

**Pima County Community Development & Neighborhood Conservation Department**  
**RESIDENTIAL PROPERTY REHABILITATION SPECIFICATIONS**  
**June 2009**

**GENERAL REQUIREMENTS**

A. General

- 1) These residential rehabilitation specifications are intended to be a guideline for providing housing which is decent, safe, sanitary, and comfortable. All habitable structures shall meet or exceed Housing Quality Standards (HQS), as they apply to the US Department of Housing and Urban Development (HUD) Section 8 Existing Housing Program. As a minimum, the standards contained herein must be met by all habitable structures. All rehabilitation, demolition, additions, alterations, modifications, repairs, or improvements to property(s) and/or structure(s) performed under this program shall fully shall comply with all applicable Zoning and Building Codes, as amended and approved by Pima County; and Arizona Revised Statutes, as applicable; and in instances requiring accessibility to the handicapped, the Uniform Federal Accessibility Standards, and the Americans with Disabilities Act.
- 2) The County reserves the right to direct the repair of any item which, in its opinion, renders a property unsafe, not decent, unsanitary, or constitutes a major building system in danger of failure, or fails to meet applicable codes.
- 3) Any required permits, licenses, and/or fees necessary must be obtained and paid for by the Contractor **prior to the start of any work**. If work has started without permits and discovered by the County, all work will be stopped until proper permits have been obtained. The Contractor shall furnish all computations, load calculations, and technical drawings as required for obtaining permits. The Contractor shall supply the legal Pima County Address Certificate required for the permit.
- 4) Properties with additions or structural modifications will be inspected to determine whether changes were made according to applicable Zoning and Building Codes. Substandard workmanship, unsafe items, or hazardous situations are not acceptable. If repair to meet code(s) is not cost-effective, the addition or modifications may be demolished.
- 5) Periodic inspections will be made by the County on any work in progress to ensure compliance with the provisions of the contract, including the following specifications, and all applicable codes and guidelines as adopted by Pima County. **All work and materials shall be inspected prior to concealment. The County may require uncovering of work that has not been inspected and approved, and the Contractor shall be responsible to make repairs at Contractor's expense. The County or their designee must receive a minimum 24-hour notice, to schedule and perform the inspection requested.**

B. Responsibility

By submitting a proper bid and proposal for the work required, the contractor shall be deemed to have visited the job site, and to have made such study and examinations as required to make themselves familiar with all required installations, sizes, and existing site conditions. By signing the contract, the contractor shall be held responsible for and bound to provide a completed installation and/or application of each work item specified in the Work Write-Up. The Contractor also acknowledges that specified quantities and measurements may only be

approximate and that in the bid, the contractor will make allowances for any waste, laps, trim, caps, shortages, etc., needed to provide a complete installation. If in any case, the Contractor should uncover or expose concealed asbestos containing materials, the Contractor shall cease all work and notify the County immediately.

#### C. Materials and Major Systems

1) Materials, major systems or items necessary to make a property meet standards will be analyzed on the basis of a **7-year life expectancy**. Examples of major systems and necessary items are: roofs, heating, cooling, plumbing, water heaters, and the electrical components of the property.

2) All materials shall be new, in good condition, of standard grade and adequate for its intended use. They shall conform to the material standards and test-approved by an accredited, authoritative agency of accepted engineering practices. Chipped, damaged, bent, frayed, blemished, or scuffed materials will **NOT** be accepted. During the course of rehabilitation work, all materials shall be protected from damage, weather and climate, over-spray, or any action which may change appearance of existing or new materials.

3) Before any painting or installation of floor covering, roofing, ceramic tile, etc. is started, the Contractor shall present the County a color selection chart or samples indicating the desired colors, materials and/or patterns for approval. Approved colors, materials and/or patterns shall become a part of the contract.

4) It is not the intent of the County to exclude any products or materials of equal or greater quality to those specified – brand names herein are used to establish a certain grade only. Materials of equal or better quality to those specified may be substituted, provided prior approval has been given by the County. In no way shall the term *equal or better* be applied to the quality of the unit or material that is to be removed and/or replaced. Any fixture, appliance, accessory not specified in the specifications will need to have the County approval prior to installation. The County shall have the sole and final word on exactly what materials meet or exceed the quality standard of *equal or better*, as mandated by contract requirements.

#### D. Workmanship and Work Standards

1) Changes of any kind of activities, materials or items in the Work Write-Up will not be allowed nor paid for until an approved Change Order has been properly executed.

2) All work shall be performed by people trained and skilled in their respective trades, in accordance with the best practices of the trades and in accordance with latest codes and regulations.

3) All measurements and sizes called for in the Work Write-Up, plans, sketches, and/or specifications **are approximate and shall be site verified by the contractor prior to bidding**. The bid submitted by the Contractor shall be construed to mean full coverage of lengths, sizes, and quantity of the existing items and identified sizes/measurements shall include any waste, overlays, and trim items required to complete a work item.

4) When *Repair* is specified in the Work Write-Up, this shall mean the work item is to be returned to as close to new condition as possible, and shall match adjacent areas in finish, design, and appearance.

5) When *Removal* is specified in the Work Write-Up, the described item shall be deconstructed, demolished, extracted, from its existing location(s) in its entirety or to the point that the item can not be reconnected, reused and completely rendered unusable. The item shall be taken off the premises following all applicable protocols for its composition material(s).

6) When *Installation* is specified in the Work Write-Up, the described item shall be permanently set, placed, affixed, attached, fabricated to a corresponding location according to manufacturer's specifications, trade practices, professional industry standards, all applicable building codes and workmanship like manner.

7) The Contractor shall exercise proper care and precaution at all times for the protection of vegetation, other landscaping and property during the construction period; and, shall be responsible for repairing or replacing any damaged vegetation and property, which might occur as a result of the execution of work.

8) The Contractor will keep the premises clean and orderly during the course of construction and is responsible for daily removal of all debris created as a result of work specified in contract. Neither the job site nor any public right-of-way shall be used to store debris or waste materials. All surfaces – floors, glass, cabinets, countertops, mirrors, etc. – shall be protected during construction and shall be left free of paint, stains, scratches, etc., caused by activity of the contract or where applicable work areas have been. All window glass shall be cleaned and all floors shall be scrubbed clean free of stains and shall have one coat of sealer with two coats of commercial-grade wax. If wax contains sealer, two coats are acceptable – *Mirrorlite* brand equal or better, to be used.

9) The Contractor shall be responsible for the security of the property and residence through the entirety of the rehabilitation work to prevent damage, vandalism and theft on the site.

10) Prior to any excavation, it shall be the responsibility of the Contractor to have "Blue Stake" performed to prevent damage of buried utilities.

#### E. Health and Safety

1) Asbestos-containing materials (ACM) that are to be removed as a condition of contract shall be removed and disposed of in a proper and safe manner by a certified asbestos abatement contractor. ACM material will be evaluated and dealt with in the most practicable and safe manner possible. Exposed floor mastic containing asbestos will be encapsulated or removed in those areas where carpet is being installed. Asbestos-containing tile will be removed prior to a new layer of resilient flooring being installed. No ACM will be used for repair or replacement.

2) Dwellings constructed before 1978 which may become occupied by children under the age of seven must be tested by an EPA-certified laboratory/ testing company for the presence of lead-based in paint exceeding Federal Standards. Lead-based paint will be abated in accordance with federal regulations. All wood trim, doors, door jambs, frames that have lead-based paint will be removed and replaced. Lead-based paint on walls or ceilings will be abated or encapsulated in accordance with federal regulations. No lead-based paint shall be used in rehabilitation work.

