



**HARRIS COUNTY
RECOVERS**



Harris County Homeowner Disaster Recovery Program

MINIMUM HOUSING REHABILITATION STANDARDS

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Harris County Minimum Housing Rehabilitation Standards

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I. Preface

This document is intended to provide the minimum acceptable standards for existing single household dwelling units rehabilitated in whole or in part with the Harris County Housing Disaster Recovery Fund. These standards apply to all communities within Harris County, with the exception of the City of Houston. These standards are not intended to reduce or exclude the requirements of any local, county or state building or housing codes, standards, or ordinances that may apply.

The Harris County Minimum Housing Rehabilitation Standards are designed to include and to expand on the requirements of the HUD Section 8 Housing Quality Standards (CDBG funded activities) and the Minimum Property Standards (HOME funded activities). Many of the requirements and standards of this document exceed the requirements of the HUD Section 8 Housing Quality Standards and/or the Minimum Property Standards, and are determined necessary to further define the intent or outcome of these standards and to expand on the common definitions of “safe, decent, and sanitary” housing; “non-luxury, suitable amenities” housing; and “good quality, reasonably priced” housing, that is affordable to persons that are low or low and moderate income. These standards are also designed to assist in achieving consistency throughout the county for single-family and duplex rehabilitation activities funded with the Housing Disaster Recovery Fund.

Through the Harris County Minimum Housing Rehabilitation Standards, “sustainable design” principles have been incorporated, intended to minimize negative environmental impacts and to promote the health and comfort of the occupants of housing rehabilitated to these standards. Included herein are measures to reduce consumption of non-renewable resources, minimize waste, and to create healthy productive environments. Standard measures have been incorporated herein relating to energy conservation, energy efficiency, water conservation, and indoor air quality.

Whenever possible and practical, specify materials or products that are made from recycled materials (such as fly ash concrete, carpeting or flooring made from recycled materials, etc.) or specify materials and products produced from rapidly renewable materials (such as cork or bamboo). To the extent possible and practical, avoid using products from non-renewable resources (such as vinyl siding, windows and flooring; asphalt roofing materials; etc.).

These standards assume that a knowledgeable inspector will thoroughly inspect each dwelling to verify the presence and condition of all components, systems and equipment of the dwelling. All components, systems and equipment of a dwelling referenced in this document shall be in good working order and condition and be capable of being used for the purpose in which they were intended and/or designed. Components, systems and/or equipment that are not in good working order and condition shall be repaired or replaced. When it is necessary to replace items (systems, components or equipment), the replacement items must conform to these standards. These standards also assume that the inspector will take into account any extraordinary circumstances of the occupants of the dwelling (e.g., physical disabilities) and reflect a means to address such circumstances in their inspection and in the preparation of a work write-up/project specifications for that dwelling.

All interior ceilings, walls and floors must not have any serious defects such as severe bulging or leaning, large holes, loose surface materials, severe buckling, missing components or other serious damage. The roof must be structurally sound and weather-resistant. All exterior walls (including foundation walls) must not have any serious defects such as leaning, buckling, sagging, large holes, or defects that may result in the structure not being weather-resistant or that may result in air infiltration or vermin infestation. The condition of all interior and exterior stairs, halls, porches, walkways, etc. must not present a danger of tripping or falling. Outbuildings must conform to these standards or be removed from the property.

If an inspector determines that specific individual standards of this document cannot be achieved on any single dwelling due to it being structurally impossible and/or cost prohibitive, the inspector shall document the specific item(s) as non-conforming with these standards. The inspector shall prepare a list of any and all non-conforming items or non-conforming uses along with his/her recommendation to waive, or not-to-waive, the individual non-conforming items. The inspector's list of non-conforming items and subsequent recommended actions shall be explained to the property owner and the local official(s) representing the program, as well as provide for their signatures and dating of the inspector's list of non-conforming items and subsequent recommendations. If all parties (property owner, local officials and inspector) agree, non-conforming items to these standards may be waived. (NOTE: Items that are necessary to meet HUD Section 8 HQS or the Minimum Property Standards may not be waived).

