

**Regional Recommendations and Toolkit  
for Green Building Programs in the Denver Metropolitan Area**

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**About SWEEP:** The Southwest Energy Efficiency Project is a public interest organization dedicated to advancing energy efficiency in Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming. SWEEP provides local officials with training and technical assistance as part of their effort to ensure beyond code programs are cost-effective, deliver net benefits of energy and water efficient, reduce waste, and increase the comfort of households and businesses. For more information, visit [www.swenergy.org](http://www.swenergy.org).

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This effort would not have been possible without the time and talents of numerous individuals. Stakeholders from across Denver Metro contributed significant time to identify goals, learn about new green building programs, identify issues to adoption and implementation, and develop recommendations for the region.

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Ago Studios	Godden Sudik Architects
American Institute of Architects – CO Chapter	Home Builders Association of Metro Denver
Alliance for Sustainable Colorado	Independent Electrical Contractors – Rocky Mt.
Arapahoe County	International Code Council – CO Chapter
Boulder County	Jefferson County
Built Green® Colorado	Kephart
City and County of Denver	Pacific Northwest National Lab
City of Arvada	Pulte Homes
City of Aurora	REIT Management
City of Commerce City	RNL Design
City of Fort Collins	Rocky Mountain ASHRAE Chapter
City of Golden	Sean Smith Builders
City of Greenwood Village	Sevya Fair Trade
City of Lakewood	State of Colorado – Department of Local Affairs
City of Longmont	State of Colorado – Division of Housing
City of Louisville	State of Colorado – Governor's Energy Office
City of Westminster	Thomas & Thomas Architecture and Design
Coast to Coast Development	Town of Parker
Copeland Planning & Design, LLC	Tryba Architects
Denver Greenprint Office	U.S. Environmental Protection Agency, Region 8
Denver Building Owners and Managers Association	Urban Land Institute
Douglas County	U.S. Green Building Council – Colorado Chapter
Energy Logic	Vector Properties
Enermodal Engineering, Inc.	Western Mechanical Solutions

## **I. Introduction**

Colorado is a home-rule state in which local jurisdictions adopt building codes at the jurisdictional level to suit the needs of their community. Over the past twenty years Colorado has seen an increase in the number of communities adopting green building programs and codes. This has resulted in a patchwork of building and energy codes across the state.

This concern was addressed in 2008 when the Southwest Energy Efficiency Project and Greenprint Denver convened meetings with building code officials to discuss the possibility of developing a green building code for the Front Range of Colorado. Since the first meetings were held in 2008, new products have become available, including the National Green Building Standard (NGBS), International Green Construction Code (IGCC) and Standard 189.1. The original project concept was repurposed in 2010 when a group of building industry stakeholders participated in a six month process to reach agreement on a nationally developed code or standard that could be used as the foundation for green building programs in Denver Metro.

Some communities participating in the process had little to no experience with green building programs or codes, while other communities had been national leaders for many years. This toolkit contains the recommendations of the stakeholders that outline incremental steps to deploy a green building program. Jurisdictions that have a green building program can use this toolkit to adopt the codes and standards that are recommended by the stakeholder group, thereby promoting consistency across the region.

The intent of this toolkit is to assist the building code official by providing a product to present to their council or commissioners outlining the incremental steps the jurisdiction can take to ultimately adopt a green building program. The building official can use the toolkit to adopt a regionally-consistent program, and to use as a reference the implementation strategies and educational resources.

This project was funded by the Colorado Governor's Energy Office and Hewlett Foundation.

## II. Background

Green building programs and codes typically include elements that address energy efficiency, water conservation, landscaping, site selection, site development, building size, materials and resources, and indoor environmental quality. Energy efficiency is typically one of the key benchmarks of a green building program because energy use is the single largest ongoing environmental impact of any building.

