Comparison of USGBC "LEED for Homes" and NAHB "National Green Building Standard"

American Institute of Architects - Cincinnati Chapter
January 19, 2010

USGBC "LEED For Homes"		Credit Mandatory [1]		Credit Modeled [2]		Credit Site Verified [3]		Credit Site Tested [4]		NAHB "National Green Building Standard"	
LEED-H Innovation and Design Process											**NAHB Other**
% of Section Credits Required OVER Mandatory Credits [5]	**0%**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**0% [7]**	**% of Section Credits Required INCLUDING Mandatory Credits [6]**
Preliminary Rating	ID 1.1	●								n/a	Preliminary Green Scoring Tool
Integrated Project Team	ID 1.2									502.1	Project Team, Mission Statement, Goals:
Certification Program Credentialed Profesional	ID 1.3									❍	
Design Charrette	ID 1.4									502.1	Project Team, Mission Statement, Goals:
Building Orientation for Solar Design	ID 1.5						●			704.3.1.1	Sun Tempered Design
							●			704.3.1.3	Passive Cooling Features
Durability Planning; (Pre-Construction)	ID 2.1	●					●			602.1	Exterior Doors
							●			602.2	Roof Overhangs
			●				●			602.3.1	Foundation Drainage - Exterior Drain Tile
							●			602.3.2	Foundation Drainage - Int and Ext Drain Tile to Daylight
							●			602.4	Drip Edge
							●			602.5	Roof Water Discharge
			●				●			602.6	Finished Grade
							●			602.7	Termite Barrier
							●			602.8	Termite Resistant Materials
			●				●			602.9	Water Resistive Barrier
			●				●			602.10	Ice Barrier
							●			602.11	Foundation Waterproofing
							●			602.12	Flashing
			●				●			903.1	Tile Backing Materials
Quality Management	ID 2.2	●								❍	
Third Party Durability Management Verification	ID 2.3					●				❍	
Innovation Credits	ID 3									n/a	Found Throughout Each Section
Size Factor Built into Point Requirements	n/a									601.1	Conditioned Floor Area
LEED-H Location and Linkages combined with Sustainable Sites											**NAHB Lot Design, Preparation, and Development**
% of Section Credits Required OVER Mandatory Credits [5]	**16%**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**17% [7]**	**% of Section Credits Required INCLUDING Mandatory Credits [6]**
LEED for Neighborhood Development	LL 1									400	Site Design and Development
Site Selection	LL 2						●			503.8	Environmentally Sensitive Areas
Edge Development	LL 3.1									501.1.2	Greyfield or Brownfield Lot
Infill	LL 3.2										
Previously Developed	LL 3.3										
Existing Infrastructure	LL 4									501.1.1	Infill Lot
Basic Community Resources/Transit	LL 5.1									501.2	Mass Transportation
Extensive Community Resources/Transit	LL 5.2										
Outstanding Community Resources/Transit	LL 5.3										
Access to Open Space	LL 6									❍	
Erosion Controls (During Construction)	SS 1.1	●	⊗			●	●			503.2	Slope Disturbance
							●			504.3	Soil Disturbance and Erosion
Minimize Disturbed Area of Site	SS 1.2					●	●			503.3	Soil Disturbance and Erosion
							●			504.2	Trees and Vegetation
							●			504.3	Soil Disturbance and Erosion
No Invasive Plants	SS 2.1	●	⊗			●				❍	
Basic Landscape Design	SS 2.2						●			503.5	Landscape Plan
Limit Conventional Turf	SS 2.3						●			503.5	Landscape Plan
Drought Tolerant Plants	SS 2.4					●				❍	
Reduce Overall Irrigation Demand by at Least 20%	SS 2.5						●			801.7	Irrigation Systems
Reduced Local Heat Island Effects	SS 3						●			503.5	Landscape Plan
										505.2	Heat Island Mitigation
Permeable Lot	SS 4.1						●			503.4	Stormwater Management
Permanent Erosion Controls	SS 4.2					●	●			503.2	Slope Disturbance
Management of Run-off from Roof	SS 4.3					●	●			503.4	Stormwater Management
Pest Control Alternatives	SS 5					●				❍	
Moderate Density	SS 6.1									503.9	Density
High Density	SS 6.2										
Very High Density	SS 6.3										
	❍						●			503.1	Natural Resources
	❍						●			503.2.5	Slope Disturbance, Underground Parking
	❍						●			503.6	Wildlife Habitat
	❍						●			503.7	Mixed Use Development
	❍						●			504.1	On Site Supervision
LEED-H Water Efficiency											**NAHB Water Efficiency**
% of Section Credits Required OVER Mandatory Credits [5]	**20%**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**12% [7]**	**% of Section Credits Required INCLUDING Mandatory Credits [6]**
