

## GREENER POLICIES, SMARTER PLANS



How States are Using the  
Low-Income Housing  
Tax Credit to Advance  
Healthy, Efficient and  
Environmentally  
Sound Homes

Complete state-by-state data and  
summary analysis of sustainable  
development provisions in 2007  
Qualified Allocations Plans for  
Low-Income Housing Tax Credits

By James Tassos



CELEBRATING 25 YEARS ■ 1982-2007

Cover photography credits: top, Ripley Gardens in Minneapolis, by Russ Kaney; below, 2-year-old Yabir Gizaw in the rooftop courtyard at another Green Communities<sup>SM</sup> development, Broadway Crossing in Seattle, by Stefanie Felix.

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CELEBRATING 25 YEARS ■ 1982-2007

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# Foreword

For the third consecutive year, Enterprise's annual analysis of state policies to encourage environmentally sustainable housing through states' Low-Income Housing Tax Credit programs shows a remarkably promising trend: states' growing, deepening commitment to greener affordable homes.

Such striking policy progress is a leading indicator of an emerging transformation in affordable housing. In many parts of the country, sustainable principles and practices are becoming mainstream in affordable housing – in significant measure due to state housing agency leadership.

Enterprise is working with state housing agencies to develop and implement policies through states' Housing Credit and other programs to create green affordable homes and communities on a cost-effective basis. Implementation is critical. This year's analysis includes a new section (see p. 7) that summarizes some of the approaches states are taking to ensure that the health, economic and environmental benefits of sustainable development are achieved and maintained for the long term.

We have much to accomplish before green and affordable become one and the same across the country. Through the Green Communities initiative, Enterprise is collaborating with state housing agencies and many other partners to provide technical assistance and training, document the costs and benefits of sustainable development, and innovate new financing tools to support more green affordable development.

We are pleased to share the promising results of this analysis, and we invite the participation of more partners who share our vision for healthier, more hopeful and environmentally responsible affordable homes and communities nationwide.

Doris W. Koo  
President and Chief Executive Officer  
Enterprise Community Partners

# Analysis

State housing agencies continue to be at the forefront of a movement to encourage development of healthier, more energy-efficient and more environmentally sustainable affordable homes through their administration of the Low-Income Housing Tax Credit (Housing Credit) program.

All states promote sustainable development in some fashion through their Housing Credit allocation plans. Forty-two states employ “threshold criteria” – mandatory design, construction, energy standards or other program requirements – that address sustainable development. Forty-eight states encourage green development using selection criteria incentives. State policies that address sustainable development generally fall into four broad categories: energy efficiency; sustainable site selection; resource conservation and indoor air quality.

Perhaps most significantly, 29 states (Alaska, Arizona, Arkansas, Colorado, Connecticut, Florida, Georgia, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Ohio, South Carolina, Utah, West Virginia and Wisconsin) implemented notable new policies or substantially revised policies encouraging sustainable development since just last year. Thirty-nine states have made significant strides in this area during the past two years.

It is beyond the scope of this analysis to quantify the relative importance of the sustainability provisions in each state’s plan. However, it is fair to say that in virtually every case, the green elements in combination constitute a significant policy priority for the state. Developers competing for Housing Credits in many states will need to seriously consider achieving a high standard of sustainability to be in the best position to receive Housing Credit allocations in 2007 and beyond.

This report provides background on the Housing Credit program; describes the methodology used to analyze the 2007 state Housing Credit allocation plans; discusses implementation of sustainable development policies through the Housing Credit program; and presents the green elements in every state’s 2007 allocation plan, sorted by the aforementioned categories.

# Background

The Housing Credit is one of the most important and successful federal housing programs ever created, responsible for the development of nearly 2 million affordable homes for low-income families, seniors and people with special needs since its enactment 21 years ago. Among the program's signature strengths is its administration by the states under policies developed in the Qualified Allocation Plan (QAP).

The QAP is required by law and adopted annually by each Housing Credit agency. It establishes the state's criteria and priorities for allocating Housing Credits during the year. Allocation plans must give preference to developments serving the lowest income residents and qualified residents for the longest periods, and developments located in qualified census tracts that contribute to a concerted community revitalization plan.

Agencies have authority to establish other selection criteria, including criteria that assess development location, housing needs, development and sponsor characteristics, resident populations with special housing needs, resident populations with children, public housing waiting lists, and developments intended for eventual resident ownership.

States can promote policy objectives in a variety of ways using the QAP. The most direct method entails establishing threshold requirements whereby only developments meeting the requirement are eligible for credit. A second method is through use of credit set-asides. A set-aside is a pledge by the state to allocate a certain portion of available credits during the year to developments exhibiting a certain development characteristic (e.g., preservation of existing affordable housing or special needs targeting).

The third and most common primary mechanism for implementing state policy through the QAP is by encouraging development characteristics through the awarding of points in the competitive scoring process. Because most states face demand for Housing Credits far in excess of supply, they can encourage the type of housing most needed in the state by awarding additional points to developments that best meet those needs. Awarding points is the most common method of achieving policy goals for a state Housing Credit agency because it retains maximum flexibility for the state in allocating credits.

# Methodology

In more than 20 years of allocating the Housing Credit, state agencies have designed and implemented an array of innovative QAP policies to advance smart, sustainable development. The primary research for this report involved a comprehensive review of each state's 2007 QAP with a focus on allocation policies that specifically promote:

- Energy efficiency
- Sustainable site selection
- Resource conservation
- Enhanced indoor air quality
- Other sustainable development practices

In some states, policies not found in the QAP are relevant to the Housing Credit program, because they either apply to it or to other programs that are often used in combination with the Housing Credit. Thus, our research also included as thorough an analysis as possible of other state regulations, scoring criteria, design guidelines and energy standards that contain elements relevant to sustainable Housing Credit policies. We welcome feedback from the states, especially if we inadvertently omitted or mischaracterized anything.

## Implementing Green Affordable Housing Policies

Through Green Communities, Enterprise is working with state (and local) housing agencies to develop policies to encourage more sustainable affordable housing. This annual analysis of Housing Credit allocation plans is provided as a resource to states and other housing stakeholders as part of our efforts. With several years' experience and the results of an informal survey of state agencies completed in 2007, we have begun to identify several emerging trends, good practices and challenges in implementing state policies to expand green affordable housing.

First, as noted in the Summary, the Housing Credit QAP, and supporting policies such as design standards, are an effective way for states to encourage healthier, more energy-efficient affordable housing development. Several states with comprehensive green policies indicated that the large majority of Housing Credit developers in their states are incorporating green features into their developments as a direct result of provisions in the state's allocation plan.

Second, a number of sustainable development policies are so widespread among agencies that they can be fairly characterized as best practices in Housing Credit administration that other states should seriously consider adopting. In addition, states overwhelmingly report that the development community has

responded favorably and quickly adapted to green policies as they have become part of the state's Housing Credit program. The following state's survey response is typical of many:

Developers have been supportive. There have been some concerns about increased costs; however, there is general agreement that sustainable housing is necessary for the long-term viability of developments, which will decrease management and operations costs with benefits both to the residents and owners of the developments.

At the same time, a number of states indicated that developers often have questions about specific green policies and require training and assistance with incorporating green features into developments. One way a number of states have addressed this issue – and proactively generated developer support for their green policies – is to seek the input of developers as well as other stakeholders in shaping the green criteria in the state's Housing Credit program through focus groups, task forces and informal meetings.

Some states have been able to provide green development trainings and a few are able to offer continuing support during design and construction to specific projects, typically with design or construction management staff. At least one state has dedicated resources to funding a staff position focusing on green policy and program implementation across agency programs.

Once a state has adopted green policies and awarded Housing Credits (and in some cases other funds) to developments that have made a commitment to include specific green features, the agency must develop procedures for ensuring that the developments include the green elements. State agencies employ various approaches to ensure compliance with green criteria. A number of agencies require architects to certify in writing that the relevant green criteria are included in construction plans and specifications prior to construction. Some require certification after a development is placed in service as well. A handful of states require projects to undergo a performance test or energy audit to demonstrate that certain green features have been properly included.

A few states will not provide a project with its Form 8609 – the IRS document certifying its Housing Credit allocation – until it is satisfied that green criteria have been incorporated. Others embed compliance in required extended-use agreements that bind developers to ensuring developments remain affordable to low-income residents for at least 30 years.

An example of one agency's particularly comprehensive approach is summarized below:

All applicants applying for acquisition/rehabilitation credits must contact [the agency] 45 days before application for a site inspection. [Our] engineer visits the site and advises the applicant on what specifications they must adhere to in order to meet [the agency's] minimum construction/rehabilitation standards, which include but are not limited to energy efficiency. Throughout the

construction period, a project manager visits the site to ensure the owner is adhering to all [of the agency's] standards, including but not limited to energy efficiency. Any deviation from [the agency's] minimum construction/rehabilitation standards may cause a project to lose all or part of their tax credits... Additionally, all new construction must undergo a satisfactory energy rating in order to receive tax credits.

A growing number of states are starting to incorporate an evaluation of compliance with green elements as part of regular site visits required by law under the Housing Credit program to ensure properties continue to provide decent housing to qualified residents and meet other program requirements.

Monitoring for continued consistency in the years following the placed-in-service date may pose significant challenges for the states. While some building systems such as roofs and furnaces have extended useful lives, items such as paint, lighting and landscaping are part of routine maintenance. To the extent that developments received favorable consideration for features such as low-VOC paints, energy-efficient lighting or water-conserving landscaping, states will need to ensure that such measures are sustained in the course of routine maintenance. States are actively considering these issues as more green affordable developments come on line.

Finally, with such a significant increase in sustainable development policies over the past two years, states will inevitably need to measure the efficacy of policies and document results in completed developments. As they do this, and as development and energy conditions change in the state, policy refinements may be necessary to ensure continued effectiveness.

State agencies, like the financial institutions and developers Enterprise is working with to make sustainable development mainstream in all affordable housing, are intensely interested in the development costs of green compared to conventional developments, in addition to the energy and water savings in sustainable properties. (Health benefits are also of interest, but require much more time and resources to evaluate.)

Cost concerns play out in several ways. Many state agencies limit overall development costs and/or the amount of Housing Credits developments may receive. In addition, construction costs in general have been rising in many parts of the country. To the extent agencies or developers determine (or perceive) that green features may force development to exceed cost or subsidy limitations, they may be prohibited or sacrificed. As one agency explained:

Most developers have responded favorably by trying to incorporate as many sustainable development and green building features into their initial plans and specifications. However, the high cost of construction [in our state] continues to be a barrier for some projects. Unfortunately, green features are sometimes value engineered out of a project's scope if the contractor pricing is higher than initially estimated.

Some states are addressing cost concerns in innovative ways. A few states specifically allow higher costs for certain green features. At least one has an informal policy of placing the burden of proof on developers to show that including green criteria will cost more.

Enterprise is performing an intensive evaluation of the development costs and energy and water savings of sustainable developments in its Green Communities portfolio, and will share the results with state agencies and other stakeholders later this year. In addition to this data, state agencies have expressed a strong interest in receiving support to strengthen their training and technical assistance activities with developers, which Enterprise will help to provide in 2008. State agencies leading on green affordable housing also have expressed an interest in continuing to share with and learn from one another. Forums such as those convened by the National Council of State Housing Agencies are excellent venues for these opportunities.

As the states begin work on 2008 Housing Credit allocation plans, we expect refinement and continued strengthening of existing policies as well as new, innovative approaches to further encourage sustainable development. Enterprise hopes this report will assist states in furthering policies that best meet their specific housing needs and looks forward to continuing to work with the states to make their affordable housing policies more sustainable.

## Overview of Green Housing Credit Policies in 2007 Allocation Plans

### Energy Efficiency

The first common sustainable development initiative promoted in 2007 state QAPs is energy efficiency, with 45 states actively promoting it through a variety of policies. These policies include minimum HVAC system performance criteria, specification of energy-efficient windows and doors, minimum insulation standards, Energy Star appliances, performance criteria for water heaters, lighting fixture requirements, and other energy standards.

Among the many existing best practices in energy efficiency, the most widespread policy included in 2007 QAPs is providing minimum performance criteria for heating, ventilation and air conditioning (HVAC) systems, including specific requirements for furnaces, heat pumps or air conditioning units. Of 38 states that provide such criteria, 15 (Arizona, Arkansas, Connecticut, Delaware, Illinois, Indiana, Kansas, Mississippi, Nevada, New Hampshire, North Carolina, South Carolina, Utah, Vermont and Wisconsin) impose it via threshold requirements. Twelve states (Florida, Indiana, Iowa, Maryland, Massachusetts, Missouri, Montana, Nebraska, Pennsylvania, Texas, West Virginia and Wyoming) encourage it with selection criteria points. And nine (Alabama, Georgia, Kentucky, Louisiana, New York, Ohio, Rhode Island, South Dakota and Virginia) employ a combination of threshold criteria and points. California allows an

increase in eligible basis limits for developments that meet certain HVAC standards, while Colorado works in conjunction with another state agency to provide financial incentives for upgrading HVAC system criteria. Some states have various associated criteria, including additional standards on HVAC ductwork, use of Energy Star HVAC equipment and standards for proper equipment sizing. The number of states with at least one QAP provision addressing HVAC performance criteria is up six since last year.

Thirty-four states (Alabama, Arizona, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Oklahoma, South Carolina, South Dakota, Utah, Vermont, Virginia, West Virginia, Wisconsin and Wyoming) encourage the use of energy-efficient windows and doors in the 2007 allocation plan. Policies range from general incentives for more efficient or insulated products to sophisticated design requirements that address maximum window area, U-value, solar heat gain, air infiltration rates and other criteria. The number of states with at least one QAP provision addressing energy-efficient windows and doors is up by seven since last year.

Specifying Energy Star appliances is another best practice in energy efficiency, with 33 states (Alabama, California, Connecticut, Delaware, Florida, Georgia, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, Vermont, Virginia, West Virginia and Wisconsin) promoting this in the 2007 QAP. Specified appliances include refrigerators, dishwashers and clothes washers with the Energy Star label. While most states award points to developments specifying Energy Star appliances, 13 (California, Connecticut, Delaware, Georgia, Louisiana, Maine, Missouri, Nevada, New Hampshire, North Carolina, South Dakota, Vermont and Wisconsin) require such appliances in all Housing Credit developments. The number of states with at least one QAP provision addressing Energy Star appliances is up by 10 since last year, and the number of states requiring such appliances is up by four since last year.

Providing minimum insulation standards for walls, ceilings and floors is another common QAP policy, exhibited in 31 QAPs in 2007 (Alabama, Alaska, Arizona, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Mississippi, Missouri, Montana, Nevada, New Hampshire, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, Vermont, Virginia and Wisconsin). Most states specify minimum R-values for insulation used in various building components, while others require insulation to a standard specified percentage in excess of building codes or other established criteria. Insulation standards vary widely among the states depending on climatic conditions, and some states impose different requirements in different areas of the state. Some states also dictate installation methods for insulation and requirements for air sealing. The number of states with at least one QAP provision addressing minimum insulation standards is up by seven from a year ago.

Another best practice in state QAPs is specification of energy-efficient lighting fixtures. Twenty-six states (Arkansas, California, Colorado, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Oklahoma, Pennsylvania, South Dakota, Vermont, Virginia and Wisconsin) currently promote this with QAP design requirements or points awarded for products such as Energy Star lighting fixtures, fluorescent fixtures, motion sensors and photocells. While more than half of these states encourage use of energy-efficient lighting by awarding points via selection criteria, 12 (Arkansas, Delaware, Illinois, Maine, Mississippi, Nevada, New Hampshire, New York, South Dakota, Vermont, Virginia and Wisconsin) require use of Energy Star or other energy-efficient lighting products in the allocation plan. The number of states with at least one QAP provision addressing energy-efficient lighting fixtures is up by 10 since last year.

Another QAP best practice relating to energy efficiency is the provision of performance criteria for hot water heaters. In 2007, 24 states (Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Mexico, North Carolina, North Dakota, Pennsylvania, South Carolina and Vermont) referenced such criteria in the allocation plan. Policies range from requiring or encouraging energy-efficient units to standards dictating proper sizing, minimum Energy Factor ratings and insulation requirements. Nine states (California, Connecticut, Florida, Indiana, Massachusetts, Minnesota, Nevada, North Dakota and Pennsylvania) specifically encourage the use of tankless water heaters. The number of states with at least one QAP provision addressing water heater performance criteria is up by six since last year.

In addition to the specific standards cited above, 18 states (Alaska, Arizona, Arkansas, Delaware, Georgia, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Nevada, New Jersey, North Carolina, Ohio, Pennsylvania, Utah, Vermont and Wisconsin) promote overall energy efficiency with policies that require or encourage developments to meet the Energy Star standard for buildings, receive a minimum rating on the Home Energy Rating System (HERS) index, or pass other independent inspection, verification, certification or audit requirements for energy-efficient building components. Energy Star-qualified homes are independently verified to be more energy efficient than homes built to the 2006 International Energy Conservation Code or state energy codes, whichever is more stringent. These savings are based on heating, cooling and hot water energy use and are typically achieved through a combination of building-envelope upgrades, high-performance windows, upgraded HVAC systems, controlled air infiltration and upgraded water-heating equipment. The number of states promoting energy efficiency consistent with one of these standards is up by three since last year.

Finally, 13 states (Alabama, Alaska, Arkansas, California, Delaware, Iowa, Kentucky, Maryland, Massachusetts, Montana, New Hampshire, Wisconsin and Wyoming) provide specific QAP incentives for developments that exceed other applicable national or state energy standards. The number of state QAPs with such an incentive is up by one from last year.

## Sustainable Site Selection

Forty-six states promote sustainable site selection with the 2007 allocation plan. This category includes policies that encourage Housing Credit development in or on:

- Proximity to services and transportation options
- Areas consistent with “smart growth” or other state and local planning policies
- Sites assessed for environmental issues
- Areas close to employment opportunities
- Brownfield or greyfield sites
- Sites exhibiting various sustainable site design principles.

