

Exhibit D
Arizona Department of Housing (ADOH) Year 2011
Mandatory Design Guidelines for Multifamily Rental Housing

The following Design Guidelines have been developed to assist architects and developers to understand the factors considered by the Arizona Department of Housing (“ADOH”) in the evaluation of multifamily rental housing. ADOH generally yields to the local jurisdiction in all matters pertaining to development and construction standards. Therefore, in the event that Local Government building codes and standards are more restrictive than these Design Guidelines; the Local Government codes and standards shall apply. ADOH requires the finished product to substantially conform to what was represented in the Application. This representation pertains to building materials, amenities, and equipment. ADOH must approve any Material Change or it may result in a reduction or recapture of tax credits and/or, prevent the issuance of 8609’s until the Change is approved.

ADOH values excellence in design because well-designed housing meets the needs of tenants, attracts market renters and promotes community acceptance of housing financed by ADOH. All Projects must meet or exceed each of these standards, as well as the minimum requirements of all applicable building codes and regulations. In addition, Projects must meet all applicable state and federal laws including without limitation the Americans with Disabilities Act (“ADA”) the state and federal Fair Housing Acts, and Section 504 of the Rehabilitation Act of 1973 (collectively “Applicable State and Federal Law”).

Where ADOH’s minimum standards are in conflict with HUD or State Housing Fund requirements for the design and construction of manufactured housing, the HUD or State Housing Fund requirements shall apply. For items not covered by the HUD or State Housing Fund requirements, e.g., site drainage and site lighting, ADOH’s minimum standards shall apply.

I. GENERAL DESIGN

Provisions must be made for handicapped access in conformance with the requirements of Applicable State and Federal Law.

The building design should be appropriate and integrated into the topography and neighborhood.

Project amenities should reflect the desires of the target market. Amenities should be shown clearly on the plans and should be fully described within the narrative portion of the application package.

Laundry facilities and community rooms should be proportioned to the total number of units.

II. BUILDING CODE STANDARDS

All Projects financed and built under the program are to meet or exceed the following development standards:

- International Building Code (2006 Edition).
- National Electrical Code (2003 Edition)
- 2006 International Energy Conservation Code (IECC)

- Federal Fair Housing Act (42 U.S.C. § 3601 *et seq.*), *Arizona Fair Housing Act* (A.R.S. § 41-1491 to 41-1491.37), and the HUD Fair Housing Regulations (24 C.F.R. Part 100, Subpart D)
- Uniform Federal Accessibility Standards (Section 504 of the 1973 Rehabilitation Act) and the Americans with Disabilities Act, as applicable.

III. SITE, LOCATION AND NEIGHBORHOOD

A. Smart Site Location – Protecting Environmental Resources.

New construction shall not be located within 100 feet of wetlands, critical slope areas, land identified as habitat for threatened or endangered species; or on land previously used as public park land, land identified as prime farmland, or with elevation at or below the 100-year floodplain.

B. Walkable Neighborhoods – Sidewalks and Pathways.

Site plans shall demonstrate that the Project is connected to the pedestrian grid. Site plans shall describe sidewalks or other all-weather pathways within a multifamily property linking residential development to public spaces, open spaces and adjacent development.

C. Environmental Remediation.

Project sponsors shall conduct a Phase I Environmental Site Assessment and provide a plan for abatement if necessary.

D. Erosion and Sedimentation Control.

Project plans and specifications shall implement EPA's Best Management Practices for erosion and sedimentation control during construction and refer to EPA documents for Storm Water Management for Construction Activities.

E. Landscaping.

Landscape design shall provide shading in the summer and allow for heat gain in the winter.

IV. INTERIOR DESIGN

All residential dwelling units must meet minimum unit-size requirements. The square footage measurements below will be for conditioned square feet only. The measurements are taken from finished interior wall to finished interior wall, and do not include exterior wall square footage. Unconditioned areas such as patios, decks, porches, stoops, or storage rooms shall not be included.

<u>Unit Size</u>	<u>Minimum Square Footage</u>
Efficiency	450 net square feet
1 bedroom	650 net square feet
2 bedroom	800 net square feet
3 bedroom	1,050 net square feet
4 bedroom	1,200 net square feet

1. The minimum bedroom size is 120 net square feet.
2. Kitchens must be equipped with pantries or broom closets.
3. Other features which must be provided include:
 - Linen closets outside bathrooms

- General storage for items such as, suitcases and sport equipment. (This may be an interior guest closet or located outside each unit, and should not be shared with a water heater.)

