

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

The Green Building Task Force met between December 11, 2007 and February 29, 2008

- 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 Necaise, 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

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”

Quantifiable, and Measurable




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

Progress Measured, in a specific time frame



Implementation, Integration and Staffing,

CATEGORY	MANDATORY REQUIREMENTS FOR RESIDENTIAL GREEN BUILDING		VERIFICATION
SITE	1.	PROTECT ALL EXTERIOR ENTRANCES FROM DIRECT SUMMER SUN EXPOSURES, (EAST, WEST, SOUTH) WITH RECESSED OR COVERED ELEMENTS.	PLAN REVIEW
	2.	AT LEAST 80% OF IMPROVED LANDSCAPE IS XERISCAPE OR NATIVE PLANTING. (UNLESS DICTATED OTHERWISE BY CO&R'S)	PLAN REVIEW & SELF CERTIFY
ENERGY RATING/ PERFORMANCE	3.	BUILDING DESIGN TO BE AT LEAST 15% ABOVE IECC (INTERNATIONAL ENERGY CONSERVATION CODE) OR MEET ENERGY STAR FOR HOMES CERTIFICATION.	PLAN REVIEW
THERMAL ENVELOPE	4.	BUILDING HAS A CONTINUOUS AIR/THERMAL BARRIER, WHICH IS CLEARLY INDICATED ON DRAWINGS/BUILDING SECTIONS TO FACILITATE PROPER INSTALLATION	PLAN REVIEW
	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.	INSP.
HEATING, COOLING, & VENTILATION	6.	SIZE SPACE HEATING AND COOLING SYSTEM EQUIPMENT ACCORDING TO BUILDING HEATING AND COOLING LOADS CALCULATED USING ACCA MANUAL J OR EQUIVALENT (IRC REQUIREMENT)	PLAN REVIEW
	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 GRILLS (EVERY AIR SUPPLIED ROOM HAVING A DOOR EXCEPT BATHS, KITCHENS, CLOSETS, PANTRIES, AND LAUNDRY ROOMS.) * SIZE TRANSFER GRILLS WITH A MINIMUM .75 SQ. INCHES PER CFM OF AIR PER ROOM. <u>OR</u> DUCTLESS SPACE CONDITIONING (E.G., DUCTLESS SPLIT SYSTEMS WITH MINI-AIR HANDLING UNITS, HYDRONIC/RADIANT FLOOR OR CEILING SYSTEMS.)	PLAN REVIEW & INSP.
	8.	ALL DUCTWORK JOINTS SHALL BE SEALED WITH WATER-BASED MASTIC. NO BUILDING CAVITIES SHALL BE USED AS A DUCT UNLESS SEALED.	INSP.
	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-6 (IRC)	PLAN REVIEW & INSP.
	10.	REFRIGERANT PIPING SHALL BE INSULATED TO A MINIMUM R-2 (IRC)	PLAN REVIEW & INSP.
	11.	INSTALL ENERGY STAR LABELED PROGRAMMABLE THERMOSTAT.	INSP.
	12.	INSTALL A MINIMUM OF THREE JUNCTION BOXES (STRUCTURALLY MOUNTED AND WIRED) IN THE HOUSE FOR FUTURE REVERSIBLE, MULTI-SPEED CEILING FANS.	PLAN REVIEW & INSP.
	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 & INSP.
	14.	DESIGN AND INSTALL EXHAUST FAN SYSTEM FOR KITCHEN RANGE HOOD WITH A MINIMUM INTERMITTENT	PLAN
	INDOOR ENVIRONMENTAL QUALITY		

Category	✓	Mandatory Measures	Verification
Site		<p>1. Protect all exterior entrances from direct summer sun exposures (east, west, south) with recessed or covered elements.</p> <p><i>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.</i></p>	Plan Review
		<p>2. At least 80% of improved landscape shall be Xeriscape or native planting (unless otherwise dictated by CC & R's).</p> <p><i>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.</i></p>	Plan Review & Self-Certify
Energy Rating/ Performance		<p>3. Building designed to be at least 15% above IECC (International Energy Conservation Code) OR obtain Energy Star for Homes certification.</p> <p><i>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 and/or www.natresnet.org/ratings</i></p> <p><i>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.</i></p>	Plan Review
Thermal Envelope		<p>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.</p> <p><i>Controlling thermal migration reduces heating/cooling loads, therefore reducing utility costs.</i></p>	Plan Review
		<p>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.</p> <p><i>A tightly sealed building envelope can eliminate unwanted indoor/outdoor air migration and reduce utility costs.</i></p>	Insp.

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.

	STANDARD OPERATING PROCEDURE BUILDING SAFETY & SUSTAINABILITY	Number: 410.4
	Approval: Yves Khawam 	Effective Date: March 1, 2008
Subject: Permitting of Green Building structures		Page 1 of 3

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.

Implementation – Integrated

Problems?

A Solution

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

Education



**City of Scottsdale
Green Building
Lecture Series**

Exploring a systems approach to design & construction, including, energy / resource efficiency, healthy & environmentally responsible building practices and much more.