The most common policy relating to sustainable site selection is requiring or encouraging proximity of Housing Credit developments to services such as grocery stores, pharmacies, banks, parks, schools, daycare centers, libraries and medical facilities. In 2007, 37 states (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oregon, Rhode Island, South Carolina, South Dakota, Texas, Vermont, West Virginia, Wisconsin and Wyoming) promoted this via threshold requirements or selection criteria in the allocation plan. The number of states with at least one QAP provision promoting development proximity to resident services is up by five since last year.

Nearly as important among the states is encouraging proximity of Housing Credit developments to transportation options. Thirty-six states (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Rhode Island, South Carolina, Texas, Vermont, Virginia, West Virginia and Wisconsin) encourage this in the 2007 allocation plan. While most states provide points for development location near public transportation, California, Georgia, Illinois and Minnesota all encourage more extensive transit-oriented development strategies. The number of states promoting development proximity to transportation is up by seven since last year.

A third common policy relating to sustainable site selection is the requirement to conduct a Phase I environmental site assessment or other environmental analysis of the development site. Thirty states (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Indiana, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, Utah and West Virginia) include such a requirement in their 2007 QAP. The number of state QAPs addressing environmental site assessments is up by two from last year.

Another sustainable site selection policy advanced by the states is encouraging Housing Credit development in accordance with state or local smart growth or other planning policies. In 2007, 19 states (Colorado, Delaware, Florida, Georgia, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, Oregon, Pennsylvania, Rhode Island, Tennessee, Vermont and Wisconsin) include such a priority in the QAP. The number of states promoting development in accordance with smart growth or other planning policies is up by six since last year.

In 2007, 16 states (Arkansas, Connecticut, Delaware, Georgia, Iowa, Maryland, Massachusetts, Minnesota, Montana, New Hampshire, New Mexico, North Carolina, North Dakota, Pennsylvania, Rhode Island and West Virginia) promote other sustainable site design principles in the QAP. Policies address such issues as solar orientation of buildings, reducing heat gain, use of porous paving materials, erosion and sedimentation control, storm water drainage, site grading and noise mitigation. The number of states promoting sustainable site design is up by six since last year.

Several other policies relating to sustainable site selection are emerging as best practices in state allocation plans. For example, 11 states (Arizona, Delaware, Georgia, Hawaii, Illinois, Indiana, Kansas, Massachusetts, Minnesota, New York and Oregon) include QAP policies that promote proximity of Housing Credit developments to employment opportunities, while four states (Georgia, Iowa, Maryland and New Jersey) specifically promote use of brownfield or greyfield sites for Housing Credit development.

## Resource Conservation

A third sustainable development priority in state allocation plans is promoting resource conservation. This category includes policies that encourage use of durable or low-maintenance building materials, water-conserving plumbing fixtures and appliances, low-water and low-maintenance landscaping, recycling or waste-management practices, renewable energy technologies, sustainable wood products, and locally produced building materials. In 2007, 45 states advanced resource conservation in one or more areas using the QAP.

The most common resource conservation policy in current QAPs is encouraging the use of durable, low-maintenance building materials. In 2007, 37 states (Alabama, Arizona, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, West Virginia and Wyoming) promote this policy in the allocation plan. Policies range from requirements or points awarded for general material durability to specific durability standards for materials such as siding and roofing. Some states reference the 15-year maintenance-free standard, while others approach the standard through requirements or incentives for specific low-maintenance building materials such as brick or stucco. The number of states promoting durable, low-maintenance building materials is up by 10 since last year.

Thirty-one states (Alaska, Arizona, Arkansas, California, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Montana, Nevada, New Mexico, New Jersey, North Carolina, North Dakota, Oklahoma, Pennsylvania, Vermont, Virginia, West Virginia and Wisconsin) encourage use of water-conserving plumbing fixtures and appliances such as faucet aerators, flow restrictor devices, low-volume showerheads, low-flow toilets and front-loading washing machines. Policies range from threshold design requirements to points awarded in selection criteria for use of such fixtures and appliances. The number of states promoting water-conserving plumbing fixtures and appliances is up by 12 since last year.

Eighteen states (Arizona, California, Connecticut, Delaware, Georgia, Iowa, Maine, Maryland, Massachusetts, Minnesota, Montana, Nevada, New Mexico, North Carolina, North Dakota, Pennsylvania, South Carolina and Wyoming) promote low-water and low-maintenance landscaping through such initiatives as preservation of existing vegetation, indigenous plant specification, xeriscaping, use of water-conserving irrigation systems, and design of rainwater harvesting systems. While most policies are advanced through selection criteria, six states (Arizona, California, Delaware, Maine, New Mexico and North Carolina) mandate water-conserving landscaping in the QAP. The number of states promoting low-water and low-maintenance landscaping overall is up by four since last year.

Fourteen states (California, Connecticut, Delaware, Indiana, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Montana, Nebraska, New Mexico, North Carolina and North Dakota) specifically encourage resource conservation with some form of recycling or waste management in Housing Credit developments, including construction waste-management programs, use of recycled-content building materials, or provision of resident recycling programs. The number of states promoting recycling or waste management practices is up by six since last year.

Fifteen states (California, Colorado, Connecticut, Illinois, Iowa, Maryland, Massachusetts, Missouri, Montana, Nebraska, New Jersey, New Mexico, North Dakota, Pennsylvania and Rhode Island) specifically promote resource conservation through the use of renewable energy technology such as solar panels. All encourage this via selection criteria except three: California, which allows up to 5 percent increase in threshold basis limits for developments involving renewable energy sources; Colorado, which works in conjunction with another state agency to provide financial incentives for provision of solar photovoltaic systems; and Pennsylvania, which may waive maximum per-unit basis limits for developments proposing solar, geothermal or other innovative energy-savings techniques. The number of states promoting renewable energy technologies more than doubled since last year.

Some emerging QAP best practices in the area of resource conservation include use of Forest Stewardship Council-certified or other sustainable wood products, promoted by seven states (California, Connecticut, Kentucky, Maine, Massachusetts, Montana and North Dakota), and preferences or requirements to use locally or regionally produced building products, which is advanced by six states (Connecticut, Maine, Massachusetts, Michigan, Montana and North Dakota).

## Indoor Air Quality

The fourth general category commonly advanced in state allocation plans is enhanced indoor air quality. This category includes policies that address moisture control, products designed to limit indoor air pollutants, adequate ventilation, nonsmoking buildings and indoor air quality management plans. As of 2007, 34 states currently address indoor air quality issues in the allocation plan.

Twenty-nine states (Alabama, Alaska, Arkansas, California, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Montana, New Hampshire, New Mexico, North Carolina, North Dakota, Oklahoma, Pennsylvania, Rhode Island, South Dakota, Utah and Virginia) currently provide QAP policies that address moisture control by requiring or encouraging use of exterior-ducted bathroom exhaust fans, humidistats, water heater drain pans, water-resistant gypsum board, insulation of water pipes or HVAC system piping to prevent condensation, or other measures to control or prevent damaging effects of moisture, humidity and mold. The number of states promoting moisture control in the QAP is up by 11 since last year.

Twenty-three states (Alabama, Arizona, California, Connecticut, Delaware, Georgia, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Pennsylvania, Rhode Island, South Carolina and South Dakota) address indoor air quality with standards specifying one or more products designed to limit indoor air pollutants. Commonly referenced products include carbon monoxide detectors; exterior-ducted kitchen range hoods and clothes dryers; Green Label-certified carpets and padding; low-volatile organic compounds (VOC) paints, primers, sealants and adhesives; and formaldehyde-free composite woods and insulation. The number of states specifying products designed to limit indoor air pollutants is up by four since last year.

In addition to the above policies, 17 states (Alaska, Arizona, California, Connecticut, Georgia, Illinois, Iowa, Kansas, Kentucky, Massachusetts, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Pennsylvania and Vermont) specifically promote enhanced indoor air quality by requiring or encouraging adequate ventilation of living space via the HVAC system or natural ventilation. The number of states promoting ventilation measures in the QAP is up by four from last year.

Two emerging QAP best practices in the area of indoor air quality are designation of nonsmoking buildings in Housing Credit developments, encouraged by five states (California, Connecticut, Kentucky, Maine and New Mexico) in 2007, and development of indoor air quality management plans or other strategies to limit effects of construction debris, promoted by three states (California, Maine and North Carolina).

## Other Sustainable Development Practices

The policies discussed in the above four categories represent the most common sustainable development policies in state allocation plans. Some states have chosen to go beyond typical QAP provisions by rewarding developments that meet national sustainable development guidelines, while others have developed

agency-specific green building guidelines instead. In addition, some states have responded to the issue of incremental costs for sustainability measures with innovative underwriting criteria and financing solutions.

Nine states (Georgia, Iowa, Kentucky, Louisiana, Maryland, Minnesota, New Mexico, Ohio and Virginia) have supplemented strong sustainable development approaches with QAP incentives for consistency with various national sustainable development guidelines. Six of these states (Iowa, Louisiana, Maryland, Minnesota, New Mexico and Ohio) award points to developments demonstrating consistency with the Green Communities criteria. Three (Georgia, Maryland and Virginia) award points to developments obtaining EarthCraft certification. Three (Kentucky, Louisiana and New Mexico) encourage LEED certification. One (Maryland) recognizes green building guidelines from the National Association of Home Builders. Maryland and Virginia also award points to developments designed by a LEED-certified design professional. The number of states rewarding consistency with at least one of the national sustainable development guidelines tripled from a year ago, when just three included such provisions in the QAP.

Nine states (Connecticut, Iowa, Maine, Minnesota, Nebraska, New Jersey, New Mexico, North Dakota and Pennsylvania) reference detailed state sustainable development or green building guidelines in the QAP. While most of these states award points for consistency with some or all of the specified criteria, Maine has mandatory green building standards that apply to all developments, and New Jersey awards points to developments that participate in the state's affordable green program. The number of states referencing such state guidelines increased by four from a year ago.

One of the challenges states face in encouraging sustainable development practices is balancing the importance of each provision against its incremental cost. Increasingly, state allocation plans address this issue by allowing adjustments to standard agency underwriting practices for developments that meet specified green criteria. In 2007, four states have such policies:

- California can increase threshold basis limits by up to 4 percent for developments that incorporate at least three sustainability measures from a specified list, including use of tankless or solar thermal hot water heaters, rainwater harvesting systems, or recycling at least 75 percent of construction and demolition waste. California also allows up to a 5 percent increase in threshold basis limits for developments involving distributive energy technologies such as microturbines and/or renewable energy sources such as solar.
- North Carolina allows additional credit per unit to developments agreeing to have all buildings comply with Energy Star standards.
- Pennsylvania may waive maximum per-unit basis limits for development with up-front capital expenditures related to energy-efficiency systems that will result in demonstrable savings in utility costs to the residents, including solar, geothermal or other innovative energy-savings techniques.
- South Dakota lists energy efficiency as one factor for which increased cost per unit may be justified.

Two states have taken a different approach to covering additional costs – identifying outside funding sources to pay for certain green building initiatives:

- Colorado works with another state agency to fund the differential between base measures and increased energy-efficiency measures for items such as compact fluorescent lighting, high-efficiency HVAC equipment or water heaters, increased insulation, material-efficient framing and solar photovoltaic systems.
- Utah developments may request funding from a state loan fund to cover cost increments related to Energy Star qualification.

Finally, as with other aspects of the allocation plan, sustainable development practices include numerous unique state policies. For example:

- Connecticut specifically awards points to developments that meet requirements for asthma-safe homes.
- Delaware requires all general contractors to certify and provide evidence that they are an Energy Star Builder.
- Maine requires a building envelope water-management plan for prevention of mold, and use of framing and finish lumber harvested from sustainably managed forests.
- South Dakota awards points to developments designed with a drain tile system for foundation waterproofing.
- Vermont energy standards include a goal of keeping records of energy consumption by fuel type, individual building and residential unit to allow periodic evaluation of energy and water use for cost-effective improvements.



## Threshold Criteria and Design Requirements

- All developments must submit Phase I environmental study and site specific soils report.
- Developments located in Radon Zone 1 must meet EPA Radon Resistant New Construction practices.
- Design Quality Standards require low-maintenance exterior building materials, including brick, cementitious siding, or high-quality vinyl siding for new construction.
- Design Quality Standards require anti-fungal shingles or metal roof with a minimum 25-year warranty, plus attic venting.
- Design Quality Standards require minimum R-11 insulation for exterior walls and R-30 insulation for roofs or attics.
- **Design Quality Standards require minimum 13 SEER HVAC equipment (increased from 10 SEER in 2006).**
- Design Quality Standards require water heater drain pans, insulation of HVAC refrigeration lines and water piping in exterior walls and attics, and carbon monoxide detectors in projects using gas.

## Selection Criteria Incentives

- QAP awards up to 30 points for proximity of development site to resident services (grocery store, public transportation, hospital, doctor's office, elementary school, daycare, pharmacy, public library, bank, etc.). The plan deducts points for development proximity to negative features such as junkyards, prisons and railroads.
- QAP awards 3 points to developments that promote energy conservation by exceeding the standards of the CABO Model Energy Code.
- QAP awards 3 points to developments designed and built or rehabilitated to exceed a 15-year maintenance-free exterior standard.
- QAP awards 4 points for provision of 30-year roof as evidenced by manufacturer's warranty.
- QAP awards 4 points for use of full brick, cementitious siding, stucco or concrete masonry unit (CMU) products.
- QAP awards 4 points for use of storm windows, thermal break insulated windows and insulated exterior doors.
- QAP awards 3 points for R-38 attic insulation.
- QAP awards 3 points for ARI-rated furnace (90% AFUE) or heat pump (HSPF 7.8).
- QAP awards 3 points to developments with all units containing Energy Star refrigerator and dishwasher.
- QAP awards 3 points for exterior-venting range hoods equipped with a damper.
- QAP awards 5 points to developments if the Phase I environmental study indicates no recognized environmental conditions, no environmental regulatory concerns, and no further action or investigation recommended.



## Threshold Criteria and Design Requirements

■ **All projects must meet the State of Alaska Building Energy Efficiency Standard (BEES), established to promote the construction of energy-efficient buildings. BEES sets standards for thermal resistance, air leakage, moisture protection and ventilation as they relate to efficient use of energy in buildings. The standard includes mandatory design requirements and offers four alternative methods to comply with the standard. (Note: 2007 QAP incorporates strengthened BEES requirements from previous years.)**

■ BEES mandatory design requirements include installation of a continuous vapor retarder throughout a building's thermal envelope.

■ BEES mandatory design requirements include detailed airtightness standards designed to control random air movement and provide controlled ventilation to reduce air leakage and heating costs, reduce radon infiltration, protect the building structure, and provide necessary fresh air. Compliance with airtightness measures can be accomplished through sealing measures, blower door testing or tracer gas testing.

■ BEES mandatory design requirements include showerheads equipped with a flow-control device that limits water flow to a maximum of 2.5 gallons per minute.

■ The first option for complying with BEES is the Prescriptive Method, which requires minimum R-values for each thermal envelope assembly. R-value requirements vary by region of the state, and include standards for above grade walls (R-18 to R-35), below-grade walls (R-10 to R-19), ceilings (R-38 to R-52), floors (R-19 to R-43) and slab floors (R-10).

■ The second option for complying with BEES is the Performance Method, which allows trade-off of insulation requirements between elements within a particular thermal envelope assembly.

■ The third option for complying with BEES is the Building Budget Method, which requires proof of compliance through computer energy analysis or manual calculations. This option requires calculating space heat-loss values. Specific insulation requirements are not given. Any design may be chosen, provided the building does not exceed the maximum energy use and heat-loss values given for the region and building type.

■ The fourth option for complying with BEES is the Home Energy Rating Method, which requires an energy rating of 4 Star Plus or higher and an air-tightness level of 7 ACH@50pa or less utilizing blower-door testing protocol.

## Selection Criteria Incentives

■ QAP awards up to 10 points to developments based on project design. A minimum of three of the project's features must be considered unique before more than 50% of the points can be given in this category. Included on the list of unique features are 1) en□ concepts of defensible space, low density and retention of natural vegetation.



## Threshold Criteria and Design Requirements

■ Phase I Environmental Review report required for issuance of carryover allocation.

■ Mandatory design guidelines require low-maintenance exteriors. All features must be designed for long-term use (50-year minimum).

■ Mandatory design guidelines require concrete tile roof or architectural-grade shingles with a minimum life of 40 years.

■ Mandatory design guidelines require a complete landscape plan that maximizes existing natural features and enhances open space. Wherever possible, native plants should be used. In addition, maintenance systems (e.g., sprinkler and irrigation systems) must be installed to maintain landscaping.

■ Mandatory design guidelines require minimum HVAC system efficiency (13 SEER air conditioners, 13 SEER/7 HSPF heat pumps and 80% AFUE combustion furnaces).

■ Mandatory design guidelines include minimum standards for insulation, air distribution and ductwork systems.

■ Mandatory design guidelines require dual-pane windows.

■ Mandatory design guidelines include standards for room pressure and indoor air quality, including requirements for exterior-vented kitchen exhaust fans and carbon monoxide detectors.

■ Mandatory design guidelines require inspection of energy conservation features, including verification of insulation R-values, HVAC system efficiency, duct leakage tests, room airflow and room pressure tests, and installation of dual pane windows and carbon monoxide detectors.

■ Mandatory design guidelines require durable plumbing fixtures, including porcelain sinks and toilets and enamel-finish steel tubs. The guidelines also require water conservation devices, including alternative and low-flow toilets, low-volume showerheads, faucet aerators or flow-restrictor devices, and front-loading or horizontal-axis washing machines.

■ Mandatory design guidelines require rehabilitation projects to use energy-efficient products (insulated windows and doors, additional insulation and efficient HVAC units) to replace inferior ones.

■ Mandatory design guidelines require rehabilitation projects to upgrade plumbing fixtures, water heaters, toilets, sinks, faucets and tub/shower units with use of water conserving equipment and systems.

