



Tennessee Housing
Development Agency

**Minimum Design
Standards
For the Rehabilitation /
New Construction of
Single Family &
Multifamily Housing Units**

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Minimum Design Requirements

The following minimum design standards are for all new and rehabilitated single and multifamily units. These same standards also apply to accessibility improvements. Refer to ADA Accessibility Guidelines Latest Edition, or the ICC A117.1 Accessibility Code for technical requirements and standards when applicable.



NOTE: There may be additional requirements other than those listed here if you agreed to those items in the application for your grant.

Division I: General Requirements

1 Minimum Design Standards:

These Minimum Design Standards shall apply when THDA funding is used for all rehabilitation of single family and multifamily housing financed through THDA's Programs.

THDA's Minimum Design Standards are provided in conformance with the requirements of 24 CFR 92.251 and are to be used as a guideline to meet and/ or exceed all applicable federal, state, county, and local codes. These standards also serve as a vehicle to promote and enforce modern construction and design practices for builders, contractors, and design professionals who wish to utilize funding from the Tennessee Housing Development Agency. Other methods of construction and design may be acceptable on a case by case basis.

2 Quality Assurance:

General Contractors and/or subcontractors shall furnish a written material and labor warranty on all units, materials, and construction for a period not less than one full year after the date of issuance of a certificate of occupancy or owner's final inspection acceptance. All construction must meet the workmanship standards as expected by THDA Quality Standards.

3 Units for Elderly Residents:

All new and rehabilitated multi-family constructed units for elderly residents, age 62 or older, shall be located at the grade level or on an elevator accessible floor in compliance with ICC A117.1 Section 1005 Type C Visitable Units

4 Universal Design:

Projects that receive funding from THDA for the purpose of rehabilitating single family or multi-family housing are encouraged to use Universal Design principles to ensure the unit's viability for a range of future users. Information regarding Universal Design principles can be found at:

http://www.huduser.org/Publications/PDF/re_model.pdf and at
<https://www.ncsu.edu/ncsu/design/cud/>

All new and reconstructed units shall have at a minimum the following design features:

1. At least one “No-step” entry exterior door with a minimum width of 36”.
2. All doors must have a lever-type opening device.
3. All doors within the structure must be a minimum width of 32”.
4. All plumbing features must have lever-type faucets.
5. There should be no steps or slopes, other than to move from floor to floor.
6. All electrical receptacles shall be located no less than 15” above the floor.
7. All electrical switches shall be located between 42” and 46” above the floor.
8. Tall ADA Style water closet.

5 Codes:

All construction shall comply with applicable federal, state, county, and local codes, planning and zoning requirements, local authorities’ rules and regulations. Federal regulations which may pertain to any specific project such as the Fair Housing Amendment Act of 1988, Section 504 of the Rehabilitation Act of 1973 and Americans with Disabilities Act of 2010, as amended, also apply. In the absence of local codes, the Tennessee State adopted codes and the Existing Building Code as published by the International Code Congress (ICC) and the Uniform Physical Condition Standards (UPCS) or the Housing Quality Standards (HQS) (a comprehensive list for each of these can be found on the HUD.Gov website) shall apply according to the program grant.

5 Energy Efficiency:

All rehabilitated residential building designs shall strive to meet or exceed minimum energy efficiency requirements as currently adopted by the State of Tennessee. All new or reconstructed designs shall meet or exceed minimum energy efficiency requirements as currently adopted by the State of Tennessee.

Division 2: Existing Conditions

1 Lead Based Paint:

When THDA funds are utilized, all project sites shall be certified free of Lead Based Paint Hazards upon completion of the project. If the home was built prior to 1978, the home must be tested for LBP prior to the approval of the work. All LBP Hazards must be abated or corrected per the Tennessee Department of Environment and Conservation, and cleared prior to a final approval.

Division 3: Concrete

1 Exterior Concrete:

Shall conform to the latest revised Standard Specification for Portland cement, ASTM C595. All concrete shall have a minimum 28-day compressive strength of 3000 psi and be entrained with 5 percent air with a minimum cement content of 520 lbs. per cubic yard (5.5 sacks). Expansion-joint material shall be ½” thick asphalt-impregnated pre-molded fiber, ASTM D1752. Follow American Concrete Institute (ACI) 318. Minimum 4” thick for driveways, parking areas, sidewalks, porches and stoops. Driveways to have fiberglass mesh or 6x6 WWF or 6” thick.

2 Concrete Finishes:

Smooth formwork, no patterns, shall be used for all poured in place walls exceeding 3 feet or more exposure.