### ***A. Programs, Codes and Standards Referenced in the Recommendations***

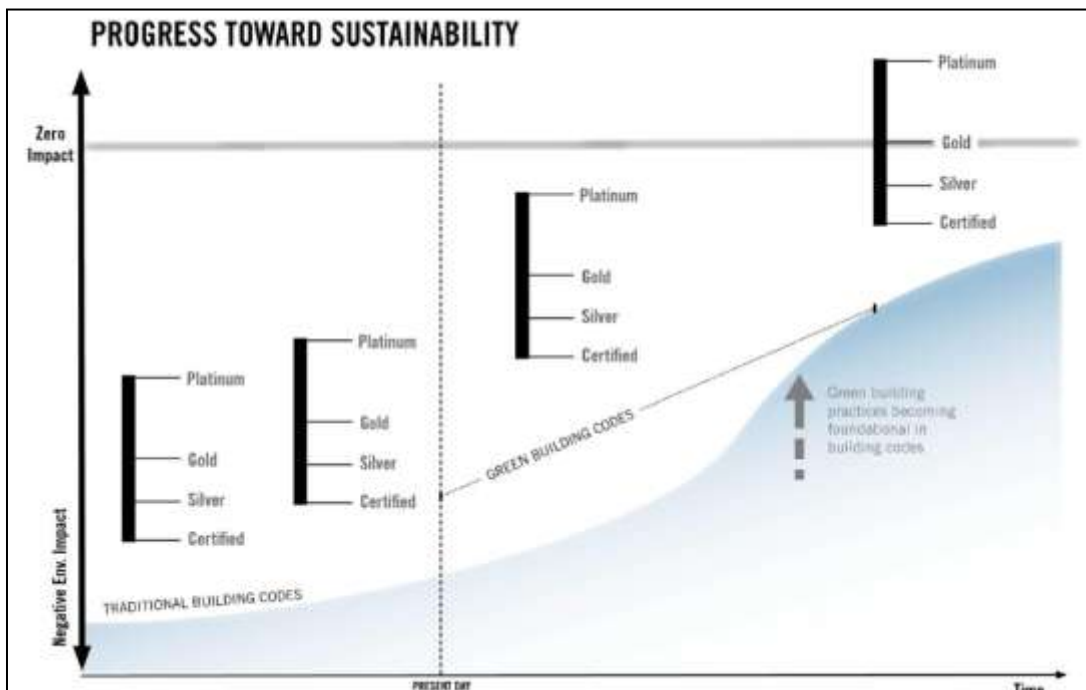
Following are the full names and brief descriptions of the green building programs, codes and standards that are referenced in this document. Subsequent references to these products use the acronym indicated in parentheses.

- **ICC-700 National Green Building Standard (NGBS):** The National Association of Home Builders (NAHB) and the International Code Council (ICC) produced the first ANSI-approved rating system, the NGBS, for single and multifamily homes, residential remodeling and site development projects. First published in January 2009, the standard is a points-based rating system that allows the jurisdiction to set a minimum number of points for each green building category.
- **International Green Construction Code (IGCC):** The International Green Construction Code (IGCC), published as Public Version 1.0 in March 2010, was the first green construction code written in mandatory code language for residential above three stories and commercial construction. Most of the nation's code jurisdictions have adopted the ICC's codes, or I-codes. The IGCC is an overlay to the I-codes, meaning that the IGCC does not replace the International Building Code; it works in conjunction with the International Building Code, the International Plumbing Code, the International Mechanical Code, and so forth. The IGCC is comprised primarily of mandatory requirements. The jurisdiction that adopts the IGCC can specify requirements in each environmental category – energy, water, materials, sites, indoor air quality, operations, and the building owner/designer chooses from the electives. Each chapter opens with the mandatory requirements for that environmental category and closes with the project electives. The jurisdiction chooses 0-14 minimum project electives; the designer chooses out of 60 electives. This is very flexible to support the interest of the private sector.
- **ASHRAE/USGBC/IES Standard 189.1 (Standard 189.1):** Development of ASHRAE/USGBC/IES Standard 189.1 began in 2006 and then had four public review processes before it was finally published in 2010. Standard 189.1 has mostly mandatory provisions, however most subject areas have prescriptive and performance options for a

portion of the section. There are five subject areas in Standard 189.1: site sustainability, water use efficiency, energy efficiency, indoor environmental quality and the building’s impact on the atmosphere, and materials and resources. Each chapter first addresses the scope, then indicates if there are compliance paths, lists the mandatory provisions, and then breaks out the details of the prescriptive and performance compliance paths.