#### F. Handicap Accessibility

1) Buildings consisting of 15 or more units undergoing substantial rehabilitation shall have 5% of

the units be handicapped-accessible, in accordance with Section 504 of the Rehabilitation Act of 1973. Substantial rehabilitation shall be considered that where costs are equal to, or greater than 75% of the replacement cost of the completed facility.

2) Modifications made to accommodate disabled persons will be done according to guidelines provided by the Uniform Federal Accessibility Standards, the accessibility requirements at 24 CFR part 8, which implements Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794) and covered multifamily dwellings, as defined at 24 CFR 100.201, must also meet the design and construction requirements at 24 CFR 100.205, which implement the Fair Housing Act (42 U.S.C. 3601-3619).

G. Pima County Regional Residential Green Building / Remodeling Program

As part of the permitting process, the Contractor shall enroll each property in the Pima County Regional Residential Green Remodeling Program. Rehabilitation work will follow the county's green building and remodeling guidelines to increase resource, water and energy efficiency; improve indoor environmental quality; and reduce net waste through salvage, recycling and re-use of building materials. Other elements that support this specification not found in the county guidelines may be proposed by the contractor and will be approved on a case-by-case basis.

**NOTE:**

**Every effort has been made to provide the Contractor with accurate information regarding existing conditions. The Contractor shall field-verify all existing conditions prior to bidding. Any conflicting information discovered by the Contractor during the pre-bid process, which may affect the scope of work, shall be reported to the County contact prior to bidding. The submission of a bid shall indicate complete understanding of the contract documents and acceptance of existing conditions by all parties involved. New systems identified on plans and in specifications shall be properly installed and shall be fully operational. All items incidental to the completion of the work shall be included in bid.**

**Materials, items and/or method of work described on Rehabilitation Work Write-Up take precedence over Rehabilitation Specifications. In the highly unlikely case of a conflict or contradiction on the part of the County between these Specifications, and Pima County Zoning and Building Codes and Green Building and Remodeling Guidelines, the more stringent element shall take precedence.**

## 1. EXTERIOR PROPERTY AREAS

### A. Drainage and Water Harvesting

- 1) The site shall be graded to drain water around and away from the building foundation.
- 2) Earthworks (basins, berms, swales, French drains, etc.) installed for drainage and newly-installed paved areas will be designed to concentrate storm water to irrigate landscaping. Reducing the amount of impervious surfaces may reduce the need for additional drainage structures.
- 2) Roof areas, gutters and downspouts may be used to collect and transport rainwater to closed cisterns or landscape basins – site-specific designs may be provided on a case-by-case basis.

B. Walkways and areas subject to pedestrian traffic shall be finished in such a manner as to minimize slip hazards when wet. Cracks of more than ½ inch wide or any crack which causes a trip hazard in driveways, sidewalks or walkways will be repaired.

C. Invasive non-native weed species: at a minimum, buffelgrass (*Pennisetum ciliare*), and fountain grass (*Pennisetum setaceum*) will be identified by the County for removal.

D. Storage sheds, masonry walls, or fences may be installed if these features are in keeping with improvements of surrounding standard projects. Storage sheds, walls or fences in poor condition will be removed and/or replaced.

### E. Landscaping

- 1) High water-use landscaping will be recommended for removal for conversion to Sonoran Desert native drought-tolerant landscaping.
- 2) Dead trees or shrubs will be removed. Plants which are undermining any structure (e.g., walls, masonry fences, slabs) or interfering with drainage will be removed. Plants blocking access to electrical panels, windows, doors, sidewalks, or walkways, or interfering with overhead electrical, telephone, or television cables will be trimmed or removed. Plants which are abrading the roof surface will be trimmed. Palm trees having build-up of dead palm fronds, will be trimmed or removed. Plants, trees or shrubbery posing personal safety hazards must be trimmed or removed.
- 3) Existing irrigation and sprinkler systems must be in good working condition, free of leaks and in operable condition. Installation of new irrigation shall be of water-efficient or drip-irrigation type.

F. Each unit must be provided with a mailbox in compliance with US Postal Service Regulations.

G. Where washer hook-ups are provided, permanent outdoor clotheslines shall be installed. On exterior washer hook-ups, a second gray water drain line may be added if practicable.

## 2. FOUNDATION and EXTERIOR WALLS

A. Excessive cracking, bowing, leaning or heaving in foundation or exterior walls will be cause for repair. Cracks and displacements of more than ¼ inch will be repaired. Walls which lean enough to make the center of the top course fall outside the middle one-third of the base will be replaced. Retaining walls will have weep holes in sufficient number and size to relieve water trapped behind the wall.

B. On exterior walls where wood framing, hard board, or siding is specified, a vapor barrier material shall be properly installed. Any exterior sheet rock used shall be ½-inch moisture resistant type as approved for that purpose.

## 3. ROOFING

A. Existing roofs must have an estimated life expectancy of at least **7 years** after repairs to be considered repairable. Repairs will be done only when the cost-per-year for repairs is estimated to be substantially less than the cost-per-year of a new roof. Roofs with less than a 7-year life expectancy will be replaced. When only roof patching work is required, the replacement material shall be of same type, matching in size, and color.

B. All roofing materials and labor shall be covered by a minimum guarantee of two (2) years after the installation completion date unless at a later date, up to five years, circumstances reveal that improper materials and/or workmanship were used, the contractor shall be responsible and required to make corrections. Materials will be covered by manufacturer's warranty.

C. New roofs installed shall be ENERGY STAR® -rated or Cool Roof Rating Council certified. A new roof installation on dwelling shall mean to include any attached porches, storage rooms, carport, unless otherwise specified.

D. New roof installations shall have **all** previous roofing and underlay removed to sheathing or rigid insulation, if present, and the substrate thoroughly inspected and repaired prior to installation of new system. New roofing shall not be installed over rotted, weak sheathing or joists. **The County shall be notified at least one business day prior to requesting roof inspection.**

E. Parapet walls shall be covered with mineral-surfaced fiberglass cap sheet material and shall be 3-coursed to the top outside of parapets. New cant strips shall be installed at all parapet base edges – cant strips may be made from wood or fiber material.

F. For roof measuring purposes, sizes reflected on the Write-Up are approximate roof size areas, and the Contractor shall verify actual measurements. The Contractor shall allow for material and labor as required for laps, flashing, and ridge cap overlays to provide a completed and acceptable job.

G. Repair or installation of shingle, tile or wood shingle roofs shall be to existing codes. All materials and installation methods shall be in conformity with the latest IRC, as adopted by the Asphalt Roofing Manufacturer's Association, and the National Roofing Contractor's Association recommendation.

### H. Built-Up Roofs

1) Built-up roof coatings will be in good condition and consist of compatible materials. Roofing

membranes shall consist of at least three (3) layers and must be well adhered to the decking. Excessive (more than 5% of the roof area) fissures or cracks, lifting seams, peeling, bubbling, chipping, sloughing, mechanical damage or excessive “alligatoring” will be repaired.

2) New built-up roofs shall have an elastomeric coating. Gravel roofs shall be replaced with a three-ply built-up system with elastomeric coating.

#### I. Rolled Roofs

1) Rolled roofing applied without hot tar will be fastened according to manufacturer’s specifications. Roofing with fasteners spaced more than 3 inches along the seams and laps will be re-nailed or replaced. Loose mineral surfacing, bare spots, wear, excessive wrinkles, loose seams, loose laps, etc. will be cause for repair or replacement.

#### J. Foam Roofs

1) Foam roofs are not acceptable for Pima County housing rehabilitation, renovation or major repair programs and when encountered shall be replaced with an acceptable roofing system unless a determination is made that the insulating qualities of a foam roof outweigh the maintenance costs associated with foam roofs.

