Above Code Commercial
Building Programs

Eric Makela, Britt/Makela Group
Keys to an Effective *Beyond Code* Program

- Stakeholders involvement in the decision making process,
- Established goals
- Implementation, integration and staffing,
- Incentives, and
- Communication, Partnerships, and Education.
Questions to Consider

- Local or Regional?
- Voluntary or Mandatory?
- Support LEED, Based on LEED, or Community Designed?
Stakeholder Involvement in the Decision Making Process
Green Building Task Force

Established in December of 2007 with members from the residential and commercial sectors:

- American Institute of Architects
- North Texas Homebuilder’s Association
- The Real Estate Council
- QUOIN
- Hispanic Contractor’s Association
- US Green Building Council - North Texas Chapter
- Dallas Independent School District
- Urban Forest Advisory Committee
- Other Industry & business leaders, and
- City Staff

Developed recommendations for:

- Components of the green building program
- Implementation steps
- Training and education programs for the building industry
Green Building Task Force Members


- Ron Green, Facilitator, Texzon Utilities, Ltd.
- David Marquis
- Catherine Horsey, Sustainable Places
- Alan Hoffmann, Hoffman Homes
- Betsy del Monte, AIA (Dallas AIA), Beck Group
- David Paul Patton, AIA, DISD
- Neal Sleeper, Cityplace Co.
- Macey Davis, The Real Estate Council
- Annemarie Marek, Marek & Company
- Christian Osorio, Hispanic Contractors Assoc.
- Barry Howard, Fairfield Residential
- Jack Baxley, QUOIN AGC
- Steve Burke, Hawkins Welwood Homes
- Paul Cauduro, Home Builders Association
- Michael Kawecki, O’Brien Architects
- Amanda Popken
- Annie Trinh, Benchmark Environmental Consultants
- Britton Church, JLB Partners
- Christian Chernock, Cherntex Construction
- Cindy Stanley, USGBC North Texas
- Joseph Harberg, Current Energy
- Alan Wood, The Staubach Company
- Trelaine Mapp, The Warrior Group
- François deKock, Halff Associates
- Marcia Ascanio, AIA, HKS, Inc.
- Kelly Parker, Guaranteed Watt Savers (GWSSI)
- Ron Hastings, GWSSI
- Alex Guthrie, L.A. Guthrie General Contractors, Inc.
- Rosa Orenstein, Looper, Reed & McGraw Attorneys
- Patricia Gorman, Pegasus Texas Construction
- Phil Jimerson, DISD
- Paul Johnson, Rogers-O’Brien Construction
- Sam Latona, Turner Construction
- Richard Nceaise, ICF International
- Shadwick Fuller, TEI Construction Engineering, Inc.
- Steve Miller, Texzon Utilities, Ltd.
- Ana Chouteau, Hall Financial
- Marc Sullivan, Icon Partners
- Lisa Alonzo, Azteca-Omega Construction

City Staff:
Zaida Basora, AIA, LEED AP, Task Force Lead, Asst. Director of Public Works
Kathleen Davis, Assistant Director of Building Inspection
Art Torres, Dallas Water Utilities
David Session, Building Inspection
Stefan Kesler, Equipment and Building Services
Raúl Martínez, AIA, Assistant Director of Building Inspection
Megna Tahre, Office of Environmental Quality
David Treviño, Public Works and Transportation
Casey Burgess, City Attorney’s Office

www.dallascityhall.com
Goals

Eagle County, Colorado:
The intent of the EcoBuild program is to encourage cost-effective sustainable building methods to create durable, energy efficient structures that conserve natural resources, promote the efficient use of building materials, and improve indoor air quality.
A Quantifiable, Agreed Upon Goal

Green Building Task Force

Summary

The Task Force recommends a two-phase implementation strategy for the Green Building program requirements for all private developments in Dallas

Phase 1, which will start on October 1, 2009, focuses on energy efficiency and water conservation requirements for all residential and commercial developments

Phase 2, which will start on October 1, 2011, focuses on expanding the initiatives for new buildings into a comprehensive green building standard requirement

Within each Phase, the Task Force outlines a proposed implementation plan for each
A Quantifiable, Agreed Upon Goal

Envisioned Future

“Dallas is Carbon Neutral by 2030 and is the Greenest City in the US”

Program Goal
To improve air quality, reduce water use and improve transportation and land use through green building strategies

First Milestone
From the US Mayors Climate Protection Agreement, achieve a 7% reduction in greenhouse gas emissions from 1990 levels by 2012

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## Implementation, Integration and Staffing

