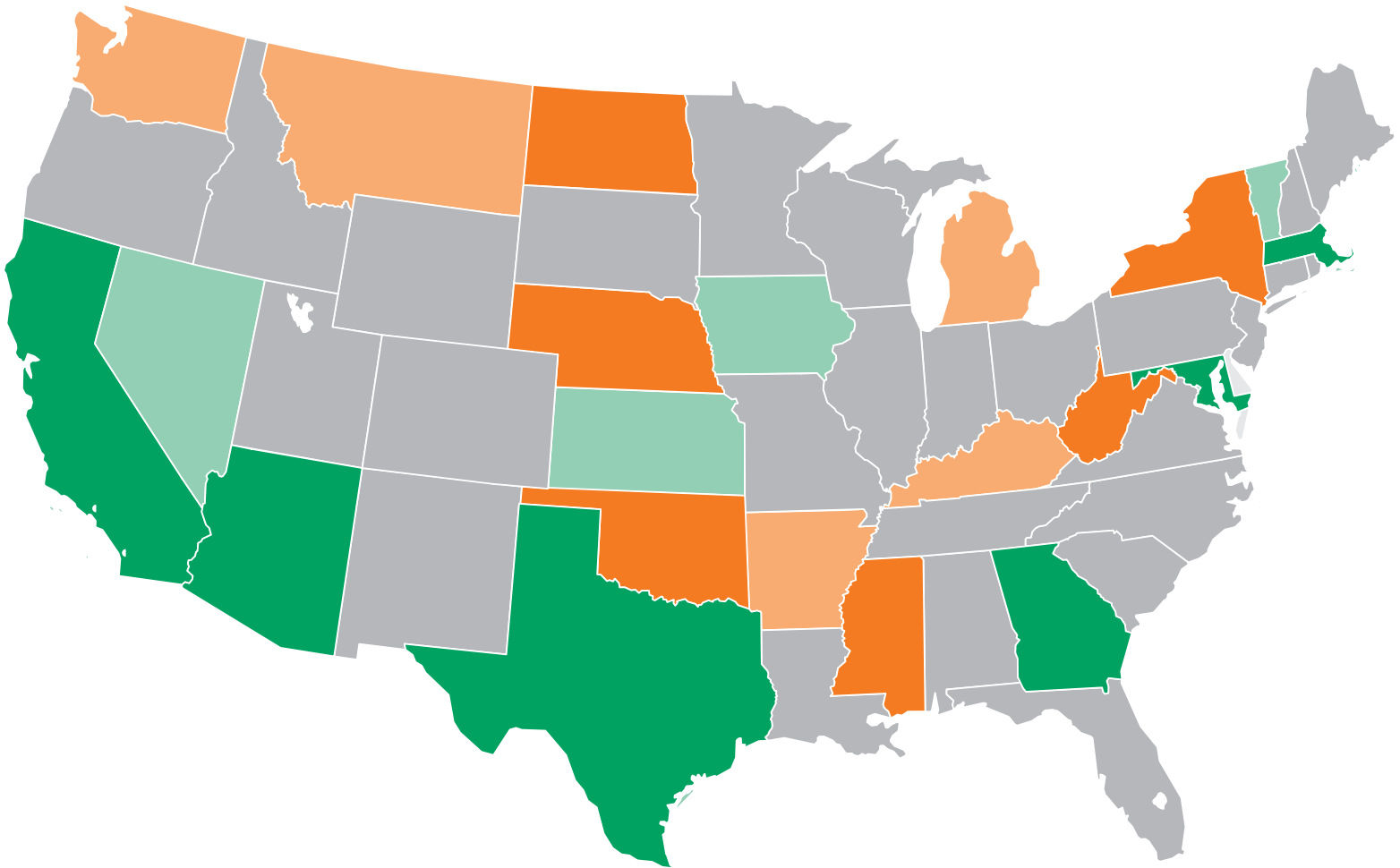




Global Green USA

MAKING AFFORDABLE HOUSING TRULY AFFORDABLE

*Advancing Tax Credit Incentives for
Green Building and Healthier Communities*





Foreword

For over 10 years, Global Green USA has been a leader in advancing green affordable housing. This work stems from our guiding principles as the US arm of Green Cross International, which includes the need to address poverty and the environment to succeed in creating sustainable, healthy communities.

Starting with Habitat for Humanity International in 1995, Global Green has developed guidelines, policy recommendations, and partnerships focused at the local, state, and federal level. Through technical assistance with community development organizations, we develop policy recommendations that are grounded in the lessons learned with our partners.

Working with affordable housing developers in the San Francisco Bay Area, we first advanced recommendations to the California State Tax Credit Allocation Committee (TCAC), chaired by Treasurer Phil Angelides, nearly six years ago. In the years since, Global Green USA, supported by the leadership of Treasurer Angelides, has worked to refine the TCAC criteria to further encourage green affordable housing throughout the state of California.

Using this model, we have worked with organizations and state agencies in New Jersey, Georgia, and other locations in the last several years to help put in place similar incentives. This report continues and advances this work, and builds on Global Green's efforts to transform communities from within to create healthier homes for those in need.

The Greening Affordable Housing Initiative is a centerpiece of our work, which also includes programs for green schools, renewable energy and solar power, municipal green building, and initiatives to advance smart solutions to combat global warming and reduce resource use. Our policy work, technical assistance, and education has helped "green" nearly \$20 billion in public construction over the last five years.

We hope that policy makers across the US will be both encouraged and inspired to redouble their efforts—in the case of those at the top of the report card—or start in earnest to incorporate incentives to green affordable housing. Please visit our website to learn more—and to download case studies and *A Blueprint for Greening Affordable Housing*—at www.globalgreen.org.

Matt Petersen
President & CEO
Global Green USA



PHILIP ANGELIDES

Treasurer
State of California

December 15, 2005

Dear Friends:

It is with great enthusiasm that I introduce to you Global Green USA's "Making Affordable Housing Truly Affordable: Advancing Tax Credit Incentives for Green Building and Healthier Communities" report, a comprehensive review of state tax credit financing programs and their sustainable building attributes.

As California's State Treasurer, I value the opportunity to support innovative programs that marry public investment to public purpose. This report details such a program. For the past five years, Global Green USA has worked collaboratively with the affordable housing industry, green building experts and my staff at the California Tax Credit Allocation Committee (TCAC) to incorporate sustainable building policies into the TCAC process for affordable housing development. These policies are supporting the design, construction and maintenance of housing that is both healthy and safe for residents, and will help lower utility bills for those whose need is greatest.

We cannot sustain environmental quality and livability, and ultimately our economy, unless we embrace new ways of thinking to support smart growth, sustainable development and environmental preservation. Capitalizing on the competitiveness of affordable housing tax credits, once cutting-edge green practices such as energy efficiency and use of renewable energy, water efficiency and use of non-toxic materials have become standard practice for affordable housing development in California and elsewhere.

There is no doubt that affordable housing is an area where the need for investment and strategic planning is acute and where the challenges are great. Sustainable building can provide numerous benefits and leverage our state's investment in a resource that will exist for many years to come. I am pleased to present this report to you as an example of innovative policy that is good for our economy and our environment.

I hope you will take into consideration the results of this report and the challenges they present. We all have a great opportunity to build a safe, healthy future that includes sustainable affordable housing for all Americans.

Sincerely,

A handwritten signature in black ink, appearing to read "Philip Angelides".

Phil Angelides
State Treasurer

MAKING AFFORDABLE HOUSING TRULY AFFORDABLE

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I. Introduction

This report presents an analysis of the tax credit allocation policy for all fifty states and identifies existing green building requirements in affordable housing projects. Greening affordable housing provides direct benefits to needy residents by lowering utility costs and creating healthier living environments. In addition, project developers and operators gain both directly and indirectly through higher quality, more efficient, and more durable projects.

The federal low-income housing tax credit (LIHTC) program was established by the Tax Reform Act of 1986 and was codified in Section 42 of the Internal Revenue Code of 1986, as amended (“IRC Section 42”). The Revenue Reconciliation Act of 1989 amended IRC Section 42 by adding Section 42(m), which requires each state’s agencies to allocate low-income tax credits pursuant to a Qualified Allocation Plan (QAP).¹ The QAP is the primary instrument for ensuring that the priorities of the housing credit agency are met. This is accomplished through criteria identifying the state’s preferences for issuing housing credit dollars. The housing credit allocated per year is based upon a state’s population and represents a significant financial incentive in the creation of low income housing.

This analysis is focused on the QAPs for 2004 and incorporates the results of the Enterprise Foundation’s review of 2005 QAPs.² Not all states included detailed criteria for tax credit allocation in their QAPs. As a result, this analysis includes as complete a review as possible of related state guidelines and regulations that affect current housing tax credit policy. This report provides a “snapshot” of the green requirements in affordable housing programs in 2005.