## Selection Criteria Incentives

■ QAP awards 10 points to developments with water conservation measures, including alternative and low-flow toilets, low-volume showerheads, faucet aerator or flow-restrictor devices, front-loading or horizontal-axis washers, and xeriscape landscaping.

■ QAP awards 20 points to developments that demonstrate readiness to commence construction by meeting six requirements, one of which is completion of a Phase I Environmental Review Report. (Note: new scoring criterion in 2007.)

■ QAP awards 10 points to developments located in the Phoenix or Tucson metropolitan statistical areas that demonstrate at least three of the following indicators of sustainable development: 1) location within a three-mile radius of a major employment center, concentration of employment centers or community amenities such as medical facilities, educational institutions and shopping; 2) location one mile or less from a mass transit route; 3) location within a three-mile radius of city center or some other readily identifiable concentration of local government offices; or 4) site served by existing roads, utilities and communications infrastructure. Sites outside the Phoenix or Tucson MSAs can meet other criteria to earn points. (Note: new scoring criterion in 2007.)



## Threshold Criteria and Design Requirements

- All developments must submit a Phase I Environmental Site Assessment for the project site.
- All developments must complete detailed environmental assessment checklist, including analysis of development impact on the environment, air quality, noise, etc.
- Minimum design standards require very low maintenance exterior building materials, including brick, cementitious siding or high-quality vinyl siding for new construction. (New minimum requirement replaces 2006 scoring criterion).
- Minimum design standards require anti-fungal shingles or metal roof with a minimum 25-year warranty, plus attic venting. (New minimum requirement replaces 2006 scoring criterion).
- Minimum design standards require water heater drain pans, insulation of water piping in exterior walls or attic spaces, and insulation of HVAC refrigeration lines. (New minimum requirement replaces 2006 scoring criterion).
- Minimum design standards require R-16 exterior wall insulation, R-38 roof or attic insulation, and exterior house wrap (e.g., TYVEK). (New minimum requirement replaces 2006 scoring criterion).
- Minimum design standards require shower head(s) with a maximum of 2.5 gallon per minute water flow rate. (New minimum requirement replaces 2006 scoring criterion).
- Minimum design standards require fluorescent light fixtures in kitchen, bathroom(s) and utility rooms. (New minimum requirement replaces 2006 scoring criterion).
- Minimum design standards require windows with two or more panes of insulated glass, at least one pane of which has a low-emission (Low-E) coating, which is argon gas filled. In addition, windows must have a U-Factor of not greater than 0.41. (New minimum requirement replaces 2006 scoring criterion).
- Minimum design standards require heat pump systems to have minimum HSPF rating of 7.8 with a minimum 13 SEER rated air conditioning system. (New minimum requirement replaces 2006 scoring criterion).
- Minimum design standards require gas or oil heated systems to have a minimum AFUE rating of 90% with a minimum 13 SEER rated air conditioning system. (New minimum requirement replaces 2006 scoring criterion).

## Selection Criteria Incentives

- QAP awards 15 points to developments with advanced energy efficiency features (i.e., promoting greater energy efficiency than required by the agency's minimum design standards described above, including use of Energy Star features or components with R- or U-factors in excess of minimum requirements). To receive points, developments must submit a signed certification from the design architect or licensed engineer confirming installation of the advanced energy saving devices. (New scoring criterion in 2007).
- QAP awards up to 10 points for proximity of development site to appropriate services (e.g., grocery stores, schools, medical facilities, recreational facilities, gas stations, banks and public transportation) and assessment of environmental issues.



## Threshold Criteria and Design Requirements

- Minimum construction standards require a statement that the design and construction materials will provide for low maintenance and durability.
- Minimum construction standards require a variety of low water use and low-maintenance plant and tree species in project landscaping.
- Minimum construction standards require a minimum 20-year manufacturer's warranty on roofing.
- Minimum construction standards require Energy Star appliances, including refrigerators, dishwashers and clothes washers.
- Minimum construction standards require use of low-volatile organic compound (VOC) paints and stains for all interior surfaces where paints and stains are applied.
- Agency can increase threshold basis limits by up to 4 percent for certain projects that incorporate three of the following energy efficiency/resource conservation/indoor air quality measures: exceed Title 24 standards by at least 15%; use tankless water heaters, a high efficiency condensing boiler (92% AFUE or greater), or a solar thermal domestic hot water pre-heating system; use a MERV 8 or higher air filter for HVAC systems that introduce outside air; employ an irrigation system using only reclaimed water and/or captured rainwater; recycle at least 75% of construction and demolition waste; install natural linoleum, natural rubber or ceramic tile for all kitchens and bathrooms; install bamboo, stained concrete, cork, salvaged or FSC-certified wood, ceramic tile or natural linoleum in all living rooms or 50% of all common areas; install CRI Green Label Plus Carpet, or no carpet, in all bedrooms; vent kitchen range hoods to the exterior of the building in at least 80% of units; or use at least four recycled products listed in the California IWMB Recycle Content Products Database.
- Agency can further increase threshold basis limits by up to 5 percent for projects involving distributive energy technologies such as microturbines and/or renewable energy sources such as solar.

## Selection Criteria Incentives

- QAP awards 7 points to developments that are part of a transit-oriented development strategy where there is a transit station, rail station, commuter rail station, bus station or bus stop within 1/4 mile from the site with service at least every 30 minutes during the hours of 7-9 a.m. and 4-6 p.m., and the project's density exceeds 25 units per acre.
- QAP awards up to 6 points to developments within 1/4 mile of a transit station, rail station, commuter rail station or bus station, or bus stop with service at least every 30 minutes during the hours of 7-9 a.m. and 4-6 p.m. The plan awards an additional 4 points to developments located within 500 feet of a regular bus stop or rapid transit system stop (or 3 points for location within 1500 feet).
- QAP awards up to 18 points for development proximity to libraries, parks, grocery stores, convenience markets, schools, senior centers, medical clinics, hospitals and pharmacies.
- QAP awards 4 points to developments that exceed Title 24 energy standards by at least 10 percent. For a rehabilitation project not subject to Title 24, points awarded for reducing energy use by 25 percent.
- QAP awards 2 points to developments for use of Energy Star ceiling fans in all bedrooms and living rooms; use of a whole house fan; or use of an economizer cycle on mechanically cooled HVAC systems.
- QAP awards 1 point to developments for use of water-saving fixtures or flow restrictors in the kitchen (2 gpm or less) and bathrooms (1.5 gpm or less). Plan awards an additional 2 points for use of at least one high-efficiency toilet (1.3 gpf) or dual-flush toilet per unit.
- QAP awards 1 point to developments for use of formaldehyde-free insulation, and an additional 1 point for use of cabinet, countertop and shelving material free of added formaldehyde or fully sealed on all six sides by laminates and/or a low-VOC primer or sealant.
- QAP awards 1 point to developments for use of no VOC interior paint, and an additional 1 point for use of CRI Green-label low-VOC carpeting and pad and low-VOC adhesives.
- QAP awards 2 points to developments for use of exterior-venting bathroom fans equipped with a humidistat sensor or timer.
- QAP awards 2 points to rehabilitation projects that use fluorescent light fixtures for at least 75 percent of light fixtures or comparable energy lighting for the project's total lighting (including community rooms and any common space).
- QAP awards 1 point to developments for use of at least one of the following recycled materials: cast-in-place concrete (20% flyash); carpet (25%); or road base, fill or landscape amendments (30%).
- QAP awards 1 point to developments designed to retain, infiltrate and/or treat on-site the first one-half inch of rainfall in a 24-hour period.
- QAP awards 2 points to developments that include a Construction Indoor Air Quality Management plan that requires the following: a) protection of construction materials from water damage during construction; b) capping of ducts during construction; c) cleaning of ducts upon completion of construction; and d) for rehabilitation projects, implementation of a dust control plan that prevents particulates from migrating into occupied areas.
- QAP awards 1 point to developments containing nonsmoking buildings or sections of buildings.
- QAP awards 5 points to developments providing evidence of local land use environmental review clearances (CEQA and NEPA) necessary to begin construction.

## Threshold Criteria and Design Requirements

- All developments must submit Phase I Environmental study.
- Agency staff evaluates all proposed sites to assess general suitability. Sites are evaluated on the following: proximity to schools, shopping, public transportation, medical services, parks and playgrounds; marketability; conformance with neighborhood character and land use patterns; and environmental suitability.

## Selection Criteria Incentives

- QAP awards 5 points to developments located in communities with an identified community housing priority (e.g. supports a local, regional or state plan, a neighborhood plan, or some other community-sponsored need assessment or master plan).

## Other Policies

- Agency works in conjunction with Colorado's Office of Energy Management and Conservation Program (OEMC) to provide financial incentives for certain energy conservation measures. Through this program, OEMC funds the differential between base measures and increased energy-efficiency measures for items such as compact fluorescent lighting; high-efficiency furnaces, water heaters or heat pumps; increased insulation; material efficient framing; and solar photovoltaic systems. (Note: new policy in 2007.)
- QAP provides reference to green building funding available under the Green Communities initiative from Enterprise. (Note: new in 2007 plan.)

## Connecticut

## Threshold Criteria and Design Requirements

- Energy-conservation criteria include the following window requirements: maximum window area of 15%; U-value  $\leq 0.35$ ; SHGC:  $\leq 0.40$ ; air infiltration less than 0.1 scfm / sf; and conformance with ASTM E-547 regarding water resistance.
- Energy-conservation criteria include minimum insulation standards: attic/roof (R-38); exterior wall (R-19); floor above unheated space (R-19); slab (R-8); basement wall (R-10); crawlspace wall (R-10).
- Energy-conservation criteria include minimum HVAC equipment requirements: install properly sized HVAC equipment; size heating & cooling equipment to ACCA Manual S specifications and size ducts to Manual D specifications (both based on Manual J load calculations). Specific standards include: Gas Furnace Heating/Electric Cooling: Heat 90% AFUE; Cool 10 SEER; Oil Hydronic Heating/ Electric Cooling: Heat 82% AFUE; Cool 10 SEER; Gas Hydronic Heating/Electric Cooling: Heat: 90% AFUE; Cool 10 SEER.
- Energy-conservation criteria require building envelope infiltration rate  $\leq 0.35$  air changes per hour (blower door tested). To ensure consistent indoor air quality, the criteria recommend building to 0.20 ac/h or tighter and installing an active ventilation system to achieve 0.35 ac/h minimum.

## Threshold Criteria and Design Requirements

- Energy-conservation criteria include the following requirements: programmable thermostats; water heater energy factor:  $\geq 0.56$  gas;  $\geq 0.86$  electric; duct leakage:  $\leq 6\%$  leakage (CFM/CFM) to unconditioned spaces; duct insulation in unconditioned spaces to R-6. Active ventilation is recommended.
  - Standards of Design and Construction require development proximity to services, including schools, public transportation, retail, service and recreational facilities. (Note: new requirement in 2007.)
  - Standards of Design and Construction require submission of environmental site assessment report. (Note: new requirement in 2007.)
  - Standards of Design and Construction require construction waste management practices, including jobsite recycling, donation of excess materials for reuse, materials order and management plan, and jobsite waste management plan. (Note: new requirement in 2007.)
  - Standards of Design and Construction require low-impact development to include sustainable site design principles such as storm water management, permeable paving, water-efficient landscaping, rainwater recycling and photocell exterior lighting. (Note: new requirement in 2007.)
  - Standards of Design and Construction require sustainable masonry practices such as use of indigenous Connecticut and New England earth materials. (Note: new requirement in 2007.)
  - Standards of Design and Construction require insulation as follows: R-19 exterior walls/attic kneewalls, R-19 band joists, R-30 or R-38 floors (depending on size of floor framing) and R-38 ceilings/attics. The standards also require use of air infiltration barriers, such as building paper or housewrap. (Note: new requirement in 2007.)
  - Standards of Design and Construction require energy-efficient windows. The standards provide details on U-values, air infiltration, weatherstripping and other features. (Note: new requirement in 2007.)
  - Standards of Design and Construction require use of Energy Star kitchen and bath exhaust fans plus exterior-venting clothes dryers. (Note: new requirement in 2007.)
  - Standards of Design and Construction require Energy Star dishwasher, refrigerator and range hood. (Note: new requirement in 2007.)
  - Standards of Design and Construction require Energy Star water heaters. The standards encourage use of tankless water heaters. (Note: new requirement in 2007.)
  - Standards of Design and Construction require energy-efficient HVAC system design, including proper sizing of systems, Energy Star furnaces with 90% AFUE or better, SEER 13 air conditioners and programmable thermostats. (Note: new requirement in 2007.)
  - Standards of Design and Construction require use of mold-resistant gypsum board. (Note: new requirement in 2007.)
  - Standards of Design and Construction require low-VOC interior sealants and adhesives and encourage use of low-VOC paints. (Note: new requirement in 2007.)
  - Standards of Design and Construction encourage the use of resource-efficient lumber, including engineered wood for headers, joists and sheathing; reclaimed lumber; resource-efficient framing; sustainably harvested Forest Stewardship Council (FSC)-certified wood; and recycled content materials. (Note: new standard in 2007.)
  - Standards of Design and Construction encourage the use of recycled content and formaldehyde-free fiberglass insulation whenever practical. (Note: new standard in 2007.)
  - Standards of Design and Construction encourage use of low-maintenance siding materials, such as vinyl, recycled-content hardboard and pre-finished fiber-cement boards and panels. (Note: new standard in 2007.)
  - Standards of Design and Construction encourage use of recycled content ceramic tile and carpets, plus bamboo and cork flooring. (Note: new standard in 2007.)
  - Standards of Design and Construction encourage use of energy-efficient lighting, including compact fluorescent light bulbs. (Note: new standard in 2007.)
  - Standards of Design and Construction encourage use of alternative energy sources, including photovoltaic systems. (Note: new standard in 2007.)
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## Selection Criteria Incentives

■ QAP awards 1 point to developments located within one-half mile of a passenger rail station.

■ QAP awards up to 5 points for development proximity to grocery stores, public transportation stops, public parks or community recreation centers, sidewalks and pedestrian street crossings (1 point for each feature.)

■ QAP awards 5 points to developments that meet requirements identified by the Authority for asthma-safe homes.

■ QAP awards 5 points to developments for use of CRI Green label, low-VOC carpeting, pad and adhesives. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)

■ QAP awards 0.5 points to developments for use of formaldehyde-free insulation. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)

■ QAP awards 0.5 points to developments for use of high-efficiency toilets. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)

■ QAP awards 0.5 points to developments providing non-smoking buildings or portions of buildings. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)

■ QAP awards 1 point to developments providing Energy Star ceiling fans in all bedrooms and living rooms, or whole house fan or an economizer cycle on building HVAC systems. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)

■ QAP awards 1 point to developments providing lighting controls, such as sensors and timers, to turn off lighting in unused areas or during times when lighting is not required. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)

■ QAP awards 1 point to developments providing Energy Star bathroom and kitchen exhaust fans, venting to the outdoors. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)

■ QAP awards 1 point to developments incorporating water-saving faucets or flow restrictors in kitchens and bathrooms. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)

■ QAP awards 1 point to developments using no-VOC interior paint. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)

■ QAP awards 2 points to developments for which the site is designed to retain, infiltrate and/or treat the first 1/2" of rainfall in a 24-hour period. (Note: new scoring criterion in 2007. The 2006 QAP allowed 10 points for unspecified energy conservation features.)



## Threshold Criteria and Design Requirements

- All new construction developments must be located in designated Livable Delaware areas. In keeping with Livable Delaware strategies, developments should integrate into existing residential communities and neighborhoods. Surrounding uses must be compatible with the proposed development and the proposed design compatible with existing architecture in the area.
- Application requires submission of Phase I Environmental Audit and Erosion and Sedimentation Control Plan.
- Agency requires all general contractors to certify and provide evidence they are an Energy Star Builder.
- Minimum construction standards require new construction properties to be Energy Star rated and rehabilitation properties to use standard best practice construction methods for energy efficiency.
- Minimum construction standards require preservation of existing trees and use of drought-resistant landscaping requiring minimal water consumption.
- Minimum construction standards require maintenance-free building exterior, house wrap, and asphalt shingles with minimum warranty of 30 years.
- Minimum construction standards require thermal insulated windows and entry doors with a minimum U value of 0.35 or below.
- Minimum construction standards require use of moisture-resistant drywall in locations where plumbing penetrates walls and mold-resistant drywall for all exterior applications and core wall applications.
- Minimum construction standards require 2.0 g.p.m. showerheads and 0.5 g.p.m. faucet aerators.
- Minimum construction standards require Energy Star appliances, non-mercury programmable thermostats, carbon monoxide detectors, and exterior-ducted exhaust fans.
- Minimum construction standards require high-efficiency HVAC units with furnace efficiency of 90% or better and minimum 13 SEER. Standards also require high-efficiency air filters for mechanical blower units.
- Minimum construction standards require hot water heater with integral R-16 insulation and overflow pan.
- Minimum construction standards require sealed combustion, direct vent furnaces and water heaters.
- Minimum construction standards require Energy Star fluorescent interior lighting package and Energy Star fluorescent porch lights with photocell.
- Minimum construction standards require contractors to make a conservative effort to separate construction debris for recycling.

## Selection Criteria Incentives

- QAP awards up to 10 points for development proximity to retail facilities, employment opportunities, daycare, medical facilities, entertainment venues, schools, public transportation, major road arteries and town centers.
- QAP awards up to 5 points to developments for design features that exceed the minimum energy guidelines defined in agency's Minimum Construction Standards.



## Threshold Criteria and Design Requirements

- All developments must submit Phase I Environmental site assessment as evidence of ability to proceed.

## Selection Criteria Incentives

- Developments located in qualified urban infill areas or designated Front Porch Florida communities are targeted in selection criteria.

- Energy conservation is listed as one of several development characteristics for which Housing Credits are targeted in selection criteria.

- QAP awards 2 points to developments providing a 30-year roof on all buildings.