Division 4: Masonry

1 Brick:

Shall be ASTM C 216, Type FBS, Grade SW, or equivalent, modular size. Siding material of all newly constructed Multi-Family Dwelling units consisting of 5 or more units shall consist of a minimum of forty percent (40%) brick, stone, or other THDA approved masonry-type materials. The area calculation of forty percent shall not include window and door areas nor masonry below finished grade. For Single-Family Dwellings, siding materials shall consist of any product allowed by the current State adopted International Residential Code with THDA approval.

2 Concrete Masonry Units (CMU):

Stucco or split face shall be used for all CMU walls exceeding 3 feet or more exposure.

Division 5: Metals

1 Metal Ties:

Metal tie-down or “hurricane” straps shall be added per the most current State of Tennessee adopted code.

2 Steel Lintels:

Steel lintels, when specified for openings in masonry walls, shall be galvanized, primed and painted.

Division 6: Wood, Plastics, and Composites

1 Stair Riser and Tread Construction:

All newly constructed steps shall conform to latest State of Tennessee adopted code requirements.

2 Wood Exposed to Weathering Elements:

All exterior wood shall have a minimum preservative retention rate of 25 percent for above ground applications and a minimum preservative retention rate of 40 percent for all wood in contact with the ground.

3 Wood Decking:

Exterior wood decking shall consist of composite, natural durable wood or pressure treated wood material.

4 Wood Stairs and Handrails:

Exterior wood stairs shall be constructed with properly treated dimensional lumber. Handrails shall be constructed of composite, natural durable wood or pressure treated wood material. Handrails shall meet the graspability and size standards in the International Residential Code.

Division 7: Thermal and Moisture Protection

1 Fascia:

- a. **Metal:** 0.019" minimum thickness aluminum, factory finish (coil stock).
- b. **Exposed Wood:** redwood, cedar, or pressure treated.
- c. **Composite:** Cement fiber board or other durable material as approved by THDA.

2 **Roof:**

- a. **Shingles:** 215 lb. seal tab type over 30 lb. felt with metal drip edge, with minimum 25-year product warranty.
- b. **Metal:** Metal roofs will be considered on a case-by-case basis.
- c. **Decking:** Decking shall be a minimum of ½" OSB with fastening clips.
- d. Minimum roof slope on all newly constructed roofs except porch roofs shall be 4" vertical to 12" horizontal.

3 **Gutters and Downspouts:**

All structures shall have gutters and downspouts and be appropriately designed with a minimum 5" gutter and a 2"x 3" downspout. All downspouts shall empty onto a splash block or be piped to an appropriate location.

4 **Siding:**

- a. **Composite:** Fiber cement siding, primed, with two-coat minimum painted finish or factory finish.
- b. **Metal:** 26 gauge minimum thickness aluminum or galvanized steel with factory finish.
- c. **Vinyl:** 0.42" minimum thickness, UV protected.
- d. **Wood:** Cedar or redwood stained or primed once with 2-coat minimum finish sealer.

5 **Insulation:**

All rehabilitated homes must strive to meet or exceed insulated and air sealed per the currently adopted State of Tennessee ICC Energy Code. All new or reconstructed homes must be insulated and air sealed per the currently adopted State of Tennessee ICC Energy Code. This will include air sealing, attic and crawl space insulation, and building envelope, etc.

Division 8: Openings

1 Exterior Doors:

Exterior Doors shall be 1 ¾" thick 6 panel, steel material, or with limited panes of glass, insulated and be appropriately finished as recommended by the manufacturer. All exterior doors shall have a U-factor equal to or less than the requirements of the currently adopted State of Tennessee ICC Energy Conservation Code.

- a. **Exterior Hardware:** All exterior doors, except sliding glass doors, shall have a lever key-lock latch and security accessories (eyelet peep hole and deadbolt).
- b. **Exterior Storm Doors:** All exterior storm doors, if installed, shall be provided with a manufacturer's designation specifying the type of glass and the safety glazing standard with which it complies, which is visible at the final installation. And shall have a storable glass and screen in the lower sash, as well as a self-closing device.

2 Interior Doors:

Solid Wood, Composite or hollow core panel doors. Interior doors shall be a minimum of 1 ⅜" thick.

a. Interior Hardware:

All doors, except bi-fold and bypass type doors, shall be equipped with passage lever-handle hardware. All bedrooms and bathrooms shall be equipped with privacy locks.