II. Definitions

- A. **Egress** – A permanent and unobstructed means of exiting from the dwelling in an emergency escape or rescue situation.
- B. **Habitable Space (Room)** – Space (rooms) within the dwelling for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces, and similar areas (rooms) are not considered habitable spaces (rooms).
- C. **Energy Star Rated** – Includes all systems, components, equipment, fixtures and appliances that meet strict energy efficiency performance criteria established, as a joint effort, by the federal Environmental Protection Agency, the U.S. Department of Energy and the U.S. Department of Housing and Urban Development and that carry the Energy Star label as evidence of meeting this criteria.

III. Minimum Standards for Basic Equipment and Facilities

- A. **Kitchens** – Every dwelling shall have a kitchen room or kitchenette equipped with the following:

1. **Kitchen Sink.** The dwelling shall have a kitchen sink, connected to both hot and cold potable water supply lines under pressure and to the sanitary sewer waste line. When replacing such components, water supply shut off valves shall be installed. If the existing faucet is to remain, a 2 gallon per minute (GPM) flow restricting aerator shall be installed.
 2. **Oven and Stove or Range.** The dwelling shall contain an oven and a stove or range (or microwave oven), supplied by the owner, either gas or electric, connected to the source of fuel or power, in good working order and capable of supplying the service for which it is intended.
 3. **Refrigerator.** The dwelling shall contain a refrigerator, connected to the power supply, in good working order and capable of supplying the service for which it is intended.
 4. **Counter Space Area.** Every kitchen or kitchenette shall have a minimum storage area of eight (8) square feet with a minimum vertical clearance of twelve inches (12") and a minimum width of twelve inches (12"). Every kitchen or kitchenette shall have a minimum of four (4) square feet of counter space.
- C. Toilet Room:** Every dwelling shall contain a room which is equipped with a flush toilet and a lavatory. The flush water closet shall be connected to the cold potable water supply, under pressure, and to the sanitary sewer. The lavatory shall be connected to both a hot and cold potable water supply, under pressure, and connected to the sanitary sewer. When replacing such components, water supply shut off valves shall be installed. When replacing toilets, these will have a flush valve that use less than or equal to 1.6 gallons per flush. Toilet throat size will be no less than 2 inches and glazed smooth. If the lavatory faucet is not being replaced then a 2 GPM flow restricting faucet aerator will be installed.
- D. Bath Required:** Every dwelling shall contain a bathtub and/or shower.
1. The bathtub and/or shower unit(s) need not be located in the same room as the flush water closet and lavatory. The bathtub and/or shower unit may be located in a separate room.
 2. The bathtub and/or shower unit shall be connected to both hot and cold potable water supply lines, under pressure, and shall be connected to the sanitary sewer. All shower heads must be equal to or less than 2.0 (GPM) water flow. Where feasible, shut off valves shall be installed on the water supply lines. All faucets, when replaced, shall be water balancing scald guard type faucets.
- E. Privacy in Room(s) Containing Toilet and/or Bath:** Every toilet room and/or every bathroom (the room or rooms containing the bathtub and/or shower unit) shall be contained in a room or rooms that afford privacy to a person with said room or rooms.

1. Every toilet room and/or bathroom shall have doors equipped with a privacy lock or latch in good working order.

F. Hot Water Supply: Every dwelling shall have supplied water-heating equipment (water heater and hot water supply lines) that is free of leaks, connected to the source of fuel or power, and is capable of heating water to be drawn for general usage.