#### K. Penetrations and Protrusions

1) Protrusions through a roof (e.g., ductwork, vent pipes, ventilators, flue pipes, etc.) shall have a proper metal roof jack installed and, where applicable, roof protrusions shall have proper 3-coursing applied. All 3-coursing and patching materials shall be coated with aluminum or acrylic roof paint, whichever is specified. Holes in sheathing larger than 2 inches shall be covered with sheet metal.

2) Roof penetrations must be properly flashed and sealed. Cracks forming around roof penetration seals will be resealed. Seals made solely with mortar, plastic roof cement, or other materials that crack or shrink are not acceptable.

3) Under no circumstances shall roofing material be installed and sealed against equipment platforms, such as cooler and furnace stands – stands shall be removed, the roof installed, and stands reinstalled and left in same or better condition, unless otherwise specified.

L. Un-warrantable, improvised or experimental roofs will be considered on a case-by-case basis.

#### M. Flashing

1) All roofing materials at overhangs, valleys, flashing, etc., shall be straight, even and level.

2) All roofs must have a properly installed metal edge. Flashing that is loose, improperly sealed, heavily corroded, or damaged will be repaired or replaced. On all new roof installations, a new 2-inch L-metal edging shall be installed at roof overhangs and edges, unless otherwise specified (gravel stop-type metal will not be accepted).

3) When installation is specified, flashing and roof valleys shall be constructed of sheet metal of either 28-gauge galvanized type or 26-gauge aluminum.

#### N. Roof Drainage

- 1) Minor pooling of water on roofs is acceptable if less than ½-inch in depth, less than one-third the span of the roof, or capable of drying in less than 48 hours after the last addition of water.
- 2) Roofs draining onto other roofs or onto areas which causes excessive wear shall have protection provided or the drainage rerouted.
- 3) Roof drains must be made of water-impervious materials, and installed to prevent excessive pooling and drainage down the wall of the structure.

#### O. Roof Gutters and Downspouts

- 1) Gutters and downspouts shall be galvanized metal or aluminum, with corrosion-preventative coating on inside surfaces, or baked enamel finish. Gutters and downspouts shall be installed with caulked slip joints, ferrules, gutter spikes, end pieces, L-bows with proper configuration, and securing devices as manufactured for that purpose. Caulking shall be lap and gutter type.
- 2) Gutters shall be installed with proper pitch to downspouts, with no water overflow back into framing members. Gutters shall be attached with aprons and hangers or combination hangers; no exposed strap hangers shall be used. Gutters installed for roofs without an overhang shall be attached to blocks to space gutter away from siding, and have proper flashing installed.
- 3) Joints in downspouts and attachments shall be secured with pop rivets or sheet metal screws. Downspouts shall be securely fastened with strap or cast hangers at top and bottom, with at least one additional hanger for every 6 feet of downspout. Downspout elbows will be located to drain water away from the building foundation, and not more than 6 inches above the splash pad. A 12-inch by 18-inch splash pad of concrete shall be installed unless leader piping, dry well or rip-rap is specified.
- 4) Where new side scuppers and/or *canales* are used for roof draining and metal hoppers with downspouts are specified, the hopper portion shall be installed around and sealed to the roof drain scupper rather than below the drain outlet. Leaders, where required or specified, shall be standard gauge galvanized or cast iron pipes.

### 4. DOORS and WINDOWS

A. Doors and windows and their related components will be in good functional and physical condition, properly set and sealed.

B. New door or window units shall be installed to manufacturer's specifications and shall include all new hardware necessary for the complete installation including hinges, jambs, sills, stops (*Stanley* #57-1010 or #57-1020), casings, balance devices, glass as needed, fastening device, bumpers, weather-strip, threshold, single-cylinder deadbolt, and key lock. All doors shall have 3 butt hinges (*Stanley* brand equal or better) each, 4-inch for exterior doors and 3½-inch for interior doors. Window installation shall include a locking device and screening over operable portion(s) – wall-mount and hinge-pin stops will only be used in special conditions.

C. New exterior doors shall be solid-core fiberglass or steel, rated as entry-type, ENERGY STAR® - rated, with proper weather protection, and may have double-paned glass “lights” (exterior doors to

storage or accessory structures may be hollow-core). New exterior door jambs shall be solid wood Douglas-Fir, or better, and rabbited, unless otherwise specified.

D. New door locks shall be installed at 36 inches above finished floor. Exterior door locks shall be keyed-alike. All locksets shall be *Kwikset* brand equal or better.

E. Replacement windows shall not be reduced in height and width of those removed, unless specified in the Write-Up – any additional fillers installed inside the existing opening shall provide insulation and a tight seal. Newly-installed windows shall be ENERGY STAR® -rated, or of appropriate type for orientation, solar gain and visibility, but to reduce over-heating (generally dual-pane, low-E), based upon Green Remodeling guidelines. All windows shall be mill finished and insulated unless otherwise specified. Bathroom windows shall have opaque glass.

F. Where new aluminum or wood windows are specified in dwellings with plaster or stucco walls, installation shall include plastering the interior, and stuccoing the exterior to the aluminum frame. In all stucco or plaster installations, wire mesh shall be installed. Where wood and window frames are specified, the sill piece of the frame shall be of 2-inch material and shall have a slope of not less than 5 degrees to provide good water drainage. Wood windows shall be painted or varnished, unless otherwise specified.

G. All habitable rooms shall have at least one window; every bedroom will have at least one operable window, or one non-opening window if the bedroom has an exterior door.

H. Windows installed in new room additions or in rooms whose function or description has been altered shall meet current code requirements for light, ventilation and egress.

## **5. BUILDING SECURITY**

A. Existing security doors will be in good working condition. Security doors not in good working condition will be repaired or removed; damaged screening may be removed and replaced. Latches and locks must work properly and conform to applicable codes.

### **B. Security Door Installation**

1) Security doors shall be properly- and tightly-fitted with no gaps, to include bottom door seal. The Contractor must field-verify all door openings for proper sizing and installation prior to bid submission.

2) Door screen shall provide full coverage. Screen shall be made of perforated 24-gauge metal screen, to be screwed on using 1/8-inch by 1/2-inch flat metal plate. Door shall have 1 1/4-inch square tubular steel frame (welded), 1-inch square tubing at all door edges, 1/2-inch square tubing pickets. All sides of tubing shall be welded, with welds ground and sanded to finish grade.

3) Security doors shall be mounted on *sound* door jam where suitable, or to exterior of house wall when door jamb cannot receive wrought-iron security door installation. Security door will be hung on three hinges; all anchors to be one-way screws.

4) All parts of security door shall be painted to match. Entire door and flume to be primed and painted with rustproof paint, *Rust-o-leum* brand equal or better.

5) Locks shall be *Kwikset* brand equal or better entry locks and single-cylinder 1-inch throw deadbolt; knob shall be lockable-lever type. Protective metal ring shall be placed around outside of key lock of single-cylinder deadbolt. Door locks to be keyed alike.

C. Security bars shall not impede the full and proper operation of any window. Security bars on windows located in sleeping rooms must be provided with latches and dimensioned so that current code egress requirements are met. Security bars not meeting these requirements will be modified to fully comply or be removed.

## 6. FLOORING

A. Worn, soiled, gouged, broken or damaged flooring shall have those portions repaired where practical, or else be replaced completely with flooring of the County's choice, and in keeping with improvements of surrounding standard projects. The Contractor shall provide colors and patterns to be selected by the County for vinyl tile and carpet.

B. New vinyl floor tile, unless otherwise specified, shall be *Armstrong* brand equal or better, 12-inch by 12-inch squares, 1/8-inch thick, with a complete pattern. The Contractor shall properly prepare floor surface prior to installation and provide required heat if needed for proper application.