II. Findings

Our analysis of green building criteria in the QAPs was based upon requirements as defined by the U.S. Green Building Council’s Leadership in Energy and Environmental Design (LEED) Green Building Rating System. The LEED rating system is structured on multiple credits in five categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and Indoor Environmental Quality.³ The range of issues and details addressed by the LEED credits is more comprehensive than the building requirements covered in a typical QAP. For the purposes of this analysis, the green building criteria have been consolidated under the following four headings: Smart Growth, Energy Efficiency, Resource Conservation, and Health Protection. This report documents the tax credit policies which encourage building practices that support these four goals.⁴

A. SMART GROWTH

The Smart Growth category includes any policies that encourage development according to the Ten Principles of Smart Growth identified by Smart Growth America. Those principles which apply to affordable housing developments include: mixed land uses; taking advantage of existing community assets; walkable neighborhoods; rehabilitation of historic buildings; preserving open space and critical environments; encouraging growth in existing communities; and providing transportation choice.⁵

Section 42(m) of the IRC requires that all states’ QAPs give preference to projects “located in qualified census tracts...and the development of which contributes to a concerted community revitalization plan.” Nearly all states (forty-four) specifically cited this language from the statute. Forty-six states promote some Smart Growth concepts beyond this baseline provision. Three states (Georgia, Maine and New Jersey) use the term “Smart Growth” explicitly in their QAPs. Georgia requires that financing resources be directed to affordable housing developments that incorporate Smart Growth concepts focusing on the maintenance of quality of life, management of the impact of growth, protection of the environment, and a return to less automobile-dependent development patterns. Nebraska, Oklahoma, and Mississippi are the only states that did not identify any Smart Growth requirements.

Requiring Consistency with Community Revitalization Plans

Development of open spaces away from existing developments has a negative impact on the environment and community. Building occupants become dependent on private automobiles for commuting, and as travel distances increase, this results in more air and water pollution. Undeveloped spaces are lost and inner city neighborhoods decline. New infrastructure is required to support new development areas. In contrast, revitalization of existing communities increases the density of an area and reduces the loss of prime agricultural land while minimizing the need for new infrastructure.

Many states require revitalization and redevelopment in targeted disadvantaged areas where specific housing or economic development objectives have been set by federal, state, or local government. For example:

- California requires that developments be located in a Neighborhood Revitalization area.
- Massachusetts encourages projects that are part of a comprehensive neighborhood improvement plan or initiative, including HOPE VI projects.
- Indiana provides incentives for developments in Difficult Development Areas or Areas of Chronic Economic Distress as designated by the State and HUD.
- Arizona awards points to projects that are located in identified Federal Empowerment Zones, Federal Enterprise Communities, or Established HUD Neighborhood Revitalization Strategy Areas.
- Idaho awards points to developments in Urban Renewal Neighborhoods where the renewal program addresses housing.

Rehabilitating Housing and Encouraging Adaptive Reuse

Reusing the building shell and non-shell components of an existing building significantly reduces construction waste volumes leaving the project site. Reuse strategies also reduce environmental impacts associated with raw material extraction, manufacture, and transportation of new products. Additionally, building reuse minimizes habitat disturbance associated with developing open spaces and requires less new infrastructure.

Twenty-five state allocation plans encourage the use and rehabilitation of existing housing. Wisconsin provides incentives for projects that rehabilitate, reuse, or restore existing structures, including historic rehabilitation. New Mexico prioritizes developments that incur average rehabilitation hard costs above a set threshold.

Seven states (Iowa, Minnesota, New Hampshire, New Jersey, Ohio, Washington, and Wisconsin) specifically encourage revitalization through adaptive reuse of existing buildings. Urban-infill strategies are identified by twelve states. As with the previous criteria, a point system is used to encourage strategies that further the goal of using existing community assets and infrastructure. For example:

- Indiana rewards scattered-site infill developments that conform to the existing neighborhood context.
- Vermont includes infill new construction as one of its allocation plan's Top Tier Priorities.

“According to the U.S. Bureau of Labor Statistics’ Consumer Expenditure Survey, out of every dollar American households spend annually, almost 18 cents go to getting around in their communities. ...the typical American household spent an average of \$6,312 out-of-pocket per year on transportation. The vast majority of that expense, almost \$6,200, went towards buying, fueling, and maintaining personal cars and trucks.”⁶

Encouraging Proximity to Services and Employment

Most personal automobile trips are to places of employment or shopping. Providing these amenities within a reasonable walking or bicycling distance will reduce vehicle traffic and its associated pollution and wear on urban infrastructure.

Proximity to services, amenities, and employment centers for project tenants is one of the most common Smart Growth principles required in the QAPs. This goal is identified in twenty-nine state allocation plans. Typical listed services include retail stores, public parks, recreational facilities, schools, hospitals, day care facilities, libraries, and police and fire stations. The minimum number of nearby services, as well as the definition of proximity, varies among the states. For example:

- Texas awards points if a minimum of three services are within a one-mile radius of the development. For Rural Regional Allocations, the radius is increased to two miles.
- New Jersey provides additional points if the services are located within a half mile.

Requiring Access to Transit

Reducing the use of private automobiles saves energy and avoids environmental problems associated with automobile use. These problems include vehicle emissions that contribute to smog and air pollution, road runoff containing vehicle fluids and lubricants, and environmental impacts from extracting petroleum and refining fuel. Accessibility to public transit reduces the use of private automobiles and their associated impacts.

Public transit accessibility is a frequently cited Smart Growth criteria within the tax credit allocation program. Twenty-eight states required this criteria. Some examples are:

- Nevada awards preference points for projects located in transit-oriented development districts.
- Texas encourages the use of sites within a quarter mile of public transportation or specialized elderly transportation for Qualified Elderly Developments.
- Delaware specifies public transportation nodes within walking distance.
- Vermont encourages developments that include access to pedestrian or bicycle routes.

Five states (Connecticut, Delaware, Illinois, Utah, and Vermont) identify policies that require development near employment centers. Several of these states emphasize a preference for locations near high-density areas where employment opportunities are greatest. For example:

- Illinois rewards projects within an appropriate distance of employers, as documented by market studies, who have problems attracting a quality workforce due to an affordable housing shortage.
- Vermont has a stated preference for projects located in growth centers that have diversity in the types and scale of industry and businesses.

Developing Brownfields

Brownfields are properties in which the expansion, redevelopment, or reuse may be complicated by the presence, or potential presence, of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped land, thereby improving and protecting the environment. This type of development takes advantage of existing assets and infrastructure and can be assisted through US Environmental Protection Agency grants.

Brownfields redevelopment priorities are listed in just four QAPs (Georgia, Iowa, Massachusetts, and New Jersey).

Preserving Site Ecology

Development of greenfields or undeveloped areas disturbs and destroys wildlife and plant habitats. As developments expand, native species become restricted to shrinking habitats, ultimately resulting in a decrease in species population and biodiversity. Wetlands and riparian areas of floodplains offer unique and densely populated habitats for plant and animal species. Most states prohibit project siting in a wetland or 100-year floodplain.

Protecting the flora and fauna native to wetlands and riparian areas of floodplains is a concern for the QAPs of twelve states (Arizona, Colorado, Georgia, Indiana, Iowa, Kansas, Missouri, New Jersey, Rhode Island, South Carolina, Utah, and Wyoming). Some examples include:

- Utah requires that affordable housing project applications identify their proximity to wetlands or floodplains, but there is no indication given for how this will impact project eligibility for tax credits. A formal study is required if the proposed development could cause adverse impacts to existing habitats.
- Delaware indicates that special consideration be taken to protect the environment if the project is located in a designated Environmentally Sensitive Area.
- Wyoming does not prohibit floodplain development, but will deduct from the project’s accrued preference points for floodplain developments.

“More than one-quarter of all trips are still one mile or less; at least 123 million car trips made each day in the United States were short enough to have been made on foot.”⁷

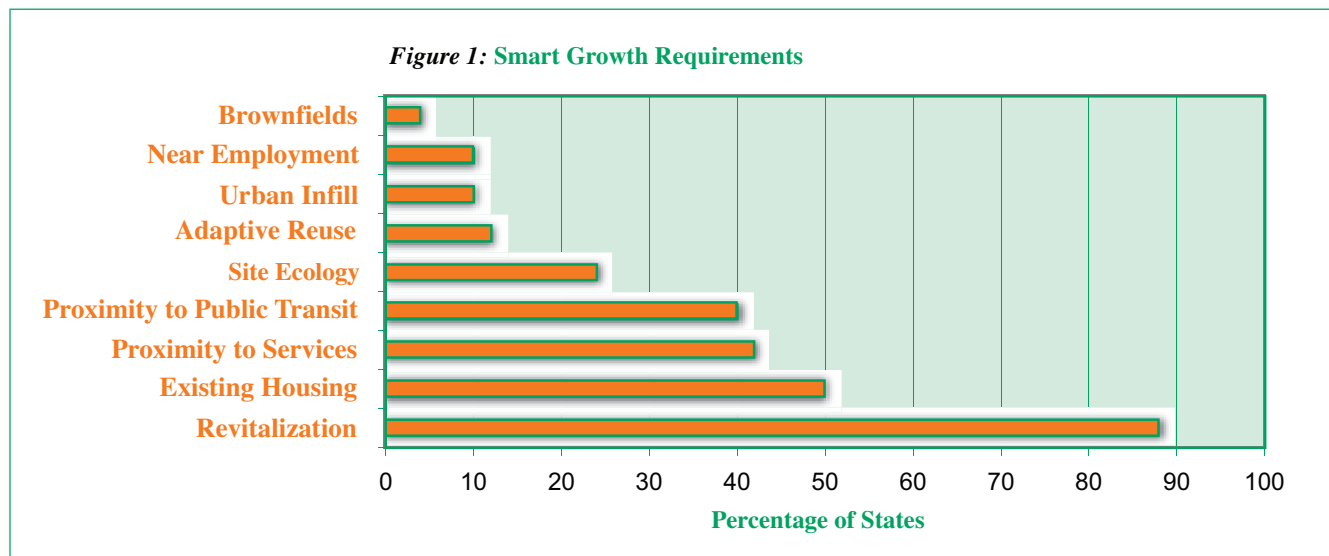


Figure 1 shows that Revitalization is the most consistently addressed Smart Growth requirement in the state QAPs.