V. **EXTERIOR DESIGN**

- Building design shall incorporate low maintenance exteriors when feasible.
- Plans shall include a complete landscape plan, designed by an EPA Water Sense Certified Professional which maximizes existing natural features or otherwise enhances open space. Wherever possible, native plants should be used. Landscape plans shall also detail the maintenance systems (e.g. sprinkler and irrigation systems) necessary to maintain the landscaping.
- In areas that are susceptible to drought, which includes most of the State of Arizona, Xeriscape Landscaping must be used.
- Trash removal areas must be screened.
- Buildings and dwelling units must be individually marked with visible, contrasting identifying devices to minimize the response time by police, fire, and other emergency services. The building identifying devices must be well lighted from dusk till dawn.
- Single lever deadbolts and eye viewers are required on all entry doors to residential units.

VI. **LARGE UNIT DESIGN (applicable to units which have three or more bedrooms)**

- The areas of common spaces of units should increase in proportion to the number of bedrooms.
- Three-bedroom units must have at least 1.75 baths and four-bedroom units must have 2 full baths.

VII. **ON-SITE PLAYGROUND AREAS**

- Recreational facilities must be provided for different age groups. (For example, sandboxes within sight of units for children under 5, "tot lots" for ages 5 to 12, and a basketball court for ages 12 and older.)
- Play areas and playgrounds for children should be located away from areas with high automobile traffic, and situated so that the play area is visible from the maximum number of dwelling units possible for safety.
- Designated play areas and playgrounds are considered "common areas", and must be on an accessible route in accordance with applicable accessibility codes.
- A bench must be provided at playgrounds to allow a child's supervisor to sit and rest comfortably. The bench must be anchored permanently, must be on an accessible route, and must be weather resistant. All benches must have a back.

- A “warning” sign must be posted to advise residents and guests that using the playground is at their own risk. The sign must be posted at a visible location, and use contrasting colors for better visibility.

VIII. COMMON AREA FACILITIES

A. On-Site Laundry Facilities.

There must be a minimum of one washer and one dryer per twelve dwelling units if washer/dryer hookups are not available in each dwelling unit. If hookups are available in each dwelling unit, there must be a minimum of one washer and one dryer per twenty dwelling units. If in addition to washer/dryer hookups, Applicant provides washers and dryers in each unit, a common washer and dryer facility is not required.

A “folding” table or countertop must be installed in laundry facilities.

The laundry room must have an interior or exterior window and adequate entrance lighting, which must be on from dusk to dawn to assist in greater security during evening hours.

B. Community/Office Space.

All special needs and elderly developments must have a community room on site or immediate access to such space on an adjacent property.

All developments consisting of twenty (20) residential dwelling units or more must have a site office of at least 200 square feet (inclusive of handicapped toilet facility) and a maintenance room of at least 100 square feet.

C. Community Service Facility.

A Community Service Facility must be designed to serve primarily individuals whose income is 60 percent or less of AMGI, under Section 42(d)(4)(c)(iii). This requirement will be satisfied if the following conditions are met:

First, the facility must be used to provide services that will improve the quality of life for community residents. Second, the Applicant must demonstrate that the services provided at the facility will be appropriate and helpful to individuals in the area of the Project whose income is 60 percent or less of AMGI. This may, for example, be demonstrated in the market study required to be conducted under section 42(m)(1)(A)(iii), or another similar study. Third, the facility must be located on the same tract of land as one of the buildings that comprise the qualified low-income housing project, and can be incorporated into the common building space, or be a separate stand alone building. Finally, if fees are charged for services provided, they must be affordable to individuals whose income is 60 percent or less of area median income.

IX. NEW CONSTRUCTION

Specific Construction Features

The following represent minimum design standards to be met by each tax credit project. These minimum requirements (or alternatives of equal or greater quality and durability) will be imposed on every Applicant, regardless of Project size, amenities, or geographic location, unless the standards required by a local jurisdiction exceed those established by ADOH.

The Applicant will be required to certify in the Applicant Affidavit, Release and Oath (see Form 3, "Low-Income Housing Tax Credit Application") that the Applicant will comply with these minimum design features in the construction of the Project and that, if they are not, credits will be surrendered to ADOH. ADOH will not release 8609's until the Project sponsor demonstrates compliance with these Design Guidelines. The Applicant will also be required to certify full compliance with these Design Guidelines prior to issuance of IRS Forms 8609.

A specific goal of the program is to minimize monthly tenant Operating Costs. All construction features in the LIHTC Project should conform to goals of attractiveness, utility, efficiency, and long-term durability. All features should be designed for long-term extended use (50-year minimum).