3 Windows:

- a. All window frames must be solid vinyl. Double hung or Single hung type to have at a minimum the lower sash able to slide with a removable bug screen.
- b. All glazing shall be double-paned with low E with Argon.
- c. The vapor seal on the glazing must have a minimum ten-year warranty.
- d. All windows shall have a minimum one-year warranty on the operation of the window.
- e. All windows shall have a National Fenestration Rating, SHGC Rating and U-Factor meeting minimum energy code requirements as required by the

International Energy Conservation Code as currently adopted by the State of Tennessee.

Division 9: Finishes

1 Exterior Ceiling:

Solid backing to be used when using vinyl or aluminum material for porch ceilings, provide a rigid, solid backing such as ½” OSB or plywood.

2 Exterior Finishes:

- a. **Wood:** All exterior exposed wood shall have a minimum preservative retention rate of 25 percent for above ground applications and a minimum preservative retention rate of 40 percent for all wood in contact with the ground. All structural posts below grade shall have the factory treated end of the post below grade. Use of CCA Treated lumber shall be prohibited.
- b. **Posts and Columns:** All posts columns and guardrails at deck level and above shall be factory made and finished, or meet the exterior wood finish in section “a”.
- c. **Handrails:** Rails shall be smooth, splinter-free, painted or factory finished, withstanding weather, and resisting checking and splintering. All handrails shall meet the graspability standards as required by the International Residential Code as currently adopted by the State of Tennessee.
- d. **Fiber Cement Siding:** Shall be factory finished or be painted with at least two coats of exterior grade paint.

3 Finished Floor Treatments:

- a. **Carpet Padding:** 7/16” thick, 6-lb. minimum re-bond polyurethane.
- b. **Sheet Carpet:** 25 oz. minimum, 100 percent nylon. Other options include Berber type with blended fiber.
- c. **Sheet Vinyl:** Shall be Armstrong or equivalent minimum 10 mil wear layer. Provide product adhesive and underlayment as recommended by the manufacturer. All surfaces shall be clean, dry, and appropriate temperature during installation. Vinyl sheet flooring shall conform to the requirements of ASTM F 1303, Type I.

- d. **Vinyl Composition Tile (VCT):** Shall be Armstrong or other approved equal, 1/8" x 12" x 12". Provide product adhesive and underlayment as recommended by the manufacturer. All surfaces shall be clean, dry, and appropriate temperature during installation. Follow manufacture's recommendation for pattern layout.
- e. **Wood Flooring:** Flooring shall be tongue and groove hardwood; factory finished, or have a minimum of three coats of site-applied, UV-protective polyurethane.
- f. **Laminate Wood Flooring:** Composite panel(s) comprised of four main components: a high pressure decorative laminate surface, an Aqua Resist high density fiberboard (HDF) core, a high pressure balancing backer, and an attached high density polyethylene underlayment. Typical size: 7.6" x 47.55" x .385". Aluminum locking system for glue-free installation. Wax-impregnated edges. The floor shall be resistant to stains and reagents.

4 **Other Flooring Products: Ceramic tile and laminates**

At the interior side of the main entry door within each dwelling unit, there shall be an uncarpeted, water-resistant finished floor area. This area shall be no less than sixteen (16) square feet.

5 **Interior Doors:**

- a. **Paint:** Primed once, with two-coat semi-gloss finish on all sides and faces. No VOC.
- b. **Stain:** Stain or oil on all sides and faces, with three-coat varnish, polyurethane finish. Low VOC.
- c. **Factory Finished:** Factory finish doors are acceptable with factory warranty.

6 **Water-Resistant Drywall:**

Water-resistant gypsum board (commonly called "green board") or equivalent must be used on all walls in the bathroom and within six feet of wall surfaces where the drywall can be splashed such as kitchen sink, next to water heater and/or washer. Water-resistant/ mold resistant gypsum board or equivalent shall be provided behind any tub/shower unit located on an exterior wall. Water-resistant gypsum, when used on ceilings must be rated for the span. Prefer non-paper faced drywall or a product that meets ASTM D3273 for mold resistance above and immediately around tubs, showers.

- 7 **Interior Wall Finishes:** Primed once and two finish coats of flat, eggshell or satin. Use semi-gloss, or satin finish for bathrooms, laundry, and kitchens. No VOC.

Division 10: Specialties

1 **Roof Offsets:**

Projects of four (4) or more attached units shall be designed in such a way as to vary the roof line with offsets, gable porch roofs, etc.

2 **Entries:**

All main entries shall have a roof or awning over the entry area. The roof shall cover at least a 5' x 5' area.