1. No water heaters (except point-of-use water heaters) shall be allowed in the toilet rooms or bathrooms, bedrooms or sleeping rooms. No gas water heaters shall be allowed in a clothes closet(s).
2. All gas water heaters shall be vented in a safe manner to a chimney or flue leading to the exterior of the dwelling. Unlined brick chimneys must have a metal B-vent liner installed to meet manufacturer's venting requirements. If metal chimney venting cannot be added, a power vented water heater may be installed. Size of the B-vent is critical for proper venting. Install according to manufacturer's recommendations.
3. All water heaters shall be equipped with a pressure/temperature relief valve possessing a full-sized (non-reduced) rigid copper or steel discharge pipe to within six (6) inches of the floor. The steel discharge pipe shall not be threaded at the discharge end.
4. All water heaters must be installed to manufacturer's installation specifications.
5. All new water heaters shall have internal foam insulation that is a minimum of R-10. Gas water heaters shall have an EF rating of .62 or higher and a recovery efficiency of .75 or better and/or meet Energy Star requirements at the time of installation. Electric water heaters shall be Energy Star Rated.
6. Where feasible, tankless water heaters may be installed in accordance with manufacturer's guidelines and sized to provide adequate hot water supply to all fixtures. Gas supply lines and or electrical capacity must be evaluated before installing tankless water heaters. Before installing, careful consideration should be made regarding supply and water temperature to owners.

G. Exits: Every exit from every dwelling shall comply with the following requirements:

1. Every habitable room shall have two (2) independent and unobstructed means of egress. This is normally achieved through an entrance door and an egress window.

2. All above grade egress windows from habitable rooms shall have a net clear opening of 5.7 square feet. The minimum net clear opening width dimension shall not be less than twenty inches (20") wide, and the minimum net clear opening height dimension shall not be less the twenty-four inches (24") wide. Note that the combination of minimum window width and minimum window height opening size does not meet the 5.7 square feet requirements. Therefore, the window size will need to be greater than the minimum opening sizes in either width or height. Where windows are provided as a means of escape or rescue, they shall have a finished sill height of not more than forty-four inches (44") above the floor. Egress windows with a finished sill height of more than forty-four inches (44") shall have a permanently installed step platform that is in compliance with stair construction standards.

All at grade egress windows from habitable rooms may be reduced in size to 5.0 square feet of operable window area, but the area must meet the minimum width and/or and height requirement restrictions of all egress windows.

When windows are being replaced within existing openings, the existing window size shall be determined to be of sufficient size even if current window sizes do not meet current egress standards. However, if the specification writer determines that changing the window size is beneficial; such egress widow size modification will be allowed but not required. If new construction windows are being installed, these windows must meet all egress window requirements.

3. Inhabitable basements (or habitable rooms within a basement) where one means of egress is a window; the window shall have a net clear opening of 5.0 square feet. The window shall open directly to the street or yard, or where such egress window has a finished sill height that is below the adjacent ground elevation shall have an egress window/area well. The egress window/area well shall provide a minimum accessible net clear opening of nine square feet that includes a minimum horizontal dimension of thirty-six inches (36") from the window. Egress window/area wells with a depth of more than forty-four (44") shall be equipped with an affixed ladder or stairs that are accessible with the window in the fully opened position. Such ladder will have rungs at 12 inches on-center and projecting out a minimum of three inches from the side of the window well.

- H. Stairs:** If replacing existing stairs, stairs will need to conform as close as possible to new construction standards, but replacement stairs do not need to be in compliance with new codes. All newly constructed stairs (interior and exterior stairways) shall comply with the following requirements:

1. All stairways and steps of four (4) or more risers shall have at least one (1) handrail. All stairways and steps which are five (5) feet or more in width shall have a handrail on each side.
 2. All handrails shall be installed not less than thirty four inches (34") nor more than thirty-eight inches (38"), measured plumb, above the nosing of the stair treads. Handrails adjacent to a wall shall have a space of not less than one and one-half inches (1 1/2") between the wall and the handrail. All handrails shall be turned back into the wall on railing ends. The size of a round railing must be a minimum of 1.25 inches, but not more than 2 inches. Railings must be continuous from the top riser to the bottom riser.
 3. Porches, balconies or raised floor surfaces, including stairway riser and/or landing, located more than thirty (30) inches above the floor or the grade, shall have guardrails installed that are not less than thirty-six inches (36") in height. Open guardrails and stair railings shall have intermediate rails or ornamental pattern such that a sphere four inches (4") in diameter cannot pass through.
 4. All stairs and steps shall have a riser height of not more than eight inches (8") and a tread depth of not less than nine inches (9'). All newly constructed stairs, not replacement stairs, shall have a riser height of not more than seven and three quarters (7 3/4") and a tread depth of not less than ten inches (10"). Risers and treads cannot be different in size by more than 3/8 of an inch from the top to the bottom of the stairs.
- I. Smoke Detectors:** All smoke detectors shall be hard-wired with battery back-up and interconnected with all other alarms. There shall be a minimum of one (1) smoke detector per floor (including the basement) and a smoke detector shall be located adjacent to all bedrooms/sleeping rooms and adjacent to the central heating source. All smoke detectors shall be installed per manufacturer's installation instructions.
- J. Carbon Monoxide Detectors:** Where a heating system source, other than solid fuel burning appliances (e.g., wood stoves), and/or water heater that burns solid, liquid or gaseous fuels is located horizontally adjacent to any habitable room, a hard-wired with battery back-up carbon monoxide detector is required and is to be installed per the manufacturer's instructions. Any dwelling that has a fuel source heating system (not electric), other solid fuel burning appliances (e.g., wood stoves, pellet, or corn stoves), and/or fuel source water heater (not electric), a hard-wired with battery back-up combination smoke alarm/carbon monoxide detector is required to be installed per the manufacturer's instructions on the main living area floor.

IV. Minimum Standards for Ventilation

- A. In general, sufficient ventilation shall be present to ensure adequate air circulation in the dwelling.
- B. Every habitable room shall have at least one (1) exterior operable window. All operable windows shall be capable of being easily opened and held in an open position by window hardware. All operable exterior windows shall be provided with screens if none exist. Half screens on windows are allowable.
- C. Bathrooms, including toilet rooms, shall be provided with a mechanical means of ventilation that is rated at 50 CFM or greater. Fans shall be ducted to the outside of the dwelling. All bathroom fans will be installed on a 20 minute timer for the fan and a regular switch for the light.
- D. **Attic Ventilation:**
 - 1. When using roof vents without soffit vents and without a ceiling vapor barrier, sufficient vents shall be used to provide one square foot of free vent area for each one hundred fifty (150) square feet of ceiling area.
 - 2. When using roof vents without soffit vents with a ceiling vapor barrier, sufficient vents shall be used to provide one square foot of free vent area for each three hundred (300) square feet of ceiling area.
 - 3. When using a combination of roof and soffit vents and no ceiling vapor barrier, sufficient vents shall be used to provide one square foot of free vent area for each three hundred (300) square feet of ceiling area. Vents shall be installed with no less than fifty percent (50%) nor more than eighty percent (80%) of the total vent area in the roof near the peak with the balance of vents in the soffit.
 - 4. To conserve energy, power roof ventilation systems will be used only as a method of last resort. Roof ventilation should be accomplished through correctly sized gable vents, ridge vents, and/or roof pod ventilation systems, and soffit vents.

V. Minimum Standards for Electrical Service

- A. **Minimum Electrical Service:**
 - 1. Every dwelling unit, at a minimum, shall have a 100 ampere breaker controlled electrical panel. All electrical work shall be in compliance with adopted electrical code requirements in accordance with any local, county or state requirements having

jurisdiction. The panel, service mast, etc. shall also be installed to local utility company requirements.