- Leadership in Energy and Environmental Design (LEED):** A program of the U.S. Green Building Council (USGBC), LEED is typically an alternative compliance path for community green building programs where it is not the primary program. It is highly unusual to find a jurisdiction adopting a comprehensive program that does not allow LEED as an alternative compliance path. LEED was never intended to be a code, and yet over 45 states, including 442 localities and 35 state governments, have adopted LEED into some form of legislation, ordinance, or policy as of 2010. While the code sets the minimum legal building requirements (the floor), LEED pushes the ceiling and continues to drive innovation and market transformation, as depicted in Figure 1.

**Figure 1. Greening the Codes<sup>1</sup>**



- ENERGY STAR for New Homes (ENERGY STAR):** The ENERGY STAR for New Homes program, designed and maintained by the Environmental Protection Agency (EPA), is currently in a transition period, a shift that is necessary for it to maintain above-code

<sup>1</sup> U.S. Green Building Council, “Greening the Codes.” <http://www.usgbc.org/ShowFile.aspx?DocumentID=7403>

status. The ENERGY STAR Version 3.0 program is expected to take effect on January 1, 2012. Version 3.0 is said to achieve 15% energy savings above the 2009 IECC.

- **International Energy Conservation Code (IECC):** The IECC is a model energy building code that provides minimum energy efficiency requirements for residential and commercial buildings.
- **ANSI/ASHRAE/IESNA Standard 90.1 (Standard 90.1):** Standard 90.1 provides minimum requirements for energy efficiency in all buildings except for low-rise residential.

### ***B. Energy and Green Building Codes in Colorado***

Historically, energy codes have been adopted at the local level in Colorado, resulting in a patchwork of energy codes across the state. Some municipalities have adopted national energy codes, while others have created their own community-specific energy codes. With the 2007 passage of the Energy Conservation Building Codes bill (HB1146), many municipalities have adopted either the 2003 or 2006 International Energy Conservation Code (IECC), and with Section 410 of the American Recovery and Reinvestment Act, jurisdictions that receive stimulus funding and have a building code are required to adopt the 2009 IECC.

In similar fashion, a patchwork of green building codes has developed across Colorado in recent years. This has raised concerns about the effectiveness of compliance and enforcement because of the fluidity of the building community, the tendency for code officials to move from jurisdiction to jurisdiction, and the confusion that can result from builders and trades having to follow different green building criteria in different jurisdictions across the state. Referencing a nationally developed green building code—packaged with a variety of program support offerings—will remove many of these barriers, to the benefit Colorado’s economy, natural and built environment. Specific benefits to local jurisdictions include:

- Each community will be able to choose its appropriate threshold level while retaining consistency across the region.
- A regionally accepted, nationally vetted green building code will save thousands of dollars in development fees from already strapped building departments, freeing staff time and avoiding consultant costs.
- Through multi-jurisdictional collaboration, building officials can share experience, expertise and guidance for communities to implement a green building program that can merge training, outreach and research projects.
- Local economies will be stimulated as the owners of efficient buildings retain more discretionary income, which can be invested back into the local economy.

- As green building becomes the norm in mainstream building practices, innovation sprouts new green products to support the industry, potentially with Colorado-developed products.
- Healthier and more sustainable buildings will result from increased attention to energy conservation, regionally appropriate landscaping, water conservation, and improved indoor environmental quality.
- Staff will advance skill sets across multiple departments in the process of building plan review, field inspection, and technical review.
- Staff will become more valuable to Colorado's communities as they gain knowledge of both traditional and green construction.

### III. The Stakeholder Process

SWEEP first convened stakeholder meetings in Colorado in 2008 to determine if there was interest in regional collaboration for green building programs. An outcome was a report on energy efficient and sustainable buildings called *Going Beyond Code: A Guide to Creating Energy Efficient and Sustainable Buildings in the Southwest*. In 2010, with funding from the Colorado Governor's Energy Office, SWEEP coordinated a collaborative effort with more than one hundred individuals representing more than fifty stakeholder organizations to develop recommendations for regional consistency in green building programs.