3 **Closet Storage/Accessories:**

Closets shall include a 12" deep vinyl wrapped wire shelf in coat, laundry and bedroom closets. Minimum of (4) 24" deep vinyl wrapped wire shelves for kitchen pantries.

4 **Mailboxes:**

All units shall have a USPS approved mailbox either at each individual unit, common area, or a designated location per USPS post master.

6 **Bath Accessories:**

At minimum, all bathrooms shall have:

- a. Medicine cabinet with mirror 16" wide by 20" tall (minimum) if in a full bath
- b. Wall hung toilet paper dispenser
- c. 24" (minimum) towel bar
- d. Mirror above vanity backsplash

Other combinations of mirror and storage may be acceptable with the approval of THDA. All electrical outlets in the bathroom are required to be of the GFCI Type or GFCI Protected.

Division 11: Equipment

1 Refrigerator:

A refrigerator shall be minimum 18 cubic foot frost free provided in all dwelling units to match color with the dishwasher and range on all projects where identified in the PCNA (physical/capital needs assessment). All refrigerators must be Energy Star qualified. The Energy Star mark must be clearly marked on the front/top of the product, clearly displayed in product literature and listed on the manufacturer's Internet site.

2 Dishwasher:

A dishwasher shall be 24" under counter mount unit to match manufacturer and model line with the refrigerator and range including new construction and rehabilitation projects where identified in the PCNA (physical/capital needs assessment). Standard dishwashers shall use less than 4.25 gallons per cycle and 295 kWh per year. All dishwashers must be Energy Star qualified. The Energy Star mark must be clearly marked on the front/top of the product, clearly displayed in product literature and listed on the manufacturer's Internet site.

3 Range:

An electric or gas range shall be minimum 30" 4 burner with self-cleaning oven provided in all dwelling units to match color with the refrigerator and dishwasher on all rehabilitation projects where identified in the PCNA (physical/capital needs assessment). They must also have an Energy Star Rating and Label on the equipment at the final inspection.

4 Laundry:

All clothes washers supplied in individual units of multi-family dwellings shall have an MEF equal to or greater than 2.0 and a WF equal to or less than 6.0.

All laundry facilities located inside any habitable space shall be equipped with a properly installed washer overflow pan indirectly discharging to an overflow waste receptor, floor drain, or to the exterior of the building. Water supply shut off valve to be single throw cutoff. All washer / dryer areas are required to have a washer box installed into the wall at the location of the washer / dryer.

5 Trash Collection:

In Multi-Family Dwellings provisions for dumpsters or trash cans are required. Screening of trash cans and/or dumpsters shall be provided.

7 Playgrounds:

For multifamily rental units only, playgrounds shall be comprised of construction grade equipment approved by THDA prior to installation. The area immediately in and around the playground shall be mulched with 6” of appropriate material such as cypress mulch, pine bark or rubber mulch.

Playground equipment is not an eligible single family expense.

Division 12: Furnishings

1 Casework:

Cabinet fronts shall be made of solid wood (not particleboard); doors, draws and fronts shall be factory finished. Cabinet ends shall be finished with appropriate veneer. All cabinets shall be Kitchen Cabinet Manufacturers Association (KCMA) approved.

2 Countertops:

Tops shall be post form plastic laminate, bullnose front edge, rolled backsplash, finished exposed ends and sealed at the cut out for sink, and the backsplash at the wall. Other appropriate materials may be used such as solid surface, and cultured marble for bathroom vanities. Any other types of countertops must be approved by THDA.

Division 13: Special Construction

1 Office/ Laundry/ Maintenance Building:

Unless individual units are supplied with laundry facilities, all projects consisting of four (4) or more units shall provide common laundry facilities including a minimum of one (1) washer and one (1) dryer per every twelve units up to a maximum total of

four (4) washers and four (4) dryers. All clothes washers in common areas shall have a Modified Energy Factor (MEF) equal to or greater than 2.2 and a Water Factor (WF) equal to or less than 4.5.

Division 14-20 Reserved for Future Use

Division 21: Fire Suppression

All new construction must comply with the International Residential, Building and Fire Codes as currently adopted by the State of Tennessee.

Division 22: Plumbing

All plumbing, including piping, fixtures and appurtenances must meet or exceed the standards of the International Residential or Plumbing Code.

1 Bath Tub:

Tubs shall be 30" deep white porcelain finish steel, or cultured marble.

2 Shower:

Showers shall be 36" x 36" minimum with 4" curb; made of fiberglass, acrylic, or cultured marble. Shower head flow not to exceed 2.5 gpm.

3 Tub/ Shower Surround:

Tub/ shower surrounds shall be 3 piece integral panels of plastic, fiberglass, or cultured marble minimum 72" above flood rim.