Building design should minimize visual impacts and apparent height through varied building heights and rooflines and distinctive window and entry door detail. The architect should vary building orientations along the street as well as building masses, clusters, and colors.

1. Site Work.

- Termite treatment is required as part of site work.
- Properties that exceed ¼ acre require Storm Water Pollution Prevention Plans.
- Applicant must adhere to County Pollution Control Standards.
- Site planning for drainage. Minimum slopes required for proper drainage are:
 - Slopes away from foundations: 5% first 10 feet (6 inches in first 10 feet).
 - Slopes on paved areas: can be a minimum of 0.7% for asphalt, 0.5% if a concrete valley gutter is installed; 1% = 1/8 inch per foot.
 - Exterior grade should be shown a minimum of 6-8 inches below the top of slabs on grade.

2. Foundation and Slabs.

- A Soils report by an Arizona Registered Engineer is required.
- Cast-in-place concrete foundations shall be suited to specific locations (design for local frost depth where applicable), and designed by a registered professional engineer.
- A Four-inch minimum concrete slab shall be supported by at least four inches of ABC aggregate, or as designed by an Arizona Registered Structural Engineer. Concrete slabs, including carports and driveways, should be reinforced if directed by the soils report using the following methods or equivalent:
 - 6x6 10/10 WWF wire mesh, centered in the slab vertically, OR
 - Polypropylene fibers in the concrete mix for slabs (Fibermesh is a typical manufacturer). Application of the product should be in the proportions and according to the recommendations of the manufacturer, OR
 - Post-tensioned tendons as designed by an Arizona Registered Structural Engineer following the additional recommendations of a Geotechnical Report of the soil conditions by an Arizona Registered Geotechnical Engineer.
 - All new concrete building slabs to contain at least 20% fly ash or slug.

Note: All slabs and foundations must be designed by an Arizona Registered Structural Engineer.

3. Frame and Stucco Construction.

- Stucco: a minimum of three coat cement stucco with metal expansion joints or 3/8" fiber-reinforced stucco on wire lathe, on one-inch foam insulation board.
- Frame: a minimum of 2x4 or 2x6 wood or metal studs in exterior and party walls, 2x4 in other walls. The choice of 2x4 or 2x6 will be dictated by the methods selected to meet International Energy Conservation Code requirements, sound barrier requirements, and engineer's specifications. Exterior walls should be designed to achieve a U-value of .056.
- Wood floor framing with at least 3/4" or 5/8" plywood sheathing and lightweight concrete or equivalent gypsum topping.

4. Roof.

- An Arizona Registered Structural Engineer must design roof trusses.
- Roof Sheathing should be called out on the Roof Framing Plan. Required: minimum 1/2-inch exterior grade plywood or 1/2-inch exterior grade OSB (oriented strand board). All sheathing must be gapped 1/8-inch on the edges and ends with metal clips appropriately installed on the trusses.

A. Pitched Roof

Roofing systems must have a minimum life of 40 years, a 10-year warranty, and be installed per manufacturer's specifications with wood truss framing, and a minimum slope of 3:12.

B. Flat Roof

Flat roofs must have a minimum 3/8"/1' slope and provide a 10-year warranty.

In rehab work where existing flat roofs are properly drained, not ponding, and have a minimum of 3/8"/1' slope, built-up roofs should be constructed with a minimum of 72# fiberglass cap sheet with mineral surface over three layers of at least 30# felt with the base layer nailed to the plywood decking or equal.

5. Electrical.

- All standard basic service and lighting must conform to National Electric Code (2003 or later) and local codes. Smoke detectors must be hard-wired.
- Install Energy Star Advanced Lighting Package in all interior units and use Energy Star or high efficiency commercial grade fixtures in all common areas and outdoors.
- Meet Energy Star standards (low rise residential); exceed ASHRAE 90.1-2004 by 15 percent.

6. Plumbing.

- Provide copper, CPVC or PEX for domestic water, PVC outside and for sanitary (polybutylene piping is prohibited).
- Durable fixtures. All bathroom sinks and toilets must be porcelain. Enamel finish steel tub with PVC tile or cultured marble surrounds, prefinished wall panels or a one-piece epoxy resin tub/shower unit or four-piece acrylic tub/surround or shower/surround are required.
- Tiled areas require a cementitious wall board.
- Durable toilet accessories must include a medicine cabinet with a mirror.
- Mandatory water conservation devices include alternative and low-flow toilets – 1.6 GPF, low-volume showerheads – 2.0 GPM, kitchen faucets – 2.0 GPM, bathroom faucets – 2.0 GPM, and front-loading or horizontal axis washers.
- No plumbing is allowed on exterior framed walls in colder climates.

