

# NSP REHABILITATION SPECIFICATIONS

## NOTICE

These specifications were revised as of January 2009 and contain some significant changes, please read them and comply as requested so that the "Agency" may work more closely with you in making your work flow more smoothly.

### **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 Project Coordinator assigned prior to bidding. The submission of a bid shall indicate complete understanding of the contract documents and acceptance of existing conditions by everyone 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.**

**Method of work described on Rehabilitation Work Required (RWR), scope of work, takes preference over Rehabilitation Specifications.**

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## **STANDARDS OF WORKMANSHIP & SPECIFICATIONS FOR THE REHABILITATION OF PROPERTIES**

### **Inspection of Work**

Periodic inspections will be made by the Project Coordinator on any work in progress to ensure compliance with the provisions of the contract, including the following standards, and all applicable codes as adopted by the City of Tucson. **All work and materials shall be inspected prior to concealment. The Inspector 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 assigned Inspector, or his designee must receive a minimum 24-hour notice, to schedule and perform the inspection requested.**

### **Permits**

Any required permits, licenses, and/or fees necessary must be obtained and paid for by the **Contractor prior to any work starting**. If work has started without permits and discovered by the "Agency", the Project Coordinator will stop all work until proper permits have been obtained. All permits shall be marked "Housing". 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.

### **Changes In Scope of Work (Items Listed On RWR)**

**Changes of any kind will not be allowed nor paid for until an approved Change Order has been properly executed.**

### **Materials**

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. In no case will materials or products containing asbestos or lead base paint be used.

### **Workmanship**

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. During the course of construction or application, all adjacent materials shall be protected from damage, over-spray, or any other action which may change appearance of the existing or adjacent material(s). When addressing lead base paint removal Lead Safe Work Practice shall be followed.

### **Substitutions**

It is not the intent of the agency to exclude any products or materials of equal or greater quality to those specified. Any brand names applied specified are used to establish a certain grade only. Materials of equal or greater quality may be substituted, provided prior approval has been given by the Agency. In no way shall the term "Equal

or Greater" 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 Agency approval prior to installation.

**Measurements**

All measurements and sizes called for in RWR, 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 leave a completed work item.

**Damages**

The Contractor shall exercise proper care and precaution at all times for the protection of the unit's vegetation 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.

**Repairs**

When "Repair" is specified in the RWR, this shall mean the work item is to be placed in as close to new condition as possible, and shall match adjacent areas in finish, design, and appearance.

**Special Conditions**

When a new opening (window or door) is to be installed or increased in size, in a mud-adobe wall, any raw adobe, including ones covered with framing and/or other material shall be first plastered over to prevent decomposing adobe from settling, and creating pressure on other wall finishes.

**Clean-Up**

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 as a storage place for debris or waste materials. All surfaces, floors, glass, cabinets, 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 wax of commercial grade. If wax contains sealer, then two coats are acceptable. Mirrorlite, or equal, to be used.**

**Excavation**

Prior to any excavation being done, it shall be the responsibility of the Contractor to have "Blue Stake" performed.

**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 RWR. The Contractor also acknowledges that specified quantities and measurements may only be approximate and that in the bid, the contractor is making 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 Agency immediately.

### **Color Choice**

Before any painting, floor covering, roofing, ceramic tile, etc. is started, the Contractor shall present the Project Coordinator samples for selection, and shall require the signature of the Project Coordinator and contractor on the color selection chart indicating the desired colors and/or patterns. **This completed color chart, accepted by contractor as evidenced by the contractor's signature, shall then be submitted to the agency before the start of the rehabilitation work and shall become a part of the contract.**

### **Roofing -- INSPECTOR SHALL BE NOTIFIED AT LEAST ONE DAY PRIOR TO REQUESTING ROOF INSPECTION!**

Removal of existing roof to be stripped to sheathing or rigid insulation, if present.

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

Protrusions through a roof shall have a proper roof-jack and where applicable roof protrusions shall have proper 3-coarsing applied.

All 3-coarsing and patching materials shall be coated with aluminum or acrylic roof paint, whichever is specified. Holes in sheathing larger than 2" shall be covered with sheet metal. When patching work is required, the replacement material shall be of same type, matching in size, and color. **NEW ROOF SHALL NOT BE INSTALLED OVER ROTTED, WEAK SHEATHING OR JOISTS.**

On all new roof installations, a new 2" L-metal edging shall be installed at roof overhangs and edges, unless otherwise specified. (Gravel stop-type metal will not be accepted). A contract specifying a new roof on dwelling shall mean to include any attached porches, storage rooms, carport, unless otherwise specified. 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.