B. ENERGY EFFICIENCY

This category includes tax credit allocation policies that require energy conservation by complying with listed energy codes, specifying Energy Star® program criteria, or requiring HVAC and building product performance standards and minimum insulation values.

Forty of the states reviewed have some requirement for energy efficiency in their housing credit program. Four states (Connecticut, Kentucky, Nebraska, and Rhode Island) include only a general statement that project energy efficiency and conservation measures will be considered when determining credit eligibility, without identifying specific standards. Examples include:

- Kentucky requires a statement from the architect that the project will demonstrate energy-efficient design and construction practices.
- Connecticut mandates that rehabilitated or new housing meet “established” criteria to ensure energy efficient operation without specifying specific criteria.

Meeting Energy Codes

Using energy codes increases the opportunities for energy and cost savings in new construction and renovations to existing buildings. New buildings can be designed to be both more comfortable and more efficient, cutting heating and cooling costs. International, national, and state energy codes exist, representing model practices for ensuring energy efficiency.

Fifteen states require meeting or exceeding an established international, national, or state energy code. The most frequently cited code is the 2000 International Energy Conservation Code (IECC, formerly the Model Energy Code) as published by the Council of American Building Officials (CABO) and the International Code Council (ICC). Texas, Pennsylvania, Tennessee, Missouri, Arizona, Alabama, Iowa, Kansas, Idaho, and Wyoming reference this standard, although some of these states cite the 2000 code while others identify the 2003 update. Pennsylvania awards points for developments exceeding the IECC by 10% or greater. Other notable examples of referenced energy codes besides the IECC are as follows:

- California will increase the Threshold Basis Limit by 4% for projects that adopt three measures, which, among other strategies, includes exceeding the state’s Title 24 energy standard by 20%.
- Illinois stipulates project compliance with the state’s Authority Energy Efficiency Standards.
- Georgia requires that properties meet the state’s energy codes as a minimum, including criteria for equipment sizing from the Air Conditioning Contractors of America.
- Nevada’s energy efficiency standard requires that projects have a minimum overall energy efficiency rating as measured by the Architectural Energy Corporation’s REM-Rate Index.
- Nebraska’s standard is for certification from appropriate city officials who ensure that buildings meet the local energy conservation code.

“Low-income families spend more income on utilities than on education and healthcare.”⁸

Conforming to the Energy Star® Program

In 1992 the EPA introduced Energy Star® as a voluntary labeling program designed to identify and promote energy-efficient products to reduce greenhouse gas emissions. The Energy Star® label is now on major appliances, office equipment, lighting, home electronics, and other products. EPA has also extended the label to cover new homes and commercial and industrial buildings.⁹

Nine states (California, Georgia, Indiana, Louisiana, Maryland, Nevada, New Jersey, Texas, and Virginia) refer to the standards in the EPA’s Energy Star® program. Five states (Georgia, Massachusetts, New Jersey, Ohio, and Vermont) encourage participation in the Energy Star® Homes program. Energy Star® qualified homes are independently verified to be at least 30% more energy efficient than homes built to the 1993 national Model Energy Code or 15% more efficient than state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of building envelope upgrades, HVAC systems improvements, and enhanced water heating equipment.

Twelve state policies refer only to specific Energy Star® labeled products such as roofing materials, kitchen and laundry appliances, and HVAC equipment.

Specifying Efficient Products and Systems

Improving the energy performance of buildings reduces operations costs, reduces pollution generated by power plants and other energy producing equipment, and enhances comfort. Building energy requirements can be minimized by ensuring optimum performance of HVAC, service water heating, power, and lighting systems.

Nineteen states provide minimum performance standards for HVAC systems outside of the Energy Star® program. These standards include specification of minimum seasonal energy efficiency ratios (SEER), sensible heat ratios, annual fuel utilization efficiencies (AFUE) for furnaces, and electronic management systems and programmable thermostats.

Minimum insulation requirements are given priority by seventeen states. These policies identify minimum R-values for windows, doors, walls, and attics. R-value is a measurement of resistance to heat transfer. Examples include:

- Georgia requires that the exterior envelope wall system and rimbanded joist spaces be insulated with spray applied cellulose or foam material.
- Maryland awards points if the insulation R-value is at least 20 percent above that required by code.
- Arkansas requires the use of wall insulation with a minimum of R-16 and ceiling insulation with a minimum of R-38.

Six states (Arkansas, California, Louisiana, Maryland, North Carolina, and Texas) identify specific low energy usage building products in their affordable housing credit policies. These include the use of fluorescent light fixtures, water heaters with minimum energy factors, and minimum solar heat gain coefficients on glazing. Other notable energy efficiency features include the following:

- Maryland encourages the use of a barrier membrane wrap to minimize air infiltration and the consideration of site orientation, overhangs, and solar features to minimize energy consumption.
- Kansas requires that the development plans be reviewed and approved by a certified home energy rater using the Kansas Energy Star® Home Energy Rating System (HERS).
- Nevada requires that a Pre-Construction Energy Audit be performed.

Requiring Renewable Energy

Renewable energy is superior to conventional energy sources because of its high coefficient of utilization and the absence of transportation costs and impacts. Environmental impacts associated with conventional energy sources are avoided and consumers are unencumbered by the limitations of the power distribution grid. For affordable housing developments, renewable energy measures typically involve the use of photovoltaics. Four states (California, Illinois, Massachusetts, and Ohio) reward the use of renewable energy sources in their QAPS. Examples include:

- Ohio awards points for multifamily projects that incorporate solar photovoltaics.
- California provides a Threshold Basis Limit increase of 5% for projects with on-site generation.

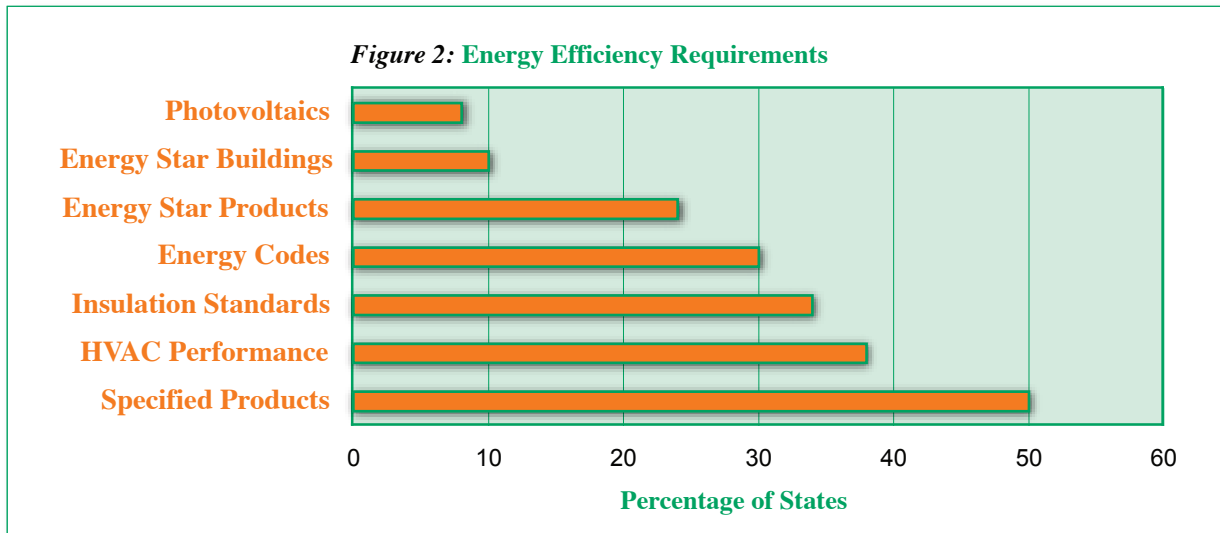


Figure 2 shows that energy efficient products are the most frequently required energy efficiency measure.

C. RESOURCE CONSERVATION

This category focuses on policies that require water conservation and efficient use of natural resources. Natural resources include both raw building materials and the energy used in their production. This category is the least consistently addressed green building strategy in the QAPs reviewed. Twenty-two states encourage resource conservation through their tax credit criteria.

Conserving Water

Each year, Americans extract billions of gallons more fresh water than they return to the natural water system. Using large volumes of water increases life-cycle costs for building operations and taxpayer costs for supply and treatment infrastructure. Water efficiency measures in affordable housing can reduce water usage by 25% or more through water-efficient landscaping and irrigation, low-flow kitchen and bathroom fixtures, and efficient appliances.

Fifteen states encourage developments proposing water conservation through the use of low-flow fixtures, low-water landscaping, or other strategies. No states identified the use of graywater systems. Some examples are:

- Texas specifies the use of 2.5 gpm (gallons per minute) showerheads and maximum 1.5 gpm faucet aerators.
- Georgia encourages water conservation by awarding points to projects using vegetation types that are native or suitable for xeriscaping.
- Nevada provides preference points to projects that use at least 75% desert plantings.