B. Convenience Outlets:

1. Every habitable room within the dwelling shall contain at least two (2) separate duplex, wall-type electrical outlets. Placement of such outlets shall be on separate walls. All newly installed receptacles shall be grounded duplex receptacles or GFCI protected.
2. All electrical outlets used in bathrooms and toilet rooms, all outlets within six foot (6'-0") of a water source (excluding designated simplex equipment circuits for clothes washing machines and sump pumps), outlets located on open porches or breezeways, exterior outlets, outlets located in garages and in non-habitable basements, except those electrical outlets that are dedicated appliance outlets. All kitchen receptacles serving the countertop area shall be ground fault circuit interrupter (GFCI) protected. All exterior receptacles shall be covered by a receptacle cover that when a cord is plugged in, the GFCI outlet will stay covered and protected.
3. All electrical outlets carrying heavy appliance loads (i.e., window air conditioning units, central air-conditioning units where they exist, refrigerators, freezers, electric stoves, microwaves, clothes washing machines, dish washing machines, electric clothes dryers, furnaces, etc.) shall be simplex receptacles on a separate circuit of the proper amperage and wire size.
4. Basements shall have a minimum of one (1) wall-type electrical outlet for every two hundred (200) square feet, or fraction thereof, of the floor area. Unfinished basements shall have a minimum of one (1) GFCI wall-type electrical receptacle. Such receptacle shall be within 20 feet of the furnace.
5. All accessible knob and tube wiring shall be removed and replaced with type NM cable (Romex) or as required by code.
6. All broken, damaged or nonfunctioning switches or outlets shall be replaced. All fixtures and wiring shall be adequately installed to ensure safety from fire so far as visible components are observed.
7. All missing or broken switch and outlet covers (including junction boxes) shall be replaced. Each receptacle or switch located on an exterior wall shall have a foam seal placed under the cover.

C. Lighting:

1. Every habitable room and every bathroom (including toilet room), laundry room, furnace or utility room, and hallway shall have at least one (1) ceiling or wall-type electric light fixture, controlled by a

remote wall switch. Habitable rooms (except kitchens or kitchenettes) may have a wall-type electrical outlet controlled by a remote wall switch in lieu of a ceiling or wall-type light fixture. Energy efficient fixtures that meet energy star ratings and compact florescent bulbs shall be installed in all new fixture installations.

2. Basements with no habitable rooms shall have a light illuminating the stairs with a switch controlling the light located at the top of the stairs. Basements with habitable rooms shall have at least one light fixture controlled by a remote wall switch at the top and bottom of the stairs. If new fixtures are being installed, Energy Star rated fixtures shall be installed with compact florescent bulbs.
3. Porcelain type fixtures with pull chains are acceptable for use in basements (except for the one controlled by a remote wall switch) cellars, and attics.
4. All pendant type lighting fixtures that are supported only by the electrical supply wire shall be removed or replaced. If replaced, replace with Energy Star rated fixtures.
5. All existing closet lights shall be covered.

VI. Minimum Standards for Heating Systems

- A. **Heating System:** All heating systems (and central air-conditioning systems where they exist) shall be capable of safely and adequately heating (or cooling as applicable) for all living space.
- B. **Cooling System:** Non-working or improperly functioning central air conditioning systems may be replaced as part of the rehabilitation work. The installation of a central air conditioning system, where it currently does not exist, is permissible where feasible and practical.
- C. **Requirements for Heating and or Cooling Systems:**
 1. All existing heating systems, including but not limited to, chimneys and flues, cut-off valves and switches, limit controls, heat exchangers, burners, combustion and ventilation air, relief valves, drip legs and air, hot water, or steam delivery components (ducts, piping, etc.) that are not being replaced, shall be inspected to be in a safe and proper functioning condition at the time of inspection, by means of written project file documentation.
 2. Every heating system burning solid, liquid or gaseous fuels shall be vented in a safe manner to a chimney or flue leading to the exterior of the dwelling. The heating system chimney and/or flue shall be of

such design to assure proper draft and shall be adequately supported.