Composition fiberglass roofing shall consist of Class A 25-year fiberglass shingles installed over two 15 lb. or one 30 lb. felt. The shingles shall have a reverse starter coarse, which shall be cemented with mastic to the first coarse. Strip shingles shall be installed in straight lines, both vertically and horizontally according to manufacturer's specifications. An additional 90 lb. roofing shall be installed in all valleys prior to

installation of shingles, including ridge cap shingle or tile. If tiles are installed on ridge, fiberglass shingles must be lapped prior to installation of tiles.

Hot-mopped fiberglass roofing shall consist of one fiberglass base sheet, either nailed with tin caps, sprinkled or splashed (as specified in RWR); then two fiberglass ply sheets will be flood mopped. The 2"x2" roof edging metal must be installed after the base sheet application, the fiberglass roofing material and all roof penetrations shall be 3-coarsed to the L-metal. Use white elastomeric roof crack and joint sealer, E-LAS-TEK #103 or equal, with polyester membrane. **NOTE: (No plastic roof cement shall be used with white elastomeric roof coating).** The entire roof (including parapet walls and caps) and areas under evaporative coolers/furnaces shall be coated with a modified emulsion, E-LAS-TEK Neoprene #500 or equal, at the rate of 3 gal/square, allow proper curing time per manufacturer specs, 1-2 weeks, request inspection. Delay top coating until emulsion has fully cured. Thoroughly clean entire surface area, allow to dry, request inspection of cleaned surface before coating, immediately apply white elastomeric roof coating **OF SAME MFR** (2 coats) at full strength. First coat, E-LAS-TEK #100 white solar mastic or equal, at 12-mil thickness and allow 24 hours to dry, request inspection. Apply second coat to produce a non-transparent white coating at 20-24 mil thickness per manufacturer specs. Choose from the following list of (4) product manufacturers.

Modified Emulsion

APOC #337  
E-LAS-TEK #500  
Henry #100  
Pro Tech Modified

Elastomeric Roof Coating

APOC #252  
E-LAS-TEK Solar Mastic #100  
Henry #287  
Pro Tech EC-100

**NOTE:** It is therefore the responsibility of the contractor, in contacting a manufacturer, to verify compatibility of the selected emulsion with the asphalt roofing material and the roof coating. Documentation of said compatibility to be in writing and submitted to Agency when requesting a change from these Rehabilitation Specifications. A DIFFERENT TYPE ROOF emulsion and coating shall **NOT** be applied until an approval has been given by the Agency in writing.

Parapet walls shall be covered with mineral surfaced fiberglass cap sheet material and shall be 3-coarsed 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.

Asphalt used in hot-mop applications shall comply with manufacturer's specifications, OSHA requirements and local fire department regulations.

Where Mission tile, lightweight concrete or slate roof covering is to be installed, it shall have an underlayment of one 40 lb. fiberglass-base sheet.

All roof-penetrating items such as ductwork, vent pipes, ventilators, flue pipes, etc. shall have metal roof jacks installed around them.

Under no circumstances shall roofing material be installed and sealed against equipment platforms, such as cooler and furnace stands. Stand shall be removed, then roof installed. They shall then be reinstalled and left in same condition unless RWR specifies something different.

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.

**A roof cut may be made in a case where work has been installed on other than regular workdays, and the Contractor shall be required to make repairs, if needed.**

For roof measuring purposes, sizes reflected on the RWR are approximate roof size areas, 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.

#### **Subterranean Termite Treatment**

Only a licensed Pest Control Exterminator shall do termite treatment. A Certificate of Treatment shall be submitted to the Agency, and it shall contain a written renewable clause with the cost stated thereon. Termite treatment shall be performed on the entire dwelling, interior and exterior.

#### **Walls and Ceiling Covering**

Installation of wall and ceiling coverings are to include all materials and construction standards as specified in the latest edition of International Residential Codes (IRC), and with all attached drawings and specifications.