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>MANDATORY REQUIREMENTS FOR RESIDENTIAL GREEN BUILDING</th>
<th>VERIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SITE</strong></td>
<td>1. PROTECT ALL EXTERIOR ENTRANCES FROM DIRECT SUMMER SUN EXPOSURES, (EAST, WEST, SOUTH) WITH RECESSED OR COVERED ELEMENTS.</td>
<td>PLAN REVIEW</td>
</tr>
<tr>
<td></td>
<td>2. AT LEAST 80% OF IMPROVED LANDSCAPE IS XERISCAPE OR NATIVE PLANTING. (UNLESS DICTATED OTHERWISE BY CC&amp;Rs)</td>
<td>PLAN REVIEW &amp; SELF CERTIFY</td>
</tr>
<tr>
<td><strong>ENERGY RATING/PERFORMANCE</strong></td>
<td>3. BUILDING DESIGN TO BE AT LEAST 15% ABOVE 2009 IECC (INTERNATIONAL ENERGY CONSERVATION CODE) OR MEET ENERGY STAR FOR HOME CERTIFICATION.</td>
<td>PLAN REVIEW</td>
</tr>
<tr>
<td><strong>THERMAL ENVELOPE</strong></td>
<td>4. BUILDING HAS A CONTINUOUS AIR/TEMPERATURE BARRIER, WHICH IS CLEARLY INDICATED ON DRAWINGS/BUILDING SECTIONS TO FACILITATE PROPER INSTALLATION</td>
<td>PLAN REVIEW</td>
</tr>
<tr>
<td></td>
<td>5. SEAL ALL PENETRATIONS AND CONNECTIONS IN BUILDING ENVELOPE (E.G. TOP AND BOTTOM PLATES, CORNERS, AND ANY POTENTIAL POINT OF AIR INFILTRATION) - IRC (INTERNATIONAL RESIDENTIAL CODE) REQUIREMENT.</td>
<td>NSP.</td>
</tr>
<tr>
<td><strong>HEATING, COOLING, &amp; VENTILATION</strong></td>
<td>6. SIZE SPACE HEATING AND COOLING SYSTEM EQUIPMENT ACCORDING TO BUILDING HEATING AND COOLING LOADS CALCULATED USING ACCA MANUAL J OR EQUIVALENT (IRC REQUIREMENT).</td>
<td>PLAN REVIEW</td>
</tr>
</tbody>
</table>
|                                       | 7. SIZE, DESIGN, AND INSTALL DUCT SYSTEM USING ACCA MANUAL D DUCT DESIGN CALCULATIONS (IRC REQUIREMENT). ENSURE THAT EVERY ROOM HAS ADEQUATE RETURN AIR FLOW THROUGH USE OF EITHER MULTIPLE RETURNS OR TRANSFER GRILLES (EVERY AIR SUPPLIED ROOM HAVING A DOOR EXCEPT BATHS, KITCHENS, CLOSETS, PANTRIES AND LAUNDRY ROOMS.)
* SIZE TRANSFER GRILLES WITH A MINIMUM .75 SQ. INCHES PER CFM OF AIR PER ROOM.
OR
DUCTLESS SPACE CONDITIONING (E.G., DUCTLESS SPLIT SYSTEMS WITH MINI-AC HANDLING UNITS, HYDRONIC/RADIANT FLOOR OR CEILING SYSTEMS.) | PLAN REVIEW & NSP. |
|                                       | 8. ALL DUCTWORK JOINTS SHALL BE SEALED WITH WATER-BASED MASTIC. NO BUILDING DAVITIES SHALL BE USED AS A DUCT UNLESS SEALED. | NSP.         |
|                                       | 9. ALL AIR SUPPLY DUCTS SHALL BE INSULATED AS FOLLOWS:
* WHERE LOCATED WITHIN CONDITIONED BUILDING SPACES, DUCTS SHALL BE MIN. R-4.2 (IRC)
* WHERE LOCATED WITHIN UNCONDITIONED BUILDING SPACE, DUCTS SHALL BE MIN. R-8 (IRC) | PLAN REVIEW & NSP. |
<p>|                                       | 10. REFRIGERANT PIPING SHALL BE INSULATED TO A MINIMUM R-2 (IRC) | PLAN REVIEW &amp; NSP. |
|                                       | 11. INSTALL ENERGY STAR LABELED PROGRAMMABLE THERMOSTAT. | NSP.         |
|                                       | 12. INSTALL A MINIMUM OF THREE JUNCTION BOXES (STRUCTURALLY MOUNTED AND WIRED) IN THE HOUSE FOR FUTURE REVERSIBLE, MULTI-SPEED CEILING FANS. | PLAN REVIEW &amp; NSP. |
| <strong>INDOOR ENVIRONMENTAL QUALITY</strong>      | 13. INSTALL CARBON MONOXIDE (CO) DETECTOR AT HOUSE/GARAGE ENTRY DOOR AND IN EACH AREA WHERE COMBUSTION APPLIANCES ARE USED (SEALED COMBUSTION APPLIANCES ARE EXEMPT). | PLAN REVIEW &amp; NSP. |
|                                       | 14. DESIGN AND INSTALL EXHAUST FAN SYSTEM FOR KITCHEN RANGE HOOD WITH A MINIMUM INTERMITTENT | PLAN REVIEW  |</p>
<table>
<thead>
<tr>
<th>Category</th>
<th>Mandatory Measures</th>
<th>Verification</th>
</tr>
</thead>
</table>
| Site              | 1. Protect all exterior entrances from direct summer sun exposures (east, west, south) with recessed or covered elements.  
  *The use of shading strategies in these areas will reduce heat island effect and maintain a cooler transition between indoors and outside (i.e. overhangs, trellis, perforated materials, trees). For overhang dimensions, see Scottsdale shade sizing table.*  
  2. At least 80% of improved landscape shall be Xeriscape or native planting (unless otherwise dictated by CC & R’s).  
  *Xeriscape landscaping conserves water and protects the environment. Important considerations in creating a xeriscape landscape include planning, soil types, appropriate plant selection, efficient irrigation, use of mulches, and timely maintenance. The City of Scottsdale offers various informative documents regarding Xeriscape.*  
  3. Building designed to be at least 15% above IECC (International Energy Conservation Code) OR obtain Energy Star for Homes certification.  
  *Conformance to this threshold shall be based on plan analysis using software such as REScheck for the IECC comparison or REM/Rate for a HERS (Home Energy Rating Score). For more information, visit [www.energycodes.gov](http://www.energycodes.gov) and/or [www.athresnet.org/ratings](http://www.athresnet.org/ratings). An Energy Performance Analysis is a part of the design process that combines energy considerations with basic architectural issues, yielding buildings that are considerably more energy efficient from a design perspective. It is also possible to analyze more detailed plans before construction begins, therefore allowing any elements that will waste a great deal of energy to be redesigned.*  
  4. Building has a continuous air/thermal barrier, which is clearly indicated on drawings/building sections to facilitate proper installation. Air and thermal barrier must align and be contiguous.  
  *Controlling thermal migration reduces heating/cooling loads, therefore reducing utility costs.*  
  5. Seal all penetrations and connections in building envelope (e.g. top and bottom plates, corners, and any potential points of air infiltration) - IRC (International Residential Code) requirement.  
  *A tightly sealed building envelope can eliminate unwanted indoor/outdoor air migration and reduce utility costs.* | Plan Review & Self-Certify |
| Energy Rating/Performance | 3. Building designed to be at least 15% above IECC (International Energy Conservation Code) OR obtain Energy Star for Homes certification.  
  *Conformance to this threshold shall be based on plan analysis using software such as REScheck for the IECC comparison or REM/Rate for a HERS (Home Energy Rating Score). For more information, visit [www.energycodes.gov](http://www.energycodes.gov) and/or [www.athresnet.org/ratings](http://www.athresnet.org/ratings). An Energy Performance Analysis is a part of the design process that combines energy considerations with basic architectural issues, yielding buildings that are considerably more energy efficient from a design perspective. It is also possible to analyze more detailed plans before construction begins, therefore allowing any elements that will waste a great deal of energy to be redesigned.*  
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  *A tightly sealed building envelope can eliminate unwanted indoor/outdoor air migration and reduce utility costs.* | Plan Review |

*rev. 3/16/07*
Implementation – No Integration

The Above Code Project
Gets VIP Treatment
Implementation – Integrated

The benefits of integration are significant:

- Cross training of personnel
- Balancing the work load
- Streamline the process for both staff and applicants, and
- “Normalizing” the better building practices.
Implementation – Integrated Problems? A Solution

1.0 PURPOSE:
This document provides for permitting within Pima County Green Building Programs as well as facilitation of sustainable projects.