Presented By:
City of Scottsdale Green Building Program

**1st Thursday each Month
7-9 PM**

Location:
Granite Reef Senior Center
1700 N. Granite Reef Rd.
Scottsdale, AZ

Information:
Scottsdale Green Building Program
(480) 312-2245

Website:
www.scottsdaleaz.gov/greenbuilding

**Subscribe to:
Green Building Events
Go to
www.scottsdaleaz.gov/listserve**

Green Building Lecture Series Schedule

FALL / WINTER 2007-2008

Free Monthly Lecture Series

Date	Topic
September 6	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
October 5 & 6	Green Building Expo (Location Change: Scottsdale Center for the Performing Arts) Please visit the website for lecture schedules and details. www.greenbuildingexpo.com
November 1	Natural & Reclaimed Building Materials Regional materials that are compatible with our harsh desert environment, abundant, rapidly renewable, and support the local economy. Learn about opportunities to reuse quality materials and divert waste from our landfills.
December 6	Alternative Materials: Green Pioneers New building products and techniques for Green Building showing innovative entrepreneurial pioneers making Green a reality. "Includes a Building Materials Showcase" Presented by Rick Johnson, inventor of IMI Reinforced Insulated Masonry
January 3	Home Improvements & Green Remodeling Green is everywhere. We will discuss how you make practical and healthy decisions for your home in the current sea of green. The presentation includes examples and an opportunity to get professional feedback on your specific questions and concerns. Presented by Anne Bolino of Bolino-Baumann Design Group and Mick Dalyogle of nJCs Green.
February 7	Building Science: 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 tests used to evaluate energy performance problems and their possible solutions.
March 6	Interior & Indoor 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.
April 3	Water Efficiency in the Sonoran Desert An overview of water conservation practices, including indoor plumbing fixtures, xscscape, gray water & rainwater harvesting
May 1	Innovative Green Built Projects (in the Phoenix/Scottsdale Area) See innovative local projects that excel from the synergistic benefits of energy efficiency, renewable resources, water efficiency, and climate responsive design.
June 5	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 & health.

Marketing



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.

Communication, Partnerships, and Education

APPENDIX 9 Built Green™ Communications Campaign

Build green, save green

At a home built green, you can be very comfortable and enjoy a beautiful home. But don't get your utilities bills confused. Built Green™ homes save you an estimated average of \$1,000 a year in your home. Energy and water conservation, durability, performance and smart home systems in Built Green™ homes. Better homes, smaller bills, more value. It's a natural fit.

Get all the details on Built Green™ homes in our smart home. They're built for your family and the planet. See the signs in your neighborhood that are there about Built Green™.

BUILT GREEN
Smart. Sustainable. Simple.

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

Built Green™ homes are green, not just in color, but in how they are built. They are built with smart materials, smart design and smart details. They're built to last, with smart choices in materials and construction. They're built to be smart, not just in color, but in how they are built. They're built to be smart, not just in color, but in how they are built.

They're built to be smart, not just in color, but in how they are built. They're built to be smart, not just in color, but in how they are built.

BUILT GREEN
Smart. Sustainable. Simple.


SAVE YOUR ENERGY

Built Green homes are energy efficient. They save you money on your utility bills. They're built to be smart, not just in color, but in how they are built. They're built to be smart, not just in color, but in how they are built.

They're built to be smart, not just in color, but in how they are built. They're built to be smart, not just in color, but in how they are built.

BUILT GREEN
Smart. Sustainable. Simple.

Communication



EAGLE COUNTY
Official Website of Eagle County, Colorado

County Officials | County Services | Community | Videos | Calendar | Contact | Home | Search:

Community Development

Building Division

Permit Checklists

These checklists are to be used when preparing to apply for a Building Permit. To view most of the documents on this page you will need [Adobe Acrobat Reader](#).

Don't forget! All single family, duplex and multifamily* building permits use both the applicable building permit checklist, and the ECOBuild checklist. *Depends on type of construction, please contact the building department for more information at (970) 328-8730.

- [ECObuild Checklist](#)
- [Single Family / Duplex Checklist](#)
- [Residential Addition / Alteration Checklist](#)
- [Residential Interior Remodel Checklist](#)
- [Commercial / Multi-Family Checklist](#)
- [Tenant Finish Checklist](#)
- [Manufactured Housing Checklist](#)
- [Pool / Hot Tub or Spa Checklist](#)

Please be advised that a [Permit to Construct Within the Public Way](#) may be required in addition to a building permit. Please also be advised that the Right of Way Construction Permit must be both reviewed and approved by the [Eagle County Engineering Department](#), prior to building permit issuance. Construction in the right of way (for access/driveway construction), is normally included as part of the commercial/multi-family building permit application.

Permit Applications

These are the Building Permit Applications used by the Eagle County Building Division. These Adobe Acrobat applications may be filed out online, but must be submitted in person. When submitting for a permit, the application must include the related checklist (see previous section).