- Hot water heaters must be tankless or conventional hot water heaters located in rooms with drains or catch pans with drains piped to the exterior of the dwelling and with non-water sensitive floor coverings.

7. Energy Conservation.

The Project must comply with the 2006 International Energy conservation Code (IECC). Compliance with this code shall be determined in accordance with Sections 101.3.1 and 101.3.2 of the IECC. Construction documentation shall be submitted for review in accordance with Section 104 of the IECC.

➤ Insulation:

- Insulation must be installed such so that there are no gaps, voids, wind intrusion or compression of the insulation. The insulation and the air barrier (e.g. sheetrock) must be continuous and aligned in all cases. Sound insulation is required in party walls.

➤ Minimum HVAC efficiencies by Energy Code:

- AC: 13 SEER
- Heat Pump: 13 SEER and 7 HSPF
- Combustion furnace: 80% AFUE
- Size heating and cooling equipment in accordance with the Air Conditioning Contractors of America Manual, Parts J and S, ASHRAE handbooks, or equivalent software.

Note: Electric resistance heating can be used only if the Owner documents, in accordance with the IECC Systems Analysis (Chapter 4) approach, that the utility costs for the structure are equal to or less than the IECC standards design of like architectural characteristics. The analysis will be completed utilizing a combustion furnace for the standard design with an efficiency value of 80% AFUE.

➤ Air Distribution Systems:

- All joints in the air distribution system shall be sealed with duct mastic or approved equivalent.
- For duct systems located outside the conditioned space, total duct leakage in CFM, measured at 25 Pascals pressure, shall be less than or equal to 3% of the square footage served by the system (e.g., 1,000 sq. ft. unit x 3% + 30 CFM allowable leakage).
- Airflow to each room will match design airflow calculations to within +/- 10%.

➤ Room Pressure:

Under normal operating conditions, an air handler cannot create room pressures with a magnitude greater than +/- 3.0 Pascals, with reference to outside, anywhere in the Unit.

➤ Indoor Air Quality:

- Install Energy Star – labeled bathroom fans that exhaust to outdoors and are connected to a switch.
- Exhaust hoods above ranges must be vented to the outside. Install power vented fans or range hoods that exhaust to exterior.

- Install Energy Star – labeled bathroom fans that exhaust to the outdoors and are connected to a switch.
- Clothes dryers must exhaust directly to the outdoors.
- Unvented combustion appliances (fireplaces, heaters or gas logs) are not allowed.
- A carbon monoxide detector, hardwired, shall be installed in all Units with an attached garage or with any combustion appliance located in the conditioned space.
- Applicant must install a vent system for the dwelling unit, providing adequate fresh air per ASHRAE 62.1-2007 for buildings over three stories, or ASHRAE 62.2 for single family and low rise multi-family.
- Use particleboard and MDF that is certified compliant with the ANSI A208.1 and A208.2. If using nonrated composite wood, all exposed edges and sides must be sealed with low-VOC sealants.
- All adhesives comply with Rule 1168 of the South Coast Air Quality Management District. Caulks and sealants must comply with Regulation 8, Rule 51 of the Bay Area Air Quality Management District.
- All interior paints and primers must comply with current Green Seal standards for low VOC limits.

Inspections of Energy Conservation Features - Contact Scott Watters at (602) 771-1139.

Inspections of energy features are to be carried out by the Arizona Energy Office (“AEO”) or approved agent. The initial inspection will be on the building plans approved by the local governing body and then will be carried out randomly, on approximately 10% of the Units. The Developer must notify AEO of the construction schedule to facilitate inspections that need to be completed at various phases of construction. AEO will document all items that pass inspection and will consult with the Construction Superintendent on items that do not pass to determine appropriate corrective measures.

Inspections will include:

- Building plan review: after the local government body has approved the building plans, one set of construction plans must be submitted to the AEO prior to the beginning of construction.
- Insulation inspection (pre-sheetrock) to verify R-value and that there are no gaps, voids or compression of the insulation.
- Verification of HVAC equipment efficiency.
- Duct testing of completed system (pre-sheetrock) to verify leakage amounts and duct R-values.
- Room airflow on completed Units.
- Room pressures on completed Units.
- Window Inspection..
- Verification of carbon monoxide detector installation where required.