2.0 REVISION HISTORY:
Revised from March 19, 2007 to include criteria for the Green Building programs.

3.0 PERSONS AFFECTED:
Green Building Program and sustainable projects stakeholders, permitting and inspection staff.

4.0 ADMINISTRATIVE POLICY:
This document establishes procedures for Green Building Programs. Additionally, since Green Building programs and sustainable projects are in the best interest of Pima County, it is deemed a priority to identify potential conflicts between sustainable practices and adopted code text or interpretation. In order to facilitate this identification process, it is requested that all such conflicts be brought to the attention of the Green Building Program Manager prior to rejecting the project so as to coordinate facilitation. As such we will be able to leverage greater impact on mitigating conflicting interpretations or requirements.

5.0 DEFINITIONS:
Green Building Programs shall be defined as programs for which Pima County has created a rating system and through which buildings may obtain a green building certificate, issued by the County, upon successfully meeting certain established criteria. To date programs have been developed for new residential as well as residential remodeling.
Incentives

- Time
- Money
- Marketing
- Education
Time

Fast Track Plan Review

- Chandler, AZ
- Pima County, AZ
- Scottsdale, AZ and
- Albuquerque, NM.
Money

Financial Incentives…and Disincentives

- Chandler, AZ
- Eagle County, CO
- Seattle, WA
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 6</td>
<td>Intro To Green Home Building Standards - An overview of the green building standards including incentives, benefits, strategies, and materials compatible with our Sonoran Desert Environment</td>
</tr>
<tr>
<td>October 5 &amp; 6</td>
<td>Green Building Expo - (Location Change: Scottsdale Center for the Performing Arts) Please visit the website for lecture schedules and details. <a href="http://www.greenbuildingshowcase.com">www.greenbuildingshowcase.com</a></td>
</tr>
<tr>
<td>November 1</td>
<td>Natural &amp; Reclaimed Building Materials - Regional materials that are compatible with our harsh desert environment, sustainable, rapidly renewable, and support the local economy. Learn about opportunities to reuse quality materials and divert waste from our landfills.</td>
</tr>
<tr>
<td>December 6</td>
<td>Alternative Materials: Green Pioneers - New building products and techniques for Green Building showing innovative entrepreneurial pioneers making Green a reality. Also includes a Building Materials Showcase™ Presented by Rick Johnson, Inventor of I&amp;M Reinforced Insulated Masonry</td>
</tr>
<tr>
<td>January 3</td>
<td>Home Improvements &amp; Green Remodeling - Green is everywhere. We will discuss how you make practical and healthy decisions for your home in the current era of green. The presentation includes examples and an opportunity to get professional feedback on your specific questions and concerns. Presented by Donnello and Contemporary Design Group with Interior Design at J.C. Green.</td>
</tr>
<tr>
<td>February 7</td>
<td>Building Scans - The Systems Approach to Energy Efficiency - Learn about the principles of heat flow to create an energy efficient, safe, comfortable and healthy home. Hear about diagnostic tools used to evaluate energy performance problems and their possible solutions.</td>
</tr>
<tr>
<td>March 6</td>
<td>Interior &amp; Outdoor Environmental Quality - Indoor air pollutants can be six times higher than outdoor air. This lecture will address strategies for minimizing indoor pollutants including material selection, ventilation and filtration.</td>
</tr>
<tr>
<td>April 3</td>
<td>Water Efficiency in the Sonoran Desert - An overview of water conservation practices, including indoor plumbing fixtures, landscaping, grey water &amp; rainwater harvesting.</td>
</tr>
<tr>
<td>May 1</td>
<td>Innovative Green Built Projects (Phoenix/Scottsdale Area) - See innovative local projects that exceed from the synergistic benefits of energy efficiency, renewable resources, water efficiency, and climate responsive design.</td>
</tr>
<tr>
<td>June 5</td>
<td>Green Feng Shui - This lecture will highlight new design strategies blending the eastern practice of Feng Shui and the basics of green design for greater harmony &amp; health.</td>
</tr>
</tbody>
</table>
Meeting the requirements of the Scottsdale Green Building Program, Desert Sky Development uses the "Integra Wall System" in this Scottsdale mountain home. Desert Sky Development offers their custom home clients the choice of masonry or traditional wood framed construction.

Courtesy Mike Frat Real Estate, Scottsdale
Communication, Partnerships, and Education

APPENDIX 9
Built Green™ Communications Campaign

Build green, save green

The lawn isn’t the only thing that’s green.

Save your energy

Courtesy City of Seattle
The Program Cannot be Developed or Implemented in a Vacuum
Commercial Programs

- Create more Comfortable Spaces
- Reduce Operating and Maintenance Costs
- Contribute to a More Vibrant/Active Community
  - Live
  - Walk
  - Work and Shop
- Reduce Carbon Emissions through
  - Community Energy Conservation
  - Building Energy Conservation
  - Waste Reduction
New Idea?
Does the Commercial Client Want it?