- **QAP awards 2 points to developments providing heat pump with minimum HSPF of 8.5, 1 point for heat pump with minimum HSPF of 8.2, or 2 points for gas hydronic combo HVAC unit. (Note: standards increased in 2007.)**

- **QAP awards 1 point for air conditioning with a minimum SEER rating of 14, 2 points for air conditioning with a minimum SEER rating of 15, and 3 points for air conditioning with a minimum SEER rating of 16. (Note: standards increased in 2007.)**

- **QAP awards 1 point to developments providing energy efficient water heaters (gas with minimum energy factor of .61, or electric with energy factor of .93). (Note: standards increased in 2007.)**

- **QAP awards 2 points for use of tankless water heaters (Note: new scoring criterion in 2007.)**

- **QAP awards up to 2 points to developments providing R-15 wall insulation for frame built construction or R-10 wall insulation for masonry construction. (Note: standards increased in 2007.)**

- QAP awards 1 point to developments for provision of R-30 attic insulation or R-19 insulation with radiant barrier on top floors.

- QAP awards up to 2 points to developments providing energy-efficient windows (double-pane glass on all windows, all windows double-pane with minimum solar heat gain coefficient of  $\leq .50$  and minimum of  $.75$  U-value, all windows single-pane with minimum solar heat gain coefficient of  $.58$  or better, all windows single-pane with shading coefficient of  $.67$  or better, or solar screens on all west and east facing windows.)

- QAP awards 2 points to developments providing ceiling fans in all bedrooms and living area in each unit.

- **QAP awards 1 point to developments providing Energy Star refrigerator and dishwasher in each unit. (Note: new scoring criterion in 2007.)**

- QAP awards up to 3.75 tiebreaker points for development proximity to resident services (grocery store, public school, medical facility, pharmacy, public bus stop or metro-rail stop.)

## Threshold Criteria and Design Requirements

- All developments must submit a Phase I environmental study, plus applicable assessments for lead paint, asbestos, water leaks, mold, lead in drinking water, PCBs and Radon.
- All developments must meet agency Architectural Standards, intended to promote the integration of new construction and rehabilitation into the existing community and to promote sustainable design and the protection of resources. Specific requirements follow:
- Architectural Standards require a minimum warranty of 20 years for all pitched roofs. The Standards also require seamless gutters and downspouts.
- Architectural Standards require commercial grade vinyl siding with a minimum thickness of .044 and 15-year warranty, manufactured siding with a 7/16" nominal thickness and 20-year warranty, or cedar or redwood siding with a protective finish.
- Architectural Standards require low-VOC paints and other interior finishing components, including floor finishes.
- Architectural Standards require Energy Star kitchen appliances.
- Architectural Standards require water heaters with an Energy Factor of .62 or greater for gas, or .92 or greater for electric.
- Architectural Standards require Energy Star bathroom exhaust fan that is either ducted to the exterior or recirculating.
- Architectural Standards require gas furnace minimum efficiency of 82%, heat pump minimum HSPF 7.4, air conditioning minimum 13 SEER, taped and sealed ductwork joints to reduce air infiltration, and ductwork insulated to a minimum of R-6 when placed in unheated spaces.
- Architectural Standards require insulation of all plumbing in exterior walls to prevent freezing. Exterior walls must have R-13 minimum insulation, attics R-30 minimum, and crawl space/basement/other areas R-19 minimum.

## Selection Criteria Incentives

- QAP awards 1 point to developments located within the city limits of a community designated as a Georgia Better Hometown and/or a Georgia Mainstreet Community, or to developments consistent with the affordable housing goals of the agency's Signature Community program.
- QAP awards 3 points to developments if there is an adopted local redevelopment/ community revitalization plan that clearly targets the specific neighborhood in which the development is located.
- QAP awards 3 points to developments located on infill sites.
- **QAP awards 2 points to developments that include redevelopment of a brownfields site, and 3 points to developments that include redevelopment of a greyfields site. (Note: points for greyfields sites increased in 2007.)**
- QAP awards 2 points to developments formally designated as a Transit Oriented Development by a Rapid Transit Authority, to developments located adjacent to a rapid rail transit station and formally endorsed by a Rapid Transit Authority, to developments located on a bus route with defined, regularly scheduled bus service or an "on call" bus system, or to rural developments located within 1/2 mile of a "community transportation roadway."
- QAP awards up to 10 points to developments located in proximity to resident services, including retail stores, banks, grocery stores, recreational facilities, libraries, schools, daycare services, medical facilities, employment centers and civic centers. Points are deducted for proximity to undesirable neighborhood characteristics such as junkyards or heavy manufacturing.
- **QAP awards 12 points to developments documenting that completed construction meets requirements of EPA's Energy Star program. (Note: points increased in 2007.)**
- **QAP awards 12 points to developments that document completed construction meets the Southface Energy Institute's "Earthcraft House" certification program. (Note: new scoring criterion in 2007.)**
- QAP awards 2 points to developments that provide R-38 attic insulation.
- QAP awards 2 points to developments for which the exterior envelope wall systems, including the rim (band) joist spaces, are insulated with a spray applied insulation material.
- QAP awards 2 points to developments providing ARI rated furnace (90% AFUE) or heat pump (HSPF 8.0), and an additional 2 points to developments providing ARI-rated SEER 14 cooling equipment with sensible heat ratio less than 0.75.

## Selection Criteria Incentives

- QAP awards 2 points to developments that locate 90% or more of HVAC ductwork in conditioned spaces, and an additional 1 point each for designing HVAC systems to locate fresh air intake before return air infiltration or isolating combustion equipment in a sealed combustion closet.
- QAP awards 2 points to developments installing at least two plumbing fixtures (i.e., toilet, showerhead, kitchen faucet or bathroom faucet) that have lower flow rates than the NEPA standards.
- QAP awards 2 points to developments installing the Energy Star Enhanced Lighting Package throughout the property, including interior bath and kitchen ventilating fans. Plan awards an additional 1 point for installation of Energy Star common area lighting controlled with either photocells or timers.
- QAP awards 1 point to developments that provide exterior-ducted kitchen range hood ventilation with damper.
- QAP awards 1 point to developments that provide Energy Star ceiling fans in living rooms, sunrooms and all bedrooms. (Note: Energy Star requirement added in 2007.)
- QAP awards 1 point to developments that provide an Energy Star bath exhaust fan with timer and humidistat control. (Note: new scoring criterion in 2007.)
- QAP awards 4 points to developments containing exterior building wall faces with an excess of 40% brick or stone.
- QAP awards up to 4 points to developments upgrading major building component materials from the minimums delineated in the Application Manual. Eligible materials include: cementitious siding, hard stucco and/or wood siding in place of vinyl siding (2 points); upgraded roofing shingles or roofing materials (2 points), and window and door glazing with a Solar Heat Gain Co-efficient of <0.40 and a U-Value <0.40 (2 points).
- QAP awards 2 points to developments in which all sidewalks consist of interlocking porous paving components.
- QAP awards 2 points to developments identifying areas for low-water landscaping. These areas must exhibit vegetation that can be identified as suitable for “xeriscaping” or native plantings to encourage water conservation.
- QAP awards 2 points to developments providing a system for reuse of on-site water run off (rainwater harvesting) for landscaping irrigation for at least 75% of annual irrigation water.
- QAP awards 2 points to developments preserving existing trees and vegetation, and integrating these areas within the new landscaping layout.

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## Other Policies

- QAP general priorities include revitalization of urban and downtown areas through renovation, re-building and/or new construction in infill areas; incorporating smart growth concepts that focus on quality of life maintenance, growth management, environmental protection and a return to the more traditional, less automobile-dependent development patterns, including neighborhood characteristics and services that encourage resource protection, land conservation, and open space planning techniques; and incorporating energy-efficient project design and site design through sustainable building techniques and protection of existing resources.



# Hawaii

## Threshold Criteria and Design Requirements

- No policies specified.

## Selection Criteria Incentives

- QAP awards up to 6 points to developments based on project location factors such as proximity to employment opportunities, recreational facilities, shopping facilities and medical facilities, and development location in a county’s urban core/district.



# Idaho

## Threshold Criteria and Design Requirements

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|--|--|
| <ul style="list-style-type: none"> <li>■ Rehabilitation developments must submit architect certification that specifies, among other things, the anticipated R-factor of insulation in walls, ceilings and floors at rehabilitation completion.</li> </ul> | <ul style="list-style-type: none"> <li>■ Rehabilitation developments must submit Level I Environmental Report that addresses, but is not limited to assessment of risks relating to lead-based paint, asbestos and radon.</li> </ul> |
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## Selection Criteria Incentives

- No policies specified.



## Threshold Criteria and Design Requirements

■ All developments must meet detailed Minimum Energy Efficiency Standards. Key among the numerous standards are the following:

■ Energy Efficiency Standards provide minimum insulation factors for a variety of window areas (percentage of gross exterior wall area) and heating degree day ranges. The minimum standards include ranges for ceilings (R-26 to R-38), exterior walls (R-11 to R-19), floors (R-11 to R-19), basement walls (R-5 to R-10), crawl space walls (R-6 to R-18) and slabs (R-0 to R-8). The Standards also provide maximum U-factors for windows (0.38 to 0.53).

■ Energy Efficiency Standards provide maximum allowable infiltration rates for window and door assemblies (0.3 cfm per square foot of window area for windows, 0.3 cfm per square foot of door area for sliding doors, and 0.5 cfm per square foot of door area for swinging doors).

■ Energy Efficiency Standards provide minimum requirements for HVAC equipment efficiency (gas or oil-fired furnace: AFUE 78%; gas- or oil-fired steam and hot water boilers: AFUE 80%; air-cooled heat pumps on heating mode: 6.6 to 6.8 HSPF; and air-cooled air conditioners and heat pumps on cooling mode: 9.7 to 10.0 SEER).

■ Energy Efficiency Standards require insulation of all HVAC system piping and all supply and return air ducts installed as part of the air-distribution system.

■ Energy Efficiency Standards provide minimum performance criteria for water-heating equipment, plus standards on heat traps, circulation pumps, water pipe insulation and swimming pools.

■ Energy Efficiency Standards require water conserving plumbing fixtures, including 2.5 gpm showerheads, 1.8 gpm bathroom faucets, 2.0 gpm kitchen faucets, and 1.1 gpf toilets.

■ Energy Efficiency Standards require each dwelling unit to have its own electric meter.

■ Energy Efficiency Standards address numerous other issues, including caulking and sealing, moisture and condensation control, heating and cooling system design, mechanical ventilation, thermostatic controls, humidistats, and interior and exterior lighting.

## Selection Criteria Incentives

■ QAP awards up to 3 points under the “Live Near Work Initiative” to developments that have employers located within a defined radius (5-10 miles depending on location) and who have difficulty attracting a quality workforce due to the lack of affordable housing within that radius. QAP awards an additional 1 point if employer provides direct rental assistance to employees who are residents in the proposed project.

■ QAP awards 2 points to “community impact” developments that are part of a larger revitalization or redevelopment plan.

■ QAP awards 1 point to developments that are part of a transit-oriented development strategy, located within two blocks of a regular bus route, next to a rapid transit system stop, etc.

■ QAP awards up to 4 points to developments located in proximity to resident amenities or services such as parks, recreation centers, grocery stores, pharmacies, medical facilities, public schools, senior centers or other desirable amenities.

■ QAP awards 1 point to developments providing brick, masonry or a combination thereof, on a minimum of 50% of building exteriors.

■ QAP awards 1 point to developments for energy-efficient construction that exceeds agency standards for a minimum of two major systems. Innovative energy systems, including geo-thermal heating or solar power, may be considered under this category.



## Threshold Criteria and Design Requirements

■ All developments must submit a Phase I Environmental report that addresses proximity of wetlands and flood plains to proposed site.

■ **Minimum Development Standards require the use of low-maintenance exterior building finishes, including brick, stone, hardy board, fiber cement siding or vinyl siding. (Note: new requirement in 2007.)**

■ **Minimum Development Standards require HVAC system design to include gas heating system with a minimum 90% AFUE rating, air conditioning system with a minimum 13 SEER rating, or minimum 8.2 HSPF electric heat pump system properly sized for the unit. (Note: new requirement in 2007.)**

■ **Minimum Development Standards require thermal insulated windows and entry doors with a minimum U value of 0.35 or below. (Note: new requirement in 2007.)**

■ **Minimum Development Standards require roofing product with a minimum 25-year warranty. (Note: new requirement in 2007.)**

■ **Minimum Development Standards require all buildings to have attic insulation of R-38 or better. (Note: new requirement in 2007.)**

## Selection Criteria Incentives

■ QAP awards up to 3 points for desirable development characteristics, including 50% or more brick or stone exteriors, on-site recycling service free to residents, ceiling fans, carbon monoxide detectors and motion detector lights.

■ QAP awards 2 points to developments certifying the use of Energy Star HVAC equipment (furnace, heat pump and/or air conditioner) and Energy Star windows and sliding glass doors in all units.

■ **QAP awards up to 2 points (1 point for every four items selected) to developments certifying the use of Energy Star refrigerators, dishwashers, roof products, ceiling fans, lighting fixtures, washing machines, programmable thermostats or**

**exterior venting bathroom fans; or for use of tankless water heaters, insulation blankets for water heaters, 1.3 gpf toilets, 2.0 gpm showerheads, 1.5 gpm kitchen faucets or 2.0 gpm bathroom faucets. (Note: points increased in 2007 and list of eligible items is expanded.)**

■ QAP awards 1 point to developments accessible to at least three public and/or private facilities or activities (i.e., schools, transportation, retail and service establishments, parks, recreational facilities, medical facilities, libraries, and major public and private employers.)

## Threshold Criteria and Design Requirements

■ Minimum Construction Criteria require air infiltration barrier building wrap on all new siding applications.

■ Minimum Construction Criteria require use of 25-year roof shingles with a 30# roofing felt, at minimum.

## Selection Criteria Incentives

■ QAP awards up to 10 points for development proximity to resident services including public transportation, schools, grocery stores, pharmacies, daycare, libraries, senior centers.

■ QAP awards 10 points to developments located on a brownfield site.

■ QAP awards up to 12 points to developments for which the building exterior is constructed with a minimum of 60% brick, stone, masonry stucco, architectural CMU block or pre-cast concrete wall panels.

■ QAP awards up to 8 points to developments that exceed the International Energy Conservation Code (IECC) minimum acceptable construction standards for new construction by providing, for example, exterior wall insulation in excess of R-19 and ceiling insulation in excess of R-40. Consideration is given to innovative technologies or combinations of existing materials and construction types that meet or exceed these criteria, such as raised heel energy roof trusses, geo-thermal heat pump, wind or solar energy, or other non-traditional heating and cooling systems that introduce additional energy efficiencies.

■ QAP awards up to 10 points to developments that exceed the agency minimum HVAC requirements by providing, for example, a forced air gas system with AFUE in excess of 92% efficiency, central air conditioning with SEER of 13 or higher, through-wall AC unit with EER of 9 or higher, or a building level high-efficiency boiler heating and/or chiller system meeting 87% AFUE or higher.

■ QAP awards 8 points to developments that submit a Green Development Plan that addresses the following items: 1. The Right Lot: Provide site plan and narrative that demonstrate care and initiative in taking advantage of the construction site's natural gifts of sun, wind, soil, water, views and community services. 2. Working with Iowa's Climate: Provide site plan and narrative that specifically design in shading (with trees, covered porches, roof overhangs, window awnings) and lets the sun in where you want it in the winter. Install low-E or better windows to reduce the harmful effects of sun in summer, but also retain heat inside in the winter. 3. A Good Shell: Provide narrative showing compliance with the most recent Model Energy Code (attic, walls, floor, basement, openings). In addition, a "blower door" test is to be performed showing compliance with a goal of less than 0.40 air changes per hour. 4. 30- to 40-Year Roof: Provide documentation on the quality of the material used to prevent deterioration and leaks from occurring and how the product will save energy (light-colored shingles, tile, metal or composition type). 5. Natural Ventilation: Provide design and placement of windows for good cross ventilation, taking full advantage of prevailing breezes. The design should include windows on two sides of a room whenever possible and utilization of ceiling fans to save energy. 6. HVAC System: Provide report from a professional that the duct work, if provided, has been pressure tested and meets the goal of under 10% leakage. In addition, confirm cold and hot water piping insulation and high-efficiency heating and cooling equipment installation. 7. Indoor Air Quality: Provide narrative that installation of hard surface flooring (wood, cork, concrete, tile and linoleum) was provided as much as possible. Minimize carpet (because it holds allergens and off gases chemicals). Use low or no-VOC interior paints and finishes. Exhaust odors

and humidity with fans in the bathrooms and kitchens to the exterior of the building. 8. Appliances: Purchase Energy STAR products such as light bulbs, refrigerators, dishwashers, clothes washer/dryers, fans, air conditioners, dehumidifiers, electronics, office equipment, etc. 9. Lighting: Provide narrative confirming the use of compact fluorescent lights, motion sensors, daylight sensors and dimmers whenever possible to reduce energy use. At a minimum, compact fluorescent shall be provided. 10. Water: Provide narrative on the water conserving appliances that will be installed (dishwasher, clothes washer, showerheads, toilets, faucets, recirculation systems, etc.). 11. Durable and Low-Maintenance Exteriors: Provide narrative on the use of durable siding materials such as brick or fiber-cement to eliminate rot and reduce the need for painting. 12. Landscaping: Provide narrative on the use of landscaping to retain storm water on site. In addition, provide information on how fertilizers and pesticides will be controlled on site to prevent harm to families, pets and waterways. 13. Life Safety Environment: Provide narrative that describes the utilization of CO sensors in garages and carbon monoxide detection in tenant units and mechanical and appliance rooms. 14. Tenant Green Maintenance: Provide narrative of the education materials that will be provided to tenants regarding the features of green appliances. The tenant education shall include the intent, benefits, use and maintenance of green building features.

■ QAP awards 10 points to developments that submit a Green Development Plan developed by a green accredited, trained and experienced professional that demonstrates compliance with the Enterprise Green Communities Criteria.