- [Building Permit Application](#)
- [Electrical Permit Application](#)
- [Fire Sprinkler and Fire Alarm Application](#)
- [Manufactured Housing Application](#)
- [Mechanical Permit Application](#)
- [Plumbing Permit Application](#)

Community Development Menu

- 1 [Home](#)
- 2 [Contact Information](#)
- 3 [Building](#)
- 4 [Planning](#)
- 5 [Long Range Planning](#)
 - [Community Plan Updates](#)
- 6 [Wildfire Information](#)
- 7 [ecoBuild](#)

Appointed Commissions & Boards

- 1 [Board of County Commissioners](#)
- 2 [Eagle County Planning Commission](#)
- 3 [Goreville Ford Planning Commission](#)
- 4 [Open Space Advisory Committee](#)
- 5 [Zoning Board of Adjustment](#)

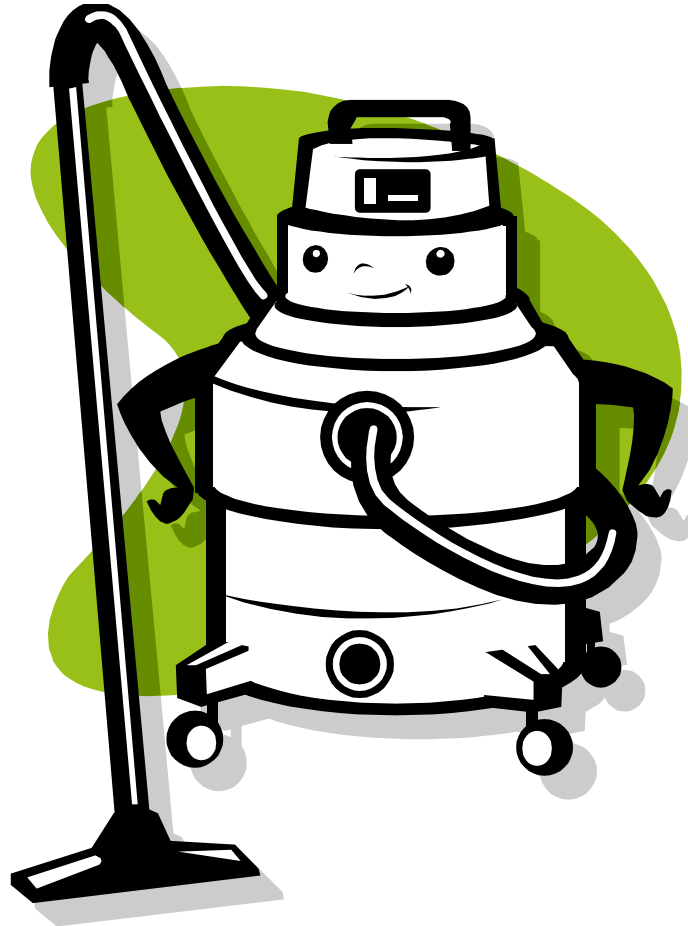
Related Areas

- 1 [Citizen Complaint Form](#)
- 2 [Inspection Request Fax Form - Can be filed out online!](#)
- 3 [Eagle County Land Use Regulations](#)

Popular Links

- 1 [Eagle County Building Department](#)
- 2 [Eagle County Planning Department](#)
- 3 [Eagle County Engineering Department](#)
- 4 [Eagle County Fire Department](#)
- 5 [Eagle County Sheriff's Office](#)
- 6 [Eagle County Health Department](#)
- 7 [Eagle County Parks and Recreation](#)
- 8 [Eagle County Public Works](#)
- 9 [Eagle County Public Health](#)
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- 17 [Eagle County Public Works](#)
- 18 [Eagle County Public Health](#)
- 19 [Eagle County Public Safety](#)
- 20 [Eagle County Public Works](#)

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?

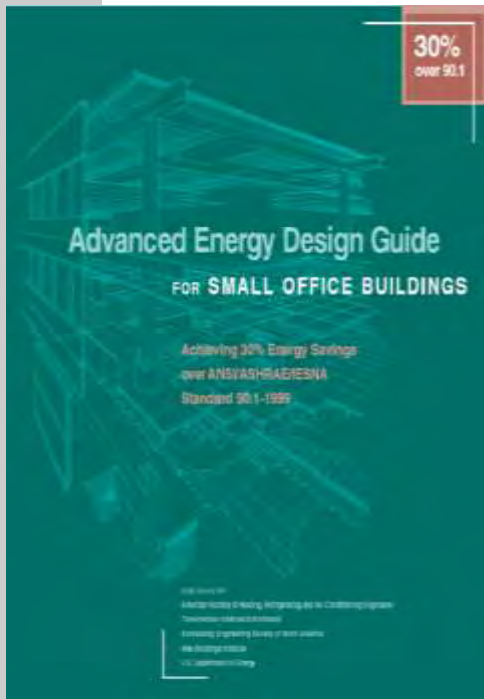
What it means for enforcement

- 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

Credit or Prerequisite	Type of Credit or Prerequisite	Number of Credits
Energy and Atmosphere		
Prerequisite	Fundamental Commissioning of the Building Energy Systems	Required
Prerequisite	Minimum Energy Performance	Required
Prerequisite	Fundamental Refrigerant Management	Required
Credit 1	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)	1 to 10
Credit 2	On-Site Generation of Renewable Energy	1 to 3
Credit 3	Enhanced Commissioning	1
Credit 4	Enhanced Refrigerant Management	1
Credit 5	Measurement and Verification	1
Credit 6	Green Power	1
Sustainable Sites		
Credit 7.1	Heat Island Effect, Non-Roof	1
Credit 7.2	Heat Island Effect, Roof	1
Indoor Environmental Quality		
Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1
Credit 8.1	Daylight & Views, Daylight 75% of Spaces	1

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

LEED Fee Reimbursements		
	Rating	Percentage of LEED Certification Fee to be Reimbursed*
LEED	Certified	50%
	Silver	75%
	Gold	100%
	Platinum	200%

* Fee reimbursements are based on the USGBC member rate LEED Certification fees.