Requiring Durable Building Materials

Building materials that require frequent maintenance or repair are expensive to maintain and ultimately need faster replacement. This requires more harvesting and extraction of raw materials. Consequently, materials that require less maintenance have a smaller impact on the environment.

Thirteen states promote project designs that require minimal upkeep through a maintenance-free standard. Notable policies are:

- Tennessee awards points to developments (not including rehabilitation) which meet a 15-year maintenance-free exterior standard.
- Wyoming assigns significant ranking points to upgrades in the durability of roofing/siding material and low maintenance landscaping.

Two significant policies that encourage resource conservation are:

- Georgia awards points for the preservation of existing trees and vegetation.
- Massachusetts development principles require reduction in construction material waste.

Requiring Renewable, Reused, or Recycled Materials

Rapidly renewable resources are those materials that substantially replenish themselves in short cycles. Typically these materials can be planted and harvested in less than 10 years and do not result in significant biodiversity loss, increased erosion, and air quality impacts. Salvage and reuse of building components will extend the life of materials and reduce overall material costs. Reuse strategies divert materials from the construction waste stream, reducing the need for new landfills and their associated water and air contamination problems. In addition, reused materials eliminate the environmental impact of new materials production.

No state required renewable or reused materials in their QAP. However, California provides an increase in the Threshold Basis Limit for projects that include, among other things, recycled-content carpet or recycled carpet tiles.

“To a significant extent, durability is an issue of water management. ...fully 80% of durability problems in buildings have to do with moisture.”¹⁰

Minimizing Stormwater Impacts

As areas are developed, surface permeability is reduced, causing increased stormwater runoff that is ultimately transported via drainage systems and other facilities. Stormwater runoff typically contains sediment and other contaminants. In addition, transport and treatment of stormwater requires significant municipal infrastructure and maintenance. By reducing stormwater volumes, municipalities experience less demand on their infrastructure and a decrease in related expenses. Additionally, stormwater contaminants are less likely to be widely dispersed.

No state QAP requirements addressed stormwater minimization.

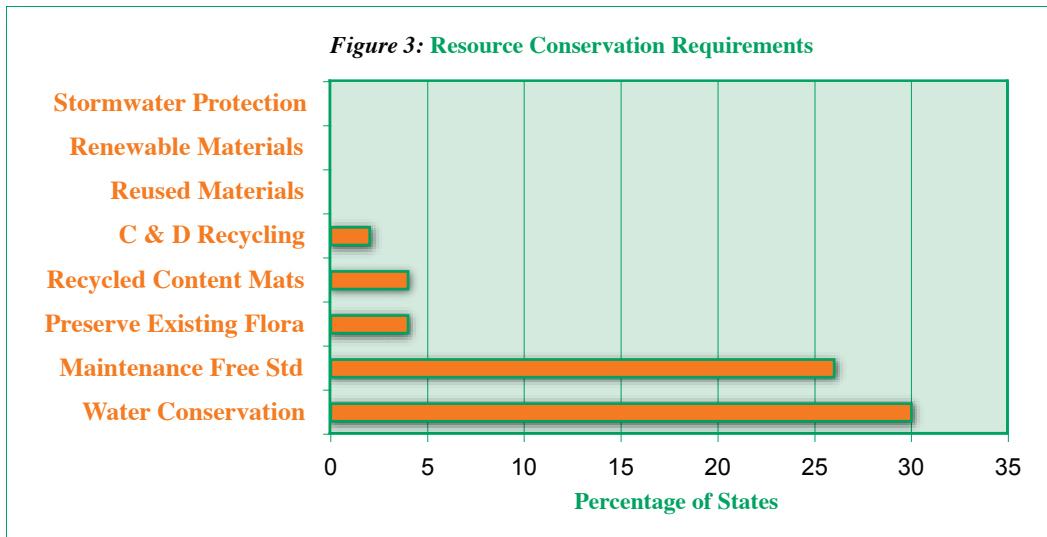


Figure 3 shows that only five of the eight criteria for resource conservation were addressed by any state QAPs, and water conservation was the most common requirement.

D. HEALTH PROTECTION

This category covers any strategies that enhance the protection of building occupant health. State tax credit policies typically focus on minimizing homeowner exposure to harmful building materials, pre-existing environmental hazards, and nearby contaminant sources. Many of these requirements mirror the US Department of Housing and Urban Development (HUD) policies which mandate that properties proposed for use in HUD programs be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances where a hazard can affect the health and safety of occupants. Thirty-seven states list a provision for health protection in their QAPs.

Assessing the Environmental Condition of the Site

The primary federal legislation for responding to hazardous releases that may threaten human health or the environment is the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund. The first step in the CERCLA response process is a preliminary assessment, which is an environmental examination to distinguish between sites that pose little or no threat to human health and the environment and sites that may pose a threat and require further investigation and or remediation.¹¹

The most common health protection measure required by the QAPs involves some form of environmental assessment of the development site. This approach echoes the HUD environmental review requirement (24 CFR Subtitle A Section 50.4 (i)(2)) for multi-family properties.¹² Twenty-one states identify a standard for documenting the environmental condition of the proposed project site. Policies most often require that these

evaluations consist of Phase I Environmental Studies performed in accordance with ASTM E1527-97. Some states limit the environmental assessment requirements to a documentation of lead-based paint hazards. These lead abatement requirements are consistent with HUD guidelines. Notable examples for site assessments include:

- Michigan requires completion of an ASTM-based Level I environmental review, or if necessary, a Level II review with remediation plan.
- Georgia stipulates that a project will not pass threshold until a Phase I Environmental Study (or Phase II, if needed) is completed. Rehabilitation of existing housing built before 1978 must have lead-based paint and asbestos-containing material surveys completed and a management plan prepared according to EPA and HUD guidelines. A radon study is required as well.
- New Jersey cites the Standard and Poors Enhanced Protocol for environmental assessments (which includes testing for lead, asbestos, and radon) in its QAP.

Abating or Remediating Environmental Hazards

Cleanup follows a thorough identification of on-site hazards to human health and the environment. This step can take the form of contaminant removal or eliminating pathways to human exposure.

Seventeen states protect occupant health by prohibiting developments where there are environmental hazards, or requiring their abatement. Hazards addressed include chemical contamination, lead-based paint, asbestos-containing materials, and radon. Recommended lead-based paint measures in general reflect the provisions of the Residential Lead-Based Paint Hazard Reduction Act of 1992, which applies to any developments that are part of a federal housing program.¹³ New asbestos-containing building materials for new construction have been prohibited under the Toxic Substances Control Act (TSCA, 15 USC Section 2605). QAP requirements also address the exposure to existing friable asbestos that may pose a health risk. Examples include:

- Texas considers non-mitigable environmental conditions that may adversely affect the health and safety of residents to be a disqualifying factor.
- Pennsylvania may reduce the Maximum Basis per Unit depreciable cost in the eligibility determination by the amount expended for required environmental remediation.
- Massachusetts requires all units in tax credit buildings to be de-lead prior to issuing the final allocation.
- Maryland deducts points from project scores for any unresolved petroleum or chemical contamination.
- Alabama encourages developments located in Radon Zone-1 to conform to Radon Resistant New Construction Practices. Rehabilitation projects must meet the EPA's Radon Mitigation Standards.
- Wyoming's QAP stipulates management and encapsulation practices for lead-based paint and asbestos in accordance with HUD and state requirements.

Prohibiting Adjacent Hazards

Sites without on-site hazards to human health and the environment may nevertheless be impacted by activities on adjacent property. These activities may affect air, surface water, and groundwater quality. In addition, off-site sub-surface contamination may migrate onto the development site over time.

Proximity to potential hazard sources, both on-site and nearby, is a concern within sixteen state's QAPs. Sources of concern include heavy industrial and manufacturing plants, trash incinerators, nuclear power plants, oil and chemical refineries, and unremediated Superfund or toxic waste sites. South Carolina is the only state that actually forbids developments near possible hazard generators. The remaining states deduct points from the development preference scores. This negative assessment requires no defined human exposure pathway or proven on-site contaminant migration. Representative policies include:

Americans spend up to 90% of their time indoors, and as a result, indoor environmental quality has a significant impact on occupant health.

- Iowa may reject projects located within a ½ mile of storage areas for hazardous materials.
- Wyoming assesses substantial negative points for developments near above-ground storage tanks of hazardous materials and sites listed on the EPA CERCLIS database.
- Arkansas will evaluate site locations for the presence of any “environmental issues.”

Ensuring Good Indoor Air Quality

Americans spend up to 90% of their time indoors, and as a result, indoor environmental quality has a significant impact on occupant health.¹⁴

Superior indoor air quality requires the provision of high-quality outdoor air and adequate ventilation rates. In addition, measures should be taken to eliminate, reduce, or segregate any sources of air contamination within buildings. A large number of building products contain compounds that have a negative impact on the health of building occupants. Most prominent are Volatile Organic Compounds, or VOCs, which can react with sunlight and nitrogen to produce ground-level ozone. Ozone damages lung tissues, reduces lung function, and sensitizes lungs to other irritants.