Class G....the New Class A
To LEED or not to LEED?
What it means for enforcement

- LEED Requires Third Party Verification
  - Building Department focuses on traditional inspections, requiring certification paperwork
  - Certification required for final inspection and Certificate of Occupancy

- Local emphasis
  - LEED lacks emphasis on energy and water conservation desired in some communities
  - Solution – specify level of LEED certification and number of points in categories such as energy and water

- Home Grown
  - Allows tailoring to the community
  - Requires cross-training of building and planning staff to ensure new standards are understood, supported and enforced
  - Can include some third party verification
## Energy Features of LEED NC

<table>
<thead>
<tr>
<th>Credit or Prerequisite</th>
<th>Type of Credit or Prerequisite</th>
<th>Number of Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy and Atmosphere</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prerequisite</td>
<td>Fundamental Commissioning of the Building Energy Systems</td>
<td>Required</td>
</tr>
<tr>
<td>Prerequisite</td>
<td>Minimum Energy Performance</td>
<td>Required</td>
</tr>
<tr>
<td>Prerequisite</td>
<td>Fundamental Refrigerant Management</td>
<td>Required</td>
</tr>
<tr>
<td>Credit 1</td>
<td>Optimize Energy Performance (for achieving up to 42% above ASHRAE Standard 90.1-200. A score of 2 points is required which corresponds to 14% above 90.1-2004)</td>
<td>1 to 10</td>
</tr>
<tr>
<td>Credit 2</td>
<td>On-Site Generation of Renewable Energy</td>
<td>1 to 3</td>
</tr>
<tr>
<td>Credit 3</td>
<td>Enhanced Commissioning</td>
<td>1</td>
</tr>
<tr>
<td>Credit 4</td>
<td>Enhanced Refrigerant Management</td>
<td>1</td>
</tr>
<tr>
<td>Credit 5</td>
<td>Measurement &amp; Verification</td>
<td>1</td>
</tr>
<tr>
<td>Credit 6</td>
<td>Green Power</td>
<td>1</td>
</tr>
<tr>
<td>Sustainable Sites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit 7.1</td>
<td>Heat Island Effect, Non-Roof</td>
<td>1</td>
</tr>
<tr>
<td>Credit 7.2</td>
<td>Heat Island Effect, Roof</td>
<td>1</td>
</tr>
<tr>
<td>Indoor Environmental Quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit 8.1</td>
<td>Daylight &amp; Views, Daylight 75% of Spaces</td>
<td>1</td>
</tr>
<tr>
<td>Credit 8.1</td>
<td>Daylight &amp; Views, Daylight 75% of Spaces</td>
<td>1</td>
</tr>
</tbody>
</table>
National Above Code Programs

- Developed for Use on a National Level
- Examples
  - ASHRAE Advanced Guidelines for
    - Office
    - Retail
    - Schools (K-12)
    - Warehouses and Storage
  - New Buildings Institute
    - Core Performance Advanced Building Guidelines
  - ASHRAE/IESNA Standard 189.1
Chandler, Portland, Seattle – Support LEED and other Beyond Code Programs

- Voluntary
- Supports LEED Certification
- Proposed Incentives
  - Expedited Plan Review
  - Financial Assistance
  - Technical Assistance
  - Education

Table 1

<table>
<thead>
<tr>
<th>LEED</th>
<th>Percentage of LEED Certification Fee to be Reimbursed*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified</td>
<td>60%</td>
</tr>
<tr>
<td>Silver</td>
<td>75%</td>
</tr>
<tr>
<td>Gold</td>
<td>100%</td>
</tr>
<tr>
<td>Platinum</td>
<td>200%</td>
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</tbody>
</table>

* Fee reimbursements are based on the USGBC member rate LEED Certification fees.
Eagle County “ECOBUILD”
Mandatory

<table>
<thead>
<tr>
<th>1.0 SITE/WATER CONSERVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REQUIRED</strong></td>
</tr>
<tr>
<td>1.1 Construction Activity Pollution Prevention (CAPF)</td>
</tr>
<tr>
<td>1.2 Redevelopment (5 pts.) or Brownfield redevelopment (10 pts.). Deconstruction required vs. demolition.</td>
</tr>
<tr>
<td>1.3 Walkability/ bikability. The site design provides connection to a recreation path network</td>
</tr>
<tr>
<td>2.4 Covered bicycle storage and employee changing/storage rooms (commercial only)</td>
</tr>
<tr>
<td>2.5 On-site affordable housing unit, live-work mixed use; 10 points per dwelling unit beyond housing guidelines</td>
</tr>
<tr>
<td>2.6 Reduced parking area (with demonstrated need reduction analysis) (3 points)</td>
</tr>
<tr>
<td>2.7 Site Development: Maximize Open Space and Habitat; at least 75% loss of coverage than maximum, porous surface parking, and 10 or greater native species in landscaping.</td>
</tr>
<tr>
<td>2.8 Stormwater Design: 100% surface water runoff travels through bioswales and/or landscaped detention design</td>
</tr>
<tr>
<td>2.9 Diverse native landscaping: 1 landscaping has 10 or more native species</td>
</tr>
<tr>
<td>2.10 Water efficient landscaping: either below 40% or 1000 ft² per turf, whichever is less, 2 pts.; no turf 3 pts.; zero irrigation 4 pts.</td>
</tr>
<tr>
<td>2.11 Deciduous transplanted shrubs provide summer shade to south and west of structure</td>
</tr>
<tr>
<td>2.12 Interior water use reduction: 20% 2 pts., 30% 3 pts., 40% 4 pts.</td>
</tr>
</tbody>
</table>

Subtotal

<table>
<thead>
<tr>
<th>2.0 RECYCLING, REUSE, MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REQUIRED</strong></td>
</tr>
<tr>
<td>2.1 Storage and Collection of Recyclables in Design (show design in plans, field verified)</td>
</tr>
<tr>
<td>2.2 Construction Waste Recycling: 2 points per material recycled (cardboard, wood, co-mingled)</td>
</tr>
<tr>
<td>2.3 Use of beetle kill pine salvaged wood (points per material used in over 50% of building)</td>
</tr>
<tr>
<td>2.4 Reclaimed arts recycled content materials used (2 pts per material in over 50% of building)</td>
</tr>
<tr>
<td>2.5 Surplus/ reclaimed materials donated to local building material exchange (1 point per 10 cubic yards)</td>
</tr>
<tr>
<td>2.6 FSC or SFI certified materials (2 pts per material used in over 50% of building)</td>
</tr>
<tr>
<td>2.7 Materials manufactured within Colorado and/or rapidly renewable materials (2 pts per material)</td>
</tr>
</tbody>
</table>