Eagle County “ECOBUILD” Mandatory

ECOBUILD COMMERCIAL/RMF Eagle County Efficient Building Checklist			
OWNER:		BP-	
1-5	/ off colors – Inspected / PC = Plan Check; 1 = Foundation; 2 = Framing; 3 = Insulation; 4 = Rough-in; 5 = Final		
Quantity Level (QI - as noted per line item): 1 = 10% - 25%; 2 = 26% - 50%; 3 = 51% - 75%; 4 = 76% - 100%.			
1.0 SITE/WATER CONSERVATION			
REQUIRED		1.1	Construction Activity Pollution Prevention (CAPP)
PC	5-10	1.2	Redevelopment (5 pts.) or Brownfield redevelopment (10 pts.). Deconstruction required vs. demolition.
PC	2	1.3	Walkability/bikability: The site/design provides connection to a recreation path network
4	2	1.4	Covered bicycle storage and employee charging/storage rooms (commercial only)
PC	10-50	1.5	On-site affordable housing unit, live-work mixed use: 10 points per dwelling unit beyond housing guidelines.
PC	3	1.6	Reduced parking area (with demonstrated need reduction analysis) (3 points)
PC	2	1.7	Site Development: Maximize Open Space and Habitat: at least 25% less lot coverage than maximum, porous surface parking, and 10 or greater native species in landscaping.
5	3	1.8	Stormwater Design: 100% surface water runoff travels through bioswales and/or landscaped detention design
	1	1.9	Diverse native landscaping: Landscaping has 10 or more native species
5	2-4	1.10	Water efficient landscaping: either below 40% or 1000 ft2 turf, whichever is less, 2 pts.; no turf 3 pts.; zero-irrigation 4 pts.
PC	2	1.11	Deciduous trees/large shrubs provide summer shade to south and west of structure
5	2-4	1.12	Interior water use reduction: 20% 2pts., 30% 3 pts., 40% 4 pts.
		Subtotal	
2.0 RECYCLING, REUSE, MATERIALS			
REQUIRED		2.1	Storage and Collection of Recyclables in Design (show design in plans; field verified)
3	2-6	2.2	Construction Waste Recycling: 2 points per material recycled (cardboard, wood, co-mingled)
5	3-9	2.3	Use of beetle kill pine salvaged wood (points per material used in over 50% of building)
5	2-10	2.4	Reclaimed and recycled content materials used (2 pts per material in over 50% of building)
4	1-6	2.5	Surplus/reclaimed materials donated to local building material exchange (1 point per 10 cubic yards)
5	2-6	2.6	FSC or SFI certified materials (2 pts per material used in over 50% of building)
5	2-8	2.7	Materials manufactured within Colorado and/or rapidly renewable materials (2 pts per material)
		Subtotal	

Eagle County

		3.0 ENERGY
	REQUIRED	3.1 Combustion analysis report: System must be within 10% of AFUE rating
	REQUIRED	3.2 Blower Door Test (must achieve 0.35 ACH or less)
5	2-10	3.3 Blower Door Test: 2 points for each .05 ACH below 0.35; Air-to-air ERV required for ACH below 0.20
5	3	3.4 Infrared Heat Loss Analysis and Demonstrated Remediation of heat loss point sources
5	6	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
4	2	3.6 All recessed lights and outlets on exterior walls/ceiling sealed and insulated-rated units
4	2	3.7 Duct testing: Duct blast test demonstrating less than 10% overall leakage
5	1-4	3.8 Programmable thermostats: 1 point per quantity level
5	1-7	3.9 88% efficient boiler and/or furnace: 1 pt plus 1 pt for each add'l % AFUE rating
5	1-3	3.10 Tankless on demand water heater(s) 3 pts., boiler side arm water heater 1 pt.
5	3	3.11 Exterior lighting minimized, maximum of 5500 lumens per 5000 square feet; night sky compliant
5	2	3.12 Efficient interior lighting (CFLs, T8/T5, LED or equivalent for over 50% of structure)
5	1-4	3.13 Energy Star appliances (for RMF) 1 point per appliance
5	1-4	3.14 Motion detecting light switches (1 pt for each installed interior or exterior, up to 4 pts)
5	2-4	3.15 No mechanical air conditioning (4 points); high efficiency evaporative cooling only, 2 points
5	2	3.16 Radiant in floor heat: (> 50% of heating system)
5	2	3.17 Air to air heat exchanger
3	1-15	3.18 Roof/ceiling insulation: 1 pt for each R value over 38. REQUIRED: R-10 MIN. CONTINUOUS FOR STEEL
3	1-8	3.19 Wall insulation: 1 pt for each R value over 19 up to 8 pts. REQUIRED: R 5 CONTINUOUS, R 10 STEEL
3	2-6	3.20 Slab insulation: R 10: REQUIRED R-15: 4 pts R-20: 6 pts
3	1-3	3.21 Crawl Space/basement wall insulation: R-10: REQUIRED R 15: 3 pts R 19+: 4 pts
3	1-4	3.22 Blown or sprayed insulation (1 pt per Qt.)
3	1	3.23 Insulate all hot and cold water pipes at all locations R-2.5 or higher
5	2	3.24 Green/landscaped roof: over 50% of roof surface area vegetated
5	2-8	3.25 Double-pane windows with low-e glaze: 2 pts plus 1 pt for each .05 below U-.40 (U-.30 = 6 pts)
5	2	3.26 Insulating window shades installed: (> 75% of all exterior windows R 3 or higher)
3	1-2	3.27 No ductwork in unconditioned space (1 point), ductwork in unconditioned space must be insulated R-5.
		Subtotal