Wall and ceiling coverings, when specified shall include materials and labor to install, tape two coat joints sanded smooth, and leave a completed installation, whether drywall, plaster, stucco, paneling, siding, or any other materials are specified. The installation shall include all trim, moldings, nails, adhesives, putty, caulks, fasteners, as needed for a complete finished product.

In cases where a 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, hangers shall be removed and reinstalled by the Contractor. All loose, uneven or deteriorated material shall be removed prior to repairs being done.

Any sheet rock used on exterior shall be ½" moisture resistant type as approved for that purpose.

In areas of exterior walls where frame and hard board or wood siding are called for, a vapor barrier material shall be properly installed.

### **Insulation**

All insulation must be tight fitting on all sides of the space or void applied in and must be inspected by this Agency prior to covering. Sizes, types and R-value shall be in accordance with code or as otherwise specified print-through, and the material shall be of vinyl composition and installed per manufacture specifications. Floor(s) must be left clean.

### **Floor Covering**

Vinyl floor tile, unless otherwise specified, shall be '**Armstrong**' or equal, 12" x 12" squares, 1/8" thick, shall have a complete pattern It shall be the Contractor's responsibility to properly prepare the floor surface prior to installation and to provide the necessary heat if needed for proper application. **Under no circumstances shall an application be done over more than one (1) older tile installation.**

When tile installation is to be done over existing floor covering, all waxes, oils and foreign matter shall be removed and the existing finish etched or sanded to provide a proper application base. Floors shall be scrubbed clean, free of stains and shall have one coat of sealer with two coats of wax of commercial grade. If wax contains sealer, then two coats are acceptable. Mirrorlite, or equal, to be used.

Wall baseboards shall not be provided unless specified, but wall-to-floor and all bath fixture joints shall be tight and caulked with a waterproof caulking.

When a room or dwelling is specified to receive floor tile, it shall include any closet(s) attached to said room, and shall include areas under any portable appliances such as refrigerator, range, dishwasher or compactor, etc.

When installation of carpeting is specified, it shall be '**Dupont Stain-master**' or equal or better.

1. No less than 40 ounce per square yard weight.
2. Installed in widths no less than 12'0" wide where splicing is required.
3. Contain no more than one splice per room and then only where necessary.
4. Contain no splices in hallways.

Carpet padding shall be no less than 1/2" bonded urethane 6# rating or as required by carpet manufacturer.

Contractor to provide colors and patterns to be selected by Project Coordinator for both vinyl tile and carpet (see color choice).

### **Ceramic Tile and/or Cultured Marble**

When mud-set ceramic tile is specified, the application will include moisture-resistant paper or sheet rock, wire mesh and a Portland Cement-Type I or II bed, minimum 1/2" thick, or Dura-rock. The finished walls shall be straight, true, level and plumb.

In all installations where a shower floor is on or above adjacent floor elevation, an approved liner shall be installed in accordance with current U.P.C. Installation Standards.

In all installations of ceramic tile or cultured marble in bathroom tub or shower, a recess-mounted soap holder and a shower rod shall be included. Recessed soap holders installed in tub/shower walls shall not contain a (shower/tub) "grab" handle.

When retrofit or handicap devices are removed for the installation of ceramic tile or cultured marble, the devices shall be properly reinstalled by the contractor per ADA requirements.

All installations shall have proper tile moldings, bullnose, and trim applied as manufactured for that purpose and no mortar/cement beds exposed.

All installations shall be in accordance with the latest specification and installation methods of The American Tile and Marble Institute.

### **Carpentry**

All structural lumber shall be standard or better, mill stamped and marked designating stress rating, species, grade, moisture content, and recommended use. All sheathing, plywood, composition board, flooring sheets shall also be stamped.

Exterior lumber shall be S4S, sound and free from warps, twists, and knots larger than one and one-half inches (1-1/2"). It shall not contain any voids so large that must later be filled and covered with paint. Joints in fascia, fly rafters, barge rafters shall be mitered.

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

Closet shelving shall be of 1'x12" #2 pine, or better, kurfed on bottom side, particleboard type 1B1 or 3/4" AB plywood. In all cases (unless metal clothes hanger and facing strip is used), the shelving shall have a facing or shelf-edge.

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 1/2" 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" O.S.B. sheathing and shall be gapped per manufacturer's recommendation.

All joints in lumber materials, interior and exterior shall be mitered, tight fitting and not requiring any filling.