When the project was originally conceptualized, the landscape of available codes and standards was much different. The NGBS, IGCC and Standard 189.1 were still under development and had not yet been published. After publication of these green building code products in 2009 and 2010, the project shifted from attempting to create a new model green building code to understanding the new code products and gaining acceptance from regional stakeholders on which products the regional green building program would reference.

Colorado already had a well-received residential green building program called Built Green Colorado, both LEED and ENERGY STAR had achieved significant market penetration, and many jurisdictions had locally developed programs. Assumptions could not be made about how jurisdictions in the region would embrace the new products or how the new products would interact with the older programs.

In 2010, the aim of the project was to reach consensus on a common code to use as the foundation for green building programs in DMA, and to provide recommendations and resources for jurisdictions at the various stages of green building program readiness. The final result was this toolkit which outlines incremental steps toward adoption of a green building program. It was decided that minimum thresholds would not be addressed in the recommendations so that each jurisdiction could retain its ability to establish local goals and code requirements which is the nature of Colorado as a home rule state.

As with any stakeholder engagement process, different people representing a variety of organizational positions and interests expressed very different views on many of the concepts that were discussed. Some critical points on which the group struggled to reach agreement include:

- **Voluntary versus mandatory program models.** Many of the participants supported a mandatory program model to achieve greater impact in reaching long-term sustainability goals for the built environment. However, the Homebuilder's Association and some other building trade organizations support a voluntary program model because it allows builders to opt into the program if they choose, and allows builders to

achieve market differentiation from other code-built products. Mandatory programs do not have this incentive to the builder because all homes are built to the higher baseline.

- **The economic climate.** The depressed housing market has been a challenge, but in some ways it can also be an opportunity. A slow market is an ideal time for the construction industry to learn new building concepts. When the market picks up again, the building strategies and the industry will have improved. Regardless, many stakeholders reject any costs added to this suffering market.
- **Market demand.** Builders give clients what they demand. Some of the participating stakeholders claim there is not enough demand for green buildings. The opposing view, supported by research published by the National Association of Homebuilders, projects that the demand for green homes is expected to increase by 50% from 2008 to 2012.<sup>2</sup>
- **Staff shortages.** Staff shortages in building departments were a concern to some staff in the stakeholder group. Compliance and enforcement of a green building program would demand additional time from already strapped departments. Third party verification can also move some of the work load to the private sector.
- **Code cycles.** The national green codes that are recommended by the stakeholder group and SWEEP are new products. The IGCC, for example, will not be released as a final version until 2012. Checklists and metrics have not been developed for the codes. This was a concern to some stakeholders. However, data from the long-standing LEED program, which in many regards is similar to the green codes, can provide reasonably reliable estimates of energy, water and waste reduction in green buildings.

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<sup>2</sup> Ritterpusch, J. *National Association of Homebuilders*. January 18, 2009.

[http://www.nahb.org/fileUpload\\_details.aspx?contentTypeID=3&contentID=127330&subContentID=258944](http://www.nahb.org/fileUpload_details.aspx?contentTypeID=3&contentID=127330&subContentID=258944)

## ***A. Collaboration***

Green building programs typically affect and involve not only the building department in a city or county, but also planning, zoning, engineering, waste and environmental services, and other departments. Therefore, effective implementation of a green building program will be facilitated by a high degree of interdepartmental collaboration. The stakeholder group that participated in the project included representatives from multiple levels of authority in a variety of fields, departments and jurisdictions. A diverse mix of green building champions, from various departments and with a myriad of job titles—for example, a Plan Reviewer from Westminster, a Chief Building Official from Parker, a City Inspector from Denver, and a Permit Coordinator from Arvada—had the enriching opportunity to experiment with interdepartmental collaboration beyond jurisdictional lines. The stakeholder group strongly recommended that this kind of collaboration continue, especially for a regional training program.