Rainwater Harvesting System	WE 1.1					●	●			801.8	Rainwater Collection and Distribution
Greywater Reuse System	WE 1.2					●	●			802.1	Gray Water
Use of Municipal Recycled Water System	WE 1.3					●				❍	
High Efficiency Irrigation System	WE 2.1					●	●			801.7	Irrigation Systems
Reduced Overall Irrigation Demand by at Least 45%	WE 2.3										
Third Party Inspection of Irrigation System	WE 2.2					●				❍	
High Efficiency Fixtures and Fittings	WE 3.1					●	●			801.4	Showerheads
Very High Efficiency Fixtures and Fittings	WE 3.2					●	●			801.5	Faucets
							●			801.6	Water Closets and Urinals
	❍						●			801.3	Food Waste Disposers
	❍						●			801.5.2	Intermittent Faucet Control
	❍						●			801.9	Water Filters
	❍						●			802.3	Automatic Shutoff Water Devices
LEED-H Energy and Atmosphere (Prescriptive Path)											**NAHB Energy Efficiency (Prescriptive Path)**
% of Section Credits Required OVER Mandatory Credits [5]	**0%**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**11% [7]**	**% of Section Credits Required INCLUDING Mandatory Credits [6]**
Performance Path of Energy Star for Homes [8]	EA 1.1			●	●	●	●	Ⓜ	⊗	702	Performance Path Minimum Requirements [9]
Performance Path for Exceptional Energy Performance [8]	EA 1.2			●		●		Ⓜ			
Basic Insulation	EA 2.1	●	⊗		●	●	●			703.1.1	Building Envelope (Insulation Level)
Enhanced Insulation	EA 2.2		●			●	●			701.4.3.2	Floor, Foundation, Crawlspace Insulation and Sealing
			●				●			701.4.3.3	Wall Insulation and Sealing
			●				●			701.4.3.4	Ceiling and Attic Insulation and Sealing
							●			703.1.2	Building Envelope (Third Party Verification)
							●			703.2	Insulation and Air Sealing
							●			704.6.1	Installation and Performance Verification
							●			902.6	Living Space Contaminants
Reduced Envelope Leakage	EA 3.1	●	⊗				●	Ⓜ	●	704.6.2	Third Party Envelope Leakage Test
Greatly Reduced Envelope Leakage	EA 3.2						●	Ⓜ		704.6.1	Installation and Performance Verification
Minimal Envelope Leakage	EA 3.3							Ⓜ			
Good Windows	EA 4.1	●	⊗				●			703	Fenestration (Enhanced)
Enhanced Windows	EA 4.2		●				●			701.4.4	Fenestration (Mandatory)
Exceptional Windows	EA 4.3						●			704.6.1	Installation and Performance Verification
Reduced Distribution Losses	EA 5.1	●	⊗				●	Ⓜ	●	704.6.2.2	HVAC System Pressure Test
Greatly Reduced Distribution Losses	EA 5.2		●				●	Ⓜ		701.4.2.1	Sealed Ducts
Minimal Distribution Losses	EA 5.3		●				●	Ⓜ		701.4.2.2	No Supply Ducts in Exterior Walls
							●			704.4	Ducts
							●			704.6.1	Installation and Performance Verification
			●				●			903.6	Duct Insulation
Good HVAC Equipment and Installation	EA 6.1	●	⊗			●	●			703.4	HVAC Equipment Efficiency
High Efficiency HVAC	EA 6.2		●			●	●			701.4.1.1	HVAC Systems (Design to Manual J)
Very High Efficiency HVAC	EA 6.3					●	●			704.5.1	ACCA Manual S
Efficient Hot Water Distribution	EA 7.1					●	●			801.1	Indoor Hot Water Usage
Pipe Insulation	EA 7.2					●	●			903.5	Plumbing
Efficient Domestic Hot Water Equipment	EA 7.3									703.5	Water Heating Design, Equipment, and Installation
							●			704.3.2.1	Solar Water Heater
ENERGY STAR labeled Light Fixtures (or CFLs)	EA 8.1	●	⊗			●	●			704.2	Lighting and Appliances
Improved Lighting	EA 8.2					●					
Advanced Lighting Package	EA 8.3					●					
High Efficiency Appliances	EA 9.1						●			704.1	Lighting and Appliances
Water Efficient Clothes Washer	EA 9.2						●			801.2	Water Conserving Appliances
Renewable Energy System	EA 10			●		●	●			704.3.3	Additional Renewable Energy Options
Refrigerant Charge Test	EA 11.1	●								704.5.3.2	HVAC Refrigerant Charge
Appropriate HVAC Refrigerants	EA 11.2									704.5.4	Alternate Refrigerant
	❍						●			703.1.3	Building Envelope (Mass Walls)
	❍						●			704.3.1.2	Automated Solar Protection
	❍						●			704.3.1.4	Passive Solar Heating Design
	❍									704.5.2	Certified HVAC Contractor
LEED-H Materials and Resources											**NAHB Resource Efficiency**
% of Section Credits Required OVER Mandatory Credits [5]	**13%**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**19% [7]**	**% of Section Credits Required INCLUDING Mandatory Credits [6]**
Framing Order Waste Factor Limit	MR 1.1	●								❍	
Detailed Framing Documents	MR 1.2						●			601.4	Framing and Structural Plans
Detailed Cut List and Lumber Order	MR 1.3						●			601.4	Framing and Structural Plans