### **Finish Carpentry**

Plastic laminates are to be **Formica**, or approved equal or better. Patterns and colors are to be of matte finish and selected by Project Coordinator (see color choice).

All countertops for kitchen cabinets shall be roll and cove type, unless otherwise specified. Backsplashes shall abut tightly to wall(s), scribed as needed. Include end splash and end caps.

All baseboards shall be 1/2"x 2-1/4" S. L. wood material. All casings shall be 5/8"x 2-1/4" S. L. wood material.

New cabinets, when specified, shall be **Cardell Sussex Standard** equal or better, and will contain the minimum following features:

- A. Wipe clean interiors, impervious to moisture and 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" unless otherwise noted.
- L. Balanced, minimum 5/8" door construction.
- M. All shelving shall be a minimum 1/2" construction.
- M. Blind corners shall have no more than 3" voids (upper and lowers) and include filler blank.

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

Submittals shall be made by contractor and approved by the Agency prior to any cabinet installations and recorded on color chart (see color choices). Submittals shall include kitchen layout and design approved by Project Coordinator.

Tops of all upper cabinets shall be 84" above finished floor unless otherwise specified.

All new upper cabinet installations shall include a finished furr-down soffit above any upper cabinet and/or range hood, unless otherwise specified.

## **Windows and Doors**

Window sizes stated in the RWR means the measurements of the furthest length of the aluminum frames. All windows shall be mill finished and insulated unless otherwise specified. Bathroom windows shall be obscure.

Door sizes stated in the RWR means the actual size of the door, not including the jamb.

Where new aluminum windows or wood windows are specified in dwellings, which have plaster/stucco walls, the installation shall include screening on the operable portion, plastering the interior, and stucco the exterior to the aluminum frame. In all stucco or plaster installations, wire mesh shall be installed. Wood windows shall be painted unless otherwise specified.

The height and width of the replacement window shall not be reduced from that of the one removed, unless specified in RWR to be reduced. This means that no additional fillers shall be installed inside the existing opening.

When threshold is specified in RWR, it shall be aluminum with aluminum door shoe containing a vinyl insert, unless otherwise specified.

All weather-stripping shall be aluminum with a vinyl insert unless otherwise specified.

In other installations where wood and window frames are required, the sill piece of the frame shall be of 2" material and shall have a slope of not less than 5 degrees to provide good water drainage.

All exterior doors shall be solid-type or metal. Doors with hollow areas, or voids will not be accepted.

All exterior doorjamb shall be solid wood Douglas Fir, or better, and rabbited, unless otherwise specified.

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

When a new door or window unit is specified for installation, the installation shall include all new hardware necessary for the complete installation including 3 butt hinge, 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. New door locks shall be installed at 36" above finished floor.

Window installation shall include a locking device and screening over operable portion(s).

**NOTE: Wall-mount and hinge-pin stops will only be used in special conditions.**

All interior and exterior doors are to have 3 butt hinges (**Stanley** or equal) each: 4" on exterior and 3-1/2" on interior. Screen doors, whether wood or extruded be fabricated to fit aluminum are to have 3 – 3-1/2" hinges and self-closing device.

Exterior doors opening into rooms with vinyl composition floor tile shall be fitted close enough to floor to receive a low profile threshold, high threshold to be used only where carpet is to be installed.

**All doors are to be sealed on ALL 6 sides.**

Exterior door locks and deadbolts shall be keyed-alike. All locksets shall be **'Kwikset'** or approved equal or better. Deadbolts shall be single-cylinder.

### **Security Screen Door Specs**

**(NOTE: Contractors to field verify all door openings for proper sizing and installation prior to bid submission. DO NOT fasten to rotted jambs or trim. Door to be mounted on door jamb where suitable, or to exterior of house wall when door jamb cannot receive wrought-iron security door installation.)**

Full coverage with perforated 24-gauge metal screen, painted to match door paint.

Perforated screen to be screwed on using 1/8"x1/2" flat metal plate; screws to match door paint.

1¼" square tubular steel frame (weld).

1" square tubing, all door edges.

½" square tubing pickets.

Weld all sides of tubing.

All welds to be ground and sanded to finish grade.

Scrolls to touch pickets, they set between, on two sides-weld to pickets on both pickets and to both picket sides.