4 Lavatories:

Sinks shall be 15" minimum diameter; made of white porcelain finish steel or cultured marble.

5 Faucets:

Polished chrome finish two handle with pop-up stopper. Lever handle type shall be used when ADA requirements apply. Faucets containing plastic material for exterior housing are prohibited. Flow not to exceed 1.5 gpm.

6 Water Closets:

Water closets shall be white porcelain elongated bowls with acrylic seat maximum 1.6 GPF.

7 Kitchen Sink:

Sinks shall be a minimum eight inches (8") deep, 33 x 20 stainless steel double bowl. For ADA compliance when applicable, roll under sink depth shall be shallower as required in mobility impaired dwelling units

8 Plumbing Accessories:

Water heaters located in any interior space shall have a metal 2" deep overflow pan with discharge pipe indirectly plumbed into DWV receptor, floor drain or to the exterior. Discharge pipe end shall have a bug screen.

9 Piping:

Potable water lines shall be copper or PEX material. Installation in exterior walls must be centered in the insulation. Hose bibs must be of the freeze proof kind. All piping located in attic or crawl space shall be insulated. All hot water lines shall be insulated equal to or greater than R-4 pipe wrap. All lines within the crawl space or attic must have an insulation equal to or greater than the requirements of the currently adopted State of Tennessee Energy Code.

10 Water Heater:

Water Heater shall be minimum 40 gallon electric with a minimum Energy Factor (EF) equal to or greater than .92. Gas fired water heaters shall an EF equal to or greater than .59. Instantaneous gas water heaters shall have an EF equal to or greater than .94 (96%AFUE). Prefer direct vent on gas water heaters or sealed combustion.

11 Radon Reduction:

Radon venting is required on all new and reconstructed homes unless otherwise specified by local codes or regulations. Refer to the IRC Appendix F.

Division 23: Heating, Ventilating, and Air Conditioning

All mechanical systems, shall be regulated, including the design, installation, maintenance, and alteration of mechanical systems that are permanently installed and used to control environmental conditions within buildings to meet or exceed the standards of the International Residential or Mechanical Code.

1 Heating Ventilating and Air Conditioning Equipment:

All units shall have a central HVAC system comprised of a split system heat pump or a package unit with emergency heat strips for heating and cooling using high-efficiency equipment. Units shall consist of a system air conditioner and furnace. Split System Heat pump/ AC systems shall have a minimum SEER (Seasonal Energy Efficiency Rating) rating of 14 with a minimum HSPF (Heating Seasonal Performance Factor) rating of 8. Fuel oil, gas fired furnaces and boilers shall have an Annual Fuel Utilization Efficiency (AFUE) equal to or greater than ninety-two percent (92%). Packaged A/C and Heat Pumps shall have a minimum SEER (Seasonal Energy Efficiency Rating) rating of 14 with a minimum HSPF (Heating Seasonal Performance Factor) rating of 8.0. Fuel oil, gas fired furnaces and boilers shall have an Annual Fuel Utilization Efficiency (AFUE) equal to or greater than eighty percent (80%). Electric-resistance-only heat systems are prohibited. Prefer direct vent on gas furnace or sealed combustion. All HVAC Systems shall be sized by using the ACCA Manual J, S and D as required by the state adopted International Residential Code, and these reports to be maintained and on file if requested by THDA.

If any of the above units cannot be included in any building because of structural constraints, please submit to THDA alternate systems for review and issuance of a determination.

2 Ducting:

Duct system can be a mix of; hard duct main trunk lines (sheet metal) from the air handlers with flex duct branching out to the individual vents. All duct must be insulated with a minimum requirements of the State of Tennessee adopted current ICC Energy Codes, and installed per SMACNA (Sheet Metal and Air Conditioning Contractors' National Association) standards. All joints and connections shall be sealed tight compliant with UL 181 and pass pressure testing. Exhaust vent piping shall be insulated. All ducts shall be installed per manufactures requirements and free of restrictions. Vent louvers shall be white adjustable type. Dryer vent shall be through wall weather type with damper. All supply ducts shall have individual dampers enabling supply air adjustments at each register grill and repositioning

damper. All completely replaced HVAC systems and ducts shall be Tested and Balanced within 20% of the ACCA Manual J, S, and D calculations, and pass a “Duct Blaster” test for duct tightness, and these reports to be maintained and on file if requested by THDA.

3 Thermostat:

All individual HVAC systems shall be controlled by a digital programmable thermostat, as required by the currently adopted State of Tennessee ICC Energy Code.