### ***Responsibility Matrix***

A responsibility matrix can facilitate interdepartmental collaboration by making transparent the roles and responsibilities of all the departments with an essential role in implementing an effective green building program.

A sample responsibility matrix can be retrieved from the City of Rowlett, TX website (page 9) at:

<http://tx-rowlett.civicplus.com/DocumentView.aspx?DID=1487>

## ***B. Leadership***

Every big project needs strong, visionary leadership and a “champion”—someone within the organization who can advocate for the initiative and act as the point person. The champion must have a passion for the cause, and the interest to learn the details of the topic so they can teach others. The stakeholder group was full of champions, some long time leaders in the field and others aspiring to learn more about green and sustainable building.

The individuals who participated in the project were also given the opportunity to discuss the barriers they encountered to leading green building initiatives in their respective jurisdictions. Some of the barriers to implementing green building initiatives that the stakeholder group discussed are political, knowledge of green building practices, knowledge of available resources, and resistance of the industry and building departments to change.

Those who had been successful in their cities were able to offer lessons learned and best practices from their own experiences. Some of these cities (such as the City of Boulder, CO)

have become “mentor cities,” sharing experiences and acquired expertise with other jurisdictions that want to launch similar initiatives. The stakeholder group was in strong agreement that continuing interdepartmental and multi-jurisdictional collaboration and fostering leadership development of green building champions are critical to the success of green building programs in Denver Metro.

## IV. Recommendations and Toolkit to Implement Green Building Programs

The stakeholder group was in full agreement that supporting a consistent regional standard for local green building programs in Denver Metro is in the best interest of each jurisdiction and the entire region.

However, the different building code jurisdictions in the region are at various stages of readiness to create and implement their own local green building program. Some jurisdictions have already adopted green codes, others have set goals and begun the process, while others have not laid the groundwork or assembled the resources for such an undertaking.

The stakeholder group determined that incremental steps would be the best way for a community to appropriately prepare for effective implementation of a green building program.

The specific recommendations presented in this chapter were created by the stakeholder group to provide jurisdictions with clearly defined incremental steps – presented as milestones, tools and resources – to support implementation of a regionally consistent local green building program (Figure 2).



Figure 2. Milestones

## **Milestone 1: Adopt and enforce the most current version of the energy code**

Because energy use is the single largest ongoing environmental impact of any building, the stakeholders agreed that the essential first step a jurisdiction should take is to adopt the most current version of the IECC and achieve high levels of compliance.

Section 410 of the American Recovery and Reinvestment Act requires that any jurisdiction within Colorado which receives stimulus funding and has a building code must adopt the most recently published IECC and meet or exceed the Standard 90.1-2007, and have a plan for achieving at least 90% compliance with these energy codes within eight years.

If a jurisdiction has obtained acceptable compliance with the 2006 IECC or the 2009 IECC, it should then move to the 2009 IECC or the 2012 IECC, respectively.

To find out the current code status in each of Colorado's building code jurisdictions, visit [www.colorado.gov/energycodes](http://www.colorado.gov/energycodes).

### ***Implementation Tools & Resources***

The following local and national organizations can assist jurisdictions with energy code compliance:

#### **[Colorado Energy Codes Support Program](#)**

This state-sponsored program includes site visits, training, and other services to help jurisdictions advance to the 2009 IECC and achieve 90% compliance. More info at [www.rechargecolorado.com](http://www.rechargecolorado.com)

#### **[Building Codes Assistance Project \(BCAP\)](#)**

BCAP's Online Code Environment and Advocacy Network offers a comprehensive energy codes library, interaction with a network of energy code stakeholders, the latest energy code news and events, energy code status maps and other tools. More info at [www.bcap-ocean.org](http://www.bcap-ocean.org)

#### **[Responsible Energy Codes Alliance \(RECA\)](#)**

RECA is a consortium of energy efficiency professionals, manufacturers, and trade associations whose primary goal is to urge all states and local jurisdictions to adopt the most recent IECC without substantive weakening amendments.

More info at [www.reca-codes.org](http://www.reca-codes.org)

#### **[DOE Building Energy Codes Program \(BCEP\)](#)**

BCEP develops and maintains free software and tools to support energy codes and standards.