C. New carpet, unless otherwise specified, shall be *DuPont Stain-Master* brand equal or better, of no less than 40-oz. per square yard in weight, and with carpet padding of no less than 1/2-inch bonded urethane of 6# rating or as required by carpet manufacturer.

B. Installation of flooring:

1) Flooring shall be installed per manufacturer's specifications.

2) Floor surfaces shall be properly prepared prior to installation; new flooring will not be installed over any existing layer of flooring.

3) Carpet shall be installed in widths no less than 12 feet wide where splicing is required, with no more than one splice per room and then only where necessary, and no splices in hallways.

4) Unless specified, wall baseboards will be provided and all wall-to-floor joints and bath fixture wall and floor openings will be caulked.

5) Flooring shall be installed in any closets, and in areas under any portable appliances such as refrigerator, range, and dishwasher.

6) Flooring in kitchens, bathrooms and laundry areas shall be of a water-impervious material.

C. New flooring will be of a sustainable or high post-consumer recycled content material (e.g. cork, bamboo, reclaimed brick, recycled wood, sealed concrete, etc.); new carpet shall be Carpet & Rug Institutes Green Label Certified or Sustainable Choice Certified.

## 7. CARPENTRY

A. All structural lumber shall be Douglas-Fir #2 or better, mill stamped and marked designating stress rating, species, grade, moisture content, and recommended use. All sheathings, plywood, composition board, flooring sheets shall also be stamped:



B. Exterior lumber shall be sound and free from splits, warps, twists, knots larger than 1½ inches in diameter; lumber shall not contain any large voids which require later filling and painting. Finish lumber shall be free of tool marks and other objectionable defects.

C. All replaced exterior lumber, plywood or plank sheathing, fascias, etc. shall be primed and painted to match adjacent materials of same type. All roof sheathing shall be ½-inch CCX 5-ply plywood on areas such as roof overhangs, exposed carport sheathing and exposed porch sheathing. Other unexposed areas of roof sheathing may be 15/32" OSB sheathing and shall be gapped per manufacturer's recommendation.

D. All interior and exterior joints in lumber, including fascia, fly rafters and barge rafters, shall be mitered, tight-fitting and not require any filling.

E. All baseboards shall be ½-inch by 2¼-inch SL wood material, and all casings shall be ⅝-inch by 2¼-inch SL wood material, unless otherwise specified.

F. All lumber shall be Forest Stewardship Council Certified or Sustainable Forestry Initiative Certified.

## 8. CONCRETE, MASONRY and STUCCO

### A. Concrete

1) Foundations and footings shall be sound. Cracks larger than ¼ inch will be repaired; other repairs may be required at the direction of a structural engineer.

2) Slabs shall be free of excessive cracking, movement and trip hazards. Cracks or displacement of more than ¼ inch in slabs will be repaired. Cracks that have shifted more than ¼ inch should be beveled, filled and the adjoining structural elements examined for weakness or failure.

3) Concrete placements for floors, walkways, driveways, foundations, or carports, shall have 2500 PSI at 28 days minimum test strength. Concrete shall contain a cracked rock (coarse) aggregate of maximum size of ¾-inch, and shall have a water mixture maximum ratio of 7.5 US gallons per 94 lbs. of Portland Cement. Sand and gravel are to be of a clean, washed type, and the place mixture shall have a maximum 3-inch slump when measured by a standard test cone.

4) Asphalt-saturated fiber material shall be used at all expansion joints, and where complete isolation of load-bearing footings and/or foundation is required from floor, walk or driveway.

5) Concrete porches, walks and slabs shall be formed and poured properly so no ponding of water will occur, and water drains away from the dwelling. Concrete shall be tooled (rounded) at all edges, expansions and cold joints. Unless otherwise specified, all floor slabs shall have a smooth trowel finish, whether a future covering is to be applied or not. Exterior slabs shall have a light broom sweep after steel trowel finish.

6) After placement and finish, concrete shall be protected so premature drying or physical damage will not occur.

#### B. Masonry

1) Exterior masonry walls shall be in good condition. Cracks passing through masonry units, cracks of more than 1/4 inch in width, cracks caused by lateral displacement of more than 1/4 inch, or half-moon cracks should be examined for structural weakness. Repairs may be required at the direction of a structural engineer.

2) Masonry fireplaces shall be in good repair. Hoods, walls, chimneys, caps, hearths, fire brick, and all other structural portions of fireplace and chimney will be sound and free of excessive missing mortar, missing bricks, or loose masonry.

#### C. Stucco and Adobe

1) Broken stucco or stucco with cracks in excess of 3/16 inch will be repaired. Where new stucco is specified to be applied, it shall include a vapor barrier and wire mesh of an approved type and shall have expansion joints installed vertically at maximum 10 feet on center; over every window and door; and under each window unless otherwise specified. Expansion joints shall also be installed at any point, parallel to, any construction joints and/or changes of structural material on which the stucco is to be applied. The number of coats required shall be stated in the Write-Up, and all materials and workmanship shall be as per Write-Up line item and manufacturer's recommendations.

2) Un-stabilized adobe must be completely protected from weather by a layer of lime stucco in good condition; cement stucco shall not be used on mud adobe.

### 9. INSULATION

#### A. General

1) All insulation must be tight-fitting on all sides of the space or void into which installed, and shall be inspected by the County prior to covering. Sizes, types and R-value shall be in accordance with code or as otherwise specified, and insulation shall be installed per manufacture specifications. Floor(s) must be left clean following installation.

2) Structures lacking or with inadequate wall and ceiling insulation shall install in-cavity or rigid exterior insulation. Where practical, insulation shall be formaldehyde-free fiberglass, bio-based foam, or recycled material as noted in the Green Remodeling guidelines.

3) Kraft-faced fiberglass batt insulation shall be installed per manufacturer's specifications; required clearances at heat-producing stacks and fixtures will be maintained per code.

4) Loose-fill blown attic insulation shall be installed in accordance per code and industry standard. Installation shall include temporary blocking at all open j-boxes, wall cavities and combustion air stacks, and shall include all necessary blocking/baffling at recessed ceiling lights, doorbell transformers, heat producing fans/motors, combustion air stacks and heater, water heater and range hood vent stacks.

## B. Doors and Windows

1) Weather stripping at doors and windows, and window gaskets and seals will be in good repair. All weather-stripping shall be aluminum with a vinyl insert, unless otherwise specified. Open joints at windows, doors or other areas will be caulked and sealed. Doors will be sealed on all 6 sides.

2) Exterior doors will have a properly-working threshold and shoe or sweep to seal against air infiltration. Exterior doors opening into rooms with vinyl or tile floor shall be fitted close enough to floor to receive a low-profile threshold; high threshold shall be used only on carpet. New thresholds shall be aluminum with aluminum door shoe containing a vinyl insert, unless otherwise specified. The door shoe shall be “U” shaped with a drip edge outside and a vinyl insert at bottom to seal against threshold.

3) Retrofitted door jamb weather-stripping shall have a silicone or vinyl bulb with rigid aluminum screw mount back, slotted for future adjustment. To ensure proper fit, when standing inside, no light shall be visible around perimeter or bottom of the door when closed. The latch bolt and lock should engage without need for additional force; the door should not be slammed in order for the latch bolt to engage due to improper positioning of weather-stripping.

4) Windows will be weatherproofed and weather-stripped to prevent infiltration. Gaskets, glazing compound, caulking, weather-stripping or other weather sealants will be in good condition. Construction adhesives, sealants and caulks shall be of a low-VOC concentration as noted in the Green Remodeling guidelines.

## 10. FINISHES

### A. General

1) All surfaces, particularly those which can be damaged by water or direct sunlight, will have a protective finish.