Subtotal
### Eagle County

<table>
<thead>
<tr>
<th>REQUIRED</th>
<th>3.1 Combustion analysis report: System must be within 10% of AFUE rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.2 Blower Door Test (must achieve 0.35 ACH or less)</td>
</tr>
<tr>
<td></td>
<td>3.3 Blower Door Test: 2 points for each 0.5 ACH below 0.35 - Air-to-air ERV required for ACH below 0.20</td>
</tr>
<tr>
<td>6</td>
<td>3.4 Infrared Heat Loss Analysis and Demonstrated Remediation of heat loss point sources</td>
</tr>
<tr>
<td>4</td>
<td>3.5 Building Commissioning: Comprehensive third party inspection, testing, and analysis of all heating, cooling, electrical, lighting, and ventilation systems. Include report and demonstrated remediation for documentation</td>
</tr>
<tr>
<td>4</td>
<td>3.6 All recessed lights and outlets on exterior walls/ceilings sealed and insulated rated units</td>
</tr>
<tr>
<td>2</td>
<td>3.7 Duct testing: Duct blast test demonstrating less than 10% overall leakage</td>
</tr>
<tr>
<td>1</td>
<td>3.8 Programmable thermostats 1 point per quantity level</td>
</tr>
<tr>
<td>1</td>
<td>3.9 88% efficient boiler and/or furnace. 1 pt plus 1 pt for each addl % AFUE rating</td>
</tr>
<tr>
<td>1-3</td>
<td>3.10 Tankless on demand water heater(s) 3 pts , boiler side arm water heater 1 pt.</td>
</tr>
<tr>
<td>1</td>
<td>3.11 Exterior lighting minimized, maximum of 5600 lumens per 5000 square feet; night sky compliant</td>
</tr>
<tr>
<td>2</td>
<td>3.12 Efficient interior lighting (CFLs, T8/95, LED or equivalent for over 50% of structure)</td>
</tr>
<tr>
<td>1</td>
<td>3.13 Energy Star appliances (for RMF) 1 point per appliance</td>
</tr>
<tr>
<td>1-4</td>
<td>3.14 Motion detecting light switches { 1 pt for each installed interior or exterior, up to 4 pts }</td>
</tr>
<tr>
<td>2-4</td>
<td>3.15 No mechanical air conditioning 4 points; high efficiency evaporative cooling only, 2 points</td>
</tr>
<tr>
<td>2</td>
<td>3.16 Radiant in-floor heat (≥ 50% of heating system)</td>
</tr>
<tr>
<td>1</td>
<td>3.17 Air to air heat exchanger</td>
</tr>
<tr>
<td>1-10</td>
<td>3.18 Roof/over insulation, 1 pt for each R value over 38 REQUIRED: R-10 MIN, CONTINUOUS FOR STEEL</td>
</tr>
<tr>
<td>1-8</td>
<td>3.19 Wall insulation: 1 pt for each R value over 19 up to 8 pts. REQUIRED: R-5 CONTINUOUS; R-10 STEEL</td>
</tr>
<tr>
<td>2-6</td>
<td>3.20 Slab insulation: R-10: REQUIRED R-15-4 pts R-20: 6 pts</td>
</tr>
<tr>
<td>1-3</td>
<td>3.21 Crawlspace/basement wall insulation: R-10: REQUIRED R-15-3 pts R-19+: 4 pts</td>
</tr>
<tr>
<td>1-4</td>
<td>3.22 Brown or sprayed insulation { 1 pt per sq ft }</td>
</tr>
<tr>
<td>3</td>
<td>3.23 Insulate all hot and cold water pipes at all locations R-2.5 or higher</td>
</tr>
<tr>
<td>2</td>
<td>3.24 Green/landscaped roof, over 50% of roof surface area vegetated</td>
</tr>
<tr>
<td>2-11</td>
<td>3.25 Double-pane windows with low-e glazing, 2 pts plus 1 pt for each 0.5 below U-10 (U-30 = 6 pts)</td>
</tr>
<tr>
<td>2</td>
<td>3.26 Insulating window shades installed: (≥ 75% of all exterior windows R.3 or higher)</td>
</tr>
<tr>
<td>1-2</td>
<td>3.27 No ductwork in unconditioned space 1 point; ductwork in unconditioned space must be insulated R-5</td>
</tr>
</tbody>
</table>

**Subtotal**
### Eagle County

**4.0 RENEWABLE ENERGY**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-site renewable energy (includes passive solar) which provides:</td>
<td></td>
</tr>
<tr>
<td>&gt;5% energy budget</td>
<td>5 points</td>
</tr>
<tr>
<td>&gt;10% energy budget</td>
<td>10 points</td>
</tr>
<tr>
<td>&gt;25% energy budget</td>
<td>15 points</td>
</tr>
<tr>
<td>&gt;50% energy budget</td>
<td>20 points</td>
</tr>
<tr>
<td>&gt;75% energy budget</td>
<td>25 points</td>
</tr>
<tr>
<td>Min. 2-year contract renewable credits that offset 50% (2 pts) or 100% (4 pts) energy needs</td>
<td></td>
</tr>
</tbody>
</table>

**4.2 Subtotal**

**5.0 INDOOR QUALITY**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde-free or low-toxic insulation</td>
<td></td>
</tr>
<tr>
<td>All interior paint, stain, finishes low-VOC (as recognized by EPA and/or Green Guard)</td>
<td></td>
</tr>
<tr>
<td>Radon mitigation system</td>
<td></td>
</tr>
<tr>
<td>Vapor retarder or wall system that allows moisture permeability above 50% RH</td>
<td></td>
</tr>
<tr>
<td>High efficiency particulate air (HEPA) filter in HVAC system</td>
<td></td>
</tr>
<tr>
<td>Low- or non-toxic floor coverings (1 pt per Quantity Level)</td>
<td></td>
</tr>
<tr>
<td>Construction IAQ plan: HVAC covered until occupancy, 100 hours minimum air flush prior to IOCO</td>
<td></td>
</tr>
<tr>
<td>Indoor chemical and pollutant source control: sealed hazardous material storage and grated entries</td>
<td></td>
</tr>
<tr>
<td>Lighting controls in each habitable room/space/office (commercial only)</td>
<td></td>
</tr>
<tr>
<td>Thermal controls in each habitable room/space/office (commercial only)</td>
<td></td>
</tr>
<tr>
<td>Natural daylighting: 70% of interior space has natural light min. 150 lumens and view to outside</td>
<td></td>
</tr>
<tr>
<td>Mechanical ventilation provided 20% above ASHRAE that only operates on occupancy control (motion or CO2)</td>
<td></td>
</tr>
</tbody>
</table>