Framing Efficiencies	MR 1.4					●	●			601.2	Material Usage
Off-Site Fabrication	MR 1.5					●	●			601.5	Prefabricated Components
FSC Certified Tropical Woods	MR 2.1	●	⊗				●			606.2	Wood Based Products
Environmentally Preferable Products	MR 2.2									603.2	Salvaged Materials
										604.1	Recycled Content
										606.1	Biobased Products
							●			607.1	Resource Efficient Materials
										608.1	Indigenous Materials
							●			901.4	Wood Materials
							●			901.5	Carpets
							●			901.6	Hard Surface Flooring
							●			901.7	Wall Coverings
										901.8	Architectural Coatings
										901.9	Adhesives and Sealants
							●			901.10	Cabinets
							●			901.11	Insulation
Construction Waste Management Planning	MR 3.1	●					●			605.1	Construction Waste Management Plan
Construction Waste Reduction	MR 3.2						●			603.3	Scrap Materials
							●			605.2	On-Site Recycling
										605.3	Recycled Construction Materials
	❍									601.3	Building Dimensions and Layouts
	❍						●			601.6	Stacked Stories
	❍						●			601.7	Site Applied Finish Materials
	❍									601.8	Foundations
	❍									601.9	Above Grade Wall Systems
	❍						●			602.14	Recycling
	❍						●			603.1	Reuse of Existing Building
	❍						●			606.3	Manufacturing Energy
	❍				●					609.1	Life Cycle Analysis
LEED-H Indoor Environmental Quality											**NAHB Indoor Environmental Quality**
% of Section Credits Required OVER Mandatory Credits [5]	**29%**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**15% [7]**	**% of Section Credits Required INCLUDING Mandatory Credits [6]**
Energy Star with Indoor Air Package	EQ 1					●					
Basic Combustion Venting Measures	EQ 2.1	●	⊗			●	●			901.1	Space and Water Heating Options
Enhanced Combustion Measures	EQ 2.2		●			●	●	●		901.2	Fireplaces and Fuel Burning Appliances
			⊗				●			901.12	Carbon Monoxide Monitors
Moisture Load Control	EQ 3					●	●			903.7	Relative Humidity
Basic Outdoor Air Ventilation	EQ 4.1	●					●			902.2	Building Ventilation Systems
Enhanced Outdoor Air Ventilation	EQ 4.2					●					
Third Party Performance Testing of Building Ventilation	EQ 4.3					●	●	●	●	902.2.2	Ventilation Testing
Basic Local Exhaust	EQ 5.1	●	●			●	●			902.1	Spot Ventilation
Enhanced Local Exhaust	EQ 5.2					●					
Third Party Performance Testing	EQ 5.3					●		●		❍	
Room by Room Load Calculations	EQ 6.1	●	●				●			701.4.1.1	HVAC Systems (Design to Manual J)
Return Air Flow/Room by Room Controls	EQ 6.2						●			704.4.5	Return Ducts in Every Room
Third Party Performance Test/Multiple Zones	EQ 6.3					●	●	●	●	704.6.2.3	Balanced HVAC Test
Good Filters	EQ 7.1	●	⊗			●	●			902.2.3	Filters
Better Filters	EQ 7.2					●					
Best Filters	EQ 7.3					●					
Indoor Contaminant Control During Construction	EQ 8.1					●	●			902.4	HVAC System Protection
Indoor Contaminant Control	EQ 8.2					●	●			901.13	Building Entrance Pollutants Control
							●			902.5	Central Vacuum Systems
Preoccupancy Flush	EQ 8.3									❍	
Radon Resistant Construction in High Risk Areas	EQ 9.1	●	●			●	●			902.3.1	Radon Control Zone 1
Radon Resistant Construction in Moderate Risk Areas	EQ 9.2					●	●			902.3.2	Radon Control Zone 2
No HVAC in Garage	EQ 10.1	●	⊗			●	●			901.1.2	Equipment not in Garage
							●			704.4.4	Equipment in Conditioned Space
Minimize Pollutants from Garage	EQ 10.2		●			●	●			901.3.1.ab	Garages
Exhaust Fan in Garage	EQ 10.3					●	●			901.3.1.c	Garages
Detached Garage or No Garage	EQ 10.4					●	●			901.3.2	Garages
	❍									704.5.3	Performance Verified by HVAC Contractor
	❍									704.5.5	Sealed Air Handler Documentation
	❍		●							903.2.1	Capillary Breaks Concrete Slabs
	❍									903.2.2	Capillary Breaks Concrete Footings
	❍		●				●			903.3.1.2	Crawlspaces Damp-proofing
	❍						●			903.3.2	Crawlspaces Conditioned
	❍									903.4	Moisture Control Measures
LEED-H Awareness and Education											**NAHB Operation, Maintenance, and Building Owner Education**
% of Section Credits Required OVER Mandatory Credits [5]	**0%**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**LEED-H**	**NAHB**	**50% [7]**	**% of Section Credits Required INCLUDING Mandatory Credits [6]**
Basic Operations Training	AE 1.1	●	●							1001.1	Building Owner's Manual
Enhanced Training	AE 1.2									1002.1	O&M Training
Public Awareness	AE 1.3									❍	