3. No heating system source burning solid, liquid or gaseous fuels shall be located in any habitable room or bathroom, including any toilet room.
4. Every fuel burning appliance (solid, liquid or gaseous fuels) shall have adequate combustion air and ventilation air. All new furnaces will have sealed combustion with combustion air brought in from the exterior of the house and installed in accordance with manufacturer's guidelines.
5. Every heat duct, steam pipe and hot water pipe shall be free of leaks and shall function such that an adequate amount of heat is delivered where intended. All accessible duct joints must be sealed with mastic or any other acceptable product. Newly installed ductwork must also be sealed. All accessible steam piping and hot water piping must be installed with an approved material.
6. Every seal between any of the sections of the heating source(s) shall be air-tight so that noxious gases and fumes will not escape into the dwelling.
7. No space heater shall be of a portable type.
8. Minimum requirements for forced air furnaces, when installed, will be no less than a 92% AFUE, or the minimum AFUE, if greater than 92%, to obtain a local utility rebate (Energy Star rated for Southern climates). Also install a digital programmable thermostat. Condensate lines will drain to a floor drain or have a condensate pump installed and piped to discharge. All furnace duct work shall be equipped with an air filter clean out location that has a tight fitting cover installed over it.
9. All boilers, when replaced, will have an "A" rating and be no less than 87% AFUE rating. All combustion air will be from the exterior of the house. The addition of zone valves may be useful to reduce energy cost. Heat lines shall be insulated with approved material. Programmable thermostats will be installed.
10. A/C units, if added or replaced, shall not be less than 14 SEER or the lowest SEER rating that is available at the time of installation but not less than 14 SEER. All units shall be installed, when possible, on either the north or east side of the dwelling or in an area that will provide shade for the unit. The correct coil will be installed that is compatible with both the furnace and A/C unit.

Homeowners who use window air conditioners will be encouraged to purchase Energy Star rated air conditioners. No window A/C units may be purchased with Housing Disaster Recovery Funds.

11. All wood, pellet, corn, switch grass, hydrogen, or other biomass fuel stoves must be installed to manufacturer's guidelines. Where such guidelines are not available, the heating unit will be removed. Venting and combustion air must be installed in accordance with manufacturer's requirements.
12. The installation of Energy Star rated ceiling fans will be encouraged in general living areas. Fans must be installed to manufacturer's requirements.

D. Energy Conservation

1. All structures shall comply with certain energy conservation measures (U.S. Department of Energy recommendations). These measures include, but are not necessarily limited to, the following:
 - a. The provision of insulation at various locations and at the following recommended resistance factors (r-values). Insulation shall be primarily made from recycled glass or newspaper when available.
 - i. Ceilings – R-19 or as close as possible to these requirements where sloped ceilings exist.
 - ii. Crawl Spaces (floors or walls) – R-19
 - iii. Band Joists – R-19
 - b. When siding is being replaced and/or interior wall finishes of exterior walls are being replaced on a dwelling, such exterior walls are to be provided with insulation and at the recommended resistance factor (r-value) of R-11, or that which is allowed by the stud cavity space. In addition, an air infiltration barrier, such as Tyvek or approved equal, shall be installed on all exterior walls. If new walls are being framed and insulated, the minimum R factor is R-19 or R-13 plus R-5 foam. The installation of fan-fold foam or foam sheathing may be added to increase household R-ratings.
 - c. The installation of weather stripping at all exterior doors, windows, ground-entry basement doors, etc. is required. Doors, when replaced shall be a metal clad insulated door (energy star rated for Southern climates). Storm doors are encouraged, but not required. Door jams will be sealed and thresholds will be caulked.