Kwikset (#KILLH-BB) or equal entry locks and single-cylinder 1" throw deadbolt. Knob to be lockable-lever type. Protective metal ring to be placed around outside of key lock of single-cylinder deadbolt. Security door locks to be keyed alike. All doors to be properly and tightly fitted with no gaps, to include door bottom seal.

All anchors to be one-way screws.

Entire doors and flume to be primed and painted black with rustproof paint, Rust-o-leum or equal.

Agency/contractor to discuss and obtain written agency approval on swing of door.

Door to be hung on three hinges.

Any changes or modifications to original design, color, door design or additional scrollwork, including associated labor, profit and overhead cost to be authorized by Project Coordinator, by execution of a change order prior to performance of work.

### **Painting**

Where painting is specified, it shall include all prep work as needed, such as sanding, scraping, filling, caulking, stain, sealing, cleaning, priming, and painting in accordance with Lead Safe Work Practices. Exterior caulking shall be a 25-year, siliconized type.

Where surfaces exist having chalking, cracking, peeling paint, they shall be scraped, wire brushed and cleaned as necessary for the new application. Where a room (walls and/or ceiling) is specified to be painted, it shall include any closet(s) and cabinets attached to said room and shall include doors, windows, and baseboards. Trim jambs and everything else needed for a complete finished job.

Any painting, interior or exterior shall include the removal and reinstallation of all hardware, which is not to receive paint.

Where dwelling exterior is to be painted, it shall include roof overhangs, fascias, fly rafters, shutters, posts, beams, porches, walls and ceilings, window guards, exterior side of doors, windows, trim and casings, and everything else needed to leave a completed finished job.

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

Contractor shall protect adjacent materials as needed to prevent spatter, and spray over. Contractor shall apply sealers to prevent bleed-through of rust, stains, resins or other foreign materials.

It shall be the responsibility of the Contractor to apply sufficient coats as needed to obtain complete coverage, with uniformity, free of drips, runs or holidays.

In cases where a water seal or silicone is to be applied to masonry walls, caulking around windows, doors, protrusions or openings shall be included.

### **Paints containing lead shall not be used.**

Contractor to provide colors to be selected, by Project Coordinator, recorded in color chart and signed by Project Coordinator and Contractor. (See color choice)

Any windows and/or doors specified to be painted, shall be left with the required clearances needed to allow opening and closing freely. A paraffin wax shall be applied to friction edges, molding and track or any other parts to make windows operate smoothly.

**Lead Based Paint :Lead Safe Work Practices, Interim Controls & Abatement**

Contractor to adhere to H.U.D. and E.P.A. **Abatement** and **Lead Safe Work Practices** standards when work is disturbing Lead Based Paint.

**Abatement & LSWP Standards:**

- OSHA LEAD STANDARDS: (29 CFR 1910.1025 & 29 CFR 1926.62)
- EPA REQUIREMENTS FOR LEAD-BASED PAINT ACTIVITIES & WORK PRACTICE STANDARDS Section 745.227 of 40 CFR PART 745
- SUBPART L- LEAD BASED PAINT ACTIVITIES (TSCA 402-404) AUGUST 29, 1996
- Contractor to use “LEAD STOP” or equal as lead based paints encapsulating compound.
- HUD Lead Safe Housing Rule 24 CFR Part 35 “subpart R” & Lead Based Paint Guidelines Chapters 5 & 7.

**Skylights**

Unless otherwise specified, all new skylights shall be double-domed, self-flashing type and shall have an extruded aluminum frame and white acrylic diffuser flush with ceiling.

When a skylight is specified, it shall include the framing and sheet rocking of a shaft for light transmission into and finished out at ceiling of the room for which it is intended. The sheet rock shall be taped, textured and painted to match existing paint as close as possible.

**Electrical**

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

Contractor to install Compact Florescent Light bulbs (CFL) where applicable when replacing light fixtures.

All light fixture shall have proper size CFL bulbs and globes so that there are no open sockets.

All fixtures specified shall be complete with proper lamps. Kitchen receptacles within 6 ft. of sink, exterior and bathroom receptacles are to have G.F.C.I. protection, except that readily accessible clothes washer receptacles shall be of special type not commonly used

on most electrical apparatuses, and in such cases a cord cap shall be provided to match said receptacle.

**All defective or abandoned wiring and equipment shall, where possible, be removed.** Where visible, the damaged area shall be repaired to match adjacent areas.