Eagle County

			4.0 RENEWABLE ENERGY
			4.1 On-site renewable energy (includes passive solar) which provides:
5		5	>5% energy budget 5 points
5		10	>10% energy budget 10 points
5		15	>25% energy budget 15 points
5		20	>50% energy budget 20 points
5		25	>75% energy budget 25 points
5		24	4.2 Min. 2-year contract renewable credits that offset 50% (2 pts) or 100% (4 pts) energy needs.
			Subtotal
			5.0 INDOOR QUALITY
REQUIRED			5.1 Formaldehyde-free or low-toxic insulation
REQUIRED			5.2 All interior paint, stain, finishes low-VOC (as recognized by EPA and/or Green Guard)
REQUIRED			5.3 Radon mitigation system
4		2	5.4 Vapor retarder or wall system that allows moisture permeability above 50% RH
5		1	5.5 High efficiency particulate air (HEPA) filter in HVAC system
5		1-4	5.6 Low- or non-toxic floor coverings (1 pt per Quantity Level)
5		2	5.7 Construction IAQ plan: HVAC covered until occupancy, 100 hours minimum air flush prior to OCCUP
5		2	5.8 Indoor chemical and pollutant source control: sealed hazardous material storage and grated entries
5		2	5.9 Lighting controls in each habitable room/space/office (commercial only)
5		2	5.10 Thermal controls in each habitable room/space/office (commercial only)
5		2	5.11 Natural daylighting: 70% of interior space has natural light min. x lumens and view to outside
5		2	5.12 Mechanical ventilation provided 20% above ASHRAE that only operates on occupancy control (motion or CO2)
			Subtotal
			6.0 INNOVATION POINTS
PC		X	Potential points for innovation in energy efficiency not listed above:
			TOTAL POINTS

Eagle County - Incentives or Disincentives

POINTS REQUIRED: 70
IF OVER 100 POINTS, 25% BUILDING PERMIT REBATE
CASH-IN-LIEU = POINTS SHORT X SQUARE FOOTAGE X \$0.15

Exterior uses of energy (fees based on energy consumption calculations):

	Snowmelt over 200 ft ² : \$16 per ft ²	<i>Exterior fees exempted if on-site renewable energy installed</i>
	Spa/Hot Tub over 64 ft ² : \$176 per ft ²	<i>to meet 50% or more of energy for exterior item(s).</i>
	Exterior pool: \$136 per ft ²	<i>Any rebates from building permits can be credited accordingly.</i>
	- TOTAL FEES/CREDITS	

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

Green Building

Green Building Program and Staff

Green building program history and staff information

Green Investment Fund (GIF) Grant

Yearly grant supporting innovative green building projects

Green Building Hotline & Resource Center

Regional information on green products, strategies and incentives.

Residential

Resources for homeowners, home buyers and renters

Commercial

Resources for construction industry professionals, Realtors and property managers

New High Performance Green Building Policy

Information about the City's proposal to expand green building requirements

Publications, Policies and Case Studies

Case studies, guides, policy documents, newsletters and research

Strategies and Resources

For green building in Portland

Learn More

Classes, employment and resources



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

I want to ...

- [Learn about PDX Green Projects: Ones to Watch](#)
- [Get a job in green building](#)
- [Take a green building class](#)
- [Find a green builder](#)
- [Count LEED projects in Portland](#)
- [Tour green buildings](#)
- [Find green products & services](#)
- [View PDX's green bldg. policy](#)
- [Select insulation](#)
- [Contact Staff](#)

Upcoming Events

GrEEEn Day!	10/15/2008
National Green Builders Products Expo (NGBPE)	10/15/2008
Energy-Efficiency for Your Business: The Low-Hanging Fruit Webinar	10/16/2008
Chris Dorsi Book Signing Event	10/16/2008
Tiny Houses Workshops	10/18/2008
full calendar	

Questions & Comments

If you have any questions or comments on our site, please contact our site administrator.

Portland Proposal

- Mandatory performance standards for commercial buildings

CITY OF PORTLAND OFFICE OF SUSTAINABLE DEVELOPMENT

DRAFT This policy is a draft. Please visit www.portlandonline.com/losd/greenbuilding for current information and to provide comment.

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 most 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."

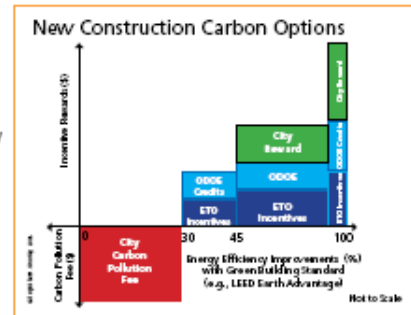
- Build to a high performance green building standard that includes energy performance 45 percent better than 2007 minimum Oregon energy code, and receive a carbon reward check from the City of Portland and qualify for other incentives from the Energy Trust of Oregon, and the Oregon Department of Energy.
- 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.