4 Range Hoods:

All units shall be equipped with a minimum 200 CFM range hood. All range hoods shall be Energy Star qualified.

Recirculation hoods shall be equipped with an activated charcoal filter. Gas appliances must be ducted to the exterior. Hood shall have a light with the ability to accept a CFL or LED bulb.

5 Ceiling Fans:

Ceiling fans shall be minimum 42” 4 paddle with light kit located in all bedrooms and a 52” 5 paddle with light kit in the living room. Fans shall be Energy Star qualified. Minimum 120 cfm/watt at medium speed setting. Fans shall have the ability to accept a CFL or LED bulb.

6 Bathroom Exhaust Fans:

Exhaust air from bathrooms and toilet rooms shall not be recirculated within a residence or to another dwelling unit and shall be exhausted directly to the outdoors. Exhaust air from bathrooms and toilet rooms shall not discharge into an attic, crawl space, soffit vents or other areas inside the building. Ventilation systems shall be designed to have the capacity to exhaust the minimum air flow rate and mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous, and may be of the exhaust, heat, or light types, or combo units.

Division 26: Luminaries / Electrical

All electrical work must conform to the currently adopted National Electrical Code (NFPA 70), as adopted by the State of Tennessee. All electrical work will require the

obtaining of electrical permits and receiving a passing final inspection by a Tennessee Licensed Electrical Inspector for that jurisdiction or area.

1 Exterior Luminaries:

Luminaries shall be located at all entrances and common areas. All on-site parking areas shall be lighted. The electrical supply for all-common areas, stairways, walkways and parking areas shall not originate from an individual unit. Each fixture should have dusk/ dawn and motion sensor capabilities with CFL or LED lamp.

2 Interior Luminaries:

Each room, hall, stair, and walk in closet shall have a minimum of one switched overhead light (color to match door hardware) with energy efficient CFL or LED lamp and globe (ceiling fan light kit is acceptable in bedrooms and living room). Kitchens shall include adequate lighting over the counter top, appliances, and sink. Bathrooms shall be equipped with adequate lighting over the vanity sink with CFL or LED lamps and a combination exhaust fan light in the ceiling near the water closet/ tub

Division 27: Communications

1 Telephone and Cable:

All dwelling units requiring re-wiring, reconstructed or new units shall be wired with CAT6 cable for telephone and internet jacks, as well as cable for television in each bedroom and living room. Common areas, community rooms and on-site management offices to have communication lines as required.

Division 28: Electronic Safety and Security

1 Fire Alarm & Smoke Detectors:

Provide smoke detectors and Fire Alarm Systems as required by NFPA 72, and the International Building, Residential and Fire Codes as adopted by the State of Tennessee. No bedroom door shall be more than eight (8) feet from a hallway smoke detector. Install devices per manufactures installation requirements. All detectors must comply with all state, county, and local codes.

2 Carbon Monoxide Detectors:

UL listed carbon monoxide detectors shall be installed outside each sleeping area in the immediate vicinity of all bedrooms if the dwelling contains fuel burning appliances or has an attached garage, as required by the currently State of Tennessee adopted ICC Residential and Building Code.

Division 29 - 30: Reserved for Future Use

Division 31: Earthwork

1 Site Layout:

Property line, setbacks, easements, right-of-way and clearances must be properly identified. Other engineered designs may be required by THDA for approval.

Division 32: Exterior Improvements

1 Landscaping:

Adequate landscaping is required on all multifamily projects. The developer shall submit a landscape plan as part of final plans and specifications. Each building shall include a minimum landscaping package.

2 Turf:

All lawn areas shall be seeded with the seed variety, lime, and fertilizer application rate, which is appropriate to establish a good lawn cover. All slopes in excess of 3:1 within 10 feet of the building, driveway and/or walkway shall receive sod or other approved erosion control materials which will enhance the establishment of a permanent ground cover.

3 Sodded Areas:

Sod is optional in building front yards and common areas for all projects.

4 Fencing:

All multifamily projects shall be fenced to provide security around the site boundaries.

5 Parking/Driveways:

All multifamily projects shall have adequate parking as determined by the local zoning or building. Unless prohibited by local code, jurisdiction or structural constraints all projects shall have a minimum of one parking space per unit. Single Family Dwellings shall have a minimum parking space for 2 vehicles.

6 Parking Lots:

All on-site parking lots and access drives are to be paved and parking spaces shall have bumper stops or curbs. If walkways are used as bumper stops, the walkway shall be 6' wide.

