

**Set Yourself Apart: Get Your Homes
and Multifamily Apartments Green
Certified to the National Green
Building Standard**

Tuesday, January 14, 1:00pm

Presented by:
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Pennsylvania Housing Research Center
www.engr.psu.edu/phrc




**National Green
Building Standard:
WHAT YOU NEED TO KNOW**

2013

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Course Description


If you aren't building green homes, you're missing a rapidly growing segment of homebuyers seeking green products and services. Find out how certification to ICC-700 National Green Building Standard can help you build and sell green homes. As the first green building standard approved by ANSI, this rating system is the setting the national definition of green for residential builders, remodelers, and developers. Get all the information you need to get your next project Green Certified to the Standard and set yourself apart from the competition.




Learning Objectives

At the end of the this course, participants will be able to:

1. Explain the development of ICC-700 National Green Building Standard, its scope, and the opportunities for project certification
2. Details the process, roles and responsibilities of the participants
3. Explain Home Innovation Research Labs' green certification process under the National Green Building Standard
4. Identify program eligibility requirements for certification under the Standard



Agenda



- Overview of Home Innovation Research Labs
- ICC-700 National Green Building Standard
- Certification Process
- Transition to 2012 NGBS
- 2012 NGBS Revisions
- New certification Opportunities



Home Innovation Research Labs

- Originated in 1964 as small product testing laboratory
- Mission to improve the quality, durability, affordability, and environmental performance of homes
- Full-service consulting, product testing, & accredited third-party certification
- Solely focused on issues related to residential construction
- Adopting Entity for ICC-700 National Green Building Standard

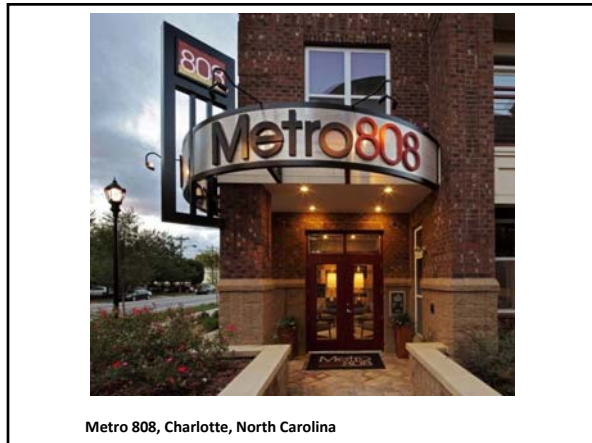


Multifamily is Hot. Why Seek NGBS Certification?

- Market Differentiation
- Institutional Investors
- Energy Price Volatility
- Corporate Reputation
- Streamlined Entitlement Process, Development Review, Public Participation

- BONUS REASON: Employee Retention






We Build High-Performance. But Why Seek Certification?


- 80% consumers value a independent, third-party certification
- FTC compliant marketing without fear of greenwashing
- Marketing assistance
- Find Your Green Home
- Investor & appraisal recognition
- Risk mitigation for future value



ICC-700 National Green Building Standard



- Approved by American National Institute of Standards (ANSI)
- Provides rating system of a project's environmental impact
- Four certification levels for residential buildings
- Designed to be voluntary, above-code program