More info at [www.energycodes.gov](http://www.energycodes.gov)

#### **[Southwest Energy Efficiency Project \(SWEET\)](#)**

SWEET provides support for implementing strong energy code policies and programs in the Southwest.

More info at [www.swenergy.org](http://www.swenergy.org)

## **Milestone 2: Define the sustainability goals of the community and examine existing policies and ordinances**

A new green building program is much more likely to succeed if it is in alignment with the sustainability goals of the community. Effective sustainability goals should be specific and measurable. Existing goals, policies and ordinances should be analyzed for compatibility or potential conflict with the jurisdiction's green building goals. Specific steps could include:

1. Define the measurable sustainability goals of the community.
2. Examine existing policies and ordinances for compatibility with a green building program.
3. Address policy barriers or other incompatibility issues through further goal setting, policy change and/or interdepartmental collaboration.
4. Choose a program implementation strategy that minimizes conflict with existing policies and ordinances.

If one program element is deemed more important than others, a jurisdiction may take an incremental approach, adopting the most critical components of the green building code first. For example, some jurisdictions have an immediate need to conserve water, while others may give higher priority to saving energy.

### ***Implementation Tools & Resources***

#### ***Sustainable Design and Green Building Toolkit for Local Governments***

Published by the U.S. Environmental Protection Agency for Region 4 in June 2010, this publication can be used as a resource to inventory existing policies and ordinances within the jurisdiction, and to evaluate the compatibility or potential conflict with community goals. It can be downloaded at:

[www.epa.gov/region4/recycle/green-building-toolkit.pdf](http://www.epa.gov/region4/recycle/green-building-toolkit.pdf).

**Consider the following points** when evaluating community goals, policies and ordinances:

1. What are the specific issues that we are trying to solve?
2. Do we have identifiable goals and associated timelines to address those goals?
3. Are those goals measurable?
4. Are we confident that we adequately understand, enforce, and obtain compliance with the currently adopted building codes, particularly the energy conservation code?
5. Are there any currently adopted codes or ordinances that already address the identified goals?
6. If so, have measurable metrics been applied to those codes/ordinances?

### Milestone 3: Become an ENERGY STAR Program Sponsor

Becoming an ENERGY STAR Program Sponsor is recommended as a way to support an above code, voluntary program that has strong market recognition. This allows the jurisdiction to ease into the full-fledged green building program by increasing staff and industry awareness of ENERGY STAR's guidelines, building strategies and technical specifications for energy efficiency, water conservation and indoor air quality, the key components of the ENERGY STAR for Homes program.

The program has been remarkably effective in Colorado, certifying 33% percent of all homes built in Colorado in 2009 and 44% of all homes built in Denver in the second quarter of 2010.<sup>3</sup> Colorado's ENERGY STAR New Homes Program, led by the Governor's Energy Office (GEO), was recently honored by ACEEE as one of the top 5 state-led energy efficiency programs in the country. Colorado also received the ENERGY STAR Partner of the Year award by the EPA in 2009 and 2010.

#### *Implementation Tools & Resources*

##### National ENERGY STAR Program

Local governments are eligible to become Energy Efficiency Program Sponsors. As a Program Sponsor, the jurisdiction is expected to promote the ENERGY STAR brand and build product awareness. The jurisdiction must create a program plan, which can include activities such as holding trainings or displaying ENERGY STAR brochures. The partnership packet can be downloaded at

[www.energystar.gov/index.cfm?c=join.reps\\_agree](http://www.energystar.gov/index.cfm?c=join.reps_agree)

##### Colorado ENERGY STAR Program

Through Colorado's ENERGY STAR New Homes Program, the GEO works closely with local governments, community organizations, utilities, homebuilders and Home Energy Raters to support the statewide construction and testing of new energy-efficient single family homes built to ENERGY STAR standards. The program aims to increase consumer awareness of energy efficiency options in residential new construction.