**5.12 Subtotal**

**6.0 INNOVATION POINTS**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential points for innovation in energy efficiency not listed above</td>
<td></td>
</tr>
</tbody>
</table>

**6.0 Subtotal**

**TOTAL POINTS**
Eagle County - Incentives or Disincentives

<table>
<thead>
<tr>
<th>POINTS REQUIRED: 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>IF OVER 100 POINTS, 25% BUILDING PERMIT REBATE</td>
</tr>
<tr>
<td>CASH IN LIEU = POINTS SHORT X SQUARE FOOTAGE X $0.15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exterior uses of energy (fees based on energy consumption calculations):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snowmelt over 200 ft²: $16 per ft²</td>
</tr>
<tr>
<td>Spa/Hot Tub over 64 ft²: $176 per ft²</td>
</tr>
<tr>
<td>Exterior pool: $136 per ft²</td>
</tr>
<tr>
<td><strong>TOTAL FEES/CREDITS</strong></td>
</tr>
</tbody>
</table>

*Exterior fees exempted if on-site renewable energy installed to meet 50% or more of energy for exterior item(s). Any rebates from building permits can be credited accordingly.*
Albuquerque, NM – Two Programs

- Mandatory Energy Conservation Code
- Voluntary Green Path
Albuquerque, NM – Green Path, Based on LEED

- Voluntary
- LEED Gold, minimal 6 credits in Energy and Atmosphere,
  - EA 1 Optimizing Energy Performance or shared credits with
  - EA 6 Renewable Power
Other notable examples
Austin – Home Grown

- Voluntary
- Points Based
- Comprehensive
  - Basic Requirements
  - Team
  - Site
  - Energy
  - Water
  - Indoor Environmental Quality
  - Materials and Resources
  - Education
The City of Portland's Green Building Program
Promoting green building as the standard of development

To actively support innovative green building practices in the Portland area, the Green Building Program offers:
- Presentations
- Outreach
- Hotline technical assistance
- Green Investment Fund (GIF)
- Lectures and classes
- Educational tours
- Brochures and project guidebooks

A BIG thank you to all the homeowners, sponsors, volunteers, vendors, tour-goers and ecohaus for a very successful 2008 Build It Green! Homes Tour + Info Fair

Do you have a new green home or remodel for the 2009 Tour? Click here

Please join us next year on the third Saturday in September 2009 for the Eighth Annual BIG! Homes Tour + Info Fair

Questions about green building products, strategies and resources? Contact the new Regional Green Building Hotline

503-823-5431

www.buildgreen411.com
Portland Proposal

- Mandatory performance standards for commercial buildings

The High Performance Green Building Policy

The City of Portland is considering adopting a high performance green building policy in 2008. Elements of the policy would apply to new and existing buildings in the city.

The policy is designed to:

- Cut global warming pollution, stormwater runoff, vehicle trips, water use and waste from building construction and operations.
- Create healthy buildings for living, working and learning.
- Increase local living-wage jobs.
- Provide financial benefits to ratepayers, building developers and owners.

The policy has three major elements:

1. Voluntary incentives, technical assistance, recognition and workforce training.
   - For those who desire to build greener, financial incentives, permitting assistance and project recognition (on city electronic and printed materials) to help inform buyers and tenants.
   - Support for workforce training to grow the most highly skilled green workforce in North America, so all segments of society benefit from green building.

2. For new construction, three high performance building "carbon options."
   - Build to a high performance green building standard that includes energy performance 45 percent better than 2007 minimum Oregon energy code, and receive a carbon reward check from the City of Portland and qualify for other incentives from the Energy Trust of Oregon, and the Oregon Department of Energy.
   - Build to a high performance green building standard that includes energy performance 30 percent more efficient than the 2007 minimum code, pay no carbon pollution fee, and qualify for incentives from the Energy Trust of Oregon and the Oregon Department of Energy.
   - Build to 2007 minimum code and pay a one-time carbon pollution fee for the projected carbon pollution from operating that building for 30 to 50 years.

3. For existing buildings, performance ratings and upgrades.
   Before buying or leasing, wouldn’t you like to know how a building performs? A building performance rating helps prospective buyers and tenants make informed decisions by disclosing how different buildings perform on energy and stormwater management.

Under the policy:

- Home sellers would disclose to potential buyers the home’s energy, water and stormwater performance using an easy-to-understand standardized home rating system;
- Commercial building lessors and sellers would disclose to potential tenants or buyers the building’s energy, water and stormwater performance;
- Commercial building owners would upgrade their lighting and/or HVAC systems when seeking an electrical or mechanical permit or when selling their building. The policy would exempt these requirements from triggering zoning code non-conforming upgrades, as well as seismic upgrades.