- d. The provision of caulking around exterior doors and windows, at the foundation/sill plate union, and at other air-infiltration areas.
- e. Windows must be current Energy Star rated for Southern climate to obtain local window rebates. All storm windows will be removed from heated areas of the home when windows are replaced. All rope weight openings will be insulated and all new windows will have the window jamb sealed. Where SHPO requirements will restrict the installation of vinyl windows, the specifications will be written to come as close as possible to achieving Energy Star requirements.
- f. All heat ducts and hot water or steam heat distribution piping shall be insulated or otherwise protected from heat loss where such ducts or piping runs are located in unheated spaces. Similarly, distribution piping for general use hot water shall also be protected from heat loss where such piping is located in unheated spaces. All water distribution piping shall be protected from freezing.
- g. Attic access passage ways (scuttle holes) shall be no less than 22" by 30" or the size of original construction. If it is impossible to conform to this standard, the largest attic access hole possible will be installed. Scuttle holes shall extend up a minimum 14 inches above the ceiling. Weather stripping shall be installed at the top of this 14 inch scuttle hole extension and shall be covered with ¾ inch plywood or OSB covered by 2 inch, R-10, foam. The gypsum opening on the ceiling will also be weather stripped and covered with 4 inches of foam. Both doors will be made to sit tight against the weather stripping.

VII. Minimum Standards for the Interiors of Structures

A. Interior Walls, Floors, Ceilings, Doors and Windows:

- 1. All interior walls, floors, ceilings, doors and windows shall be capable of being kept in a clean and sanitary condition by the owner.
- 2. Every bathroom and/or toilet room, kitchen or kitchenette, and utility room floor surface shall be constructed such that they are impervious to water and can easily be kept in a clean and sanitary condition by the owner.

3. All interior doors shall be capable of affording the privacy for which they are intended.
4. The dwelling must have at least one bedroom or living/sleeping room for each two persons. Children of the opposite sex, other than very young children, may not be required to occupy the same bedroom or living/sleeping room.
5. No dwelling containing two or more bedrooms shall have a room arrangement that access to a bathroom, toilet room, or a bedroom can be achieved only by going through another bathroom, toilet room, or another bedroom.
6. All paints, stains, varnishes, lacquers and other finishes used in the rehabilitated dwelling shall be low or no VOC paint finishes and installed as required by the manufacture.

VIII. Minimum Standards for the Exterior of Structures

A. Foundations, Exterior Walls, Roofs, Soffits and Fascia:

1. Every foundation, exterior wall, roof, soffit and fascia shall be made weather resistant. Products for exterior walls, roofs, soffits, and fascia shall be installed in accordance with the manufacturer's guidelines.
2. Roof replacement shall be installed in accordance with the manufacturer's requirements. When installing asphalt or fiberglass shingles, a minimum of a 30 year shingle shall be used. Other products such as metal roofing may be considered.

B. Drainage:

1. All rainwater shall be conveyed and drained away from every roof so as not to cause wetness or dampness in the structure. No roof drainage systems shall be connected to a sanitary sewer.
2. The ground around the dwelling shall be sloped away from foundation walls to divert water away from the structure.
3. If feasible, the collection of roof water is encouraged.

C. Windows, Exterior Doors and Basement Entries (Including Cellar Hatchways):

1. Every window, exterior door, basement entry and cellar hatchway shall be tight fitting within their frames, be rodent-proof, insect-proof and be weatherproof such that water and surface drainage is

prevented from entering the dwelling. In addition, the following requirements shall also be met:

- a. All exterior doors and windows shall be equipped with security locks. Deadbolts are not required.
- b. Every window sash shall be fully equipped with glass window panes which are without cracks or holes. Every window sash to be replaced shall use Energy Star rated for Southern climate windows unless the existing windows have insulated glass. Stained or leaded glass found to be historically significant may be protected by a fixed low-E glass storm window. Every window sash shall fit tightly within its frame, and be secured in a manner consistent with the window design. All window jambs will be sealed. All rope weight openings shall be insulated before installing the new window. Energy Star rated for Southern climate.
- c. Storm doors, when installed, shall also be equipped with a self-closing device.
- d. Every exterior door, when closed, shall fit properly within its frame and shall have door hinges and security locks or latches. All exterior doors will be no less than metal clad insulated (foam filled) doors. All jambs and thresholds will be sealed.
- e. Every exterior door shall be not less than two foot-four inches (2'-4") in width and not less than six foot-six inches (6'-6") in height. Existing door sizes will be grandfathered, but an attempt shall be made to have at least one exterior door that is not less than 36 inches wide and no less than 6'-8" high.