Twelve state policies include criteria for improving indoor air quality through building materials and equipment selection. Examples include:

- California awards points for using zero-VOC interior paints, low-VOC carpeting and carpet pads and low-VOC adhesives. Formaldehyde-free or fully sealed cabinet, countertop, and shelving materials use is also rewarded. California increases the Threshold Basis Limit for projects that include (among other items) the use of linoleum, ceramic tile, or flooring where no VOC adhesives or backing are used.
- Georgia’s QAP requires that HVAC systems be designed to locate the fresh air intake away from the return air exhaust. In addition, combustion equipment must be located in a sealed closet that is vented to the outside.
- Kansas policy simply states that indoor air quality must be maintained with a minimum level of energy loss through infiltration.

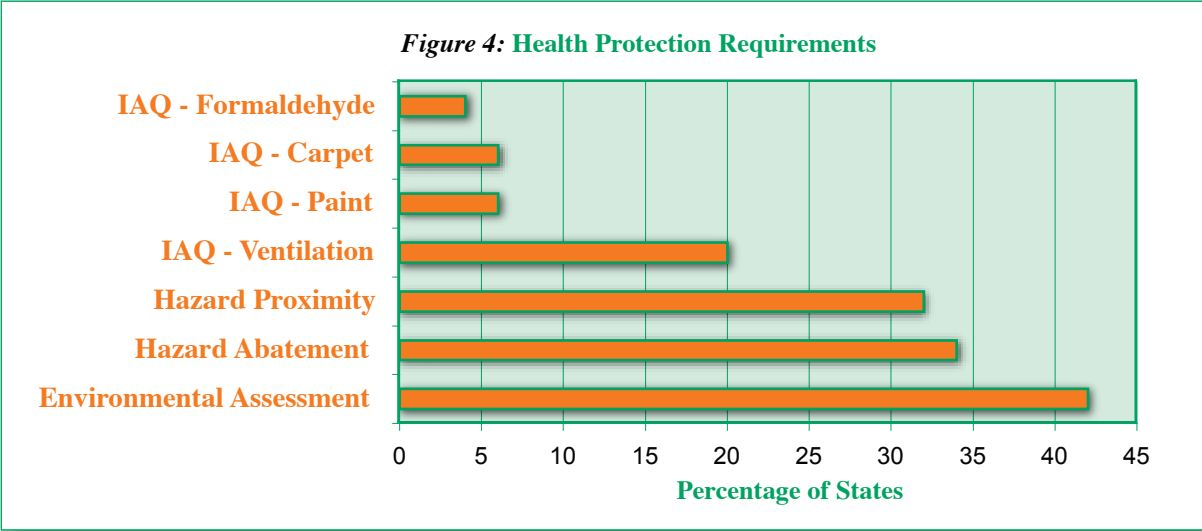


Figure 4 shows that fewer than 50% of all states address any of the health protection requirements that were evaluated.

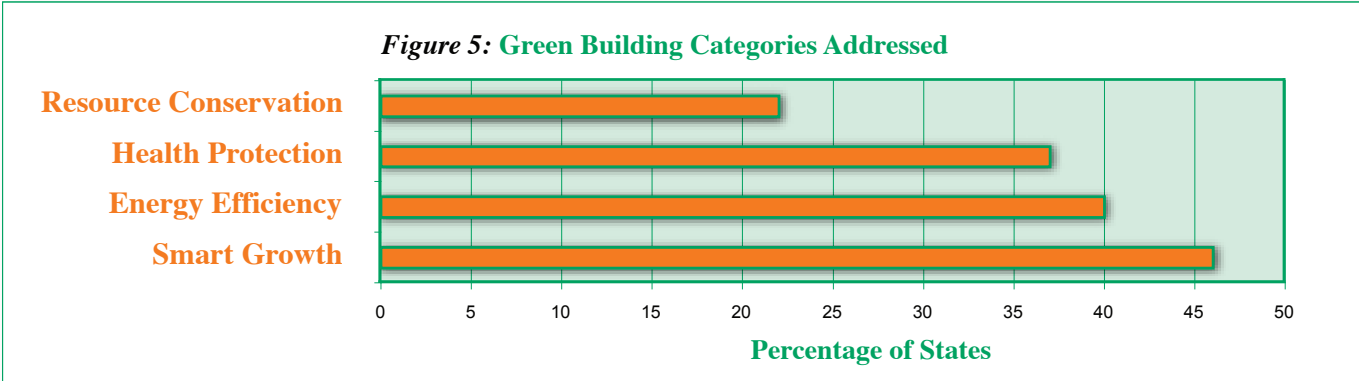
III. Analysis

A. LEVEL OF ADOPTION OF GREEN PRACTICES

This investigation shows that green building practices in affordable housing are currently being rewarded to some degree through tax credit allocation.

What is somewhat surprising is the range in comprehensiveness of green building requirements among the states. Although rigorous definitions for what constitutes green building practice have existed for the past decade (the US Green Building Council began to develop the LEED rating system in 1995), only seventeen states (Alabama, Arizona, Arkansas, California, Delaware, Georgia, Kansas, Maryland, Massachusetts, Nevada, New Mexico, North Carolina, Rhode Island, South Carolina, Texas, Vermont, and Wyoming) have some requirement in each of the four major green building categories investigated. Many states addressed two or fewer categories.

Green building requirements in the QAPs varied widely from general statements that green building factors will be “considered” in project selection, to exacting criteria for building materials and systems performance. *Figure 5* reflects this analysis’ interpretation that a state has addressed a major green building category as long as there is at least one reference to that category’s goal.



The top five states for encouraging green building practices in affordable housing in 2005 are: California, Georgia, Arizona, Maryland, and Texas.

For example, Tennessee was credited with addressing Smart Growth as a result of its single provision referencing revitalization plans. This contrasts with Wisconsin, which addressed community revitalization plans as well as urban infill, adaptive reuse, proximity to transit, and existing housing use.

Smart Growth is the most frequently cited green building category in state QAPs, while resource conservation is the least referenced. The frequency for any of these categories to appear in state QAPs is low. Each of the four major green building categories is required by fewer than half of the states.

B. GEOGRAPHIC DISTRIBUTION

Green building practice through the LIHTC program remains uneven geographically (*see Figure 6*). Concentrations of states with green building requirements in their tax credit policies exist in the East (Massachusetts and Maryland) and the West (California, Arizona, and Nevada). In addition, pockets exist in the South (Texas and Georgia). Some of these locations are not surprising given local awareness of sustainable development principles, the pressures of continued urban growth in those regions, and the number of local green building practitioners. Other locations (e.g., Iowa and Kansas), which are not widely known as centers of green building, had relatively complete packages of requirements. Conversely, states in the Pacific Northwest, which are often cited as exemplars of sustainable development, had a low ranking.

Only seventeen states...have some requirement in each of the four major green building categories investigated.

C. RATING

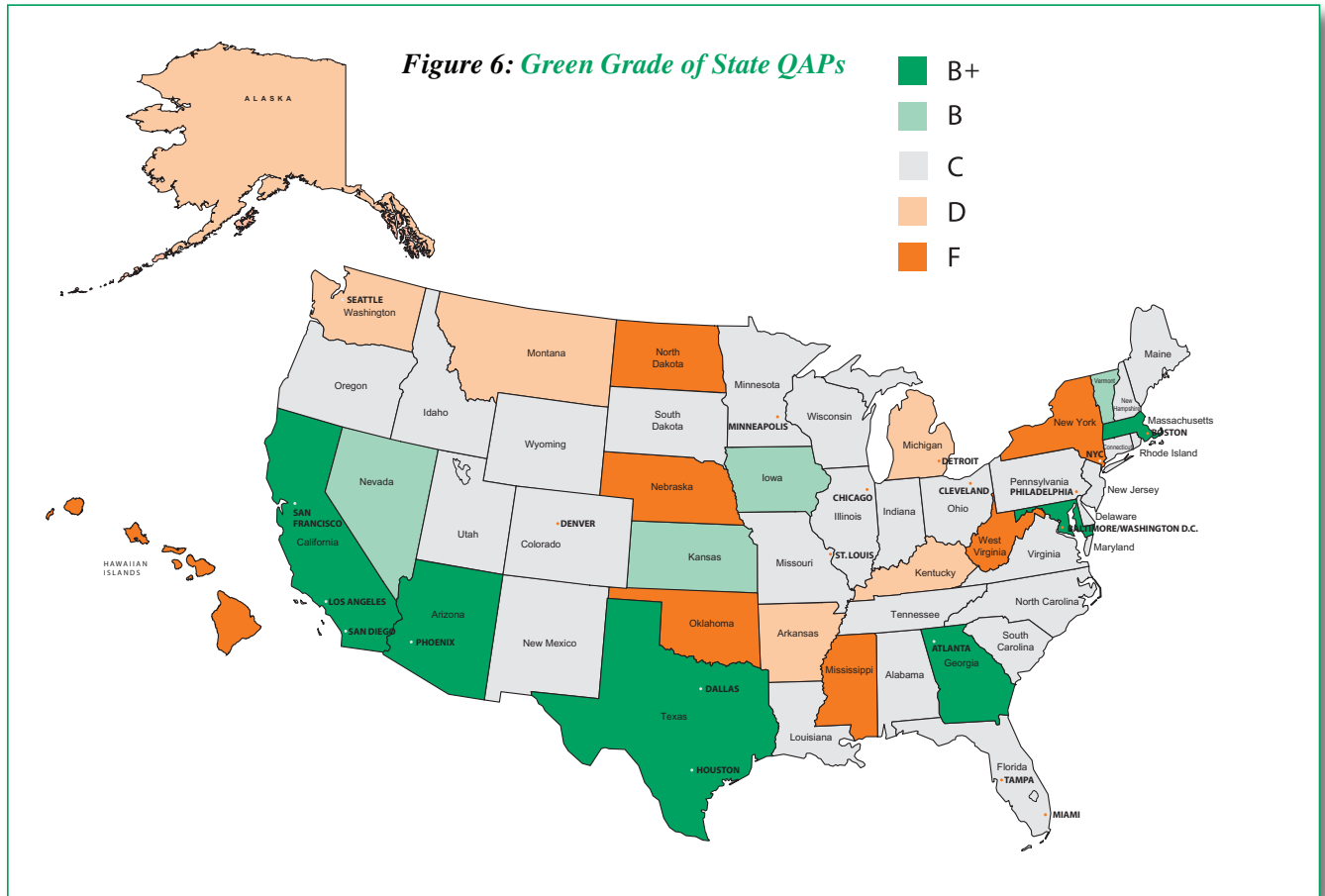
In order to more accurately quantify the rigor of green building in state tax credit programs for low income housing, Global Green has developed a scoring system to rate the rigor of green building requirements in state QAPs. This scoring scheme, and a detailed listing of the results for 2005, are included in Appendix B to this report. The Global Green scoring system has fifty available points in four categories: Smart Growth, Energy Efficiency, Resource Conservation, and Health Protection. Points are assigned for any QAP requirement that mentions a green building strategy, regardless of how the requirement is weighted or scored in the state's tax credit policy. Some states have relatively rigorous policies within some of the major green building categories, but lack requirements in at least one category. For example, Iowa's QAP scores relatively high through its emphasis on Smart Growth strategies and references to energy conservation codes, but lacks any requirements for resource conservation. In order to reward those states that took a more comprehensive approach to green building, additional bonus points have been awarded per the scoring scheme for those that addressed more than two major categories.