New Construction Carbon Options

- 0 to 25 Carbon Reduction
- 26 to 50 Carbon Reduction
- 51 to 75 Carbon Reduction
- 76 to 100 Carbon Reduction

This policy is a draft. Please visit www.portlandonline.com/lds/greenbuilding for current information and to provide comments.
Seattle – Supports LEED Projects

Our services include:

- **Incentives** - financial and code-based incentive packages for your project, and a referral service to utility conservation programs

- **Technical Assistance** - design team coaching, assistance with code barriers, design charrettes, and integrated design process; referrals to resources on green building practices, materials, and technologies

- **Education programs** - workshops, lecture series, continuing education, and more; targeted to developers, design professionals, CEO’s, building managers, homeowners, and real estate agents

- **Recognition** - awards programs and publicity to help spread the word about green building; case studies to highlight successful projects and show others the how to’s.
Rohnert Park, CA – Based on LEED

<table>
<thead>
<tr>
<th>Covered Project Type</th>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFD New</td>
<td>&gt; 12 dwelling units/acre</td>
<td>7-12 dwelling units/acre</td>
<td>1-6 dwelling units/acre</td>
</tr>
<tr>
<td>SFD Addition</td>
<td></td>
<td>&gt; 500 square feet</td>
<td></td>
</tr>
<tr>
<td>MFD New</td>
<td>&lt; 20 dwelling units</td>
<td>20-50 dwelling units</td>
<td>&gt; 50 dwelling units</td>
</tr>
<tr>
<td>MFD Remodel</td>
<td>&lt; 20 dwelling units</td>
<td>20-50 dwelling units</td>
<td>&gt; 50 dwelling units</td>
</tr>
<tr>
<td>Commercial, New</td>
<td>&lt; 20,000 square feet</td>
<td>20,000-50,000 square feet</td>
<td>&gt; 50,000 square feet</td>
</tr>
<tr>
<td>Commercial TI</td>
<td>&lt; 20,000 square feet</td>
<td>20,000-50,000 square feet</td>
<td>&gt; 50,000 square feet</td>
</tr>
<tr>
<td>City Sponsored</td>
<td>&lt; 10,000 square feet</td>
<td>10,000-20,000 square feet</td>
<td>&gt; 20,000 square feet</td>
</tr>
</tbody>
</table>
Rohnert Park, CA – Based on LEED

Green Building Ordinance
Step-by-Step Instructions
Effective date: July 1, 2007

First Step:
Review Chart “A” to determine the number of points required for your project. To determine if your project is exempt, see separate handout for complete listing of which projects are not covered under the Rohnert Park Green Building Ordinance.

Second Step:
Prepare the “Pre-Permitting Documentation” package to submit to the Building Division. A meeting with the Green Building Compliance Official (GBCO), or designated staff, is required to review the pre-permitting documentation (see note below). Include the following three items in your “Pre-Permitting Documentation” submittal package:

A. PRE-PERMITTING APPLICATION & PROJECT INFORMATION SHEET
   Includes the project title, contact person, name of the LEED® accredited professional or certified GreenPoint rater, etc.

B. PROJECT CHECKLIST/SCORECARD
   The Commercial project checklist must be prepared by a LEED Accredited Professional (go to www.usgbc.org, click on LEED AP, then click on Directory for current list of LEED AP’s.) The Residential project checklist must be prepared by a certified GreenPoint Rater (go to www.builditgreen.org, and click on “GreenPoint Rated” for a list of certified raters.)
   NOTE: LEED checklists can be found at www.usgbc.org, by clicking on “LEED.” GreenPoint Rated checklists can be found at www.builditgreen.org, by clicking on “GreenPoint Rated.” Checklist/Scorecard must include 10% more points than required to allow for changes during construction.

C. WORKSHEET
   For non-residential projects, provide a worksheet with an analysis of each credit claimed; along with any other documentation that may be necessary to show compliance.

CHART “A”

Existing Single Family Dwellings:
- Remodeling with NO new Floor Area_________Exempt
- Additions less than 500 sq. ft._________Exempt
- Additions of more than 500 sq. ft._________1 point

New Single Family Dwellings:
- 1 to 6 new dwelling units per acre of land_________110 points
- 7 to 12 new dwelling units per acre of land_________100 points
- More than 12 dwelling units per acre of land_________90 points

Multi Family Dwellings
- Remodeling without new Floor Area_________Exempt
- All new Multi-Family_________60 points

New Commercial Buildings:
- Less than 20,000 sq. ft.——LEED Certified Rating, Self-Certify
- 20,000 to 50,000 sq. ft.——LEED Silver Rating, Self-Certify
- Over 50,000 sq. ft.——LEED Silver Rating, Registered

Commercial Tenant Improvements:
- Less than 20,000 sq. ft.——35% of possible LEED pts, Self-Certify
- 20,000 to 50,000 sq. ft.——45% of possible LEED pts, Self-Certify
- Over 50,000 sq. ft.——55% of possible LEED pts, Self-Certify
2009 Significant Commercial Changes
New ASHRAE Standard

- ASHRAE/IESNA Standard 90.1-2007
  - Slight changes to lighting requirements
  - More stringent vestibule requirements
Pick One Compliance Approach

Either

Or

But Not Both
## Increased Envelope Requirements

### Table 502.2(1)

**Building Envelope Requirements - Opaque Assemblies**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4 (except Marine)</th>
<th>5 and Marine 4</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roofs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Walls, Above Grade</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masonry</td>
<td>NR</td>
<td>R-5.7ci</td>
<td>NR</td>
<td>R-5.7ci</td>
<td>NR</td>
<td>R-7.0ci</td>
<td>NR</td>
<td>R-7.0ci</td>
</tr>
</tbody>
</table>

* These values apply to walls above grade.

** These values apply to attics and other areas above grade.

---

**Note:** The values represent thermal resistance (R-value) for various envelope components. The table provides detailed requirements for different types of buildings and conditions.
New ASHRAE Standard

- ASHRAE/IESNA Standard 90.1-2007
  - Slight changes to lighting requirements
  - More stringent vestibule requirements
HVAC Upgrades

- Demand Control Ventilation
- Increased Water Chiller Efficiency
- Fan System Power Limitation
Daylighting Requirements

- **DAYLIGHT ZONE DEFINITION:**

  - **Under skylights:** The area under skylights whose horizontal dimension, in each direction, is equal to the skylight dimension in that direction plus either the floor to ceiling height or the dimension to a ceiling height opaque partition, or one-half the distance to adjacent skylights or vertical fenestration, whichever is least.