## Threshold Criteria and Design Requirements

- Agency Minimum Development Standards require submission of a Phase I Environmental Report in conformance with ASTM Standard E-1527. If this report recommends additional testing, a Phase II Environmental Report is required prior to closing.

- Minimum Development Standards require new construction developments to meet or exceed the overall U-Value standards with a Home Energy Rating System (HERS) index of 100 established by the International Energy Conservation Code (IECC). Agency requires an architect's certification at credit reservation that the design of the proposed construction meets the IECC standards. Prior to construction, the plans of each new development are reviewed and approved by an Agency-certified home energy rater to verify that the planned construction as per design and specification will meet or exceed the overall U-Value with a HERS index of 100. An energy audit performed by a certified home energy rater is required on each building after it is completed to verify that actual construction meets the above listed requirements.

- Minimum Development Standards require use of low-maintenance exterior building finishes including brick, stone, hardy board, fiber cement siding or vinyl siding. If vinyl siding is used, it must be at least .042 inches in thickness and have a formed, insulating backing.

- Minimum Development Standards require all developments to insulate footings, install vapor barrier under slabs, and use Tyvek or other suitable exterior house wrap.

- Minimum Development Standards require all developments to provide a minimum of R-38 attic insulation. If buildings have attic ductwork, the trunk line ductwork must also have R-38 insulation.

- Minimum Development Standards require all air conditioning units to have a minimum SEER rating of 13, and all heat pump units to have a minimum HSPF rating of 8.2.

- Minimum Development Standards require use of insulation blankets for all hot water heaters.

- Minimum Development Standards require exterior venting bathroom exhaust fans.

- Agency has detailed energy-efficiency recommended practices, providing minimum and better standards for insulation, window U-value, HVAC equipment performance, water heater energy factors and infiltration rates. Specific recommendations follow:

- **Energy-efficiency recommended practices for insulation include: attic (R-38 minimum, R-49 better); wall (R-18 minimum, R-22 better); floors over unheated spaces (R-25 minimum, R-30 better); foundation/basement walls (R-10 minimum, R-15 better); foundation/crawl space walls (R-10 minimum, R-16 better); and foundation/slab on grade (R-8 minimum, R-10 better). Recommended window U-values are 0.36 minimum, 0.33 better. (Note: all factors strengthened in 2007.)**

- **Energy-efficiency recommended practices for heating and cooling equipment include: forced-air heating system (90 AFUE minimum, 94 AFUE better); air conditioner (13 SEER minimum, 16 SEER better); air source heat pump (8.2 HSPF minimum, 9.05 HSPF better); and ground source heat pump (11.5 EER minimum, 15 EER better). The recommended practices also address HVAC distribution systems, including ductwork design, insulation, joint sealing and ventilation. (Note: all factors strengthened in 2007.)**

- **Energy-efficiency recommended practices for water heater ratings are: natural gas or propane (0.65 EF minimum) and electric (0.92 EF minimum). The standards also recommend insulation of water pipes that run through unconditioned areas, and use of water conserving showerheads with maximum flow rate of 2.5 gallons per minute. (Note: water heater energy factors strengthened in 2007.)**

- Energy-efficiency recommended practices for infiltration include: wood frame windows (0.34 cfm per foot of operable sash crack); aluminum and PVC frame windows (0.37 cfm per foot of operable sash crack); wood doors (0.35 sliders, 0.5 swinging); and aluminum and PVC doors (0.37 sliders, 0.5 swinging). The standards also address building infiltration, providing additional recommendations on joint sealing and use of vapor wrap.

## Selection Criteria Incentives

- QAP awards up to 20 points to developments for site suitability, considering neighborhood growth patterns and proximity to transportation, jobs, retail stores, schools, daycare, medical services, hospitals, churches and other resident services.



## Threshold Criteria and Design Requirements

■ Minimum design standards require developments to exceed the energy-efficiency requirements of the Kentucky Building Code by at least 20 percent. Documentation must be provided using REScheck or by submitting design and engineering calculations that verify exceeding the code by 20 percent. All projects are inspected to ensure that energy-efficient design and construction practices are utilized.

■ Minimum design standards require a minimum 25-year product warranty on roofing materials, and durable, low-maintenance siding materials including hardiplank, metal, vinyl, cedar or redwood.

■ Minimum design standards require use of high-efficiency HVAC equipment, including heat pump systems with a 13 SEER rating and a HSPF rating of 7.7, and fuel oil and gas-fired furnaces and boilers with a minimum AFUE efficiency of 90 percent.

■ Minimum design standards require use of water-resistant gypsum board on all bathroom walls and within six feet of wall surfaces where the drywall can be splashed such as kitchen sink, next to water heater and/or washer.

■ Minimum design standards require a minimum 150 CFM kitchen range hood vented to the exterior of the building.

■ Minimum design standards indicate a preference for radon venting and copper water lines.

■ Minimum design standards require 1.6 gallons per flush toilets, insulated water lines, and overflow pans for washers and hot water heaters.

## Selection Criteria Incentives

■ QAP awards 2 points to developments that incorporate brick, stone, hardiplank or similar covering on 50 percent or more of exterior walls.

■ QAP awards 2 points to developments that incorporate Energy Star design features. To receive points, developments must incorporate Energy Star heating and cooling products, Energy Star windows, or five or more Energy Star light fixtures, appliances, ceiling fans equipped with light fixtures, and/or ventilation fans. (Note: new scoring criterion in 2007.)

■ QAP awards 2 points to developments in which overall project design includes green construction techniques. To receive points, developments must incorporate at least three of the following LEED building criteria: development location within 1/4 mile of two or more public or campus bus lines; designation of non-smoking buildings; use of low-VOC adhesives, sealants

and primers; use of 50% minimum Forest Stewardship Council-certified wood based materials and products; provision of vegetated open space equal to building footprint or 20% of project site; and provision of tenant recycling area collecting (at minimum) paper, corrugated cardboard, glass, plastics and metals. (Note: new scoring criterion in 2007.)

Note: Agency has two QAPs in effect for 2007; one for regular per capita Credit authority, and a separate one for additional GO-Zone Credit authority provided by Congress pursuant to the Gulf Opportunity Zone Act of 2005 in response to Hurricanes Katrina and Rita. Applicability of each provision below is specified.

## Threshold Criteria and Design Requirements

■ All developments must provide evidence that reasonable transportation services are currently proximate to the site or, if such transportation services are not, a narrative statement of how tenants will access commercial, educational, recreational and other services upon project completion. (Note: new requirement in 2007.) (Per Capita and GO-Zone QAPs)

■ All developments must provide evidence that primary educational facilities are reasonably available to school-age children of tenants if the project is for family units or, if such facilities are not, a narrative statement of how school-age children will access public educational facilities. (Note: new requirement in 2007.) (Per Capita and GO-Zone QAPs)

■ Minimum project requirements include Energy Star windows and doors. Windows must have U-value of 0.4 or less, and solar heat gain coefficient of 0.4 or less. (Note: new requirement in 2007. The 2006 QAP awarded points for such measures.) (Per Capita and GO-Zone QAPs)

■ Minimum project requirements include use of Energy Star furnace (90% AFUE), heat pump (HSPF 8.2) or air conditioner (SEER 14). (Note: new requirement in 2007. The 2006 QAP awarded points for such measures.) (Per Capita and GO-Zone QAPs)

■ Minimum project requirements include use of Energy Star refrigerator and dishwasher, and energy-efficient water heater (Energy Factor of 0.62 or higher for gas or Energy Factor of 0.93 or higher for electric). (Note: new requirement in 2007. The 2006 QAP awarded points for such measures.) (Per Capita and GO-Zone QAPs)

## Selection Criteria Incentives

■ QAP awards 25 points to developments in which all buildings are Green Buildings. To receive points, buildings must qualify as LEED certified (with a minimum of 26 points under the LEED Green Building Rating System), or meet specified energy efficiency, resource conservation and smart growth criteria of the Enterprise Green Communities initiative. These criteria include a score of 20 or less on the 2006 Home Energy Rating System Index; provision of Energy Star appliances; heating and cooling loads per most recent ACCA Manual J and size equipment using Manual S; Energy Star windows and sliding glass doors; SEER 13 air conditioning units; storm water protection practices; carpet systems meeting or exceeding the Carpet and Rug Institute Green Label Plus program

Air Quality Test Program; cabinets, counter substrates and trim materials with no added urea formaldehyde or fully sealed on all six surfaces; exterior-venting bathroom fans connected to either a timer or a humidistat sensor; water-conserving plumbing fixtures; water-resistant materials in first floor living spaces; and location within 1/4 mile of public transit or within 1/2 mile of 5 basic community services (i.e., grocery store, bank, place of worship, pharmacy, post office, etc.). (Note: new scoring criterion in 2007.) (GO-Zone QAP)

■ QAP awards up to 30 points to developments located in proximity to positive neighborhood features such as grocery store, library, public transportation, bank, school, post office, pharmacy, daycare, etc. (Note: new

scoring criterion in 2007.) (Per Capita and GO-Zone QAPs)

■ QAP awards 10 points to developments that exceed the 15-year maintenance-free exterior standard. (Per Capita and GO-Zone QAPs)

■ QAP awards 10 points to developments with all brick or stucco exteriors. (Per Capita and GO-Zone QAPs)

■ QAP awards 10 points to developments with 30- to 50-year roof warranties. (Per Capita and GO-Zone QAPs)

■ QAP awards 10 points to developments with storm windows. (Per Capita and GO-Zone QAPs)

## Other Policies

■ All projects involving use of existing structures must submit an Environmental Restrictions Checklist completed by a professional licensed to conduct environmental testing. Any finding that environmental hazards exist must be mitigated or abated.



## Threshold Criteria and Design Requirements

■ Agency Construction Standards require minimum insulation of R-19 for walls and R-38 for ceilings.

■ Construction Standards require vapor barrier on the interior surfaces of all wall and ceiling framing, vapor barrier under all concrete slabs and/or crawl space floors, and passive under slab radon venting systems.

■ Construction Standards require exterior-venting kitchen range hoods equipped with a damper.

■ All developments are subject to detailed agency Green Building Standards. Rehabilitation projects must conform to the guidelines to the extent that their scope of work includes any specific measure. Specific standards follow.

■ Green Building Standards require landscaping with at least 75% northern hardy native species that do not require irrigation, preservation of existing vegetation, and minimizing light pollution to the night sky.

■ Green Building Standards require a building envelope water management plan for prevention of indoor air quality (IAQ) problems from mold.

■ Green Building Standards require sealing the building envelope to prevent air leaks and insulating consistent with either 2004 IECC requirements or state law requirements, whichever is more stringent. The standards also require spaces between trusses or rafters to have blocking at the soffit to prevent windwashing of attic insulation, and prohibit pipes or ducts in outside walls.

■ Green Building Standards require positioning and sizing of operable windows and glazing systems to take advantage of natural ventilation, cooling and daylighting. The standards also require energy-efficient windows optimized for solar gain or advanced framing techniques such as OVE, SIPS, ICF, stress skin panel and others.

■ Green Building Standards require Energy Star systems and appliances; energy-efficient bathroom exhaust fans; low-flow faucets, toilets and showerheads; and duct sealing to prevent air leakage.

■ **Green Building Standards require Energy Star lighting, lamps and fixtures, automatic lighting controls to minimize energy use, and LED emergency exit signs. The standards prohibit recessed light fixtures. (Note: automatic lighting control is a new requirement in 2007 standards.)**

■ Green Building Standards require commissioning for projects of five units or more with central mechanical systems. In addition, a representative number of units must be "Blower Door" tested to verify effectiveness of air sealing and a representative sampling of ducted air distribution systems must be tested to verify effectiveness of duct.

■ Green Building Standards require low-VOC paint, adhesives and sealants. Any carpet installed must meet CRI low-emission test standard, and carpet is prohibited in kitchens, bathrooms or within 3' of entry doors.

■ Green Building Standards require use of framing and finish lumber harvested from sustainably managed forests or local/regional materials or durable materials.

■ Green Building Standards require developments to provide tenants with educational materials about green design, building operations, recycling and building maintenance. The standards also require non-mercury thermostats and space for recycling containers at convenient locations.

■ **Green Building Standards require construction waste and/or debris recycling to the extent possible. (Note: new requirement in 2007 standards.)**

## Selection Criteria Incentives

■ QAP awards 1 point to developments located within 1/4 mile of a designated pick-up location for a year-round regularly scheduled means of public transportation.

■ QAP awards 2 points to developments that submit a letter from the State Planning Office supporting the project as promoting the principles of smart growth and minimizing the effects of sprawl.

■ **QAP awards 1 point to developments prohibiting smoking in all units and common areas of the project. (Note: new scoring criterion in 2007.)**



## Threshold Criteria and Design Requirements

■ All new construction developments must be located in a Priority Funding Area under Maryland's Priority Places Initiative.

■ All developments must submit Environmental Due Diligence checklist noting all geologic features of the site plus environmental risks such as asbestos, lead paint, or mold.

■ All rehabilitation developments must be certified by the Maryland Department of the Environment as lead-safe and meet HUD/EPA clearance standards upon rehabilitation completion.

## Selection Criteria Incentives

■ QAP awards 5 points to developments that demonstrate environmental sustainability. To qualify for points, developments must document receipt of funding or consistency with the Enterprise Green Communities Criteria. Alternatively, developments that receive maximum points in four of the agency's eight development quality criteria and satisfy at least one of the following requirements may also receive points: 1) development using green building criteria from Earthcraft, the National Association of Homebuilders (NAHB) Model Green Home Building Guidelines or other similar program promoting sustainable development practices; 2) design by a U.S. Green Building Council (LEED) certified design professional; 3) redevelopment of a brownfields site; or 4) development with density exceeding 25 units per acre that is part of a locally approved transit oriented development plan and is located within 0.25 miles of a mass or public transit station, rail station, or bus depot or stop. (Note: scoring criterion is new in 2007.)

■ QAP awards up to 7 points to developments exhibiting superior site layout, considering factors such as accessibility, traffic flow, storm water drainage, use of existing topography, recreation, noise mitigation, green space, energy conservation and maintenance requirements.

■ QAP awards up to 7 points to developments incorporating high-quality building materials, furnishings, and equipment designed for durability, long-term performance and reduced maintenance. Product examples include masonry or other highly durable exterior materials such as cement fiber siding, stucco or stone; heavy duty paving; installation of central or split HVAC systems; high-performance roofing specified for durability; and upgraded exterior and interior trim, cabinetry, floor coverings, plumbing and electrical fixtures.

■ QAP awards up to 7 points to developments incorporating design features that provide energy efficiency and contribute to a healthy environment over the project life. Product examples include high-efficiency (14.5 SEER rating) HVAC units; thermally efficient windows and doors; insulation with an R-rating at least 20 percent above that required by code; Energy Star light and plumbing fixtures, water heaters and appliances; special features such as additional attic venting, water conserving devices or other cost-effective energy improvements which exceed building code requirements; low-toxic, solvent-free paints or primers, organic compound sealers and adhesives; composite or engineered wood free of added urea formaldehyde; Green Label certified carpet; and other design features that minimize energy consumption and reduce environmental impact such as site orientation, overhangs, solar features, photovoltaic systems, use of recycled content material, water-permeable paving materials and water-conserving landscaping. (Note: criterion is enhanced to include higher SEER rating.)

■ QAP awards up to 6 points to developments for proximity to parks, schools, cultural centers, grocery stores, pharmacies, public transportation, medical facilities and other resident services.

## Threshold Criteria and Design Requirements

■ All developments must document consistency with statewide Sustainable Development Principles: 1. Concentrate development and mix uses; 2. Advance equity; 3. Make efficient decisions; 4. Protect land and ecosystems; 5. Use natural resources wisely; 6. Expand housing opportunities; 7. Provide transportation choice; 8. Increase job and business opportunities; 9. Promote clean energy; and 10. Plan regionally. The state uses these principles as part of the threshold evaluation for Housing Credit applications. Relevant principles follow. (Note: principles revised in 2007.)

■ Sustainable Development Principles require support of the revitalization of city and town centers and neighborhoods by promoting development that is compact, conserves land, protects historic resources and integrates uses; remediation and reuse of existing sites, structures and infrastructure rather than new construction in undeveloped areas; and creation of pedestrian-friendly districts and neighborhoods that mix commercial, civic, cultural, educational and recreational activities with open spaces and homes. (Note: principles revised in 2007.)

■ Sustainable Development Principles require regulatory and permitting processes for development to be clear, predictable, coordinated and timely in accordance with smart growth and environmental stewardship. (Note: principles revised in 2007.)

■ Sustainable Development Principles require construction of developments, buildings and infrastructure that conserve natural resources by reducing waste and pollution through efficient use of land, energy, water and materials. (Note: principles revised in 2007.)

■ Sustainable Development Principles require construction and rehabilitation of homes to meet the needs of people of all abilities, income levels and household types; near jobs, transit and where services are available; and foster development of housing, particularly multifamily and smaller single-family homes, in a way that is compatible with a community's character and vision and with providing new housing choices for people of all means. (Note: principles revised in 2007.)

## Selection Criteria Incentives

■ QAP awards up to 20 points to developments incorporating sustainable design provisions, including whether: the site layout and design adequately address environmental issues, parking needs, rainwater management, appropriate open space requirements, and outdoor improvements appropriate for the target population; the development complies with energy-efficient building envelope guidelines such as EPA's Energy Star standards for appliance and light fixture selection as well as air sealing and insulation measures, which will result in both greater comfort and operating cost efficiencies; the development has incorporated material selection consistent with promoting a healthy interior environmental quality; the development has incorporated mechanical ventilation measures to

control humidity and promote good indoor air quality; the development has provided interior CO detectors; the development conforms to state and local coded-mandated regulations for water conservation requirements (1.6 gal toilets, low-flow devices, etc.) as well as stormwater retention/recharge; and the development has provided for sufficient construction oversight, building envelope testing, and building system commissioning to ensure that the design and efficiency measures are properly installed and adjusted. (Note: criteria revised in 2007 to include three additional measures.)