Comparing Green Building Rating Systems

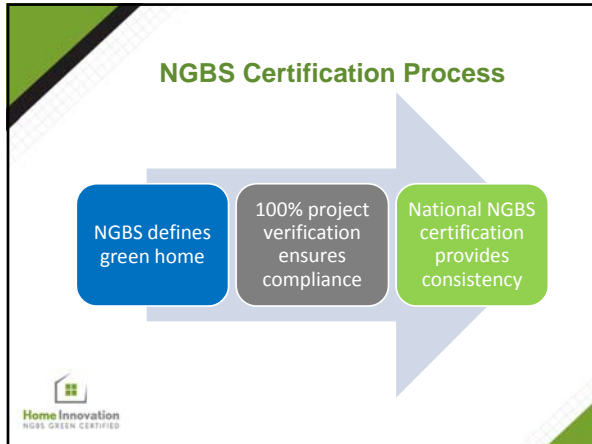


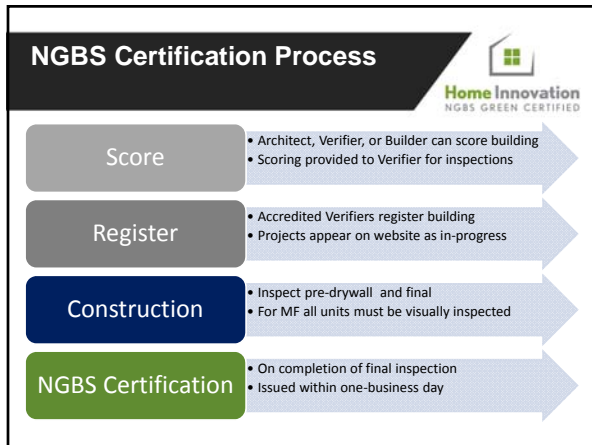
- ANSI-approved consensus standard
- Written in code language
- Few mandatory provisions
- Expansive, flexible point-based system
- Multiple paths for energy compliance
- All residential

Why the National Green Building Standard?

- NGBS: Behaves as quality assurance system of sorts for all stages: design, land development, construction, verification, and operation
 - Written in code language
 - Few mandatory provisions, instead expansive, flexible point-based system
- Program Philosophy: *To eliminate barriers to green certified residential buildings*
 - Costs (real or perceived – direct and indirect)
 - Difficulty / Inflexibility
 - Processing hurdles











Gables Tanglewood, Houston, Texas. In-progress


Verify:
100% Independent, Third-Party



- Qualify, Train, & Test
 - Experience in residential construction and green building
 - Standardize inspection process for projects
- Accredit
 - Must have sufficient insurance, auto and liability
 - Continuing education requirements
- Quality Assurance
 - 100% review of all inspection reports
 - Home Innovation Labs performs quality assurance audits

Independent, Third-Party Verification

- Nationwide network of 400 verifiers
 - Smaller group specializing in multifamily buildings
- Verification Costs
 - Market rate price
 - \$50-200 / unit
- Rigor
 - Every home or apartment must be inspected before drywall installation (rough) and when complete (final)
 - Rough and final inspection reports submitted for review
- www.homeinnovation.com/FindNGBSVerifier

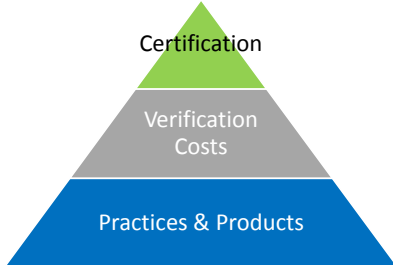



2012 NGBS Verification Requirements



- All verifiers must be trained, tested, and accredited for 2012 NGBS
 - Accreditation is noted on website
- All 2012 NGBS projects must use Verifier accredited to 2012 NGBS
- 2012 Scoring spreadsheets available at www.homeinnovation.com/greenscoring

Certification Costs






Verde Vista, Asheville, North Carolina

- > 252 units; 280,000 total SF
- > 0.124% increased cost (as a % of total) or \$79/unit for NGBS Silver
- > 0.62% or \$396/unit for Energy Star certification

2012 NGBS Highlights



- New Practices
- Higher Energy Baseline: Bronze roughly equivalent energy targets for 2012 IECC
- Rewards land development certification
- Improved alignment of water efficiency points with expected water usage
- Universal design practices added
- Revised chapter point thresholds
- New certification opportunities

Land Development



CEDAR VALLEY
Traverse City, Michigan

Land Development Certification Requirements

- Green development Practices
 - Site Selection
 - Site Design
 - Site Development & Construction
- Two Approval Options:
 - Letter of Approval *or*
 - Certified when and development activities complete
- Streamlines entitlement & permitting, market green commitment early




Chapter Four: Land Development Headlines

- More available practices
- Rewards developers who pledge to certify buildings
- More innovative, progressive practices
- Great alignment with contemporary land use and planning issues
- Still applicable for urban, rural, suburban locations
- Certification thresholds raised



New Land Development Practices

- Low slope site points
- Greywater, cisterns, rain barrels
- More definition around environmentally sensitive areas
- Narrow street widths
- Multi-modal transportation points
- Community gardens




Threshold Points Required Land Development Certification




Site Design and Development	One Star	Two Stars	Three Stars	Four Stars
2008 NGBS	79	104	134	175
2012 NGBS	95	122	149	176