When an existing service is replaced/upgraded, the circuits into dwelling shall be split and new circuits added as needed to provide overload and wire size protection as per **IRC**.

When the RWR specifies new electrical service or the installation of new water piping, the Contractor shall be responsible for the installation of a new grounding system as required by latest **IRC**.

When a new service is specified to be installed, the contractor shall be responsible for removal of all old apparatuses and mounting boards and shall refinish the wall or place where apparatuses removed to match adjacent areas.

All conductors and utility boxes shall be concealed and recessed unless otherwise specified.

A new relocated service installation shall include the installation of a "J" box as per **IRC**, and an extension of existing or new conductors to new service location.

### **Smoke Detectors**

Smoke detectors shall be installed, as required by code and/or manufacture specification, in all bedrooms and hallways, hardwired with battery back up. Rehabs where electrical is not being installed, battery operated detectors will be acceptable, UL approved (First Alert equal or better) unless otherwise noted.

Install smoke detectors as noted:

1. Wall installation – minimum 6”, maximum 12” below ceiling, minimum 18” from any corner.
2. Ceiling installation - minimum 6” from any vertical surface.
3. Installation shall be a minimum of 3 feet from any mechanical supply or return grill.
4. Five feet from fluorescent fixtures.

### **Plumbing**

In all residential construction and in all replacement of plumbing fixtures in existing residential construction, the following conservation devices shall be installed.

All PVC or copper water service yard piping shall be installed in a bed of sand with a minimum of 2" or two times pipe dimension.

All faucets shall be designed to deliver a maximum of two and one half (2.5) gallons per minute or shall be equipped with flow control devices that delivers a maximum of two and one half (2.5) gallons per minute. All showerheads shall be of a type that delivers a maximum of two and one half (2.5) gallons per minutes.

All water closets shall be designed to use a maximum of 1.6 gallons per flush. All water closets shall be domestic make and be listed by an approved listing agency (**'American Standard'** equal or better).

When the RWR specifies new faucets for lavatory, kitchen sink, bath tub, or a new toilet, the installation shall include new chrome metal angle stops, escutcheon, supply tubing, domestic basket strainers, waste connectors, "P" traps, crossover arm assembly as needed for a complete installation.

Installation of a new toilet shall include a new floor wax gasket, proper A-Bolts, chrome metal angle stops with escutcheons, a seat and cover, and repair or replacement of closet flange.

Kitchen sink installations are to be domestic brand, minimum 20-ga. stainless steel with 7" deep double bowl. All faucets to be **'Price Pfister'** single-lever, equal or better, and have no plastic internal parts.

All new and replacement water heaters, **Rheem or equal**, shall be 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.

Where gas stoves, furnaces, water heater or ovens are to be moved or installed: NEW gas cocks and flex line shall be installed.

Installation of new bathtub installed to code shall include waste connector, "P" trap, and overflow assembly with integral built-in drain stop.

Where shut-off valve is specified, it shall be "ball type".

New water piping from meter to dwelling shall be, unless otherwise specified 3/4" Sch. #40 P.V.C, and shall have installed on the consumer side of the meter a hand valve. If a 10'-0" length of Type K or L water piping was used for grounding before, it shall be the Contractor's responsibility to either install proper grounding rods or copper pipe as required by codes. The contractor shall affix a label to the service so stating "plastic" water service piping.

Any existing structures, plants, or landscaping affected by the installation of gas, water, underground electric and/or sewer lines shall be restored to the original condition, as nearly as possible.

All exposed exterior water piping installed shall be properly insulated.

All new A.B.S. waste piping shall be Sch. #40 foam-filled type, ASTM D2661-73.

Water piping used for evaporative coolers shall be 1/2" hard drawn copper to within 3'0" of the cooler and shall have a hand valve containing a bleeder built-in, installed within reach of the floor or ground.

Yard faucets shall be installed as specified, if within 24" of dwelling wall, the new faucet riser shall be installed against and attached to the wall. Faucets installed in yards shall have a riser of same type material, but in no case shall the riser pipe be less than 3/4" in size. The vertical riser shall be 3/4" galvanized iron or hard copper and should be secured properly. All installed yard faucets shall have an anti-siphon device.