2) Paneling, wallpaper, mirror tiles, cork-boards, etc. in good condition and not posing any hazard shall remain in place. Such wall-coverings will only be replaced at the owner's expense.

3) Tub surrounds or shower walls will be sound, made of waterproof materials and sealed against water penetration at all joints. Loose tiles, broken or missing grout, missing tiles, loose wall panels, de-laminating surfaces, or joints without caulking or grout shall be repaired or replaced. Moisture-resistant backer-board (not paper-faced sheathing) will be installed under tiled surfaces in wet or damp areas.

4) Ceramic tile and cultured marble installation shall be in accordance with the latest specification and installation methods of The American Tile and Marble Institute. Mud-set ceramic tile installation shall include moisture-resistant paper or sheet rock, wire mesh and a Portland Cement-

Type I or II bed, minimum 1/2-inch thick, or Dura-rock. The finished walls shall be straight, true, level and plumb. All installations shall have proper tile moldings, bullnose, and trim applied as manufactured for that purpose and no mortar/cement beds exposed.

5) Where possible for interior finishes, use natural materials and finishes, or no additional paints or coatings.

#### B. Painting, General

1) Painting shall include all prep work as needed, such as basic sanding, scraping, filling, caulking, cleaning, and priming. Obvious stains will be sealed with a stain sealing product to prevent bleed-through. All hardware not to be painted shall be removed and reinstalled following painting.

2) The work area from shall be protected from paint spatter, dripping and overspray.

3) All painting shall comply with manufacturer's recommendations with regard to application, temperature, surface preparation, and coverage per gallon. Paint will be well mixed prior to painting and kept well stirred during use.

4) Two (2) coats of paint shall be applied to obtain complete coverage, with uniformity, free of drips, runs or holidays. Paint shall be worked into all corners, voids and joints, and original surface color must be covered completely. Any edges of paint adjoining other colors or unpainted surfaces shall be sharp and clean.

5) Windows and doors to be painted shall be left with the required clearances needed to allow opening and closing freely. Paraffin wax shall be applied to friction edges, molding and track or any other parts to make windows operate smoothly.

6) New or unpainted aluminum window frames are not to be painted unless specified.

7) Caulking to be painted shall be paintable Lifetime Acrylic Siliconized-type caulk.

8) Green Seal Certified or similar low-VOC paint shall be used; the use of lead-based paint is prohibited.

#### C. Exterior Paint

1) Exterior painting shall include roof overhangs, fascias, fly rafters, shutters, posts, beams, porches, walls and ceilings, window guards, exterior side of doors, window, trim and casings, and other areas needed to complete a finished job.

2) Exterior painted surfaces will be free of excessive peeling, checking, cracking, flaking, blistering or other defects which will lead to failure. All new or bare wood will receive a coat of primer sealer prior to painting.

3) Exterior paint shall be applied only in favorable weather conditions. No paint shall be applied unless the temperature is 50 degrees F or above. Under no circumstances shall exterior painting be attempted in rain or other adverse weather conditions, nor shall any paint be applied after rain or in high humidity until the surfaces to be painted are thoroughly dry.

#### D. Interior Paint

- 1) Interior painted surfaces will be in good condition. Paint which is damaged, difficult to clean, peeling, cracking, etc. will be properly prepared and re-coated.
- 2) When a room is specified to be painted it shall include any closet(s) and cabinets within that room. If applicable, it will also include doors, trim, jambs, windows, and baseboards

#### E. Walls and Ceilings

- 1) Walls and ceilings will be in sound condition and free of hazardous defects, holes, bulges, etc.
- 2) Cracks in plaster or gypsum wall board surfaces 1/8-inch or wider; loose drywall or paneling; broken plaster; etc. will be repaired.
- 3) Installation of wall and ceiling coverings shall include all materials and construction standards as specified in the IRC, and include all attached drawings and specifications. Installation shall include all materials and labor required to leave a completed installation, whether drywall, plaster, stucco, paneling, siding, or any other materials are specified. Installation shall include all trim, moldings, nails adhesives, putty, caulk, fasteners, as needed for a complete finished product.
- 4) Where partial application or installation is specified, it shall be finished as nearly as possible to match adjacent areas, in uniformity and texture and in all cases, trim, plates, covers, and hangers shall be removed and reinstalled by the Contractor. All loose, uneven or deteriorated material shall be removed prior to repairs being done.
- 5) Where water seal or silicone is to be applied to masonry walls, caulking around windows, doors, protrusions or openings shall be included as part of the water sealing.

### 11. EXTERMINATION

A. Only licensed Pest Control Exterminators shall perform treatments. A Certificate of Treatment shall be submitted to the County, and shall contain a written renewable clause with the cost stated thereon. Pest treatments shall be performed on the entire dwelling, interior and exterior.

B. Where detectable, structural damage caused by wood-boring insects will be repaired. Excessive non-structural damage will be repaired, where visible. Any conditions conducive to pest infestation, such as wood-to-earth contact which provides termite access into structures, will be corrected.

### 12. FURNISHINGS

#### A. Kitchen

- 1) Each dwelling unit must provide sufficient space and facilities for the storage, preparation, and serving of food to meet the occupancy needs based on the number of bedrooms in the unit.
- 2) Counters will have a surface that can be easily cleaned and impervious to repeated cleaning. Counters will be free of holes, gouges, burns, peeling, cracking or any condition making them absorbent or hard to clean. New countertops shall be one piece with a seamless backsplash,

including end caps, and no drip edge unless otherwise specified. Plastic laminates are to be *Formica* brand equal or better, with patterns and colors of matte finish.

#### B. Bathroom

- 1) The bathroom must be located in a separate room with a privacy door which can be locked. In units with more than one bedroom and only one bathroom, a bedroom cannot be used as the only means of ingress or egress to the bathroom.
- 2) Existing shower doors shall be sanitary, free of mold or mildew, and in proper operating condition. Shower doors not constructed of tempered glass, or those with open holes or cracks shall be removed and replaced with shower rod.
- 3) New bathtub / shower installation shall include a recessed soap-holder, without a “grab” handle. For installations where a shower floor is at or above adjacent floor elevation, an approved liner shall be installed in accordance with current IPC Installation Standards.
- 4) Each bathroom must be provided with towel rods, shower rods and toilet paper holders in good condition.

#### C. Bedrooms

- 1) Bedrooms must be a minimum of 81 square feet in floor area with no dimension less than 7 feet.
- 2) Each bedroom will have its own separate access to a common room or area. A bedroom cannot be used as the only means of ingress and egress for another bedroom.
- 3) Each bedroom must be equipped with a closet equipped with a rod and shelf.

#### D. Cabinetry

- 1) All cabinets and vanities will be in good condition and capable of sustained use for a minimum of 7 years. Cabinets, drawers, and doors will be free of broken or non-functional hardware, holes, peeling, chipping, sloughing, or any other damage rendering them difficult to clean or otherwise unsanitary. Defective shelf paper will be removed.
- 2) New cabinets, when specified, shall be *Cardell Sussex Standard* brand equal or better, and will contain the minimum following features:
  - a. Wipe-clean interiors, impervious to moisture, normal kitchen cleaners and detergents
  - b. Adjustable shelves
  - c. Furniture-quality finish with heat-activated conversion varnish
  - d. Self-closing hinges
  - e. Tight-fitting, vermin-proof backing
  - f. Base cabinet mounting rail and combination corner gussets
  - g. Whisper-glide drawer and tray system (or approved equal)
  - h. Veneered, solid oak drawer front (or approved equal)
  - i. Reverse bevels on doors and drawers (or an approved hardware type)
  - j. Solid oak, double-doweled face frames with edges eased to eliminate sharpness
  - k. All upper cabinets are to be 30-inch, unless otherwise noted
  - l. Balanced, minimum  $\frac{5}{8}$ -inch door construction

m. Minimum 1/2-inch shelving construction

n. Blind corners shall have no more than 3-inch voids (upper and lowers) and include filler blank.