8. Doors.

- Solid wood, fiberglass or insulated metal outside doors with wood or metal frame. Paint grade pre-hung hollow-core interior doors with residential grade finish hardware.

9. Floors.

- Surface must be carpet, VCT, or sheet vinyl.
- Floor base must be painted wood, vinyl, rubber or MDF compressed wood.
- In wet areas, use materials that have smooth, durable, cleanable surfaces. Do not use mold-propagating materials such as vinyl, wallpaper, or unsealed grout.

10. Walls & Ceilings.

- Painted, low VOC, 5/8" gypboard, moisture resistant at wet areas, type 'X' at areas required by prevailing building code.

11. Appliances.

- Range/oven, exhaust hood above range, refrigerator, disposal, dishwasher.
- Appliances shall be Energy Star clothes washers, dishwashers and refrigerators.

12. Cabinets.

- Use solid wood or particleboard with durable laminate; durable laminate counter tops.

13. Exterior Stairs, Entrance Landings, and Balconies.

- Minimum of precast concrete treads on painted steel framing with painted steel handrails or according to a system of equivalent or greater durability and quality.

14. Landscape/Irrigation.

- If irrigation is necessary, used recycled gray water, roof water, collected site run-off, water from a municipal recycled water system, or a highly efficient irrigation system including all of the following: system designed by EPA Water Sense professional; plant beds with a drip irrigation system; separately zoned turf and bedding types; a watering zone timer/controller; moisture sense controller.

15. Exterior Fencing.

- Fence the property (masonry preferred) to limit access of non-residents, as appropriate and desired by the Local Government. Gates are not required unless specified by the Local Government.

16. Exterior Finish.

- Select a finish material that will withstand extended weathering in the Project location.
 - Desert and mountain localities: three-coat cement stucco with metal expansion joints, or 3/8 inch, fiber-reinforced stucco on wire lath, on 1-inch foam insulation. Cementitious board or block, are acceptable. [Repetitive? See page 6]
 - Mountain localities at higher elevations; various siding products (cementitious board or vinyl) may be substituted for stucco if warranted by the manufacturer for a minimum of 40 years.

17. Site Lights.

- For security purposes, provide adequate site lighting, especially at the rear of the buildings and for walkways, parking, corridors and stairways.
- Install daylight sensors or timers on all outdoor lighting.

X. REHABILITATION PROJECTS

Applications must propose a scope of work appropriate to the building(s), as reflected in the Critical Needs Assessment. Proposals must address the following elements:

All Additions, Alterations or Renovations shall comply with IECC 2006 [EB] 101.2.2.2

Applicant shall provide a 10% unit sampling by a Home Performance Contractor, participating in the Arizona Home Performance with Energy Star Program, to determine the scope of work.

New materials/equipment shall comply with Section IX – Construction.

- A. HVAC replacements and new installations shall include:
 - Sealing of all accessible duct connections including the drywall to boot connections with duct mastic or approved equivalent.
 - Installation of new duct systems that comply with the new construction Energy Conservation Air Distribution Systems standard.
 - Room Pressures that comply with the new construction Energy Conservation standard.
- B. Insulation
 - Insulation must be installed such that there are no gaps, voids, compression or wind intrusion of the insulation. The insulation and air barrier (e.g. sheetrock) must be continuous and aligned in all cases.
- C. Common areas must be handicap accessible.
- D. Improving site and exterior dwelling lighting, landscaping/fencing, and installing finish material must withstand extended weathering (minimum 10 year performance) in the Project's location.
- E. Porches or other aesthetic features must be used to enhance the exterior quality and interest of the project.
- F. Perform an energy analysis of existing building condition, estimate costs of improvements, implement measures that will improve building energy performance by 15 percent from pre-renovation figures.
- G. Where applicable use energy-efficient related products to replace inferior ones, including insulated windows and doors, and adding additional insulation.
- H. Improve heating and cooling units, plumbing fixtures, water heaters, toilets, sinks, faucets and tub/shower units, especially with use of water conserving equipment and systems.
- I. Improve quality of interior conditions and fixtures, including carpet, vinyl, interior doors, painting, drywall repairs, cabinets, appliances, light fixtures and mini-blinds.
- J. Upgrade bathrooms and kitchens.
- K. For properties built before 1978, use lead-safe work practices during renovation, remodeling, painting and demolition.

XI. HOUSING FOR SENIORS

Projects that are intended to serve 80% or more senior individuals (persons that are 55 years of age or older) must consist of single story buildings or multi-level buildings with elevators serving all levels of the building.