All piping, gas and water, where entering the dwelling shall have horizontal and/or vertical runs fitted, tight against walls of the dwelling, and in no case more than 3/4" between the wall material and the nearest side of the pipe.

All water piping shall be thoroughly flushed by Contractor after any work has been performed to assure debris in lines is removed.

When gas or P.V.C. water piping is to be installed in ground, the pipe shall be encased with a minimum of 4" sand fill around the piping. All new above ground gas, waste, and water piping where exposed shall be painted with enamel paint manufactured for that purpose.

Bathtubs and toilet bases shall be sealed to the floors with silicone caulking or an approved type.

In cases where RWR specifies the 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).

### **Mechanical**

Central furnace shall have a remote thermostat and an automatic electronic igniter, unless otherwise specified in contract. Furnaces to be '**Rheem**', equal or better. Roof-mounted furnaces to be '**Rheem**', equal or better, with metal enclosure.

Where furnace is specified, the installation shall include gas piping, protected electrical circuit, flue vent piping, metal stand, and roof jack and sheet metal transitions. When listed, barometric dampers should be installed in slide trays. Standard damper should be slide damper (sheet metal). Thermostat or low-voltage wiring if installed on exterior, shall be concealed from possible damage and weather protected. Adjustable angle iron stand will only be used if the roof has many irregularities and must be approved by this Agency prior to installation. **Leg stands (kits) fastened directly to furnace shall not be accepted. No wood bases are allowed.**

On new HVAC installations, the contractor shall be responsible for all return-air provisions such as cutting off and filling the door bottoms, making openings in walls and installing grill work or any other items required to facilitate a proper return air supply system. No interior furnaces will be mounted on the roof.

Metal stands for any roof-mounted type equipment, which is installed, shall include ports or cutouts with cover plate as needed to eliminate entrapment of water.

New HVAC equipment to be installed on a roof with a pitch steeper than 4" to 12", the installation of the new unit(s) shall include the platform and catwalk as described in the current adopted IRC, unless otherwise specified.

Evaporative coolers are to be installed complete. This means level with metal stand as listed above, water recycling or reuse system water piping, rotary switches, electrical circuits, and include all wiring to allow 2-speed motor to operate properly, P-261F code box or approved equal, metal transition fitting dampers, and everything else needed for a complete installation. All evaporative coolers shall be **'Frigiking'**, equal or better, and have 2-speeds and all coolers larger than 4,000 C.F.M. shall be equipped with 1/2 h.p. motor minimum, unless otherwise specified.

New A. C. units shall be minimum **16** seer, "Rheem" equal or better. 15 Seer is acceptable where 16 Seer is not available.

Mechanical equipment required to be removed to facilitate other work shall be reinstalled according to highest trade standards and in same condition as prior to moving.

All new HVAC equipment shall be activated, checked for operation, and adjustments shall be made prior to acceptance. The contractor shall start and balance systems at the beginning of season changeover (first time only).

When RWR specifies central updraft furnace installation, it 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 grills on furnace room door with metal channel over cut out. All installations shall be in accordance with latest edition of **IRC** and any amendments adopted by the City of Tucson.

Unless otherwise specified, all range hood vents shall be extended to minimum 12" above roof and shall include roof jack and screened rain cap.

Mechanical fan or vent in bathroom and/or kitchen shall be terminated at least 12" above the roof and shall have a wire mesh screened rain cap.

All range hood installations shall include a framed finished sheet rock furr-down above to conceal the exhaust duct, range hoods shall be '**Broan**', equal or better, and vented to the atmosphere unless otherwise specified.

### **Sheet Metal and Related Items**

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. 12" x 18" splash pad of concrete shall be installed unless leader piping or dry well is specified. Caulking shall be lap and gutter type. Joints in downspouts and attachments shall be secured with pop rivets or sheet metal screws.

Cases where new side scuppers and/or canals 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.

Sheet metal used for ducting (conveying of air) shall be 28-gauge galvanized type, and when used on interior of dwelling, shall be insulated either on inside or outside. Ducting used on exterior shall be insulated on inside. Inside duct insulation shall be minimum 1" fiber-type material. All sheet metal when used on exterior shall have joints sealed with a lap and gutter caulk, or 25-year siliconized type. Flexible duct shall not be used to convey heating/cooler air except as noted below.

