearance levels for lead dust shall be as provided in WAC 365-230 as follows: 40 $\mu\text{g}/\text{ft}^2$ on floors; 250 $\mu\text{g}/\text{ft}^2$ for window sills; and 400 $\mu\text{g}/\text{ft}^2$ on window troughs.
- A thorough cleanup of the entire work area shall be conducted each and every day. This daily cleanup shall consist of the following: 1) removal of all debris; 2) HEPA vacuuming, wet cleaning, HEPA vacuuming (horizontal surfaces only); 3) cleaning the exterior directly surrounding the containment; 4) patching and repairing plastic sheeting as required; and, 5) if containments are to be left overnight, secure the containment and worksite to restrict entry.
- For final cleaning, wait at least 1 hour after active lead hazard control activity has ceased in order to let dust particles settle.
- Removal of plastic sheathing used for containment purposes should begin with upper-level plastic, working toward the floor, with removal of the floor plastic last. Before removing any plastic, spray or mist the plastic with water to hold down dust, and then fold it inwards to trap any remaining dust inside. Place all used plastic and any waste material inside double 4-mil or single 6-mil plastic bags and seal them tightly before removing from the premises.
- Clean from top to bottom and HEPA vacuum before wet cleaning, then HEPA vacuum again. On multistory dwellings, start at the top level in the rear room, furthest from the floors/rooms entrance and work in one direction toward the front; repeat this process for the remaining floors/rooms in sequence. Within a room start with the highest horizontal surface and work down. A typical cleaning sequence would be as follows: top of window heads, tops of sashes, mullions, and interior and exterior window sills and troughs, radiators, baseboards, floors, and finally vents/registers and horizontal components of the ventilation ducts that can be easily reached.
- Wash all surfaces with a lead specific detergent, high-phosphate detergent, or other suitable cleaning agent to dislodge any ground-in contamination, then rinse. Change the cleaning solution after every room is cleaned. Waste water should be disposed of in the toilet after applicable pretreatment steps (e.g., filtering, gravitational separation), if any, have been satisfied. Waste water shall not be disposed of into storm drains or onto the ground.
- Decontamination of all tools, equipment, and worker protection gear is required before it leaves containment areas.
- After the final cleaning is completed, the certified supervisor shall visually evaluate the entire work area to ensure that all work has been completed and all visible dust and debris have been removed. If the visual examination results are unsatisfactory, affected surfaces must be retreated and/or recleaned.
- After satisfactorily passing the initial visual inspection by the certified supervisor, all floors without an intact, nonporous surface or coating should be sealed to allow for easier cleaning by the occupants. Wooden floors should be sealed with polyurethane or other durable enamel based paint. Vinyl tile, linoleum, and other similar floors should be sealed with an appropriate wax. Concrete floors should be sealed with a concrete sealer or other durable epoxy based paint. An alternative to sealing floors would be the installation of new vinyl tile, sheet vinyl, wood flooring or tile that would cover the surface of the porous floor completely.
- After painting/sealing is complete, the entire work area should be thoroughly cleaned again following the same HEPA/Wet Wash/HEPA cycle from ceiling to floor as previously described.

- Clearance dust sampling of a worksite shall be conducted a minimum of one hour after final cleanup is complete.
- Clearance activities and dust sampling of the worksite shall be conducted by a certified risk assessor or certified lead-based paint inspector and shall consist of a visual assessment, dust sampling, submission of samples for analysis of lead by an accredited NLLAP laboratory, interpretation of sampling results, and preparation of a clearance report.
- All surfaces represented by a failed clearance sample or visual inspection shall be recleaned and retested until the applicable clearance level is met.

2400 - ASBESTOS HAZARD REDUCTION REQUIREMENTS

- On projects where it has been determined Asbestos containing materials are present, or Asbestos containing materials are assumed to be present, it is the Contractors responsibility to comply with all Washington State requirements as set forth in WAC 296-62, Part I-1 and WAC 296-65.