NOTE: Filler strips larger than two inches (2") will not be accepted.

3) All new upper cabinet installations shall include a finished furr-down soffit above any upper cabinet and/or range hood, and tops of all upper cabinets shall be 84 inches above finished floor unless otherwise specified.

4) New cabinets should come from materials with no urea formaldehyde resins.

5) Where possible, separate recycling bins will be installed with trash receptacles.

#### E. Closets and Storage

1) Closet shelving shall be of 1-inch #2 pine, or better, kerfed on bottom side; particleboard type 1B1; or 3/4-inch AB plywood. In all cases (unless metal clothes hanger and facing strip is used), the shelving shall have a facing or shelf-edge.

#### F. Single Room Occupancy (SRO) Units

1) In addition to meeting all other conditions contained herein, SRO units shall also comply with the following:

a. A common kitchen, to be shared by SRO units, is allowable. Kitchen facilities must be of sufficient size capacity for the number of units served

b. A minimum of one (1) common, complete, shared bathroom shall be required for each four (4) SRO units

### 13. EQUIPMENT and APPLIANCES

#### A. General

1) Appliances in need of repair will be removed unless they perform an essential function. Replacement appliances will be ENERGY STAR® -rated.

2) Garbage disposal and dishwashers may be replaced or provided, if these features are in keeping with improvements of surrounding standard projects. When these appliances are present in the unit, they must be in good, safe working order.

#### B. Cooking Units

1) The dwelling unit must have a cooking stove or range which is in proper working order and of appropriate size for the unit.

2) The stove or range will be free of missing knobs, loose parts, excessive chipping or other damage making cleaning difficult.

3) New gas stoves or ranges must have an approved automatic lighter for all the burners.

4) Existing gas stoves will be free of leaks, clogged or non-functional burner ports, missing parts or any defect that makes cleaning or repair of the stove difficult, or that makes part of the stove inoperable or unsafe. Burners will ignite smoothly, without puffing or explosiveness, and burn

evenly and quietly.

5) Electric stoves will have a power supply capable of providing power for all heating elements the stove is capable of using at one time. Elements should produce red heat except in those cases where design prohibits this, as with ceramic elements.

#### C. Refrigerators

The dwelling unit must have a refrigerator of appropriate size to meet the occupancy needs based on the number of bedrooms in the unit. The refrigerator must be in proper working order.

#### D. Fireplaces

1) A fireplace may not serve as the sole source of heating for any space requiring heating. Existing fireplaces can be repaired; however, fireplaces can only be added at the owner's expense.

2) Fireplace flues will be free of debris, restrictions, holes, or excessive soot deposits. Flue liners, where present, will be in good condition. Missing or broken liners will be replaced. Chimneys will be in good repair and high enough to induce a draft which will prevent exhaust into the dwelling.

3) Fireplaces shall have freely operable dampers installed. Gas log installations, which require dampers permanently affixed in the open position, may require installation of a weather-sealed hearth cover or necessitate removal of the unit, as this leaks heat from the dwelling.

4) The hearth will comply with current code. Each hearth will extend at least 16 inches in front of and 8 inches to each side of the fireplace opening. Where the opening is greater than 6 square feet, the hearth will extend at least 20 inches in front of and 12 inches beyond each side of the fireplace opening.

### 14. PLUMBING

#### A. General

1) No lead piping or lead solder will be allowed for water supply lines, repairs or replacements.

2) All gas and water piping entering the dwelling unit shall have horizontal and/or vertical runs, be fitted tight against walls, and in no case more than  $\frac{3}{4}$ -inch between the wall material and the nearest side of the pipe.

3) No plastic piping will be exposed to sunlight, unless approved by listing for such installation. Exposed exterior water piping shall be insulated with closed-cell type pipe insulation and wrapped with aluminum tape and painted with an acrylic latex paint to match the surrounding surface. Exposed above-ground gas and waste piping shall be painted with an enamel paint manufactured for that purpose.

4) Where new piping is installed in yards or rocky substrate, the pipe shall be backfilled with a minimum of 2 inches of sand fill around the piping.

- 5) When any pipes of differing materials are joined, only approved unions will be used.
- 6) Separate metering shall be provided in units where the occupant is responsible for payment of utilities. Master meter systems shall only be allowed where utility costs are included in the rent.

#### B. Domestic Water Supply

- 1) No dwelling unit shall have a supply line of less than  $\frac{3}{4}$ -inch diameter from the meter to the unit. Each unit will have a separate shutoff for the water supply to the unit.
- 2) New water supply piping to be installed from meter to dwelling shall be, at a minimum, 1-inch diameter Schedule #40 PVC. Hand valves shall be installed, one within one foot of the water meter on the dwelling side of the line, and one located at the exterior wall where the line enters the house. If a 10-foot length of Type K or L water piping was used for grounding before, either proper grounding rods or copper pipe shall be installed as required by current code. The contractor shall affix a label to the service stating that water service piping is "plastic".
- 3) All water piping shall be thoroughly flushed following any plumbing work performed to assure debris in lines is removed.
- 4) Multi-residential building must be provided with backflow prevention devices on the water service, according to applicable code.

#### C. Sanitary Drainage and Venting

- 1) Waste systems must be properly vented. Vents considered to be inadequate or unsafe will be replaced or repaired. Plumbing vents within 10 feet of a cooler must be at least 1 foot taller than the cooler.
- 2) New waste lines and clean-outs shall be installed per code, and made of ABS Schedule #40 foam-filled type waste piping, ASTM D2661-73. Where Write-Up specifies installation of new sewer piping, the Contractor shall install a two-way clean-out extended to finish grade and within two feet of the dwelling. If the clean-out occurs in a driveway or sidewalk, the contractor shall install a cast iron or steel sleeve and a round cover (utility box). Any existing structures, plants or landscaping affected by the installation of new gas, water, underground electric or sewer lines shall be restored as closely as possible to original condition. Deeply-rooted plants with the ability to infiltrate sewer lines or septic systems may be removed and replaced.
- 3) Private sewerage systems will be pumped out and certified by an appropriately-licensed contractor at the point of sale. Properties which have been vacant for six months or more will have the waste system cleaned out at each fixture, each vent, and the full length of the building drain to point of connection to sewer main.
- 4) Gray water systems are encouraged, and must be installed per ADEQ requirements and approved by the local building authority.

#### D. Gas

- 1) Galvanized pipe installed underground or within 6 inches of grade and all copper pipe used for gas piping will be replaced. Gas piping installed under a slab or in any other un-vented space

within the confines of the dwelling unit must be vented.

2) Gas connections will be properly made and free of leaks. The main gas shut-off will be in good operating condition and free of leaks. Flexible gas supply connections shall not exceed 3 feet in length. Where gas stoves, furnaces, water heater or ovens are moved or installed, new gas cocks and flex line shall be installed.

#### E. Fixtures

1) All sinks, bathtubs and shower units will be free of excessive cracking, chipping or other damage which would make cleaning difficult. Kitchen sinks shall have a sink trap.

2) Toilets will be free of cracks in the bowl, tank or tank lid, and will have a washable seat.

3) New installation of faucets for kitchen and bathroom sink, bathtub, or new toilet shall include new chrome metal angle built-in stops, escutcheon, supply tubing, domestic basket strainers (kitchen), waste connectors, "P" traps, crossover arm assembly, and/or overflow assembly as needed for a complete installation. Bathtubs and toilet bases shall be sealed to the floors with silicone caulking of an approved type.