Land Development Certification Fees



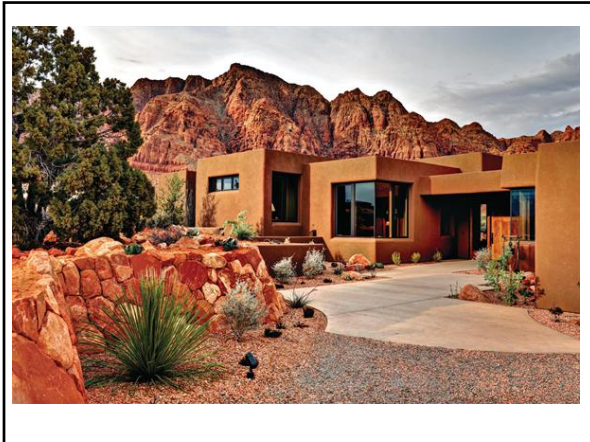
Number of Lots	Fee	NAHB Member Fee
1 to 10 Lots	\$2,500 per development	\$1,000 per development
11 to 24 Lots	\$5,000 per development	\$2,000 per development
25 or more Lots	\$6,250 per development	\$2,500 per development



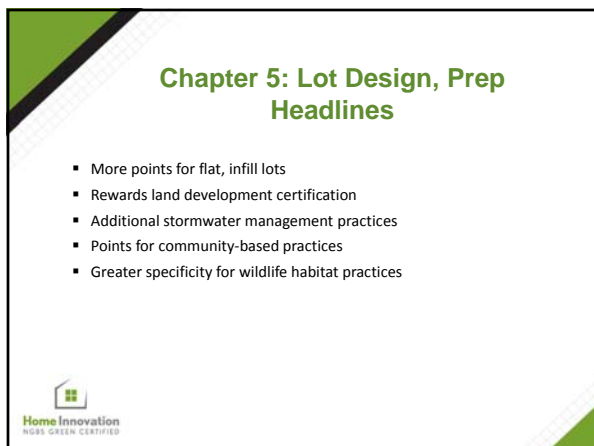
Daybreak - Salt Lake City, Utah

Building Certification: Single Family Homes









New Lot Design Practices

- Bicycle use points
- Low slope points
- Greater specificity for wildlife habitat practices
- Community gardens




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Chapter 6: Resource Efficiency Headlines


- Durability practices from IAQ Chapter moved here
- Life Cycle Analysis expanded
- Universal Design Elements added
- Points for certified sustainable products



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Chapter 7: Energy Efficiency Headlines


- Baseline is 2009 IECC
- Whole house improvement, not just heating, cooling, water heating
- Three compliance paths remain
 - Performance (req'd for Emerald)
 - Prescriptive
 - Alternative bronze (Energy Star or 2012 IECC / 2012 IRC Chapter 11)



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Energy Efficiency

- New MANDATORY Requirements:
 - HVAC & Duct system sizing
 - Building thermal envelope
 - Insulation must be graded – Grade 3 not allowed
- Option for testing or visual inspection
- Window air infiltration less than 0.3 cfm/ft2
- 50% of hardwired lighting must be high efficacy
- Smart appliances and systems get points




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Chapter 8: Water Efficiency Headlines


- Hardest category to attain higher levels of certification under 2008 version
- Headlines
 - Added more available points
 - Improved alignment of points with water usage
 - More points available for rainwater collection and distribution, particularly multifamily
 - Advanced wastewater treatment system



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Chapter 9: Indoor Environmental Quality Headlines


- Durability practices moved, except those that impair IAQ
- Sealing per 701 now mandatory
- Whole house ventilation mandatory if testing demonstrates ACH50 < 5
- VOC levels set, allows independent, third-party testing (not exclusive GreenGuard)
- VOC table listed for ease of reference



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Chapter 10: Operation and Maintenance Headlines


- Few changes
- Information on stormwater practices as option
- More points for occupant training




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Available Points

Green Building Categories	Available Points	
	2008	2012
Lot Design, Prep, & Development	216	382
Resource Efficiency	231	297
Energy Efficiency (Performance Path without PV)	280	163
Water Efficiency	111	257
IEQ	215	212
Operation, Maintenance, & Owner Education	16	16