7 Concrete pads and walks:

All entry walks shall be a minimum of 3' wide, 3000 psi concrete, and shall be provided at all units from the entry to parking area. Provide ¼ inch per foot crown or cross slope in the direction of drainage. Expansion-joint material shall be ½" thick asphalt-impregnated pre-molded fiber, ASTM D1752. Follow ACI 318. Minimum concrete thickness shall be 4".

8 Walkways:

Units which have a walkway that needs repairing or replacing shall be 3' wide or to match existing width, 3,000 psi concrete with broom finish walkway from the parking area to the main entrance.

9 Ramps:

All newly constructed accessible ramps shall meet the requirements of the adopted International Residential Code.

- a. **Composite:** Wood/ fiberglass with non-skid surface.
- b. **Concrete:** With non-skid surface.
- c. **Metal:** Galvanized steel, or aluminum with non-skid surface.
- d. **Wood:** All exterior wood shall have a minimum preservative retention rate of 25 percent for above ground applications and a minimum preservative retention rate

of 40 percent for all wood in contact with the ground. Use of CCA treated lumber is prohibited. Portable or temporary ramps are prohibited.

10 Asphalt:

Asphalt shall consist of a hot-mix asphaltic concrete pavement complying with TDOT design mix standards for parking areas. Batching and placement of the asphalt may be tested at the request of THDA. Placement of the asphalt in 2 lifts. 2 ½” base course with a 1 ½” finish course. Pavement striping to be completed within 30 days after asphalt placement.

11 Soil Treatment-Termite Protection:

A proper and complete termite inspection of all properties is required. The inspection must be completed by a licensed exterminator who shall report any activity located and treatment applied. A warranty for a period of a minimum one year on all inspections is required. *For new and reconstructed units treatment is all that is required.

Division 33: Utilities

1 Electric:

Electrical service shall be installed underground except in cases where deemed structurally infeasible. Overhead service is allowed for infill sites.

2 Water:

Water service to be replaced or constructed to units shall be installed with methods and materials as approved by the IRC and the International Plumbing Code.

3 Sanitary Sewer / Private Septic:

Sanitary Sewer / Private Septic service to be replaced or constructed to units shall be installed with methods and materials as approved by the IRC, the International Plumbing Code, the Private Sewer Disposal Code and the State of Tennessee Department of Environment and Conservation rules and regulations.

APPENDIX A MANUFACTURED HOUSING IN THE HOME INVESTMENT PARTNERSHIP PROGRAM

This appendix, and the preceding Minimum Standards contain the requirements, rules, and regulations concerning the rehabilitation, replacement, manufacturing, and installation of manufactured housing within the State of Tennessee to assure safe, healthy and affording housing for the occupants of these homes.

DEFINITIONS

Anchor assembly. Any device or other means designed to transfer home anchoring loads to the ground.

Anchoring equipment. Ties, straps, cables, turnbuckles, chains, and other approved components, including tensioning devices that are used to secure a manufactured home to anchor assemblies.

Anchoring system. A combination of anchoring equipment and anchor assemblies that will, when properly designed and installed, resist the uplift, overturning, and lateral forces on the manufactured home and on its support and foundation system.

Approved, when used in connection with any material, appliance or construction, means complying with the requirements of the Department of Housing and Urban Development and THDA Minimum Standards.

Certification label means the approved form of certification by the manufacturer that, under §3280.8, is permanently affixed to each transportable section of each manufactured home manufactured for sale in the United States.

Diagonal tie. A tie intended to resist horizontal or shear forces, but which may resist vertical, uplift, and overturning forces.

Dwelling unit means one or more habitable rooms which are designed to be occupied by one family with facilities for living, sleeping, cooking and eating.

Equipment includes materials, appliances, devices, fixtures, fittings or accessories both in the construction of, and in the fire safety, plumbing, heat-producing and electrical systems of manufactured homes.

Federal manufactured home construction and safety standard means a reasonable standard for the construction, design, and performance of a manufactured home which meets the needs of the public including the need for quality, durability, and safety.

Footing. That portion of the support system that transmits loads directly to the soil.

Foundation system. A system of support that is capable of transferring all design loads to the ground, including elements of the support system, as defined in this section, or a site-built permanent foundation that meets the requirements of 24 CFR 3282.12.

Ground anchor. A specific anchoring assembly device designed to transfer home anchoring loads to the ground.