Using this system, the the top five states for encouraging green building practices in affordable housing in 2005 are: California, Georgia, Arizona, Maryland, and Texas.

Figure 7 lists the top twenty states ranked by their available LIHTC authority. These states are the most populous and together control approximately \$394 million in tax credits annually for low-income housing.¹⁵ These top twenty states include forty-three of the top fifty most populous metropolitan areas in the United States.¹⁶

Six of the states (Arizona, California, Georgia, Maryland, Massachusetts, and Texas) are among the top twenty percent for green requirements. However, the remaining states have few green building requirements, and several (Michigan, New York and Washington) rank at the bottom. Thirteen of these twenty states (Florida, Illinois, Indiana, Michigan, Missouri, New Jersey, New York, Ohio, Pennsylvania, Tennessee, Virginia, Washington, and Wisconsin) lack requirements in at least one major category, and the measures they do include are not comprehensive. These thirteen states include almost half of the top twenty most populous metropolitan areas in the United States, including New York City, Miami-Fort Lauderdale, Chicago-Gary-Kenosha, Philadelphia-Wilmington-Atlantic City, Detroit-Ann Arbor-Flint, Cleveland-Akron, Seattle-Tacoma-Bremerton, and St. Louis.

Figure 6: Green Grade of State QAPs



IV. Next Steps and Opportunities

As seen in the scoring detail, many state QAPs have minimal green building requirements. Populous states like New York and Washington have QAPs that are limited to only a few Smart Growth policies. The following states also scored very low due to few green building provisions in their tax credit policies: Alaska, Hawaii, Maine, Mississippi, Nebraska, North Dakota, and Oklahoma. West Virginia was the only state that featured no green building guidelines or incentives in its LIHTC policy.

Overall, the potential is great for making green building requirements in state QAPs more robust. Even the highest scoring states under this system are receiving less than half the maximum allowable points in 2005. The average score for all states is 11 points. As a result, no state was awarded a grade higher than a B+.

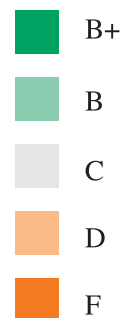
The top states are showing significant progress and are pointing the way towards more universal green building requirements in affordable housing projects. Next steps for improving the tax credit allocation policy of all states should include the following:

- **Establish a national framework for green building requirements in all QAPs.** At a minimum, this framework should require states to address each of the four major categories of green building—Smart Growth, Energy Efficiency, Resource Conservation, and Human Health—and their component issues. This effort can build upon the

Thirteen of the top twenty states in LIHTC allocation...lack requirements in at least one major green building category... These thirteen states include almost half of the top twenty most populous metropolitan areas in the United States.

Figure 7: Top 20 States by LIHTC Authorization and Population

State	LIHTC Authorization Rank	Metropolitan Areas	Metro Population Ranking
CA	1	LA-Riverside-OC	2
		San Francisco-San Jose	5
		San Diego	17
		Sacramento-Yolo	25
TX	2	Dallas-Ft Worth	9
		Houston-Galveston-Brazoria	10
		San Antonio	30
		Austin-San Marcos	38
NY	3	NYC-LI-Northern NJ	1
		Buffalo-Niagara Falls	43
		Rochester	47
FL	4	Miami-Ft Lauderdale	12
		Tampa-St Petersburg-Clearwater	21
		Orlando	28
		West Palm Beach-Boca Raton	45
		Jacksonville	46
IL	5	Chicago-Gary-Kenosha	3
PA	6	Philadelphia-Wilmington-Atlantic City	6
		Pittsburgh	22
OH	7	Cleveland-Akron	16
		Cincinnati-Hamilton	24
		Columbus	33
MI	8	Detroit-Ann Arbor-Flint	8
		Grand Rapids-Muskegon-Holland	48
NJ	9	Northern NJ-NYC-LI	1
		Atlantic City-Philadelphia-Wilmington	6
GA	10	Atlanta	11
NC	11	Charlotte-Gastonia-Rock Hill	34
		Greensboro-Winston-Salem-High Point	37
		Raleigh-Durham-Chapel Hill	41
VA	12	Washington-Baltimore	4
		Norfolk-Virginia Beach-Newport News	31
MA	13	Boston-Worcester-Lawrence	7
		Fall River-Providence-Warwick	40
IN	14	Gary-Chicago-Kenosha	3
		Indianapolis	29
WA	15	Seattle-Tacoma-Bremerton	13
		Salem-Portland	23
TN	16	Nashville	39
		Memphis	44
MO	17	St Louis	18
		Kansas City	26
WI	18	Kenosha-Chicago-Gary	3
		Milwaukee-Racine	27
MD	19	Baltimore-Washington	4
AZ	20	Phoenix-Mesa	14



Italics represent a metropolitan area that has a portion outside of the designated state.

federally mandated provision in the IRC that requires state QAPs to give preference to projects that are part of community revitalization plans. A proposed framework for minimum green building requirements is provided in Appendix A.

- **Once minimum standards are in place, states should work to incorporate more rigorous and comprehensive green building requirements into their QAPs.** Good examples are those developed by the New Jersey Green Homes Office (www.nj.gov/dca/dh/gho/njaffordablegreen.shtml) and the Enterprise Foundation (www.enterprisefoundation.org/resources/green/index.asp).
- **Cite national or international guidelines and codes and third-party certification systems in QAPs.** Citing recognized authorities will ensure the adequacy and consistency of requirements. National voluntary programs and third party standards represent best industry practices. These programs include the EPA's Energy Star[®], the Carpet and Rug Institute (CRI) Green Label Plus, the Forest Stewardship Council (FSC), and GreenGuard (see the Global Green USA Green Building Resource Center Website for a more complete listing at www.globalgreen.org/gbrc/resources.htm). Referencing such standards will assist state allocating agencies in developing their requirements without in-house sustainability expertise.
- **Perform advocacy in targeted states.** Among the top twenty states in terms of tax credit allocation, thirteen states were identified as having few green requirements. The concentration of tax credit allocation resources in these thirteen states, their lack of rigorous green building requirements, and their large urban low-income populations all suggest that advocacy for green building in LIHTC policies should focus here. Many of these states already have established networks of green building expertise, including designers, community development corporation umbrella organizations, and nonprofits who could be engaged in this effort. Educational outreach is a fundamental part of this effort, and should focus on coordinating with and informing local environmental groups, affordable housing associations, and government agencies that control LIHTC resources.

Specifically, the following states should be high priority targets for future advocacy on this issue: New York, Florida, Illinois, Pennsylvania, Ohio, Michigan, New Jersey, Virginia, Indiana, Washington, Tennessee, Missouri, and Wisconsin.

¹ Title 26 - Internal Revenue Code, www.access.gpo.gov.

² Final 2004 QAPs were accessed through the Novogradac & Company LLP site links, www.novoco.com/QAP.shtml. The Enterprise Foundation report A Greener Plan for Affordable Housing: How States are Using the Housing Credit to Advance Sustainability by James Tassos and its supporting documentation was the source for the 2005 QAP data.

³ United States Green Building Council, www.usgbc.org.

⁴ Due to the diversity and complexity of the scoring systems among all the states, this analysis does not attempt to identify the relative importance applied to any specific green building criteria by a given state's tax allocation policy.