4) Kitchen sink installations are to be domestic brand, minimum 20-gauge stainless steel with minimum 7-inch deep double-bowl. All

5) New toilets shall be low-flow (1.6 GPF), dual-flush type or WaterSense™ -rated, of domestic make and listed by an approved agency, *American Standard* brand equal or better; installation shall include a new floor wax gasket, proper A-bolts, chrome metal angle stops with escutcheons, seat and cover, and repair or replacement of closet flange.

6) New faucets installed will be *Price-Pfister* brand equal or better, single-lever with no plastic internal parts. Faucets and showerheads shall include water-conserving devices for low-flow volume (<1.5 GPM at 80 PSI).

#### F. Valves

1) Individual sinks, toilets, clothes washers, and other plumbing devices shall have individual water-supply "ball-type" shut-off valves.

2) Loose or broken handles and levers shall be repaired or replaced.

3) Water heaters lacking individual shut-off valves will only have shut-off valves installed when they are repaired or replaced.

4) Flexible gas supply connections shall be provided with an approved gas cock.

#### G. Water Heaters

1) If the water heater is located outside, the unit must be properly protected from the weather.

2) All new and replacement water heaters, *Rheem* brand equal or better, shall be ENERGYSTAR® -rated, natural gas-operated type, 40-gallon, unless specified otherwise. New

water heaters shall carry a 5-year warranty on the tank and an 1-year warranty on the other parts. The water heater shall have a rigid and properly-supported floor or platform beneath it.

3) Where possible, newly-installed and existing hot water lines, including underground pipes, shall be insulated with R-4 pipe insulation, at a minimum.

4) Solar water heating devices will be considered on a case-by-case basis.

#### H. Evaporative Coolers

1) Evaporative coolers water piping shall be 1/2-inch hard drawn copper to within 3 feet of the cooler and shall have a hand valve containing a bleeder built in, installed within reach of the floor or ground. Where possible, supply lines to evaporative coolers shall be installed on the exterior of the dwelling from a hose bib or valve, and interior supply lines removed.

#### I. Exterior Hose Bibs

1) When installed within 24 inches of dwelling wall, new yard the faucet risers and hose bibs shall be installed against and attached to the wall.

2) Risers for new faucets installed in yards shall not be of less than 3/4-inch in diameter. If PVC supply piping is used, the last 4 horizontal feet and the vertical riser shall be 3/4-inch copper pipe, secured properly.

C. All yard faucet hose bibs shall have an anti-siphon device (vacuum breaker).

### 15. HVAC

#### A. General

1) Heating, cooling and air-conditioning units will be free of corrosion and water damage. Filters will be secure, clean, and large enough to pass sufficient recirculating air to make the unit operate properly.

2) Programmable thermostats will be installed.

3) Equipment housings and access panels must be intact, and properly secured and installed. No exposed electrical connections, belts, pulleys, or blowers will be allowed.

4) HVAC and other mechanical equipment removed to facilitate rehabilitation work shall be reinstalled according to highest trade standards and in same or better condition as it was prior to being moved – this includes ensuring all joints are sealed in ductwork, elbows, roof jacks, etc.

5) New HVAC equipment to be installed on a roof with a pitch steeper than 4 inches to 12 inches shall include the platform and catwalk as described in the current adopted IRC, unless otherwise specified. No interior furnaces will be mounted on the roof. Metal stands for any roof-mounted equipment which is installed shall include ports or cutouts with cover plate as needed to eliminate entrapment of water.

6) All new or re-installed HVAC equipment shall be activated, checked for operation, and adjusted prior to completion of work.

#### B. Heating

1) New heating systems should be properly-sized for the building using ACCA 556 (Manual J) or equivalent. All new gas forced air furnaces shall have electronic pilot-less ignition systems and remote programmable thermostat. Furnaces and roof-mounted furnaces will be *Rheem* brand equal or better, with metal enclosure on roof-mounted units.

2) New furnace installation shall include gas piping, protected electrical circuit, flue vent piping, metal stand, and roof jack and sheet metal transitions. Standard damper should be slide damper (sheet metal) in slide tray. Thermostat or low-voltage wiring, if installed on exterior, should be concealed from damage and weather-protected. Adjustable angle iron stand will only be used if the roof has many irregularities and must be approved by the County prior to installation. Leg stands (kits) fastened directly to furnace shall not be accepted; no wood bases are allowed.

3) Installation of central updraft furnace shall include sheet metal combustion and relief air ducts to the exterior, typical combustion and relief roof jack and properly-sized rain bonnet with wire mesh screening, combustion and/or relief grilles on furnace room door with metal channel over cut-out. All installations shall be in accordance with IRC.

4) Each furnace will have a minimum Energy Efficiency Rating of at least 75%.

5) The heat exchanger will be in good condition. Excessive corrosion, sooty chemical deposits, cracks, back-draft on burners or other evidence of failure may be cause for replacing the unit.

6) If electronic filters are a feature in keeping with improvements of surrounding standard projects, or required for health reasons of the occupant, electronic filters can be repaired or installed. Existing electric filters will be replaced if they do not have at least an estimated 7-year life expectancy.

7) Where possible, wall furnaces which are the main source of heat for the dwelling unit will be replaced with central heating equipment.

8) Room heaters may be used only as a supplement to central heating, and sufficiently-sized to heat the room in which they are installed.

9) Un-vented gas heaters are not acceptable and will be replaced with a listed appliance.

10) Solar heating systems will be considered on a case-by-case basis. Passive solar heating and cooling techniques (e.g. use of shade-producing native trees, properly-sized windows and awnings, and light-reflective paint and roofing) will be used to the greatest extent possible.

#### C. Air Conditioning

1) Refrigeration units will be examined and certified in good working condition by a licensed mechanical contractor qualified as an air conditioning technician.

2) Refrigeration units under the drip line of roofs, or under rain gutters or *canales* will be moved

or protected from excessive run-off on the unit.

3) Condensate drain lines will be properly drained to avoid damage to the property. Roof units will drain into a plumbing vent (via a pipe sealed to the vent) or into a rain gutter or place which will not damage the roof or structure.

4) Heat exchange fins will be in good condition. The compressor unit will be free of excess debris, vegetation or any obstruction which prevents the free circulation of air around the unit.

5) New AC units shall, optimally, be minimum 16 SEER, *Rheem* brand equal or better. 15 SEER is acceptable where 16 SEER is not available in appropriate size/tonnage *and* contractor secures acknowledgement from the County that 15 SEER will suffice.

#### D. Evaporative Coolers

1) New coolers will be sized to fit the house, *Frigiking* brand equal or better, with 2 speeds. All coolers larger than 4,000 CFM shall be equipped with 1/2-HP motor minimum, unless otherwise specified. Coolers are to be installed complete – level with metal stand as listed below, water recycling or reuse system water piping, rotary switches, electrical circuits, and all wiring to allow proper 2-speed motor operation, P-261F code box or approved equal, and all materials needed for installation.

2) New evaporative cooler roof jacks and elbow transitions will be fabricated (universal-type roof jacks are unacceptable) and shall include slide damper with cover strip to seal the opening. New cooler legs shall be painted metal or approved equal; vibration pads will be installed under legs on metal roofs. Fasteners used to attach leg/stand base to roof shall be properly sealed to prevent water infiltration into the home. All roof jacks and pipe and conduit penetrations shall have 3-course seal.

3) Cooler cabinets will be free of corrosion and leaks, and will have all pad-frames and a means of fastening pads securely enough to prevent sagging. Coolers will be level and have a water distribution system capable of delivering enough water to each pad to create run-off along the bottom of the entire pad. Plugged distribution lines, or occluded water troughs will be cleaned. The water distribution system will be free of leaks, including the attachments at the pump. Fan belts, bearings, and blower will be in good operating condition; blower will be balanced and capable of quiet operation.