- A. Flex duct may be used on interior for return air purposes.
- B. Flex duct, where accepted, shall be reinforced aluminum foil, faced on both interior and Exterior, sandwiched with fiberglass insulation and steel coil spring formed.
- C. Attachment, supports, sheet metal diffuser boxes and all as required by **IRC** latest edition shall be applicable to A. B. & C. above-allowed installations.

In all cases, the return air chase shall be furred around and the cover material shall match adjacent wall coverings. Return air openings shall be within twelve inches (12") of finished floor or as specified.

Sheet metal of either 28-gauge galvanized type or 26-gauge aluminum is to be used for roof valleys or flashing material when metal is specified.

All exposed ductwork shall be sealed when installed new or removed and reinstalled for any reason.

When a heating and/or cooling duct is specified, it shall be sized as required to convey the quantity of air as supplied by the mechanical device and balanced to the room(s) size(s) with which it is serving.

### **Concrete**

Concrete placements when specified for floors, walkways, driveways, foundations, or carports, shall have minimum test strength of 2,500 P.S.I. at 28 days. Concrete shall contain a cracked rock (coarse) aggregate of maximum size of 3/4", and shall have a water mixture maximum ratio of 7.5 U.S. 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 three-inch (3") slump when measured by a standard test cone.

Concrete shall be tooled (rounded) at all edges, expansions and cold joints.

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

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.

After placement and finish of concrete, it shall be protected so premature drying or physical damage will not occur. Concrete porches, walks and slabs shall be formed and poured properly so no ponding of water will occur, and so that water will drain away from the dwelling.

- A. Before the placement of any concrete, the Contractor shall contact the Project Coordinator for an inspection of trenching, embedded items, compactions and dimensions and any other preparation required.
- B. Dry-grout packing shall be done in the presence of the Project Coordinator
- C. Placement of any concrete on public right-of-way shall require a permit from the City of Tucson Engineering Division, this includes sidewalks, driveway approaches, etc.
- D. All fill material shall be granular A.B.C. or river run material, lightly watered and tamped, prior to any concrete replacement.

**Stucco And Related** (Historic designated areas excepted.)

Where new stucco is specified to be applied, it shall contain a vapor barrier and wire mesh of an approved type and shall have expansion joints installed vertically at maximum 10'-0' O.C., 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 should be as stated on the RWR portion of the contract, and all materials and workmanship shall be as per RWR line item and manufacturer's recommendations.

**Specialty Items**

If requested in bathroom facilities retrofit handicap bars shall be a minimum 18 gauge, 1-1/4" diameter, one-piece stainless steel and capable of holding 250 lbs. for a five minute time period.

Medicine cabinet shall be recessed '**Broan**' #468' equal or better unless otherwise specified.

Where fans are being used, they 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. Fan shall be '**Hampton Bay Huntington 52**', equal or better.

### **Fencing**

When new chain link fencing is specified in RWR, the following minimum standards shall be applicable.

- A. 11.5 gauge galvanized wire mesh (residential type).
- B. 1-7/8" O. D. line posts at maximum 10'0" O.C. with 2-3/8" corner and terminal posts. Tie wires space 14" O.C. for line posts and 24" O.C. for rails.
- C. 1-1/4" top rails at full length of the installation.
- D. #9 gauge snigger wire at ground elevation continuous. Tie at 24" O.C.
- E. All components of the fencing and gates shall be galvanized steel or die cast aluminum.
- F. Fencing shall be installed snug to ground, straight and plumb.
- G. All new chain link fencing shall be 5'-0" high unless otherwise specified.
- H. Line posts shall be set at minimum of 20" into ground and 56" above grade. Terminal and corner posts shall be set at a minimum of 22" into ground and 62" above grade.
- I. All posts shall be encased in concrete a minimum of two inches (2") around the post diameter to the earth and concrete shall be from bottom of post to top of finish grade.

Where the removal of a fence or vegetation is necessary to gain access to work items specified in the contract, the contractor shall remove and replace to original condition as near as possible.

### **REMOVE -**

The described item (in the RWR) being addressed 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 & completely rendered unusable. The item shall be taken off the premises to a legal landfill following all applicable protocols for its composition material(s).

### **INSTALL -**

The described item (in the RWR) being addressed shall be permanently set, placed, affixed, attached, fabricated to a corresponding location according to manufacture's

specifications, trade practices, professional industry standards, all applicable building codes & workmanship like manner.