This policy is a draft.

Please visit www.portlandonline.com/losd/greenbuilding for current information and to provide comments.

Seattle – Supports LEED Projects

Our services include:

- ⑩ **Incentives** - financial and code-based incentive packages for your project, and a referral service to utility conservation programs
- ⑩ **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
- ⑩ **Education programs** - workshops, lecture series, continuing education, and more; targeted to developers, design professionals, CEO's, building managers, homeowners, and real estate agents
- ⑩ **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



Covered Project Type	Tier 1	Tier 2	Tier 3
SFD New	> 12 dwelling units/acre	7-12 dwelling units/acre	1-6 dwelling units/acre
SFD Addition	> 500 square feet		
MFD New	< 20 dwelling units	20-50 dwelling units	> 50 dwelling units
MFD Remodel	< 20 dwelling units	20-50 dwelling units	> 50 dwelling units
Commercial, New	< 20,000 square feet	20,000-50,000 square feet	> 50,000 square feet
Commercial TI	< 20,000 square feet	20,000-50,000 square feet	> 50,000 square feet
City Sponsored	< 10,000 square feet	10,000-20,000 square feet	> 20,000 square feet

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 1 below). Include the following three items in your "Pre-Permitting Documentation" submittal package:

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 _____ 80 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

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 a 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.

2009 Significant Commercial Changes



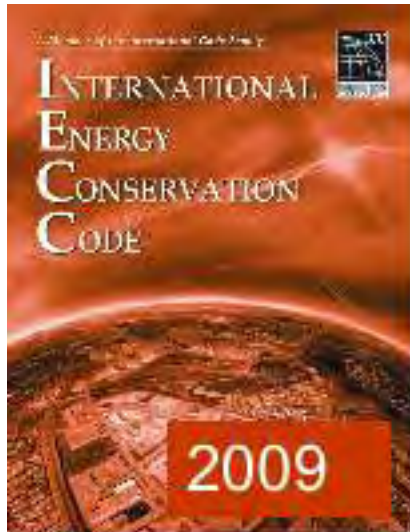
New ASHRAE Standard

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

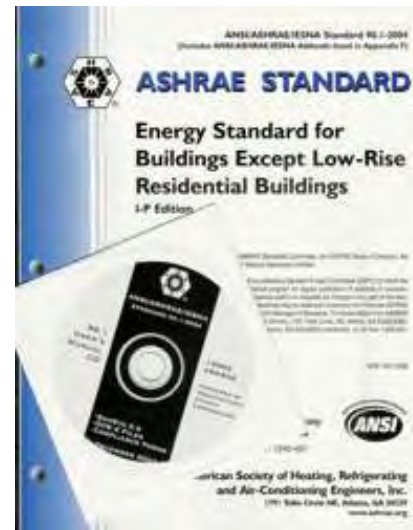


Pick One Compliance Approach

Either



Or



But Not Both

Increased Envelope Requirements

**TABLE 502.2(1)
BUILDING ENVELOPE REQUIREMENTS – OPAQUE ASSEMBLIES**

	1		2		3		4 except Marine		5 and marine 4		6		7		8	
	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R	All other	Group R
Roofs																
Insulation entirely above deck	R- 15ci	R- 20ci	R- 16ci R- 20ci	R- 20ci	R-16ci R-20ci	R- 20ci	R- 16ci R- 20ci	R- 20ci	R- 20ci	R- 20ci	R- 20ci	R- 20ci	R- 25ci	R- 25ci	R- 25ci	R- 25ci
Metal buildings (with R-5 thermal blocks*) ^b	R-19 + R-10	R-19 + R- 10	R-19	R-19	R-19	R-19	R-19	R-19	R-19	R-19	R-19	R-19	R-19 + R-10	R-19 + R- 10	R-19 + R- 10	R-19 + R- 10
Attic and other	R-30	R-36	R-30 36	R-36	R-30 36	R-36	R-30 36	R-36	R-30 36	R-36	R-30 36	R-36	R-36	R-36	R-36	R-36 48
Walls, Above Grade																
Mass	NR	R- 5.7ci	NR R- 5.7ci	NR R-7.6ci	R- 6.7ci e R- 7.6ci	R- 9.5ci	R- 6.7ci e R- 9.5ci ^f	R- 11.4ci	R- 7.6ci R- 11.4ci	R- 13.3 ci	R- 9.6ci R- 13.3ci	R- 15.2ci	R- 11.4ci R- 15.2ci	R- 15.2ci	R- 15.2ci	R- 18.8 R- 25ci
Metal building ^b	R-13	R-13	R-13	R-13	R-13	R-13	R-13	R-13	R-13 + R-13	R-13 + R- 13	R-13 + R- 13	R-13 + R- 13	R-13 + R- 13	R-13 + R- 13	R-13 + R- 13	R-13 + R- 13
Metal framed	R-13	R-13	R-13	R- 13+7.5ci	R-13 + R3.0ci	R-13 + R7.5ci	R-13 +7.5	R-13 + R7.5ci	R-13 + R- 3.9 7.5 ci	R-13 + R- 7.5ci	R-13 + R- 3.9 7.5ci	R-13 + R- 7.5ci	R-13 + R- 7.5ci	R-13 + R- 7.5ci	R-13 + R- 7.5 ci	R-13 + R- 7.5 ci
Wood framed and other	R-13	R-13	R-13	R-13	R-13	R-13	R-13	R-13 + R- 3.6ci	R-13 + R- 3.6ci	R-13 +3.8	R-13 +7.5	R-13 + R- 7.5ci	R- 13+ R- 7.5ci	R-13 +7.5ci	R-13 + R- 3.6 15.8ci	R-13 + R- 3.6 15.8ci