4) Coolers with secondary pumps for fresh water exchange will be properly drained to avoid damage to the property – this water may be used to irrigate landscape through drainage into roof gutters and downspouts, or into a separately-installed drip-irrigation system.

#### E. Combustion Air

1) Gas furnaces and water heaters will have sufficient combustion air. In no case will proper volume of combustion air be dependent on a door, a window, or any other opening which is designed to be closed.

2) Enclosed gas furnaces and water heaters shall be installed in a manner which prevents any intermingling of combustion air with the re-circulating air. Enclosures will be free of damaged or incomplete walls, floors or ceilings which allow movement of air from the enclosure into the

building. Unit(s) will be properly caulked to the floor or base platform. Enclosure doors which open within buildings will be free of gaps.

#### F. Ductwork

1) New ductwork should be properly-sized for the building using ACCA 29-D (Manual D) or equivalent. Sheet metal used for new ductwork shall be a minimum of 28-gauge galvanized type. New ductwork should be located within conditioned building space and insulated either on inside or outside. Exterior ductwork shall be insulated on inside with a minimum 1-inch fiber-type material (insulated to a minimum of R-8).

2) New ductwork shall have seams and transition connections sealed with white duct mastic and mesh. When taping is required at vent/duct connections, only metallic duct tape or approved water-based mastics shall be used. No products containing asbestos will be permitted for sealing ducts. Exterior ductwork shall have joints sealed with a lap and gutter caulk, or 25-year siliconized-type caulk.

3) Flex duct may be used for interior return air purposes only. Flex duct shall be reinforced aluminum foil, faced on both interior and exterior, sandwiched with fiberglass insulation and steel coil-spring formed. Attachments, supports, sheet metal diffuser boxes and all other hardware shall meet IRC.

4) All ductwork and registers shall be sealed prior to the start of rehabilitation work, and ducts will be cleaned and air system flushed at the completion of work.

#### G. Ventilation

1) Venting shall be free of restrictions, excessively long runs, holes, rust, or other damage. Ventilation devices not in good operating condition will be repaired or replaced. Exhaust hoods or fans and filters must be in sanitary condition.

2) Each vent must extend to the outside of the building and exhaust in a safe place; vent caps shall meet code. Mechanical fans or vents in bathroom and kitchen shall be terminated at least 12 inches above the roof and shall include a roof jack (range hood vent) and wire mesh screened rain cap (on all). Flues within 4 feet of a cooler must be at least 1 foot taller than the cooler.

3) Proper clearances must be maintained around vent pipes as per manufacturer specifications. Ceiling rings will be installed around vent pipes in furnaces and water heaters to cover gaps.

4) On new HVAC installations, the Contractor shall be responsible for all return-air provisions such as cutting off and filling door bottoms, making openings in walls and installing grille work or other items required to facilitate proper return air supply.

5) Doors requiring vents for combustion and relief-air grilles shall have neat cut openings, with sheet metal sleeves made for the grille installation which completely cover the cuts. In cases where privacy is needed in adjoining rooms, a second grille shall be installed on the opposite side of the door.

6) Return air chase shall be furred around and the cover material shall match adjacent wall coverings. Return air openings shall be within 12 inches of finished floor or as specified.

7) New range hood installations shall include a framed finished sheet rock furr-down to conceal the exhaust duct. Range hoods shall be *Broan* brand equal or better, and vented outside unless otherwise specified.

8) Fan blocking shall be done in all new construction and remodels (if applicable) for future fan installations.

9) Ceiling fans specified for installation shall have forward and reverse motors, light kit, wood blocking or super fan brace kit with metal boxes #22200 and bolted to the blocking or brace. Ceiling fan shall be 52-inch *Hampton Bay Huntington* brand equal or better.

10) Dryers will be vented to the outside using an approved pipe, sleeve, and vent cap.

11) Where practical, a whole-house and/or garage ventilation fan shall be installed.

## **16. ELECTRICAL**

### **A. General**

1) All materials and installations shall conform to the latest IRC and requirements of the local utility company.

2) The electrical service for the dwelling unit shall be of proper design and suitable for intended use after completion of rehabilitation work, with over-current protection suitable for conductor ampacity. If electrical service is inadequate to meet the electrical demand, either the service will be upgraded to meet the new demands, or the electrical demand shall be reduced, if practical. All defective or abandoned wiring and equipment shall, where possible, be removed.

3) When an existing service is replaced or upgraded, the circuits into dwelling shall be split and new circuits added as needed to provide overload and wire size protection as per IRC. The Contractor shall be responsible for the installation of a new grounding system. A newly-relocated service installation shall include the installation of a "J" box per IRC, and an extension of existing or new conductors to new service location.

4) When new service is specified to be installed, the contractor shall be responsible for removal of all old equipment, mounting boards, etc. All new conductors and utility boxes shall be concealed and recessed unless otherwise specified. Any visible surfaces that were damaged as part of the re-installation of electrical service shall be repaired to match adjacent areas.

5) The dwelling unit electrical panel will be adequately sized for the service, soundly and properly attached. Exterior panelboard enclosures shall be of UL-listed, rain-tight design. Damaged, outdated, unsafe or otherwise unsatisfactory panels will be replaced with panels that comply with the current code.

6) Knob and tube wiring will be replaced to comply with current code.

7) Aluminum branch circuiting conductors will have copalum transition fittings installed in accordance with the guidelines of the US Consumer Product Home Safety Commission. If

replacement is more cost-effective than repair, the unit will be rewired.

8) Separate metering shall be provided in units where the occupant is responsible for payment of utilities. Master meter systems shall only be allowed where utility costs are included in the rent.

9) Active solar energy systems shall be installed per manufacturer's specifications.

## B. Devices

### 1) General Lighting and Outlets

- a. Each bathroom shall have a light and one (1) convenience outlet
- b. The kitchen and each bedroom shall each have at least two (2) duplex outlets
- c. Light fixtures will use proper-sized fluorescent or compact-fluorescent bulbs, and have correct and proper-fitting globe covers or diffusers, and no open sockets
- d.) Sufficient exterior lighting shall be provided for the personal safety of the building occupants

### 2. Ground Fault Circuit Interruption

- a. At a minimum, ground fault circuit interrupters (GFCI) will be installed in all bathrooms – when updating of electrical devices is required, GFCI will be installed where required in kitchens, bathrooms, garages/carports, and exterior outlets
- b. Receptacles located at counter top level within 6 feet of the kitchen sink will have GFCI protection
- c. Exterior receptacles shall have GFCI protection, except that readily-accessible clothes washer receptacles shall be of type manufactured for that specific use, and in such cases a cord cap shall be provided to match said receptacle

### 3. Smoke Detectors

- a. Smoke detectors shall be installed, as required by code and/or manufacturer's specification, in all bedrooms and hallways, hardwired with battery back-up
- b. Where electrical service is not being improved or re-installed, UL-approved battery-operated detectors will be acceptable (*First Alert* brand equal or better), unless otherwise noted
- b. Wall installation: min. 6 inches, max. 12 inches below ceiling, min. 18 inches from any corner
- c. Ceiling installation: min. 6 inches from any vertical surface
- d. Installation shall be a min. of 3 feet from any mechanical supply or return grille, and 5 feet from fluorescent fixtures

### 4. Low Voltage and Miscellaneous Systems

- a. At least one (1) working phone jack will be required in each unit
- b. Existing television/antenna cable(s) and jacks must be in good condition – damaged cable can be repaired or removed
- c. Existing security systems must be in good condition and operable for the intended use – non-functional systems can be removed or replaced if this is determined to be a feature in keeping with improvements of surrounding standard projects