■ In project design scoring, QAP notes a preference for designs that incorporate site planning, exterior envelope detailing and mechanical system technologies to achieve energy efficiency; demolition, renovation and construction processes that result in waste reduction and conservation of resources; and building materials that are local in origin, durable, incorporate recycled content, or that avoid toxic materials. (Note: new provisions in 2007.)

■ QAP awards up to 20 points to developments for readiness to proceed. Among the criteria evaluated is provision of a Phase One environmental site assessment and any other applicable environmental reviews, including but not limited to lead, asbestos and radon testing.

■ QAP awards up to 5 points to developments insulating the exterior building envelope beyond Building Code requirements to the following levels: walls (R-19 with 2x6 wood stud walls or R-13 plus R-3 continuous insulation with 2x4 wood studs or metal framing); foundation walls (R-11 between wood studs or R-8 continuous); slab on grade (R-5 at slab perimeter with a complete thermal break and R-5 continuous under slab); roof (R-35 between wood joists or trusses, or R-30 continuous). Developments must also provide a continuous air infiltration barrier around the insulated perimeter with all joints sealed, including terminations at roof, windows and doors; install spray foam (minimally expanding) to seal and insulate around all doors and windows, and at framing joints; confirm effective air-sealing measures by commissioning an independent blower door test that shows air leakage of less than 8 ACH50; and confirm that adequate mechanical ventilation is provided throughout in order to maintain healthy air quality. (Note: identical to 2006 provision except the final provision for ventilation, which is new.)

■ QAP awards up to 5 points to developments that: install boilers with a minimum efficiency of 85% or furnaces with a minimum efficiency of 90%; install controls and heat distribution systems that allow operation of the boiler or furnace at peak efficiency; install thermostats with an upper limit of 75 degrees Fahrenheit; install an indirectly-fired domestic hot water system or a tankless hot water system; do not install central air-conditioning systems (unless for elderly housing); provide automatic lighting controls controlled by occupancy and/or lighting conditions where applicable; install water conservation measures beyond those required by building code, including both domestic water system components (low/no water-use appliances and fixtures) as well as water recapturing systems (rainwater for irrigations, greywater recycling systems, etc.). (Note: points increased in 2007 and criterion expanded to include final two provisions.)

■ QAP awards up to 4 points to developments that install kitchen exhaust fans ducted to the outside; provide continuous or intermittent mechanical ventilation of interior living spaces; use only low-VOC or no-VOC paints, coatings and adhesives; ventilate the building during initial curing period; do not install carpet, or use only carpets specifically designed to eliminate off gassing; use only low-VOC carpet adhesives, or install with tackless strips; do not install carpets in areas of the building exposed to heavy pollutant load; avoid interior products made with formaldehyde or urea-formaldehyde binders; and provide separate air exhaust systems for any building areas where janitorial or maintenance chemicals are to be stored. (Note: points increased in 2007 and criterion expanded to include final provision.)

■ QAP awards up to 4 points to developments that orient buildings and structures to maximize energy efficiency and thermal performance; install systems for the control of roof/site rainwater via groundwater recharge and/or controlled release into municipal storm sewer systems; use native landscape plants that are drought tolerant, avoid plants that are on the Massachusetts Invasive Species list, use native ground-cover plants in lieu of grass where appropriate, and preserve existing trees where possible; minimize light pollution of the night sky by avoiding over-lighting outdoor spaces and by directing lighting toward the ground plane; plant fast-growing deciduous trees along the south side of the buildings and paved surfaces to provide summer shade; and install covered bike racks. (Note: new scoring criterion in 2007.)

■ QAP awards up to 2 points to developments that incorporate renewable energy (wind energy, stationary fuel cells, hydro-electric power, solar photovoltaics, solar thermal collectors (hot water), landfill gas, or bio diesel) in the plans and specifications. (Note: new scoring criterion in 2007.)

■ QAP awards 6 points to developments located within a half mile of a commuter rail station/stop, subway station/stop, bus station/stop, or ferry terminal.

■ In evaluating the sustainable design aspects of each development, the Agency will consider the following site issues: minimizing light pollution of the night sky by avoiding over-lighting of outdoor spaces and by directing lighting toward the ground plane; using native landscape plants that are drought tolerant; avoiding plants that are on the Massachusetts invasive species list; using native ground-cover plants where grass is not appropriate; preserving existing trees where possible; installing systems for recharge of roof rainwater runoff into groundwater; planting fast-growing deciduous trees along the south side of buildings and paved surfaces to provide summer shade; and installing covered bike racks.

■ In evaluating the sustainable design aspects of each development, the Agency will consider the following thermal issues: insulating the building to a standard 15% better than code requirements, providing attic/ roof insulation of R-40 minimum; sealing the building envelope against air infiltration; using spray foam around windows and doors and sealant beneath plates; providing complete air infiltration barrier, including lapped and taped joints; providing a complete thermal break at slab edge and underside of slab-on-grade construction; designing the building envelope to prevent water infiltration; and installing flashing at horizontal exterior joints.

■ In evaluating the sustainable design aspects of each development, the Agency will consider the following energy-efficient equipment issues: installing appropriately sized heating systems, which take into account air sealing measures and insulating values; installing boilers or furnaces that exceed 90% efficiency; installing Energy Star appliances; installing only fluorescent light fixtures within units and LED emergency exit signs; installing bathroom fans with energy-efficient motor rated for continuous duty with a minimum rating of 50 cfm; and installing systems such as passive solar to harness renewable energy.

## Selection Criteria Incentives

■ In evaluating the sustainable design aspects of each development, the Agency will consider the following environmental issues: using no-VOC interior paints; using low-VOC carpets, flooring and adhesives; providing mandatory CO detector system; installing non-paper faced mold-resistant wallboard or cement board at areas susceptible to moisture, including kitchens, bathrooms and laundry rooms; installing water-impervious sheet flooring with all edges sealed to the baseboard, tub and threshold to form a water-tight floor; and installing FSC-certified wood for at least 60% of total wood used.

■ In evaluating the sustainable design aspects of each development, the Agency will consider the following additional issues: specifying that demolition procedures recycle at least 50% of all removed materials by volume, including site materials, appliances, structure and finishes; specifying that construction procedures use materials efficiently, and that at least 75% of construction waste be recycled; recycling all cardboard and foam packaging material; ventilating new or renovated wood construction fully after exposure to water so that wood dries completely; ventilating the interior

spaces after substantial completion and before occupancy to dry construction and remove any accumulated VOCs; providing designated spaces for recycling containers for use by residents with weekly collections; providing tenants with educational materials about efficient operation, recycling procedures and building maintenance; and having all building systems inspected by a qualified independent commissioning agent immediately after construction.

## Michigan

### Threshold Criteria and Design Requirements

■ All developments must submit a Phase I Environmental Review, and if necessary, a Phase II review and remediation plan.

■ Standards of Design provide detailed insulation requirements, including a minimum wall insulation factor of R-19, a minimum ceiling insulation factor of R-38, and use of vapor barriers for exterior walls, crawl spaces and slabs on grade.

■ Standards of Design require exterior doors to have a maximum thermal transmission coefficient of  $U = .50$ .

■ Standards of Design require all windows to have standard weatherstripping, thermal break frames and to be double or triple glazed. The standards also provide design requirements for condensation resistance, thermal transmission and air infiltration.

■ Standards of Design require minimum 25-year warranty on roof shingles.

■ Standards of Design require all appliances, including range and ovens, refrigerators, water heaters, washers, dryers, dishwashers and air conditioners, to be energy efficient.

■ Standards of Design require exterior-venting bathroom exhaust fans.

■ Standards of Design require showerheads to have a maximum design flow of 3 GPM.

## Selection Criteria Incentives

■ QAP awards up to 8 points to developments for walkable community features, including provision of sidewalks that connect to sidewalks in surrounding area; proximity to pedestrian street crossings, public transportation stops, commercial zones, public parks or historic district/building; and location adjacent to public street with maximum speed limit of 25 mph or designated bicycle lanes.

■ QAP awards 2 points to developments that demonstrate the use of products and goods manufactured by Michigan-based corporations.

## Other Policies

■ QAP general priorities reference Michigan Land Use Leadership Council recommendations for making the most effective use of Michigan's land, including: creating walkable neighborhoods; fostering distinctive, attractive communities with a strong sense of place; preserving open space, farmland, natural beauty and critical environmental areas; providing a variety of transportation choices; directing development towards existing communities; and taking advantage of compact development design.

## Minnesota

### Threshold Criteria and Design Requirements

■ Agency design standards emphasize the importance of selecting building materials that serve the longest reasonably expected term, consider sustainability or green building concepts, reduce the waste of construction materials and minimize the development impact on the surroundings. Recommended materials are offered for roofing, exterior siding, windows, doors, flooring, paints and cabinetry.

### Selection Criteria Incentives

■ **QAP awards 1 point to developments designed to include green design criteria. To receive this point, developments must incorporate 8 of 15 green design criteria into design and construction. Among the specified criteria are smart site location, water conserving appliances and fixtures, water conserving landscaping, Energy Star appliances, energy-efficient lighting, exterior-venting bathroom fans, energy-efficient water heaters, cold water pipe insulation and surface water drainage. (Note: new scoring criterion in 2007.)**

■ **QAP awards an additional 1 point to developments that meet the above requirement and have a firm commitment of funding specific to and adequate to fund the green design in the proposed scope of work. The proposed green design components must meet at least the minimum criteria and scoring requirements of the Green Communities Initiative of Enterprise. (Note: new scoring criterion in 2007.)**

■ Agency staff inspect all development sites to analyze physical characteristics, surrounding community, location of schools, shopping, public transportation, employment centers, community and housing service facilities, and the suitability of the site for the proposed housing.

■ Agency site review principles include: 1. linkage (development part of a comprehensive community development effort that links housing, jobs, transportation, recreation, retail services, schools, social and other services); 2. jobs (development located near jobs and in areas of job growth that addresses housing needs of the local work force); 3. land use (housing developed to maximize the adaptive reuse of existing residential rental buildings and the use of existing infrastructure, or to maximize the efficient use of land and infrastructure and minimize the loss of agricultural and

green space for new development); and 4. transportation (housing developed near regional and interregional transportation corridors and transit ways).

■ Agency staff consider environmental issues such as asbestos and underground storage tanks when inspecting sites.



# Mississippi

## Threshold Criteria and Design Requirements

■ Design Quality Standards require R-19 exterior wall insulation, R-30 roof or attic insulation (R-38 in Northern Mississippi), vapor barriers, insulated attic hatches, and baffle vents. (Note: all requirements are new or strengthened in 2007.)

■ Design Quality Standards require double-pane insulated windows with R-25 value sealed on three sides to vapor barrier. (Note: new requirement in 2007.)

■ Design Quality Standards require insulated exterior doors sealed to vapor barrier. (Note: new requirement in 2007.)

■ Design Quality Standards require gas water heaters with an energy factor of .62 or higher, or electric water heaters with an energy factor of .92 or higher. (Note: new requirement in 2007.)

■ Design Quality Standards require placement of water heaters in drain pans with drain piping plumbed to the outside, plus insulation of all water piping located on exterior walls and in attic space.

■ Design Quality Standards require installation of central air and heating units. HVAC system must meet Energy Star guidelines (13 SEER). (Note: Energy Star requirement is new in 2007.)

■ Design Quality Standards require placement of HVAC units and water heaters in mechanical closets, plus insulation of HVAC refrigeration lines. The standards prohibit through-wall HVAC units and placement of HVAC units and water heaters in attic spaces.

■ Design Quality Standards require fluorescent lighting in kitchen spaces.

## Selection Criteria Incentives

■ QAP awards up to 5 points to developments incorporating specified energy-efficiency measures into project design and construction. One point is awarded for each of the following: use of Energy Star appliances, no-VOC interior paint, formaldehyde-free insulation, at least one high-efficiency toilet (1.3 gpf) or dual flush per unit and energy-efficient windows. (Note: new scoring criterion in 2007.)



# Missouri

## Threshold Criteria and Design Requirements

■ All development sites are evaluated for suitability, environmental issues, site and neighborhood standards, conformance with neighborhood character and land use patterns, marketability, and proximity to public transportation, shopping, schools, medical services and parks/playgrounds.

■ Agency development standards require all new construction developments to include Energy Star appliances. Use of Energy Star furnaces, water heaters, insulation and windows is highly recommended.

■ Agency development standards require use of construction materials that extend the longevity of the building, including materials, products and equipment that are more durable than standard construction materials. (Note: new requirement in 2007.)

■ Architectural Procedures Manual requires submittal of Phase I Environmental report and, if additional testing recommended, a Phase II Environmental report.

## Selection Criteria Incentives

- Agency development standards encourage implementation of solar and “green building” design features. (Note: new policy in 2007.)
- In evaluating developments, agency encourages the use of Energy Star appliances.

# Montana

## Threshold Criteria and Design Requirements

- No policies specified.

## Selection Criteria Incentives

- QAP awards up to 6 points to developments that incorporate specified energy-efficiency measures including enhanced insulation, energy-efficient windows, furnace specification in excess of IECC standards, Energy Star appliances, water conserving plumbing fixtures, energy efficient lighting, solar panels, light colored roofing, whole house fan, permeable paving materials, programmable thermostats, hot water pipe insulation, building orientation, and other measures. (Note: new scoring criterion in 2007.)
- QAP awards up to 4 points to developments that incorporate specified green building and sustainability measures, including low/no-VOC paints and adhesives, use of Montana products, engineered lumber, concrete with flyash additive, recycled insulation, water efficient landscaping, formaldehyde-free countertops, dimmable lighting, motion sensors, recycling of construction materials, vented range and bathroom fans, recycled building materials and other measures. (Note: new scoring criterion in 2007.)
- QAP awards up to 3 points for proximity of development to tenant services (schools, medical facilities, shopping, transportation).
- QAP awards up to 4 points to developments that include higher quality amenities in comparison with other applications in the same round of competition. Among the items considered is maximizing energy efficiency.

## Other Policies

- QAP delineates energy and green building initiatives and goals for the state, including an integrated design process; sustainable site, location and design; energy and water conservation; material and resource efficiency; and indoor environmental quality.



## Threshold Criteria and Design Requirements

- All developments must submit an Environmental Assessment prepared by an unrelated third party. For rehabilitation developments, such report must include an assessment of the risks relating to lead based paint, asbestos and radon.

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## Selection Criteria Incentives

- QAP awards 3 points to developments designed in accordance with the Nebraska Green Built Home program.

- QAP awards 3 points to developments incorporating a geothermal (ground source) closed loop heat pump system.

- QAP awards 2 points to developments incorporating a high-efficiency heating/cooling system (90% AFUE-Gas Heating, and 12 SEER Air Conditioner, or 7.8 HSPF/12 SEER Heat Pump).

- QAP awards 2 points to developments with at least 25 percent of the exterior wall surfaces on the whole elevation of the building constructed with, brick or stone exterior finish material.

- QAP awards 1 point to developments with roofing and siding materials that exceed the relevant ASTM standards.

- **QAP awards 1 point to developments providing a central area on-site and accessible to all units for the collection and storage of recyclables. (Note: new scoring criterion in 2007.)**



## Threshold Criteria and Design Requirements

- All developments must meet mandatory Energy Conservation Standards, including general building performance equal to EPA Energy Star Home program (an overall energy efficiency rating of at least 86 verified by building analysis using REM/Design or REM/Rate) and testing post construction using sampling protocol.

- Energy Conservation Standards require HVAC equipment sizing using ACCA's Manual J or equivalent protocol. Minimum standards include 90 AFUE conventional forced air furnaces, 13 SEER split system central A/C and air source heat pumps, and 79 CAafue combination space heating/water heaters.

- Energy Conservation Standards include other HVAC requirements for maximum duct leakage, programmable and setback thermostats, minimum ventilation, return air and ceiling fans.

- Energy Conservation Standards require water heaters with a minimum energy factor of 0.61.

- Energy Conservation Standards require minimum insulation factors for attic/ceiling (R-38 Northern Nevada/R-30 Southern Nevada); walls (R-19/R-15); band joists (R-19/R-15); floors over crawl spaces (R-19/R-15); and slab foundations (R-10/R-5). The Standards also require window U-factors of 0.36 and SHGC of 0.35, and air infiltration of 0.35 average natural air changes/hour.

- Energy Conservation Standards require Energy Star refrigerators, dishwashers, clothes washers and light fixtures.

- Energy Conservation Standards require water conserving showerheads (2.5 gpm maximum) and faucets (2.0 gpm maximum).

- Energy Conservation Standards require quality assurance testing during project construction and/or construction completion to verify HVAC system requirements and installation, duct leakage, building envelope insulation and air leakage, appliance requirements, and water conservation measures.

- All developments must undergo a pre-construction energy audit, interim energy audits during construction, and a final energy audit and inspection at project completion to determine whether the project achieves the energy efficiency standard and requirements. Final inspections include REM-rate energy audit to determine the overall energy efficiency of the project and inspection of ceiling, wall and floor insulations; blower-door test to determine unit air leakage within residential units; and physical inspection of buildings and units to determine whether the energy-efficiency measures identified in the pre-construction energy audit have been installed.

- All developments must provide Energy Star refrigerator, microwave oven, garbage disposal and community laundry facilities.

## Selection Criteria Incentives

- QAP awards 2 points to developments for submission of Phase I environmental study.

- QAP awards 1 point to developments located within 1/4 mile of a local transit route.

- QAP awards up to 2 points to developments located within 1/4 mile of resident services, including grocery, pharmacy, bank, park, daycare, medical services and library (1 point for every three services).

- QAP awards 3 points to developments that 1) are part of a Redevelopment Project Area, 2) are located in a locally designated priority development area, or 3) involve acquisition and rehabilitation of housing in an area covered by a state or local revitalization plan or strategy targeting the rehabilitation of existing housing.

- QAP awards 5 points to developments that have at least 75 percent desert and/or xeriscaped landscaping.