⁵ Smart Growth America, www.smartgrowthamerica.com.

⁶ Smart Growth America, Surface Transportation Policy Project

⁷ Smart Growth America, Surface Transportation Policy Project

⁸ Global Green USA

⁹ United States Environmental Protection Agency, www.energystar.gov.

¹⁰ Environmental Building News, Vol 14, No 11, Durability: A Key Component of Green Building

¹¹ United States Environmental Protection Agency, www.epa.gov/superfund

¹² Title 24 - United States Department of Housing and Urban Development, www.access.gpo.gov/nara/cfr/waisidx_04/24cfr50_04.html.

¹³ United States Environmental Protection Agency, www.epa.gov/lead/ti-tleten.html

¹⁴ American Lung Association

¹⁵ National Housing and Rehabilitation Association, www.housingonline.com

¹⁶ United States Census 2000, www.census.gov.

Appendix A

Recommended Minimum Requirements

At a minimum, all state QAPs should include the following requirements:

- (1) **Smart Growth:** Locate project within one-quarter mile of public transit or within one-half mile of basic community services (e.g., grocery store, bank, pharmacy, place of worship, library).
- (2) **Energy Efficiency:**
 - a. Comply with the latest version of the International Energy Conservation Code (IECC).
 - b. Provide Energy Star® Domestic Appliances (refrigerator, dishwasher, and clothes washers if provided).
- (3) **Resource Conservation:** Implement stormwater protection Best Management Practices outlined in EPA’s Guidance for Specifying Management Measures for Sources of Non-point Pollution in Coastal Waters (EPA 840-B-92-002 1/93)
- (4) **Health Protection:**
 - a. Conduct a Phase I Environmental Site Assessment (ESA) in accordance with the American Society for Testing and Materials (ASTM) Standard Practice for ESAs: Phase I ESA Process (ASTM Designation E 1527 and E 1528) to identify the presence or likely presence of any hazardous substances or petroleum products on the property.
 - b. Provide good indoor air quality:
 - i. Specify carpet systems that meet or exceed the Carpet and Rug Institute Green Label Plus Indoor Air Quality Test Program.
 - ii. Specify paints that meet or exceed the VOC and chemical component limits of the Green Seal (GS-11) standard.
 - iii. Use cabinets, counter substrates, and trim materials that have no added urea-formaldehyde or is fully sealed on all six surfaces.
 - iv. Provide bathroom fans that exhaust to the outside and are connected to either a timer or humidistat sensor.
 - v. Use proper flashing and drainage to prevent moisture intrusion.

Recommended Best Management Practices

Beyond these minimum requirements are the following Best Practices, taken from 2005 and 2004 QAPs or related state guidelines and regulations that affect current housing tax credit policy. When no precedent could be cited from current QAPs, or the precedent was incomplete, recommended language is provided. Requirements should be consistent with other points or regulations in the QAP and should reference either national standards or credible third-party standards. A method of compliance for these requirements needs to be clearly stated. For clarity, some text has been added, which is shown in brackets.

Smart Growth	Model Standard or Recommended Best Practice
Brownfields Redevelopment	<i>(New Jersey 2004) Section 50:80-33, 15:</i> To qualify for this point category, a significant component of the development shall be located within...a building adaptively re-used or a building located on a brownfield site.
Urban Infill	<i>(Wisconsin 2004) Section II B 4 2:</i> [Points awarded for] New construction developments that maximize land use efficiency through development within established urban service areas.
Adaptive Reuse	<i>(Ohio 2004) Section II D II a:</i> Preference will be given to projects that create decent safe and sanitary affordable housing units through new construction, adaptive reuse, and/or for substantial rehabilitation.
Proximity to Public Transit	<i>(Texas 2004) Section 50.9g4A:</i> A site located within a quarter-mile of public transportation or located within a community that has “on demand” transportation, or specialized elderly transportation for Qualified Elderly Developments, will receive full points regardless of proximity to amenities...

Proximity to Services	<i>(New Jersey 2004)</i> Section 50:80-33.15, 11: (ii) Projects located within one-half mile of the positive land uses below shall receive one point for proximity to each of the following: [incl primary/ elementary school, day care center, public transportation, park, etc.]
Rehabilitate Existing Housing	See Adaptive Reuse
Revitalization Plans	<i>(Florida 2004)</i> Section II D: Developments located in qualified census tracts, the development of which contributes to a concerted community revitalization plan, will be targeted. [Note: This language is based on that required by the Internal Revenue Code for all QAPs].
Habitat Preservation	Recommended: No eligible projects shall be situated on land that provides habitat for any species on the Federal or State threatened or endangered list as identified on the U.S. Fish & Wildlife Service's Endangered Species website (www.endangered.fws.gov).
Floodplain Preservation	<i>(Indiana 2004)</i> Section F 2f(7): No development will be considered if any of the buildings are or will be located in a 100-year flood plain or on a site which has unresolvable wetlands problems.
Wetlands Preservation	<i>(South Carolina 2004)</i> Section III A 3 (f): Detrimental Site Characteristics for which negative points will be assessed: [for] Sites where there are existing wetlands (jurisdictional or non-jurisdictional), streams, ravines, drainage and/or waterways on the site.
Energy Efficiency	Model Standard or Recommended Best Practice
Photovoltaics	<i>(California 2005)</i> Section 10327 c5E: Financial Feasibility and Determination of Credit Amounts, Reasonable Cost Determination, Threshold Basis Limits. Exceptions to Limits: ...the Executive Director, in his/her sole discretion, may permit a further increase in basis limits to a maximum of 5%, where distributive energy technologies such as microturbines and/or renewable energy sources such as solar will be implemented.
Specified Efficient Products	<i>(Louisiana 2004)</i> Selection Criteria and Evidentiary Materials, Section FF (i): [Up to 35 points awarded if] project incorporates Energy Efficient products that meet the following performance criteria: All windows and sliding glass doors: U-value of 0.4 or less; Solar Heat Gain Coefficient of 0.4 or less;... Water Heater: Gas (Energy Factor of 0.62 or higher) or Electric (Energy Factor of 0.92 or higher).
Insulation Standards	<i>(Maryland 2004)</i> Exhibit C 5: Design features provide comfort and energy efficiency over the extended period of the projected life. [The following will be considered in assessing points]: Thicker insulation, which has an R-rating at least 20 percent above that required by code, is utilized in wall, crawlspace, and ceiling areas is specified. A barrier membrane wrap...used to minimize air infiltration is specified.

<p>Energy Star® Products</p>	<p><i>(Indiana 2005) Section G Evaluation Factors, 3. Development Characteristics, h. Energy Efficiency Requirements:</i> A total of two (2) points will be awarded for Applications certifying the use of Energy Star® rated materials and appliances as follows:</p> <p>All HVAC equipment and all windows and sliding glass doors for every unit must include the following (1 point): Energy Star® rated windows and sliding glass doors, Energy Star® rated furnace, Energy Star® rated air conditioner.</p> <p>If the Applicant agrees to equip all units with any three of the following appliances (1 point): Energy Star® rated refrigerators, Energy Star® rated dishwashers, Energy Star® qualified roof products (for all buildings), Energy Star® rated ceiling fans, Energy Star® rated residential lighting fixtures throughout all units and community space, Energy Star® rated clothes washer (must be in every unit [or communal laundry room]).</p>
<p>HVAC Performance</p>	<p><i>(Virginia Draft 2004) Part II 13 VAC 10-180-60 3 (c) (1) (g):</i> [Ten] points are available for application: 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 (ii) air conditioning units with a SEER rating of 14.0 or more, combined with a gas furnace with an AFUE rating of 90% or more.</p>
<p>Energy Codes</p>	<p><i>(Texas 2005) Section 49.9 (f) Threshold Criteria:</i> The following Threshold Criteria listed in this subsection are mandatory requirements at the time of Application submission unless specifically indicated otherwise: The “Certification Form” provided in the Application confirming the following items: ...[includes] a certification that the Development will be equipped with energy saving devices that meet the 2000 International Energy Conservation Code (IECC), which is the standard statewide energy code adopted by the state energy conservation office... [Note: Current IECC is 2006].</p>
<p>Energy Star® Homes</p>	<p><i>(New Jersey 2005) Section 50:80-33.12, 8:</i> Successful participation in the EPA’s Energy Star® Homes Program or equivalent ...shall be required for all applications except master-metered rehabilitation and minimum rehab projects.</p>
<p>Resource Conservation</p>	<p>Model Standard or Recommended Best Practice</p>
<p>Preserve Existing Flora</p>	<p><i>(Georgia 2004) App II C 4:</i> [Points awarded for] preservation of existing trees and vegetation, and integration of these areas within the new landscaping layout...; identify areas for low water landscaping. These areas must exhibit the types of vegetation that can be identified as suitable for “xeriscaping,” or native plantings to encourage water conservation...</p>
<p>Recycled Content Materials</p>	<p><i>(California 2004) Section 10327(c)(5)(B):</i> A further 4% increase in the Threshold Basis Limit will be permitted for projects...that include three of the following: [includes] recycled-content carpet/ recycled carpet tiles.</p>
<p>Maintenance Free Standard</p>	<p><i>(Tennessee 2004) Part VII B 2b (iii):</i> Developments not involving rehabilitation designed and built to meet a 15-year maintenance-free exterior standard [will earn 10 points].</p>