IX. Minimum Space, Use and Location Requirements

- A.** No main floor habitable room in a dwelling shall have a ceiling height of less than seven feet, six inches (7'6"). At least one-half of the floor area of every habitable room located above the first floor shall have a minimum ceiling height of seven feet (7'-0"). The floor area of any room where the ceiling height is less than four feet in height shall not be considered floor area in computing the total floor area of the room.
- B.** A minimum ceiling height of seven feet (7'-0") is acceptable in bathrooms, toilet rooms, habitable basement space, and hallways.
- C.** All habitable rooms, except kitchens and/or kitchenettes, shall have a minimum width of seven feet (7').

- D. No cellar space shall be converted to habitable space.
- E. Habitable Basement Space:
No basement space shall be used as habitable space unless all habitable space requirements are met and all of the following requirements are met:
 - 1. The floor and walls are waterproof or damp proof construction.
 - 2. Such habitable space has a hard surfaced floor of concrete or masonry.
 - 3. Such space shall have a minimum of two exits. In addition to the stairs, this would normally consist of one egress window.

X. Minimum Standards for Plumbing Systems

- F. All dwelling plumbing systems shall be capable of safely and adequately providing a water supply and wastewater disposal for all plumbing fixtures. Every dwelling plumbing system shall comply with the following requirements.
 - 1. All existing plumbing systems and plumbing system components shall be free of leaks. When repairing or adding to such systems, any type of pipe allowed by the plumbing code shall be allowed in accordance with any local, county or state requirements having jurisdiction.
 - 2. All plumbing system piping shall be of adequate size to deliver water to plumbing fixtures and to convey wastewater from plumbing fixtures (including proper slope of wastewater piping) as designed by the fixture manufacturer).
 - 3. All plumbing fixtures shall be in good condition, free of cracks and defects, and capable of being used for the purpose in which they were intended.
 - 4. The plumbing system shall be vented in a manner that allows the wastewater system to function at atmospheric pressure and prevents the siphoning of water from fixtures. Venting by mechanical vents is accepted as an alternative to exterior atmospheric venting.
 - 5. All fixtures that discharge wastewater shall contain, or be discharged through, a trap that prevents the entry of sewer gas into the dwelling.

6. All plumbing system piping and fixtures shall be installed in a manner that prevents the system, or any component of the system, from freezing.
7. All plumbing fixtures and water connections shall be installed in such a way as to prevent the backflow of water from the system into the plumbing system's water source.
8. All faucets shall have aerators that restrict water flow to about 2 GPM. Toilets, when installed, shall only use 1.6 gallons per flush, or less.
9. Valves shall be installed with the valve in the upright position. When replacing valves, the use of a full port ball-valve shall be encouraged.

XI. Minimum Standards for Potable Water Supply

- A.** Every dwelling shall be connected to an approved (by the jurisdiction having authority) potable water source.
- B.** All potable water fixtures and equipment shall be installed in such a manner as to make it impossible for used, unclean, polluted or contaminated water, mixtures or substances to enter any portion of the potable water system piping. All equipment and fixtures shall be installed with air gaps (traps) to prevent back siphon age. All outlets with hose threads (except those serving a clothes washing machine) shall have a vacuum breaker for use with the application. No water piping supplied by a private water supply system shall be connected to any other source of water supply without the approval of the jurisdiction having authority over the installation.
- C.** All unused wells on the property shall be abandoned and plugged in accordance with any local, county or state requirements having jurisdiction. All cisterns shall be drained and filled, and if applicable, in accordance with any local or county requirements having jurisdiction.

XII. Minimum Standards for Connection to Sanitary Sewer

- A.** Every dwelling shall be connected to an approved (by the jurisdiction having authority) sanitary sewer system or properly operating septic system.