- **QAP awards up to 4 points to developments using interior paints with no volatile organic compounds (VOC), low-VOC carpeting and padding, low-VOC adhesives or formaldehyde-free particle board (1 point for each item used). (Note: points increased in 2007.)**

- **QAP awards 1 point each to developments using tankless hot water heaters and triple pane low-E windows. (Note: new scoring criterion in 2007.)**



# New Hampshire

## Threshold Criteria and Design Requirements

■ All developments must submit a Phase I Environmental Report that meets ASTM Standards. Older buildings planned for renovation must complete asbestos and lead testing, and buildings planned for demolition should test suspect materials for asbestos. Issues raised by the Phase I report should be resolved to the extent possible.

■ Design and Construction Standards require properly engineered grading and storm drainage, sensitive treatment of existing valuable site features, and elimination of abrupt or excessive grade changes.

■ Design and Construction Standards require minimum insulation ratings for exterior walls (R-21), roof/ceiling assemblies (R-49), floors above unconditioned spaces (R-21) and slab on grade (R-13). The Standards also require installation methods for insulation and requirements for air sealing to follow the Energy Star Program Technical Standards.

■ Design and Construction Standards require roof coverings with a minimum 25-year warranty.

■ Design and Construction Standards require double hung, awning or casement type windows with Energy Star rating and a U-factor less than or equal to 0.35.

■ Design and Construction Standards require boilers (oil and gas) to have a minimum AFUE rating of 85, furnaces (oil and gas) to have a minimum AFUE rating of 90, and central air conditioning units to have a minimum SEER rating of 13.

■ Design and Construction Standards require insulation of all hot/cold pipes, heating pipes, heating ducts and conditioned air ducts, plus joint sealing with mastic.

■ Design and Construction Standards require provision of background ventilation according to Energy Star Technical Standards. Mechanical ventilation is required in all kitchen and bath areas. Kitchen and bath fans must be Energy Star rated and have a minimum 110 cfm rating with a maximum noise rating of 1.5 sones. All ventilation fans must be rated for continuous operation, have a humidistat, and be ducted to the exterior of the building.

■ Design and Construction Standards require developments using gas-fired furnaces and appliances to install carbon monoxide detectors near the furnace or appliance and also on the lowest living level of the dwelling unit.

■ Design and Construction Standards require moisture-resistant gypsum board for all bathroom wall areas.

■ Design and Construction Standards require Energy Star appliances and interior lighting.

■ **Design and Construction Standards require use of low-VOC building materials, including carpets, paints, coatings and adhesives. (Note: new requirement in 2007.)**

■ Design and Construction Standards encourage voluntary owner incorporation of green building elements, so long as project costs remain reasonable and comparable to other affordable housing projects.

## Selection Criteria Incentives

■ **QAP awards up to 5 points to developments that provide an added green component over and above standard construction. Points are based on the value of the benefit, which is defined as reducing operating expenses or extending building life. This category is designed to encourage implementation and creativity, and provide examples for future projects. Items mandated under Design and Construction Standards are not eligible for points. (Note: new scoring criterion in 2007.)**

■ QAP awards 30 points to developments in existing downtown or urban locations, or on infill sites.



# New Jersey

## Threshold Criteria and Design Requirements

■ All developments (except master-metered rehabilitation and minimum rehab projects) must participate in Energy Star Homes program. Certification of Energy Star compliance, preliminary ratings, thermal bypass inspection and blower door test results, and RESnet verification required at placed-in-service date.

## Selection Criteria Incentives

■ QAP awards up to 10 points to developments located in state-designated smart growth areas.

■ QAP awards up to 3 points for the provision of specified unit amenities, including central air conditioning or Energy Star refrigerators, washers, dryers and dishwashers.

■ QAP awards up to 2 points for the provision of specified project amenities, including laundry facilities using Energy Star commercial equipment or 30-year manufacturer's warranty on roof shingles.

■ QAP awards up to 2 points for development proximity to schools, daycare centers, food stores, community centers, public transportation and parks, or for location within a designated school renaissance zone.

■ QAP awards 1 point to developments participating in the New Jersey Affordable Green Program. To qualify, the development must include a copy of the completed and submitted Green Homes application and an executed letter of intent between the developer and the New Jersey Green Homes office.

■ QAP awards 1 point to developments incorporating a solar photovoltaic system into the project. The system must be sized to cover at least 75 percent of the project's common area electrical expense and be at least a 20 kilowatt system.

■ QAP awards 2 points to projects developed on a Brownfields site.



# New Mexico

## Threshold Criteria and Design Requirements

■ Mandatory Design Standards require low-maintenance exterior building materials

■ Mandatory Design Standards require a complete landscape plan that maximizes existing natural features or otherwise enhances open space, and wherever possible, uses native, semi-native, or drought tolerant plants. The Standards also require installation of low-water use maintenance systems (e.g., irrigation systems) to maintain landscaping.

■ Mandatory Design Standards require exterior-venting kitchen range hoods.

■ Mandatory Design Standards require rehabilitation projects to propose a scope of work that addresses using energy-efficient products (windows, insulation, etc.) to replace inferior ones. Scope of work must address improving water efficiency with changes in landscaping, appliances and fixtures, and use of low-maintenance materials; plus improving electrical

system, heating and cooling units, plumbing fixtures, water heaters, toilets, sinks, faucets and tub/shower units, especially with use of water and energy conserving equipment and systems.

## Selection Criteria Incentives

■ QAP awards up to 20 points to developments that benefit communities and the environment through more efficient use of resources, smarter planning and sustainable development. Developments must meet minimum requirements in incorporating green building, energy efficiency, water conservation, healthy materials, and sustainability in design and construction or rehabilitation. To qualify, developments must commit to 1) LEED certification; 2) meeting the Enterprise Green Communities Criteria; or 3) completion of the agency's Green Building Criteria checklist. (Note: points for meeting LEED and Enterprise Green Communities requirements are new in 2007.)

■ Green Building Criteria promote numerous standards for site management, including making optimal use of solar exposure, reducing heat gain, using renewable energies, using porous paved surfaces, reducing erosion, and creating pedestrian-friendly sites.

■ Green Building Criteria promote numerous standards for water conservation, including xeriscape landscaping, rainwater collection systems, low-flow plumbing fixtures, and front-loading washing machines.

■ Green Building Criteria promote numerous standards for energy efficiency, including use of Energy Star appliances and lighting systems, insulated water lines, energy-efficient windows and doors, properly sized water heaters and duct system design, and use of renewable energy measures such as solar panels and solar hot water.

■ Green Building Criteria promote numerous standards for healthy living environments, including adequate HVAC system ventilation; exterior-venting bathroom and kitchen exhaust-fans; low-VOC (volatile organic compounds) paints, primers, sealants and adhesives; composite wood free of urea formaldehyde, and provision of non-smoking establishments. (Note: non-smoking establishment provision is new in 2007.)

■ Green Building Criteria promote numerous standards for construction, including implementation of a construction waste management plan and implementation of an erosion and sedimentation control plan.



## New York

## Threshold Criteria and Design Requirements

■ No policies specified.

## Selection Criteria Incentives

■ QAP awards 2 points to developments that utilize Energy Star appliances and Energy Star HVAC systems or other modifications that produce the same or comparable energy efficiency or savings (DHCR).

■ QAP awards up to 10 points to developments designed and engineered to minimize maintenance and operating costs over the useful life of the project (HFA).

■ QAP awards up to 5 points to development sites suitable for the target population. Depending on the intended population (elderly, families with children, etc.), this criterion requires the evaluation of the proximity of schools, medical and recreational facilities, employment opportunities, appropriate social services, mass transit, etc. (HFA).

## Threshold Criteria and Design Requirements

- Design Quality Standards require use of no or very low-maintenance materials—including high-quality vinyl siding, brick or fiber cement siding—for exterior building coverings.
- Design Quality Standards require very low-maintenance exterior building materials, including fascia and soffit, window and door trim, gable vents, seamless gutters and exterior railings.
- Design Quality Standards require use of anti-fungal shingles with minimum 25-year warranty for all shingle roof applications.
- Design Quality Standards require exterior building wrap; framing that allows for complete building insulation, and sealing doors, windows, plumbing and electrical penetrations against moisture and air leaks.
- Design Quality Standards require use of high-durability, insulated exterior doors (such as steel and fiberglass), and insulated, double-pane vinyl windows with a U-factor of 0.40 or below and a SHGC of 0.48 or below for new construction. (Note: window U-factors are a new requirement in 2007.)
- Design Quality Standards require HVAC systems, including the air handler, to be minimum 13 SEER and properly sized for the unit.
- Design Quality Standards require sealing duct system connections with mastic and fiberglass mesh, and sealing all duct work after installation to keep out construction debris.
- Design Quality Standards require electric water heaters with an Energy Factor of at least .93, gas water heaters with an Energy Factor of at least .61, and water heater tanks placed in an overflow pan and piped to the exterior. (Note: minimum Energy Factors are a new requirement in 2007.)
- Design Quality Standards require Energy Star refrigerators and Energy Star dishwashers. (Note: new requirement in 2007.)
- Design Quality Standards require bathroom exhaust fans rated at 70 CFM, vented to the exterior of the building, and either controlled by a humidistat or wired to run whenever the bathroom light is on.
- Design Quality Standards include numerous sitework and landscaping requirements, including: use of plant material native to the climate and area; removal of roof and gutter system water and surface water through piping and grading; positive drainage at all driveways, parking areas, ramps, walkways and dumpster pads; and prohibition against burying construction waste on site.
- All projects involving use of existing structures must submit a hazardous material report that provides the results of testing for materials, including asbestos, lead-based paint, PCBs, underground storage tanks, and others. The report must include a plan and projected costs for removal of all hazardous materials.
- All preservation and rehabilitation developments must meet additional threshold design requirements. Among these requirements are: 1) replacement and upgrade of mechanical systems and appliances, including HVAC systems, water heaters and plumbing fixtures, electrical panels, refrigerators and ranges; and 2) improving energy efficiency by replacing inefficient doors and windows, adding additional insulation in attics, and upgrading the efficiency of mechanical systems and appliances. (Note: new requirement in 2007.)

## Selection Criteria Incentives

- QAP awards up to 65 points under site evaluation for surrounding land uses and amenities. Among the criteria evaluated in this section are the availability, quality and proximity of services, amenities and features (grocery store, pharmacy, schools, daycare, park, library, hospital, community/senior center, restaurants, bank/credit union, medical offices, fire, police, etc.)
- QAP awards up to 35 points under site evaluation for site suitability. Among the criteria evaluated in this section are access to mass transit, similarity of development scale and architecture to surroundings, and burden on public facilities.
- QAP awards up to 70 points under project design for quality of the building design and the materials and finishes specified. Among the criteria evaluated in this section are the degree to which building exteriors are designed for very low maintenance and extended useful life.

## Other Policies

- Agency may allocate additional credit per unit to developments agreeing to have all buildings comply with Energy Star standards. (Note: new opportunity in 2007.)



# North Dakota

## Threshold Criteria and Design Requirements

- No policies specified.

## Selection Criteria Incentives

■ QAP awards up to 5 points to developments that meet certain Green Communities Criteria. To qualify for points, applicants must submit a written development plan outlining an integrated design approach that demonstrates involvement of the entire development team. The plan should provide a statement of the overall green development goals, the expected outcomes from addressing those goals, and the rationale for choosing each of the green features. Among the many Green Communities Criteria are: proximity to existing development and services; protecting environmental resources; walkable neighborhoods; building orientation;

environmental remediation; water conserving landscaping and irrigation; water conserving appliances and fixtures; overall energy efficiency; Energy Star appliances; energy-efficient windows; energy-efficient lighting; photovoltaic panels; enhanced insulation; recycled content materials; use of local products; certified, salvaged or engineered wood; low- or no-VOC paints, primers; adhesives and sealants; Green label carpets; exterior-venting kitchen and bath exhaust fans; reduced heat-island effect; adequate ventilation; tankless water heaters, and other features. (Note: new scoring criterion in 2007.)



# Ohio

## Threshold Criteria and Design Requirements

■ All developments must include Energy Star central air conditioning systems.

■ **All developments must submit a Mini-Phase I Environmental Site Assessment (MP-1) for the Agency to conduct its site and market evaluation. The assessment includes a site inspection, interview, photographs, database report and summary of historical uses of the site. This requirement was designed for use in screening properties for potential environmental risks. (Note: new requirement in 2007.)**

■ All developments must submit Phase I Environmental Review to receive carryover allocation. The ER must specify compliance with ASTM standard E 1527-00 (or current standard). The owner must submit a narrative that addresses any issues raised in the ER.

■ All developments must submit energy-efficiency certification to receive Form 8609.

## Selection Criteria Incentives

■ QAP awards 10 points to developments based on site location and quality. Among the criteria evaluated are availability and proximity of appropriate public and community services, including public transportation, public safety (police/fire department), schools, daycare/after-school programs, library, community center, shopping, restaurants, parks, recreational facilities, hospital and health care facilities. (Note: new scoring criterion in 2007.)

■ QAP awards 5 points to developments that meet all requirements and guidelines of the Green Communities initiative developed by Enterprise. To receive points, the application must provide evidence that the Enterprise designation has been received.

■ QAP awards 4 points to energy-efficient developments that meet the rating standards listed on OHFA Form 001 (architect certification), including meeting Energy Star program requirements (for new construction developments), or achieving a score of 82 on the Home Energy Ratings System (HERS), meeting the building shell requirements of ASHRAE 90.1-1999, and installing Energy Star heating and cooling equipment (for rehabilitations).

## Oklahoma

### Threshold Criteria and Design Requirements

■ All developments must submit a Phase I Environmental Assessment. If report establishes that environmental hazards currently exist on the site, the applicant must provide either a hazard-abatement plan or an operation and maintenance plan for hazard control. If the Phase I recommends a Phase II, this must also be included.

## Selection Criteria Incentives

■ QAP awards 1 point to developments that provide a minimum of 40% brick facade.

■ QAP awards 1 point to developments that install Energy Star appliances.

■ QAP awards 1 point to developments that install fluorescent light fixtures in all kitchens, bathrooms and utility rooms.

■ QAP awards 1 point to developments that use low E glass in all windows.

■ QAP awards 1 point to developments that install showerheads with a maximum of 2.5 gpm flow rate.

■ QAP awards 1 point to developments that provide ceiling fans in each bedroom and living room.

■ QAP awards 1 point to developments that insulate hot water pipes.

## Threshold Criteria and Design Requirements

- All developments must submit Environmental Review Checklist and Phase I Environmental study.

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## Selection Criteria Incentives

- Selection criteria consider the context of affordable housing in the community, proximity of the development to services and amenities appropriate to the tenant population, access to transportation, location in relation to employment opportunities, achievement of a jobs/housing balance, and achievement of community goals for livability.

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## Other Policies

- QAP delineates various program goals, including encouraging approaches in design, planning, building and financing of low income housing that maintains quality and long-term sustainability, durability and ease of maintenance. The plan also specifies housing near employment centers among its goals.

## Threshold Criteria and Design Requirements

- No policies specified.

## Selection Criteria Incentives

- QAP awards 5 points to developments for completion of a Phase I Environmental Site Assessment.

- QAP awards 5 points to developments that promote energy efficiency by exclusively using Energy Star appliances, light bulbs and ceiling fans plus Energy Star mechanical equipment when such equipment exists.

- QAP awards 5 points to developments that meet Energy Star Standards by achieving a Home Energy Rating System (HERS) design score.

- QAP awards up to 15 points to developments certified to meet the criteria for energy efficiency and conservation, operational savings and sustainable building practices which includes all of the following: install water-saving devices, fixtures and appliances; landscape plantings must be drought-tolerant; design landscaping that does not need irrigation; use Energy Star appliances, light bulbs and ceiling fans, and Energy Star mechanical equipment when such equipment exists;

achieve a design score sufficient to achieve an Energy Star rating; individually meter each unit for electric utilities; use only low-volatile organic compound (VOC) paints, primers and clear finishes; use only low-VOC caulking, sealants and adhesives; composite woods used must be free of added urea formaldehyde or be encapsulated by a durable low-VOC sealant or veneer; carpets must bear the Carpet and Rug Institute "Green Label"; bathroom fans must be Energy Star and equipped with a humidistat sensor or timer; bathroom and kitchen fans and clothes dryers must vent directly to the outdoors; provide 15 cubic feet per minute of fresh air per occupant via natural or mechanical means; HVAC systems must be engineered and properly sized for the space covered; provide tankless water heaters or overflow pans under conventional water heaters; no piping may be located outside of the insulated building envelope; insulate all domestic water pipes; no mold-propagating materials used in damp areas; use moisture-resistant materials in bathrooms and at tub-shower surrounds; provide vapor barriers for all interior slabs

on grade; all below-grade spaces shall be waterproofed and have foundation drainage; install Radon mitigation systems in areas designated as EPA Radon Zone 1 and 2; grading at building perimeter must provide positive drainage away from the building; units with garages must have a CO sensor-controlled exhaust fan and the wall between the garage and living space must be a continuous air barrier; provide termite shields and low-VOC caulking at all floor joints and penetrations to prevent insect infestation; do not use chemical deterrents; use lead safe work practices in all properties built before 1978; provide the owner with a maintenance and operations manual and training, including all materials, systems and equipment used in the construction explaining the Green Building components and amenities, how they benefit the property and how to properly maintain them; provide a Green Building Guide and orientation to the residents explaining the Green Building components and amenities and how they benefit from them.

## Other Policies

- QAP includes a community impact set-aside equal to 20 percent of per capita Credits. The set-aside is designed to recognize the contribution a development can have on neighborhood revitalization by demonstrating community impact and sustainable development.

- Agency may waive maximum per unit basis limits for certain developments. One of the six compelling circumstances justifying a waiver is up-front capital expenditures related to energy-efficiency systems that will result in demonstrable savings in utility costs to the residents, including solar, geothermal or other innovative energy savings techniques. Developers must provide a full explanation and adequate evidence of cost savings.



## Threshold Criteria and Design Requirements

■ Design and Construction Standards require development location in proximity to schools, churches, shopping (grocery stores), recreational facilities and public transportation.