More info at [www.coloradoenergystarhomes.com](http://www.coloradoenergystarhomes.com)

Local government ENERGY STAR Program Sponsors in Denver Metro currently include:

- Arapahoe County
- City and County of Boulder
- City and County of Denver
- City of Littleton
- City of Longmont
- Town of Parker

<sup>3</sup> Colorado Governor's Energy Office. "ENERGY STAR Qualified New Homes – Colorado Market Penetration Report." <http://www.fourcore.org/docs/CO%20ESNH%20-%20Market%20Penetration%20Report.pdf>

## Milestone 4: Offer green building training opportunities

The stakeholder group recommends creating a training program that leverages local resources to offer green building training opportunities to staff, industry and the community to prepare for the launch of the green building program.

Numerous jurisdictions and the ICC Colorado Chapter expressed interest in regional collaboration on a comprehensive training program. The City of Westminster in 2010-11 is sponsoring a series of classes to educate architects, engineers, contractors, and homeowners about the 2009 energy code. Other jurisdictions have expressed interest in replicating Westminster's training program and advancing the program to include above-code topics.

Training is necessary to ensure that staff has the capability to provide technical assistance on green building issues to the design and construction community, and to ensure that the building industry is well-trained to skillfully implement green building practices. A robust training program will contribute to extended growth of green building endeavors long after the training program expires.

### *Implementation Tools & Resources*

#### **For Policy Makers:**

- *Going Beyond Code: A Guide to Creating Energy Efficient and Sustainable Buildings in the Southwest:* [www.swenergy.org/programs/buildings/codes/beyondcode/](http://www.swenergy.org/programs/buildings/codes/beyondcode/)
- *Developing Green Building Programs: A Step-by-Step Guide for Local Governments:* [www.globalgreen.org/docs/publication-71-1.pdf](http://www.globalgreen.org/docs/publication-71-1.pdf)
- *Developing Green Building Programs and Ordinances:* [www.iccsafe.org](http://www.iccsafe.org)
- *Green Building for Cool Cities: A Guide for Advancing Local Green Building Policies:* [www.usgbc.org/ShowFile.aspx?DocumentID=6445](http://www.usgbc.org/ShowFile.aspx?DocumentID=6445)
- Green building public policy search can be conducted on the USGBC site: [www.usgbc.org](http://www.usgbc.org) under the Resources tab.

#### **For Building Departments:**

- Attend Energy Codes Support Program training events: [www.rechargecolorado.com](http://www.rechargecolorado.com)
- Contact the International Code Council Colorado Chapter: [www.coloradochaptericc.org](http://www.coloradochaptericc.org)
- Visit the Building Codes Assistance Project and the Online Code Environment and Advocacy Network: [www.bcap-ocean.org](http://www.bcap-ocean.org)

#### **For the Building Industry:**

- Visit the Sustainable Building Council of Colorado website and outreach to the partner organizations: [www.sbccolorado.org](http://www.sbccolorado.org)

## Milestone 5: Adopt the IGCC with Standard 189.1 and the NGBS with LEED as an alternative compliance path

When a jurisdiction in Denver Metro is ready to adopt a green building code, the stakeholder group recommended that all jurisdictions adopt the following codes, standards and programs to support the goal of regional consistency:

- IGCC, incorporating by reference Standard 189.1
- NGBS
- LEED as an above code alternative compliance path

Within each of the code products, the jurisdiction can set minimum thresholds. Each jurisdiction must make the following determinations:

- For residential buildings, identify the minimum level of certification recommended for the NGBS. Refer to Table 303 “Threshold Point Ratings for Green Buildings” in the NGBS book. A minimum threshold of Silver would ensure that the energy efficiency component is benchmarked above the 2009 IECC.
- For commercial buildings, identify “Requirements Determined by the Jurisdiction” in Table 302.1 in the IGCC Public Version 1.0 or related table in more recent versions.
- Identify a minimum level for LEED to be allowed as an alternative compliance path.

### *Implementation Tools & Resources*

**NGBS:** The Green Scoring Tool allows builders, designers, consultants, verifiers, & home owners to rate a project against the NGBS and determine if the project is eligible for NAHB’s bronze, silver, gold or emerald National Green Building Certification. The Tool is available on the web where the user can track all projects, or it is available in an excel spreadsheet.