New ASHRAE Standard

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



HVAC Upgrades



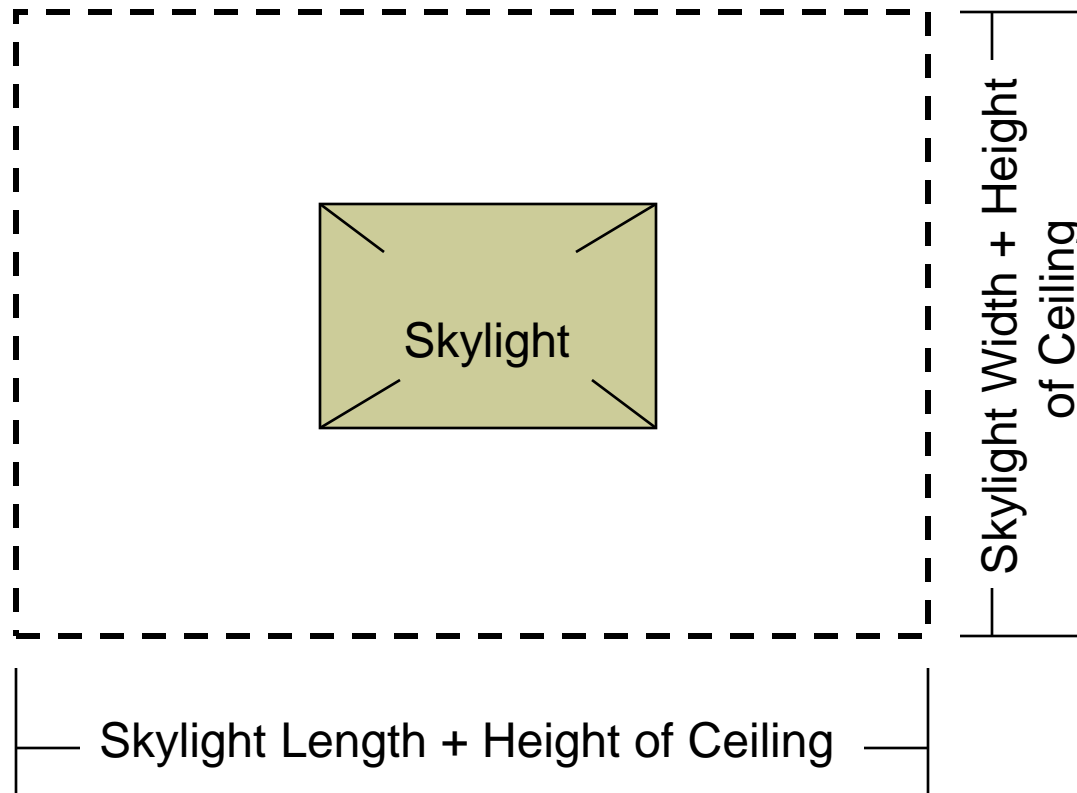
- Demand Control Ventilation
- Increased Water Chiller Efficiency
- Fan System Power Limitation

Daylighting Requirements

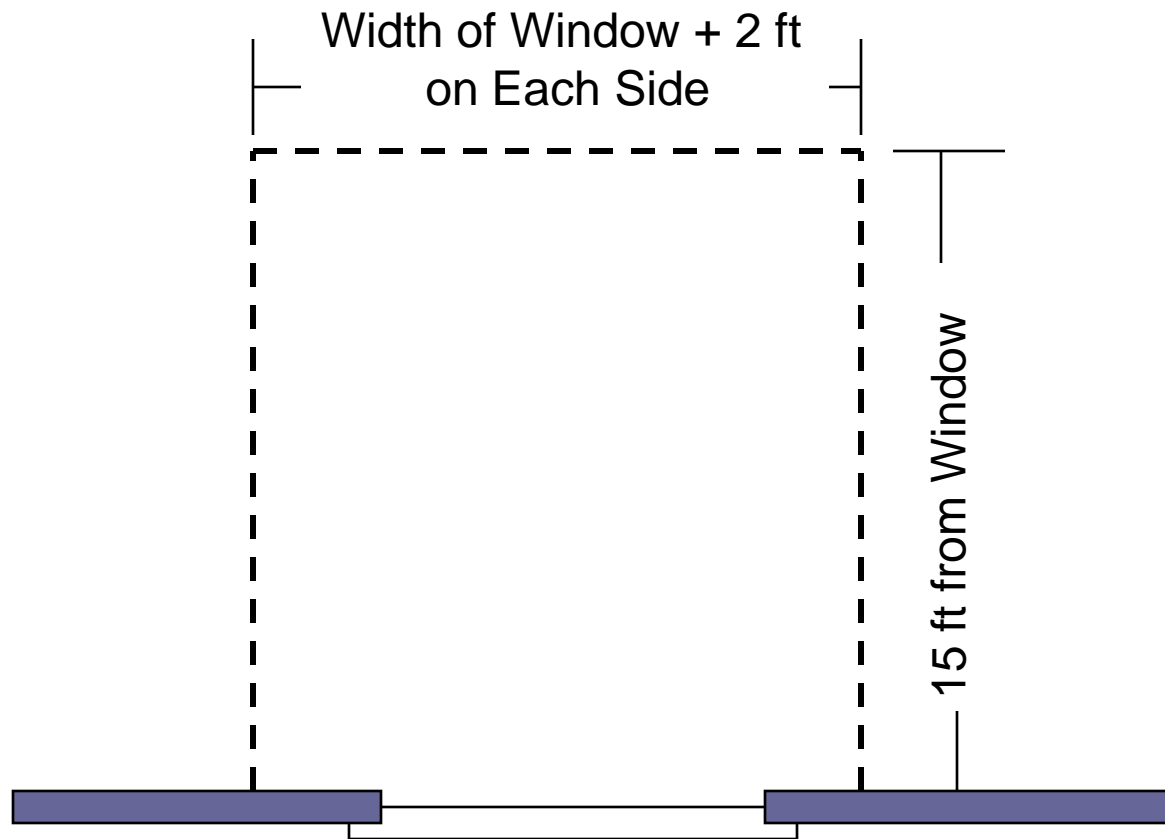
■ DAYLIGHT ZONE DEFINITION:

- **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



Daylighting Requirements



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

Additional Interior Lighting Power Allowance = 1000 watts + (Retail Area 1 x 4-0-0.6 W/ft²) + (Retail Area 2 x 4-7-0.6 W/ft²) + (Retail Area 3 x 2-6-1.4 W/ft²) + (Retail Area 4 x 4-2-2.5 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.

TABLE 505.5.2
INTERIOR LIGHTING POWER ALLOWANCES

LIGHTING POWER DENSITY	
Building Area Type ^a	(W/ft ²)
Automotive Facility	0.9
Convention Center	1.2
Court House	1.2
Dining: Bar Lounge/Leisure	1.3
Dining: Cafeteria/Fast Food	1.4
Dining: Family	1.6
Dormitory	1.0
Exercise Center	1.0
Gymnasium	1.1
Healthcare-Clinic	1.0
Hospital	1.2
Hotel	1.0
Library	1.3
Manufacturing Facility	1.3
Motel	1.0
Motion Picture Theater	1.2
Multi-Family	0.7
Museum	1.1
Office	1.0
Parking Garage	0.3

Warehouse	0.8
Workshop	1.4

For SI: 1 foot = 304.8 mm, 1 watt per square foot = W/0.0929 m².

- a. In cases where both a general building area type and a more specific building area type are listed, the more specific building area type shall apply.
- b. Where lighting equipment is specified to be installed to highlight specific merchandise in addition to lighting equipment specified for general lighting and is switched or dimmed on circuits different from the circuits for general lighting, the smaller of the actual wattage of the lighting equipment (metal halide specifically for merchandise, or 1.6 W/ft² times the area of the specific display but not to exceed 50% of the floor area, or 3.9 W/ft² times the actual case or shelf area for displaying and selling jewelry, china or silver, shall be added to the interior lighting power determined in accordance with this line item.

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 505.6.2(1)
EXTERIOR LIGHTING ZONES

LIGHTING ZONE	DESCRIPTION
<u>1</u>	<u>Developed areas of National Parks, State Parks, Forest Land, and Rural areas</u>
<u>2</u>	<u>Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use and residential mixed use areas</u>
<u>3</u>	<u>All other areas</u>
<u>4</u>	<u>High activity commercial districts in major metropolitan areas as designated by the local land use planning authority</u>

TABLE 505.6.2(2)
INDIVIDUAL LIGHTING POWER ALLOWANCES DENSITIES FOR BUILDING EXTERIORS

		<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>	<u>Zone 4</u>
<u>Base Site Allowance</u> (base allowance may be used in tradable or non-tradable surfaces)		<u>500 W</u>	<u>800 W</u>	<u>750 W</u>	<u>1300 W</u>
Applications	Lighting Power Densities				
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/ft ²	0.06 W/ft ²	0.10 W/ft ²	0.13 W/ft ²
	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/ft ²	0.14 W/ft ²	0.18 W/ft ²	0.2 W/ft ²
	Stairways	0.75 W/ft ²	1.0 W/ft ²	1.0 W/ft ²	1.0 W/ft ²
	Pedestrian Tunnels	0.15 W/ft ²	0.15 W/ft ²	0.2 W/ft ²	0.3 W/ft ²
	Building Entrances 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/ft ²	0.25 W/ft ²	0.4 W/ft ²	0.4 W/ft ²
	Sales Canopies and Overhangs				
	Canopies (free standing and attached and overhangs)	0.8 W/ft ²	0.8 W/ft ²	0.8 W/ft ²	1.0 W/ft ²
	Outdoor Sales				
Open areas (including vehicle sales lots)	0.25 W/ft ²	0.25 W/ft ²	0.5 W/ft ²	0.7 W/ft ²	
Street frontage for vehicle					

Resources

- BrittMakela.com
- USGBC.org
- Nwalliance.org
- SWenergy.org

Thank You - Questions?