■ Design and Construction Standards require developments to maximize open space, preserve existing wooded areas and specimen trees, and treat existing valuable features (natural foliage, surface contours, streams, ponds, etc.) sensitively.

■ Design and Construction Standards require minimum 25-year roof guarantee with minimum 15 lb. felt under fiberglass or asphalt shingled roofs, 30 lb. felt for metal tile, and 90 lb. felt at valleys for moisture protection.

■ Design and Construction Standards require minimum insulation values for exterior walls (R-13), roof/attic (R-38), floors above unconditioned spaces (R-20), and slab on grade (R-10), plus insulation baffles in roof eaves, vapor barrier under slab, and house wrap on exterior walls.

■ Design and Construction Standards require new heating systems to operate at 82% or better efficiency, with new boilers of cast iron construction. The Standards require repair of existing heating systems to perform at 78% efficiency or better, or replacement.

■ Design and Construction Standards require moisture-resistant gypsum wallboard or cementitious wallboard backer for all bathroom plumbing walls.

■ Design and Construction Standards require exterior-venting range hoods.

■ Agency Environmental Guidelines require an environmental assessment of each development site, including a Phase I Environmental review. Depending on the conclusions and recommendations of the Phase I assessment, a Phase II site assessment may be required.

## Selection Criteria Incentives

■ All development sites are evaluated to assess environmental quality; adequacy of utilities and transportation; proximity to civic, social and commercial services; appropriateness of the development to the specific site (e.g., conformance with neighborhood character and land use patterns); impact on surrounding area; and extent to which the proposal furthers local revitalization efforts).

■ All development sites are evaluated to assess use of materials and energy conservation measures to enhance durability and operating cost efficiency.

■ In reviewing development proposals, additional consideration is given to proposals that address the agency's programmatic policies and objectives, including encouraging high density development, infill development, redevelopment and the adaptive re-use of existing buildings that result in the efficient utilization of land resources and the creation of more compact neighborhoods.

■ In reviewing development proposals, agency evaluates the cost-effectiveness of heating, cooling and electrical systems operation and the use of energy-efficient materials, equipment and/or design (insulation, active and passive solar systems, time clocks, etc.)



# South Carolina

## Threshold Criteria and Design Requirements

■ Mandatory design criteria require anti-fungal roof shingles with minimum 25-year warranty.

■ Mandatory design criteria require insulated, double pane glass windows with either vinyl or aluminum framing for new construction.

■ Mandatory design criteria require a minimum 13 SEER rating for new and replacement HVAC units.

■ Mandatory design criteria require stoves with exhaust fans.

## Selection Criteria Incentives

■ In evaluating developments, agency gives preference for proximity of development site to resident services (grocery store, pharmacy, restaurant, fire station, police station, hospital, doctor's office, public library, public schools, park or playground, public transportation, etc.)

■ **QAP awards up to 15 points to developments using durable siding materials, including brick, stone, exterior fiber cement or vinyl. (Note: new scoring criterion in 2007.)**

■ **QAP awards 10 points to developments for use of architectural-style roof shingles warranted for a minimum of 30 years. (Note: new scoring criterion in 2007.)**

■ **QAP awards 10 points to developments for use of attic insulation rated R-38 or higher. (Note: new scoring criterion in 2007.)**

■ **QAP awards 5 points to developments providing irrigation/sprinkler systems serving all landscaped areas. (Note: new scoring criterion in 2007.)**

■ **QAP awards 10 points to developments providing refrigerator and dishwasher that meet Energy Star Standards and a hot water heater with an energy factor greater than 0.61. (Note: new scoring criterion in 2007.)**

## Threshold Criteria and Design Requirements

■ Development Guidelines require minimum R-19 fiberglass wall insulation and R-36 fiberglass ceiling insulation.

■ Development Guidelines require Energy Star appliances, including refrigerators, freezers, clothes washers, dishwashers, ceiling fans, computers, residential light fixtures and exit signs.

■ Development Guidelines require Energy Star through-wall or central air conditioning.

■ Development Guidelines require bathroom ventilation fans on the same switch as the bath light.

## Selection Criteria Incentives

■ QAP awards up to 20 points to developments located in close proximity to community services, including schools, grocery stores, retail stores, hospitals, medical clinics and senior centers.

■ QAP awards up to 30 points to developments with low-maintenance building exteriors, including brick, stucco, or permanent low-maintenance siding.

■ QAP awards 10 points to developments using non-volatile organic compound (VOC) paints, stains and finishes and formaldehyde-free or sealed shelves, cabinets and countertops.

■ QAP awards 5 points to developments designed with a drain tile system for foundation waterproofing.

■ QAP awards 20 points for forced air (minimum 90% efficient) or hot water heating systems.

■ QAP awards 25 points to developments with Energy Star central air conditioning.

■ QAP awards 15 points to developments incorporating windows constructed with a permanent exterior finish and low-E insulated glass.

## Other Policies

■ Energy efficiency is one factor for which increased cost per unit may be justified.

## Threshold Criteria and Design Requirements

- Any development using vinyl siding must choose a 15-year maintenance-free standard product.
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## Selection Criteria Incentives

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| ■ QAP awards 13 points to developments located in a county or municipality with a growth plan approved by the local government planning advisory committee. | ■ QAP awards 10 points to new construction developments designed and built using brick, stone, cement fiber siding or vinyl to meet a 15-year maintenance-free exterior standard. | ■ QAP awards 15 points to new construction developments designed and built with a minimum of 85% of exterior wall surfaces below the plate line covered with brick, stone or cement fiber siding. |
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## Other Policies

- QAP includes a general goal of encouraging energy-efficient construction and rehabilitation.
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## Threshold Criteria and Design Requirements

- All developments must submit a Phase I Environmental Site Assessment.
- All developments must certify that buildings will be equipped with energy saving devices that meet the standard statewide energy code adopted by the state energy conservation office.

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## Selection Criteria Incentives

- QAP awards 4 points to developments located within a one mile radius of at least three services appropriate to the target population, including grocery store, pharmacy, department store, bank, restaurant, park, hospital, school, etc., or to developments located within one-quarter mile of public transportation that is accessible to all residents, including persons with disabilities and/or located within a community that has on-demand transportation, special transit service, or specialized elderly transportation.
- QAP awards up to 3 points to developments incorporating durable masonry exteriors, including stucco, cementitious board products, concrete brick and mortarless concrete masonry.
- QAP awards 1 point to developments with 30-year architectural shingle roofing.
- QAP awards 3 points to developments with R-15 wall insulation and R-30 ceiling insulation.
- QAP awards 3 points to developments incorporating energy-efficient alternative construction materials (such as structural insulated panel construction) with minimum R-20 wall insulation.
- QAP awards 3 points to new construction developments providing 14 SEER HVAC systems or rehabilitation developments providing attic radiant barrier.
- QAP awards 2 points to developments providing Energy Star refrigerators and dishwashers.

## Threshold Criteria and Design Requirements

- All developments must submit Phase I or Phase II environmental study, or agency environmental questionnaire regarding proximity of proposed site to hazardous materials or uses, including evidence of asbestos, lead based paint or radon.
- All developments must provide exterior-venting bathroom fans.
- All developments must obtain an independent Home Energy Rating System (HERS) score to determine Energy Star eligibility. Projects receive an initial score during design and a final score after construction is completed. The HERS rater will provide applicants with a list of upgrades that can be implemented to achieve Energy Star qualifying status.
- All new construction developments must be Energy Star Certified and receive a plan review analysis from the Utah Energy Conservation Coalition. (Note: new requirement in 2007.)
- All rehabilitation developments must meet current rehabilitation code, including appropriate upgrades of furnaces to 85% efficiency and proper installation of energy-efficient windows.

## Selection Criteria Incentives

- QAP awards 5 points to developments that demonstrate that the site has no environmental or habitat issues.
- QAP awards up to 100 points to developments rehabilitated according to Energy Star enhancements but not certified, including a minimum score of 86 on the Home Energy Rating System (HERS). To qualify, the development must receive a plan review analysis from the Utah Energy Conservation Coalition (UECC).

## Other Policies

- The costs of Energy Star compliance, including cost increments for equipment and envelope upgrades over and above the current statewide energy code and rating costs, may be included in the overall project budget. Developments may request loan funding to fund cost increments related to Energy Star qualification from the Division of Housing and Community Development's Olene Walker Housing Loan Fund (OWHLF). (Note: new policy in 2007).



## Threshold Criteria and Design Requirements

■ Agency design standards recommend development sites in proximity to schools, churches, shopping (grocery stores), recreational facilities and public transportation.

■ Agency has comprehensive energy standards to which all projects are subject. Goals of the standards are to: a) achieve energy and water efficiency that results in maximum long-term housing affordability; b) select systems with consideration of economy, future flexibility, operation and maintenance costs, and environmental impact; c) plan and implement mechanisms to encourage energy and water conservation; d) keep records of energy consumption by fuel type, individual building and residential unit where metering permits; and e) periodically re-evaluate the energy- and water-using systems for cost-effective improvements.

■ At minimum, specific energy conservation goals include meeting or exceeding Energy Star efficiency levels. The energy standards provide detailed requirements in the following areas: heating and hot water systems (boilers, pumps and piping, thermostats, domestic hot water, water conservation); thermal shell (insulation, air-sealing, doors and windows); ventilation (fans and controls, ducting); lighting; and appliances. Some of the more than 75 specific requirements follow.

■ All developments must provide minimum insulation levels of R-38 (flat ceilings), R-30 (sloped ceilings), R-19 (walls), R-30 (floors over unheated space), and R-10 (foundation or slab on grade).

■ All developments are blower-door tested for air leakage by Efficiency Vermont and must meet standard of 0.35 natural air changes per hour (nach) or less.

■ All developments must provide Energy Star labeled windows with U-value rating of .35 or less. Typical energy features include double glazing, low-E coating, argon filling and warm edge spacers.

All developments must provide Energy Star central oil-fired or natural gas boiler(s) with an Annual Fuel Utilization Efficiency (AFUE) of 85% or greater.

■ All developments must provide non-mercury thermostats and control common area heat with programmable setback thermostats.

■ All developments must provide hot water by central indirect-fired water heater(s) off the central boiler(s) or very high-efficiency (greater than 80%) central standalone system. Water heater tanks must have insulation with a minimum R-value of R-14.

■ All developments must promote water conservation by installing 1.5-2.0 gpm bathroom and kitchen faucets, 2.0 gpm showerheads and 1.6 gpf toilets.

■ All developments must install hard-wired energy-efficient fluorescent lighting fixtures (T-8, compact fluorescent or circline) in all rooms or areas. All compact fluorescent fixtures must meet Energy Star criteria. T-8 fixtures are strongly recommended in kitchens and bathroom.

■ All developments must equip each apartment with an Energy Star refrigerator and, if supplied by landlord, Energy Star washing machine.

## Selection Criteria Incentives

■ QAP prioritizes developments that support downtowns or village centers by virtue of their location (i.e., within a reasonable walking distance from the town core).

■ QAP prioritizes rehabilitation developments, including lead-based paint abatement, energy-efficiency upgrades, and certain new construction infill.



## Threshold Criteria and Design Requirements

- Minimum design and construction standards require 25-year anti-fungal roof shingles.
- Minimum design and construction standards require use of vinyl or aluminum railings instead of wood or steel railings to minimize long-term maintenance costs and enhance aesthetics.
- Minimum design and construction standards require insulation of R-30 for roofs, R-13 for walls and R-19 for floors over crawl spaces and unheated basements.
- Minimum design and construction standards require furnishing a minimum 25-year material warranty for windows and sliding glass doors.
- Minimum design and construction standards require provision of pans and drains for washing machines, water heaters and HVAC units.
- Minimum design and construction standards require exterior-ducted bathroom exhaust fans.
- Minimum design and construction standards require use of HVAC equipment with non-ozone-depleting R-410A coolant instead of R-22.
- Minimum design and construction standards require installation of energy-efficient fixtures such as fluorescent and mercury vapor.

## Selection Criteria Incentives

- QAP awards up to 20 points to developments located within 1/2 mile of a commuter rail, light rail or subway station, or 1/4 mile of one or more public bus lines.
- QAP awards up to 20 points to developments with brick covering 30% or more of the exterior walls.
- QAP awards 5 points to developments if all kitchen and laundry appliances meet Energy Star requirements.
- QAP awards 5 points to developments if all windows meet Energy Star program requirements.
- QAP awards 10 points to developments if every unit in the development is heated and air conditioned with either (i) heat pump units with both a SEER rating of 14.0 or more and a HSPF rating of 9.0 or more or thru-the-wall heat pump equipment that has an EER rating of 12.0 or more, or (ii) air conditioning units with a SEER rating of 14.0 or more, combined with a gas furnaces with an AFUE rating of 90% or more.
- QAP awards 5 points to developments if the water expense is sub-metered.
- QAP awards 3 points to developments if each bathroom contains only low-flow faucets and showerheads.
- QAP awards 15 points to developments for which the applicant agrees to obtain EarthCraft certification prior to the issuance of an IRS Form 8609, with the proposed development's architect certifying in the application that the development's design will meet the certification criteria.
- QAP awards 10 points to developments providing evidence that a U.S. Green Building Council LEED-certified design professional participated in the design of the proposed development.



# Washington

## Threshold Criteria and Design Requirements

- No policies specified.

## Selection Criteria Incentives

- No policies specified.



# West Virginia

## Threshold Criteria and Design Requirements

- No policies specified.

## Selection Criteria Incentives

■ **QAP awards up to 30 points to developments based on site suitability. Agency architect assesses suitability using a number of factors including availability of neighborhood and community amenities, accessibility for transportation, proximity to fire department, and environmental issues, among others. (Note: points increased from 20 to 30 in 2007.)**

■ **QAP awards 20 points to developments provided that at least 30 percent of the useable site will provide green space, which does not include any buildings, parking areas, sidewalks, etc. (Note: new scoring criterion in 2007.)**

■ **QAP awards 20 points to developments for which at least 60% of each building's exterior (excluding gabled ends, doors and windows) is brick.**

■ **QAP awards 15 points to developments for which each residential rental unit has whole-unit HVAC system, utilizing a heat pump or a split gas heating and cooling system, either of which have the Energy Star designation. (Note: points decreased from 20 to 15 in 2007.)**

■ **QAP awards 10 points to developments for which all roof shingles have a remaining manufacturer warranted life of at least 30 years.**

■ **QAP awards 10 points to developments provided that each residential rental unit has exterior doors that are Energy Star qualified utilizing the most stringent Energy Star qualification criterion for the state (i.e., U-Factor of 0.35 or less), and provided that each residential rental unit has a window package in which all windows have the Energy Star designation.**

■ **QAP awards 10 points to developments that provide a new refrigerator, range and under-the-counter dishwasher, with the Energy Star designation, in each rental unit. (Note: 2006 plan awarded 10 points for dishwasher and 5 points for refrigerator. No points were awarded for range in 2006.)**

■ **QAP awards 10 points to developments with all porches, sidewalks and curbs comprised of fiber-reinforced concrete. (Note: new scoring criterion in 2007.)**

■ **QAP awards 5 points to developments provided that, within each residential rental unit, each showerhead has a maximum water flow rate of 2.5 gpm, and each showerhead and faucet has an aerator installed. (Note: new scoring criterion in 2007.)**



## Threshold Criteria and Design Requirements

■ Each building in newly constructed and adaptive reuse developments must exceed the State of Wisconsin Commerce Building Envelope Requirements by at least 15 percent based upon REScheck software calculations.

■ **Energy Efficiency Standards require all developments to submit a copy of a letter from the project developer to Focus on Energy requesting either their energy efficiency best practices guide or a brainstorming session to discuss possible development energy savings. (Note: new requirement in 2007.)**

■ **Energy Efficiency Standards require all developments to install low-flow showerheads of 1.75 gpm or less and faucet aerators with a rating of 1.5 gpm or less. (Note: new requirement in 2007.)**

■ **Energy Efficiency Standards require all developments to install appropriate high-efficiency lighting, including high-performance T-8 systems, T-5 systems, or compact fluorescent lamps in all interior common areas. (Note: new requirement in 2007.)**

■ Energy Efficiency Standards require new and replacement appliances to meet current Energy Star standards.

■ Energy Efficiency Standards require new and replacement air conditioning units to meet current Energy Star standards.

■ Energy Efficiency Standards require rehabilitation projects to upgrade building components as part of the proposed rehabilitation (i.e., new windows, wall insulation, roof insulation and exterior doors) to meet Energy Star or equivalent building standards.

## Selection Criteria Incentives

■ QAP awards 20 points to developments located in infill locations or demonstrating linkages with public transportation.



## Threshold Criteria and Design Requirements

- No policies specified.
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## Selection Criteria Incentives

- QAP awards up to 25 points to developments for proximity of site to appropriate resident services.
  - QAP awards up to 115 points to developments with high quality construction that can clearly document exceeding applicable construction standards. Among the items considered in this assessment are durability of roofing and siding materials, efficiency and innovation in HVAC systems, quality and design of windows, low-maintenance landscaping, other maintenance-reducing features, and energy efficiency.
  - QAP awards up to 75 points to developments for overall project design. Among the items considered in assessing project design is provision of energy efficient appliances.
  - QAP awards up to 5 points to developments with innovative construction features; e.g., quality, cost-effective construction, or energy conservation above and beyond code requirements and normal construction practices, or innovative site planning.
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# Agency Websites

Alabama	<a href="http://www.ahfa.com/">www.ahfa.com/</a>	Nebraska	<a href="http://www.nifa.org/">www.nifa.org/</a>
Alaska	<a href="http://www.ahfc.state.ak.us/">www.ahfc.state.ak.us/</a>	Nevada	<a href="http://www.nvhousing.state.nv.us/">www.nvhousing.state.nv.us/</a>
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Delaware	<a href="http://www2.state.de.us/dsha/">www2.state.de.us/dsha/</a>	North Dakota	<a href="http://www.ndhfa.org/">www.ndhfa.org/</a>
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Missouri	<a href="http://www.mhdc.com/">www.mhdc.com/</a>		
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