Water Conservation	<p><i>(Nevada 2004) Section 19:</i> Five preference points will be awarded to projects that are at least 75% [native] landscaped. This must be verified by the architect/landscape architect.</p> <p>Recommended: Install a) flow restrictors in kitchen (2 gallons per minute) and bathroom faucets (1.5 gallons per minute), and dual flush toilets.</p>
Renewable Materials	<p>Recommended: Specify rapidly renewable building materials for 5% of total building materials (by cost). Rapidly renewable resources are those materials that can be planted and harvested in less than 10-year cycles. Examples of rapidly renewable building products include bamboo flooring, wheatgrass cabinetry, sunflower seed board, poplar OSB, wool carpet, linoleum flooring, cotton batt insulation.</p>
Reused Materials	<p>Recommended: Specify salvaged or refurbished materials for 5% of building materials. Reuse percentage shall be calculated as a ratio of salvaged material cost to total material cost. Reused building materials could include brick, reclaimed wood, casework, and fixtures.</p>
Construction & Demolition Recycling	<p>Recommended: Recycle a minimum of 50% of all construction and demolition material by weight either through on-site or off-site sorting.</p>
Stormwater Protection & Retention	<p>Recommended: Design to a site sediment and erosion control plan that conforms to best management practices in the EPA's Storm Water Management for Construction Activities, EPA Document No. EPA-832-R-92-005, Chapter 3. The plan shall prevent loss of soil during construction by stormwater runoff and/or wind erosion and prevent sedimentation of storm sewers and receiving streams as well as air pollution from particulate matter.</p> <p>Recommended: Design the site to capture the first 1/2 inch of rainfall that falls within a twenty-four hour period</p>
Health Protection	Model Standard or Recommended Best Practice
Hazard Proximity	<p><i>(New Jersey 2004) Section 50:80-33.15, 11(iii):</i> Projects located within one mile of the following negative land uses shall have two points deducted from the project score: ...Trash Incinerator; Nuclear power plant; Oil/chemical refinery; Unremediated Superfund or toxic waste site as identified by the EPA or NJDEP.</p>
Environmental Assessment	<p><i>(Pennsylvania 2004) Selection Criteria D 3:</i> Evidence shall be provided that a Phase I environmental review has been completed by an environmental review professional certified or licensed by federal, state, or local authorities. A copy of the review or executive summary of the report and a certification that any issues raised in the environmental review have been reviewed and appropriately budgeted by the developer must be submitted.</p>

Hazard Abatement

(Georgia 2004) App I 5: A Phase I environmental study prepared in accordance with the “[Georgia Department of Community Affairs] DCA Environmental Manual must be included in the Application...The Phase I Environmental Study should fully address all recommendations of the consulting environmental engineer, and all such recommendations, including Phase II environmental studies (if required) or any additional testing, must be completed at the time of Application Submission...The project will not pass Threshold until all environmental matters are resolved in a manner satisfactory to DCA... For all existing properties to be rehabilitated under DCA programs and built prior to 1978, a survey of lead-based paint and asbestos-containing material must be included in the environmental study...If such materials exist on the properties the Qualified Environmental Professional must include recommendations for the management or abatement of these materials according to all EPA and HUD guidelines.

App I 5 PCBs: For all construction applications, documentation must be submitted according to the requirements of the Environmental Manual.

App I 5 Radon: For applications that propose the rehabilitation of existing properties, radon testing within the existing buildings, according to EPA guidelines, is required and the results must be included in the environmental study.

IAQ – Paint/Carpet/Non-Urea Formaldehyde

(California 2004) Section 10325(c)(8): [Points awarded for] use of formaldehyde free or fully sealed particleboard, MDF, or fiberboard for all cabinets, countertops and shelving; use of No-VOC interior paint, low-VOC carpeting and pad, and low-VOC adhesives (less than 25 grams per liter)... *Section*

10327(c)(5)(B) A further 4% increase in the Threshold Basis Limit will be permitted for projects...that include the following: [incls] use of linoleum, ceramic tile, carpet (where no VOC adhesives or backing is also used).

IAQ - Ventilation

(Georgia 2004) App II 7 B: The HVAC system shall be designed to locate the fresh air intake before the return air infiltration. When combustion equipment is utilized, that equipment will be isolated in a sealed combustion closet. Ventilation to that closet shall be from outside the building envelope. The kitchen range hood ventilation shall be ducted to the exterior and equipped with a damper.

Recommended: Install bathroom fans with a timer or humidistat. Adequately ventilate all living areas by providing 15 cubic feet per minute of fresh air per occupant either via the HVAC system or through natural ventilation as specified by ASHRAE 62.2.

Recommended: For ducted HVAC systems, provide filters with a Minimum Efficiency Reporting Value (MERV) of 8.

APPENDIX B

LOW INCOME HOUSING TAX CREDIT QUALIFIED ALLOCATION PLAN – GREEN BUILDING REQUIREMENTS SCORING SYSTEM 50 POINTS TOTAL

SMART GROWTH – 10 PTS

- BR: Brownfields Redevelopment–1
- UI: Urban Infill–1
- AR: Adaptive Reuse–1
- PT: Proximity to Public Transit–1
- PS: Proximity to Services or Employment–1
- XH: Rehabilitate Existing Housing–1
- RP: Revitalization Plans–1
- HP: Habitat Preservation–1
- FP: Floodplain Preservation–1
- WP: Wetlands Preservation–1

ENERGY EFFICIENCY -12 PTS

- PV: Photovoltaics–1
- SP: Specified Efficient Products (e.g. Appliances, Windows, H2O Heaters)–1
- IS: Insulation Standards–1
- EP: Energy Star® Products–1
- HV: HVAC Performance–1–2
- EC: Energy Codes–3
- EB: Energy Star® Homes–3

RESOURCE CONSERVATION REQUIREMENTS -12 PTS

- EF: Preserve Existing Flora–1
- RC: Recycled Content Materials–1
- MF: Maintenance Free Standard–1
- WC: Water Conservation–5 (Fixtures –3; Irrigation–1; Landscaping–1)
- NM: Renewable Materials–1
- UM: Reused Materials–1
- CD: Construction & Demolition Recycling–1
- SW: Stormwater Protection–1

HEALTH PROTECTION REQUIREMENTS -11 PTS

- HZ: Hazard Proximity–1
- EA: Environmental Assessment–1
- HA: Hazard Abatement (Lead-Based Paint, Asbestos-Containing Materials, Radon, Groundwater/Soils Contamination)–1–5
- Indoor Air Quality
 - QP: Paint (No-VOC)–1
 - QC: Carpet (Low-VOC)–1
 - QF: Composite Wood (Formaldehyde Free)–1
 - QV: Ventilation (Outside Supply Location or Air Changes/Hr.)–1

Bonus: All 4 Categories = 5 pts; 3 Categories = 2 pts; 2 or Fewer Categories = 0 pts

2005 QAP Green Building Score Detail

Grade	State	LIHTC Rank	Smart Growth										Energy Efficiency							Resource Conservation							Health Protection							Bonus %	Score
			BR	UI	AR	PT	PS	XH	RP	HP	FP	WP	PV	SP	IS	EP	HV	EC	EB	EF	RC	MF	WC	NM	UM	CD	SW	HZ	EA	HA	QA	QC	QF		
B+	CA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	5	24
	GA	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	5	24	
	AZ	20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	5	24	
	MD	19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	5	24	
	TX	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	5	23	
	MA	13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	5	21	
	IA	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	2	20	
	KS	32	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	5	20	
	NV	35	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	5	20	
	VT	49	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	1	1	1	5	19	
B	NM	36	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	5	1	1	1	1	1	1	1	1	1	1	5	18		
	WY	50	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	18		
	SC	26	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	17		
	IL	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	3	1	1	1	1	1	1	1	1	1	2	16		
	NC	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	3	1	1	1	1	1	1	1	1	1	5	16		
	AL	23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	16	
	AR	33	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	16	
	DE	45	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	15	
	OH	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	13		
	C	NJ	9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	13	
IN		14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	13		
MO		17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	12		
UT		34	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	2	12		
NH		41	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	12	
FL		4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	12	
VA		12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	11	
OR		28	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	11	
SD		46	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	11	
D		CO	24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	9
	CT	29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	9	
	LA	22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	9	
	MI	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	9	
	KY	25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	8	
	MT	44	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	8	
	AK	48	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	8	
	WA	15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	7	
	NY	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	7	
	F	NE	38	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	6
ME		40	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	6	
ND		47	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	6	
OK		27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	6	
MS		31	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	6	
HI		42	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	6	
IWV		37	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	6	
# States:			4	12	7	28	29	25	46	0	9	10	4	25	17	12	19	15	5	2	2	13	15	0	0	1	0	16	21	17	3	3	2	10	0

Bonus : All 4 categories = 5 points; 3 categories = 2 points; 2 or less categories = 0 points

Avg Score = 11

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About Global Green

Global Green USA (GG USA), the United States affiliate of Green Cross International founded by Mikhail Gorbachev, is fostering a global value shift toward a sustainable and secure world through education, advocacy, partnerships, and programs. Global Green USA is addressing three of the greatest challenges facing humanity: safely eliminating weapons of mass destruction; stemming climate change and reducing resource use; and increasing access to clean water.



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