% of Total Credits Required for Minimum Certification [10]	**33%**	**LEED-H Certified**	**Bronze NAHB**	**20%**	**% of Total Credits Required for Minimum Certification [10, 11]**
% of Total Credits Required for Certification [10]	**44%**	**LEED-H Silver**	**Silver NAHB**	**37%**	**% of Total Credits Required for Certification [10, 11]**
% of Total Credits Required for Certification [10]	**55%**	**LEED-H Gold**	**Gold NAHB**	**50%**	**% of Total Credits Required for Certification [10, 11]**
% of Total Credits Required for Certification [10]	**66%**	**LEED-H Platinum**	**Emerald NAHB**	**63%**	**% of Total Credits Required for Certification [10, 11]**

Registration Fees	**$150**	**Minimum Program Fees [12]**	**$200**	**Registration Fees**
Green Rater/Fees for Mandatory Inspections	**$1,150**		**$1,150**	**Green Verifyer/Fees for Mandatory Inspections**
Provider Fees	**$625**		**$0**	**Provider Fees**
Certification Fees	**$225**		**$0**	**Certification Fees**
Total Minimum Program Costs	**$2,150**		**$1,350**	**Total Minimum Program Costs**

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FOOTNOTES:

[1] Credit is mandatory or a prerequisite for each Rating System.

[2] Credit is modeled or simulated with Rating System approved software.

[3] Credit is site inspected and verified by program accredited Green Rater or Verifyer (not builder). This column does not include any software or site testing or documentation review.

[4] Credit is site or field tested by program accredited third party testing agent (not builder or contractor). Mandatory site testing credits are noted.

[5] For minimum certification, LEED-H credits are required in each division OVER mandatory credits. No points available for mandatory credits.

[6] For minimum certification, NGBS offers points for mandatory credits, but these are for optional practices such as fireplaces and garages when they are included. This study includes these points in the calculation.

[7] NAHB innovative practices included if they are included in LEED-H, NAHB multiunit credits not included.

[8] LEED-H Performance Path requires Energy Star site testing (blower door, duct test, insulation placement, etc)

[9] NAHB-NGBS Performance Path does not require site testing (blower door, duct test, insulation placement, etc)

[10] Assuming average house with 2600 SF and 4 bedrooms, which requires no additional points for LEED or gives no additional points for NAHB.

[11] Points are available in NAHB for meeting minimum building code requirements of the International Residential Code (IRC).

[12] Program fees are based on an average 2600 SF home through one Cincinnati Green Rater/Verifyer. Costs are for USGBC or NAHB member rates. Costs will vary with each project.

⊗ Denotes omissions or lacking comparable measures.

Ⓜ Denotes mandatory site testing.

❍ Denotes comparable credit is not present in this Rating System.

ADDITIONAL NOTES:

For this Study, it was decided to compare a 2600 SF house with 4 bedrooms, fireplace, and attached garage.

NAHB-NGBS requirements for Additions and Renovations not included in this chart, but are addressed in the written report.

NAHB-NGBS Green Subdivision Category "Site Design and Development" for new developments was not included in this Study.

USGBC-LEEDH Neighborhood Development was not included in this Study.