<http://www.nahbgreen.org/ScoringTool.aspx>

**IGCC:** The ICC Green Toolkit contains resources to understand the importance of green codes, where to find training opportunities, media and communication support and the status of code adoption activity.

[www.iccsafe.org/gr/Pages/GreenToolkit.aspx](http://www.iccsafe.org/gr/Pages/GreenToolkit.aspx)

**Standard 189.1:** To learn about 189.1, view presentations on each environmental category, find FAQ’s and preview the Standard:

[www.engineeringforsustainability.org](http://www.engineeringforsustainability.org)

**LEED:** View the LEED rating systems that the jurisdiction would like to support, find resources for developing and implementing a green building program, and much more:

[www.usgbc.org](http://www.usgbc.org)

## **V. Conclusion**

This toolkit helps local jurisdictions by providing recommendations and resources that were developed and agreed upon by a diverse group of local stakeholders. Regional consistency for green building programs will benefit Denver Metro in many ways. Builders will find it easier to stay up-to-date with a common program, building officials will be able to share lessons learned to streamline and strengthen the programs, and elected officials will be able to set a common strategy to reach common goals. Any jurisdiction in Denver Metro can indicate support for the goal of regional consistency by passing a Resolution to Support the Regional Recommendations for Green Building Programs (see Sample Resolution in Appendix A). With 33% of all homes built in Colorado to ENERGY STAR in 2009, over 260 LEED certified buildings, and over a dozen green building programs in Colorado, Denver Metro has surpassed the early stages of green building, and is ready to take steps toward developing programs consistently from jurisdiction to jurisdiction.

## Appendix A: Sample Resolution

### CALLING ON JURISDICTIONS IN THE DENVER METROPOLITAN AREA TO SUPPORT THE REGIONAL RECOMMENDATIONS FOR GREEN BUILDING PROGRAMS

**WHEREAS**, residential and commercial buildings contribute to over 40% of Colorado's greenhouse gas emissions and significant improvements can be made; and

**WHEREAS**, green building practices minimize construction waste, promote regionally acceptable landscaping, water conservation, indoor environmental quality and health of occupants, sustainable structures for longevity, and increased property values; and

**WHEREAS**, sustainable development practices present a major economic development opportunity for the Denver metropolitan area; and

**WHEREAS**, a green building uses 25-30% less energy than a typical building and would eliminate more than 4 million tons of carbon dioxide per year, and save over \$500 million in annual energy costs in the Denver metropolitan area; and

**WHEREAS**, a regional green building advisory committee and working groups have convened to achieve consensus of green codes and programs that best serve the region; and

**WHEREAS**, the regional standards support Section 410 of the American Recovery and Reinvestment Act and the requirement for jurisdictions within Colorado that have a building code to adopt the most recently published International Energy Conservation Code for residential buildings and to meet or exceed the ANSI/ASHRAE/IESNA Standard 90.1-2007, and have a plan for achieving at least 90% compliance with the energy code within 8 years; and

**WHEREAS**, the State of Colorado has taken a leadership position on supporting green building, such as Executive Order #D005 05 adopting LEED™ for Existing Buildings and incorporating LEED™ for Building Design and Construction; and it's cities and counties should follow the state's lead by establishing green building policies; and

**WHEREAS**, the International Code Council, the American Society of Heating, Refrigerating and Air-Conditioning Engineers, the American Institute of Architects, the American Society for Testing and Materials, the Illuminating Engineering Society of North America, and the U.S. Green Building Council have collaborated to launch the International Green Construction Code with Standard 189.1 as an optional path to compliance, thereby alleviating local government staff from the task of developing and maintaining localized green building programs,

**WHEREAS**, voluntary, above-code programs continue to play an important, distinct and complementary role to mandatory green building codes and therefore, the regional green building standards reference LEED as a compliance option; and

**NOW, THEREFORE BE IT RESOLVED** that [*jurisdiction within the Denver metropolitan area*] supports the Regional Recommendations for Green Building Programs.