  - **2. Adjacent to vertical fenestration:** The area adjacent to vertical fenestration which receives daylight through the fenestration. For purposes of this definition and unless more detailed analysis is provided, the daylight zone depth is assumed to extend into the space a distance of 15 feet or to the nearest ceiling height opaque partition, whichever is less. The daylight zone width is assumed to be the width of the window plus two feet on each side, or the window width plus the distance to an opaque partition, or the window width plus one-half the distance to adjacent skylight or vertical fenestration, whichever is least.
Daylighting Requirements

- Skylight Length + Height of Ceiling
- Skylight Width + Height of Ceiling
- Skylight Length + Height of Ceiling
Daylighting Requirements

- Width of Window + 2 ft on Each Side
- 15 ft from Window
Retail Lighting Adjustments

- Modifications to Original Proposal
  - Retail Area 1 = 0.6 W/ft²
  - Retail Area 2 = 0.6 W/ft²
  - Retail Area 3 = 1.4 W/ft²
  - Retail Area 4 = 2.5 W/ft²

![Table 505.3.2 Interior Lighting Power Allowances](image)

Additional Interior Lighting Power Allowance = 1000 watts + (Retail Area 1 x 1.0 W/ft²) + (Retail Area 2 x 0.6 W/ft²) + (Retail Area 3 x 2.6 W/ft²) + (Retail Area 4 x 4.2 W/ft²).

- Retail Area 1 = the floor area for all products not listed in Retail Area 2, 3 or 4.
- Retail Area 2 = the floor area used for the sale of vehicles, sporting goods and small electronics.
- Retail Area 3 = the floor area used for the sale of furniture, clothing, cosmetics and artwork.
- Retail Area 4 = the floor area used for the sale of jewelry, crystal, and china.
Interior Lighting Exceptions

Exceptions:

1. The connected power associated with the following lighting equipment is not included in calculating total connected lighting power.
   1.1. Professional sports arena playing field lighting.
   1.2. Sleeping unit lighting in hotels, motels, boarding houses or similar buildings.
   1.3. Emergency lighting automatically off during normal building operation.
   1.4. Lighting in spaces specifically designed for use by occupants with special lighting needs including the visually impaired visual impairment and other medical and age related issues.
   1.5. Lighting in interior spaces that have been specifically designated as a registered interior historic landmark.
   1.6. Casino gaming areas.
2. Lighting equipment used for the following shall be exempt provided that it is in addition to general lighting and is controlled by an independent control device:
   2.1. Task lighting for medical and dental purposes.
   2.2. Display lighting for exhibits in galleries, museums and monuments.
3. Lighting for theatrical purposes, including performance, stage, film production and video production.
4. Lighting for photographic processes.
5. Lighting integral to equipment or instrumentation and is installed by the manufacturer.
6. Task lighting for plant growth or maintenance.
7. Advertising signage or directional signage.
8. In restaurant buildings and areas, lighting for food warming or integral to food preparation equipment.
9. Lighting equipment that is for sale.
10. Lighting demonstration equipment in lighting education facilities.
11. Lighting approved because of safety or emergency considerations, inclusive of exit lights.
12. Lighting integral to both open and glass-enclosed refrigerator and freezer cases.
13. Lighting in retail display windows, provided the display area is enclosed by ceiling-height
14. Furniture mounted supplemental task lighting that is controlled by automatic shutoff.
Exterior Lighting Adjustment

- Adopts a Four Zone Lighting Power Density for Exterior Lighting Requirements

<table>
<thead>
<tr>
<th>LIGHTING ZONE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Developed areas of National Parks, State Parks, Forest Land, and Rural areas</td>
</tr>
<tr>
<td>2</td>
<td>Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use and residential mixed use areas</td>
</tr>
<tr>
<td>3</td>
<td>All other areas</td>
</tr>
<tr>
<td>4</td>
<td>High activity commercial districts in major metropolitan areas as designated by the local land use planning authority</td>
</tr>
</tbody>
</table>
### TABLE 505.6.2(2)
**INDIVIDUAL LIGHTING POWER ALLOWANCES DENSITIES FOR BUILDING EXTERIORS**

<table>
<thead>
<tr>
<th>Applications</th>
<th>Lighting-Power-Densities</th>
</tr>
</thead>
</table>
| **Base Site Allowance**  
(base allowance may be used in tradable or non-tradable surfaces) | Zone 1 | Zone 2 | Zone 3 | Zone 4 |
| 600 W | 600 W | 750 W | 1300 W |
| ** Tradable Surfaces (Lighting power densities for uncovered parking areas, building grounds, building entrances and exits, canopies and overhangs and outdoor sales areas may be traded.)** | |
| **Uncovered Parking Areas** | Parking lots areas and drives | 0.04 W/ft² | 0.06 W/ft² | 0.10 W/ft² | 0.12 to 0.13 W/ft² |
| **Building Grounds** | Walkways less than 10 feet wide | 0.7 W/linear foot | 0.7 W/linear foot | 0.8 W/linear foot | 1.0 W/linear foot |
| | Walkways 10 feet wide or greater  
Plaza areas  
Special Feature Areas | 0.14 W/ft² | 0.14 W/ft² | 0.18 W/ft² | 0.2 W/ft² |
| | Stairways | 0.75 W/ft² | 1.0 W/ft² | 1.0 W/ft² | 1.0 W/ft² |
| | Pedestrian Tunnels | 0.15 W/ft² | 0.15 W/ft² | 0.2 W/ft² | 0.3 W/ft² |
| **Building Entrance and Exits** | Main entries  
20 W/linear foot of door width | 20 W/linear foot of door width | 30 W/linear foot of door width | 30 W/linear foot of door width |
| | Other doors  
20 W/linear foot of door width | 20 W/linear foot of door width | 20 W/linear foot of door width | 20 W/linear foot of door width |
| | Entry Canopies | 0.25 W/ft² | 0.25 W/ft² | 0.4 W/ft² | 0.25 to 0.4 W/ft² |
| **Sales Canopies and Overhangs** | Canopies (free standing and attached and overhangs) | 0.6 W/ft² | 0.6 W/ft² | 0.6 W/ft² | 0.6 to 1.0 W/ft² |
| **Outdoor Sales** | Open areas (including vehicle sales lots) | 0.25 W/ft² | 0.25 W/ft² | 0.5 W/ft² | 0.7 W/ft² |
| | Street frontage for vehicle sales | 0.25 W/ft² | 0.25 W/ft² | 0.5 W/ft² | 0.7 W/ft² |
Resources

- BrittMakela.com
- USGBC.org
- Nwalliance.org
- SWenergy.org
Thank You - Questions?