2008 NGBS Performance Levels



Green Building Categories		Performance Level Points ^{(1) (2)}				
		BRONZE	SILVER	GOLD	EMERALD	
1.	Chapter 5	Lot Design, Preparation, and Development	39	66	93	119
2.	Chapter 6	Resource Efficiency	45	79	113	146
3.	Chapter 7	Energy Efficiency	30	60	100	120
4.	Chapter 8	Water Efficiency	14	26	41	60
5.	Chapter 9	Indoor Environmental Quality	36	65	100	140
6.	Chapter 10	Operation, Maintenance, and Building Owner Education	8	10	11	12
7.		Additional Points from any category	50	100	100	100
		Total Points:	222	406	558	697

2012 NGBS Performance Levels





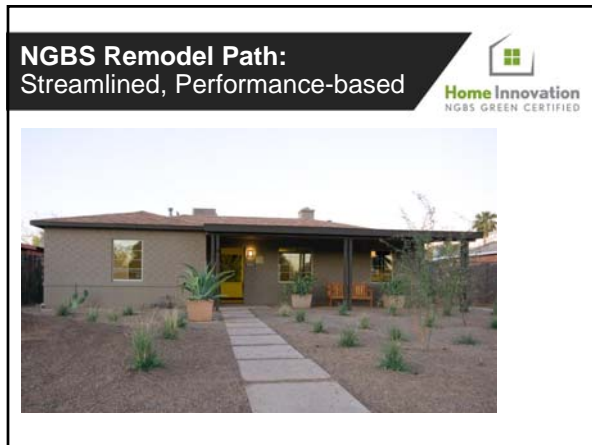
Table 303
Threshold Point Ratings for Green Buildings

Green Building Categories		Rating Level Points ^{(1) (2)}				
		BRONZE	SILVER	GOLD	EMERALD	
1.	Chapter 5	Lot Design, Preparation, and Development	50	64	93	121
2.	Chapter 6	Resource Efficiency	45	59	89	119
3.	Chapter 7	Energy Efficiency	30	60	90	100
4.	Chapter 8	Water Efficiency	25	39	67	92
5.	Chapter 9	Indoor Environmental Quality	25	42	69	97
6.	Chapter 10	Operation, Maintenance, and Building Owner Education	8	10	11	12
7.		Additional Points from Any Category	50	75	100	100
		Total Points:	231	349	509	641

Point Threshold Levels

Green Building Categories	Performance Level Points							
	BRONZE		SILVER		GOLD		EMERALD	
	2008	2012	2008	2012	2008	2012	2008	2012
Lot Design, Prep, & Development	39	50	66	64	93	93	119	121
Resource Efficiency	45	43	79	59	113	89	146	119
Energy Efficiency	30	30	60	60	100	80	120	100
Water Efficiency	14	25	26	39	41	67	60	92
IEQ	36	25	65	42	100	69	140	97
Operation, Maintenance, & Owner Education	8	8	10	10	11	11	12	12
Additional points from any category	50	50	100	75	100	100	100	100
Total Points:	222	231	406	349	558	509	697	641





New Chapter 11: Remodeling & Renovation

- Available for single family homes or multifamily buildings
- Separate stand-alone chapter
- Similar to, but more comprehensive than, 2008 NGBS Green Remodel Path
- Applicable mandatory practices
- Energy & water reductions
- Additional points required from lot design, resource efficiency, IEQ, and Operation, but no minimum thresholds in each category



SF and MF Renovation: Efficiency Improvements




Table 305.3.5 Energy Rating Level Thresholds

	Rating Level			
	BRONZE	SILVER	GOLD	EMERALD
Reduction in energy consumption	15%	25%	35%	45%

Table 305.3.6 Water Rating Level Thresholds

	Rating Level			
	BRONZE	SILVER	GOLD	EMERALD
Reduction in water consumption	20%	30%	40%	50%

Table 305.3.7 Prescriptive Threshold Point Ratings

	Rating Level			
	BRONZE	SILVER	GOLD	EMERALD
Chapter 11 prescriptive thresholds	88	125	181	225


New Chapter 12: Small Projects

- One certification level
- Functional Areas
 - Kitchens
 - Full bathrooms
 - Complete basements
 - Additions < 400 ft2
- All applicable practices are mandatory




New Chapter 12: Small Projects

- To be certified all of the mandatory practices must be met:
 - Reduce & optimize material usage
 - Control moisture for newly installed materials
 - Measures to reduce site-applied finishing materials, or use recycled content, or bio-based products
 - Proper HVAC and duct system sizing
 - Air barrier and insulation inspections
 - Selecting materials with low VOCs





This concludes The American Institute of Architects
Continuing Education Systems Course


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