Inspections Required – There shall be an initial work write up performed by an approved rehabilitation coordinator based on the THDA UPCS Checklist to determine if the home will be rehabilitated, or replaced with a new manufactured home. **(If replaced with a new manufactured home, the new home must be new manufactured home and of the approximate same size and design.)** There shall be a final inspection consisting of an inspection and approval letter from a registered design profession licensed and in good standing within the State of Tennessee. Also a final inspection from the rehabilitation coordinator to determine that the home is complete, the tongue and wheels are removed, and meets all THDA Minimum Standards.

Installations means all arrangements and methods of construction, as well as fire safety, plumbing, heat-producing and electrical systems used in manufactured homes and performed by State of Tennessee Licensed Installation companies and individuals.

Installation instructions. DAPIA-approved instructions provided by the home manufacturer that accompany each new manufactured home and detail the home manufacturer requirements for support and anchoring systems, and other work completed at the installation site to comply with these Model Installation Standards and the Manufactured Home Construction and Safety Standards in 24 CFR part 3280.

Length of a manufactured home means its largest overall length in the traveling mode, including cabinets and other projections which contain interior space. Length does not include bay windows, roof projections, overhangs, or eaves under which there is no interior space, nor does it include drawbars, couplings or hitches.

Manufactured home major systems means any system or parts of a system that could cause the home to be unsafe or unsanitary as an individual part, or system. These would include, but not be limited to:

- a. Roof System
- b. Mechanical (HVAC) System
- c. Electrical System
- d. Potable Water System
- e. Sanitary Sewer, or Septic Tank System
- f. Appliances (Kitchen)
- g. Foundation or Anchorage System (Permanent Foundation)
- h. Skirting (Must be masonry skirting – Cinderblock, Split Faced Block, or Brick)
- i. Floors / Ceiling / Walls

Manufactured home means a structure, transportable in one or more sections, which in the traveling mode is 8 body feet or more in width or 40 body feet or more in length or which when erected on-site is 320 or more square feet, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning, and electrical systems contained in the structure. This term includes all structures that meet the above requirements except the size requirements and with respect to which the manufacturer voluntarily files a certification pursuant to §3282.13 of this chapter and complies with the construction and safety standards set forth in this part 3280. The term does not include any self-propelled recreational vehicle. Calculations used to determine the number of square feet in a structure will include the total of square feet for each transportable section comprising the completed structure and will be based on the structure's exterior dimensions measured at the largest horizontal projections when erected on site. These dimensions will include all expandable rooms, cabinets, and other projections containing interior space, but do not include bay windows. Nothing in this definition should be interpreted to mean that a manufactured home necessarily meets the requirements of HUD's Minimum Property Standards (HUD Handbook 4900.1) or that it is automatically eligible for financing under 12 U.S.C. 1709(b).

Permanent Foundation means the manufactured home must have an approved foundation per the HUD Manufactured Housing Permanent Foundation handbook. (Per HUD Handbook 4930 – Permanent Foundations for Manufactured Homes. ***Available on the HUD and THDA Websites.***)

Rehabilitation vs. Reconstruction – Rehabilitation shall be completed on the manufactured home if there are two or less items listed “Major Systems” are to be repaired or replaced. If there are three or more “Major Systems” to be repaired or replaced, the manufactured home shall be replaced with a new unit consisting of a permanent foundation and masonry skirting.

EXCEPTION: If the major systems require only minor repair costing less than one-half the cost of replacement, rehabilitation will be completed at the discretion of THDA.

Registered Engineer or Architect means a person licensed to practice engineering or architecture in a state and subject to all laws and limitations imposed by the state's Board of Engineering and Architecture Examiners and who is engaged in the professional practice of rendering service or creative work requiring education, training and experience in engineering sciences and the application of special knowledge of the mathematical, physical and engineering sciences in such professional or creative work as consultation, investigation, evaluation, planning

or design and supervision of construction for the purpose of securing compliance with specifications and design for any such work.

Skirting. A weather-resistant material used to enclose the perimeter, under the living area of the home, from the bottom of the manufactured home to grade. (For the HOME Program all skirting must be a masonry skirting with proper ventilation.)

Stabilizing devices. All components of the anchoring and support systems, such as piers, footings, ties, anchoring equipment, anchoring assemblies, or any other equipment, materials, and methods of construction, that support and secure the manufactured home to the ground.

Support system. Pilings, columns, footings, piers, foundation walls, shims, and any combination thereof that, when properly installed, support the manufactured home.

Tie. Straps, cable, or securing devices used to connect the manufactured home to anchoring assemblies.

Width of a manufactured home means its largest overall width in the traveling mode, including cabinets and other projections which contain interior space. Width does not include bay windows, roof projections, overhangs, or eaves under which there is no interior space.