



NGBS
GREEN™

Home Innovation Research Labs

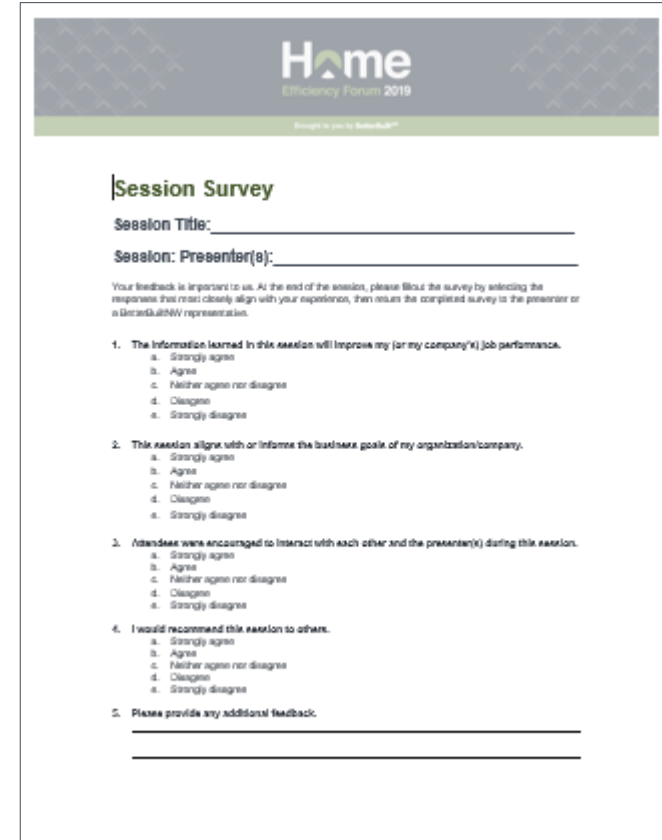
The Path to More Sustainable Housing

Michelle Foster & Jerud Martin

Session Survey Instructions

At the end of each session, you will be given 5 minutes to complete the session survey.

- Complete the survey using the mobile app or paper versions
- Provide the paper surveys to the room moderator or to the BetterBuiltNW table
- We appreciate your feedback



The image shows a printed survey form titled "Session Survey" for the "Home Efficiency Forum 2019". The form is designed for attendees to provide feedback on a session. It includes fields for "Session Title:" and "Session: Presenter(s):". Below these fields, there is a paragraph explaining that feedback is important and that responses should align with the attendee's experience. The survey consists of five numbered questions, each with five response options: "Strongly agree", "Agree", "Neither agree nor disagree", "Disagree", and "Strongly disagree". The questions are: 1. The information learned in this session will improve my (or my company's) job performance. 2. This session aligns with or informs the business goals of my organization/company. 3. Attendees were encouraged to interact with each other and the presenter(s) during this session. 4. I would recommend this session to others. 5. Please provide any additional feedback. The form is enclosed in a rectangular border.

Home
Efficiency Forum 2019

Session Survey

Session Title: _____

Session: Presenter(s): _____

Your feedback is important to us. At the end of the session, please fill out the survey by selecting the response that most closely aligns with your experience, then return the completed survey to the presenter or a BetterBuiltNW representative.

1. The information learned in this session will improve my (or my company's) job performance.

a. Strongly agree
b. Agree
c. Neither agree nor disagree
d. Disagree
e. Strongly disagree

2. This session aligns with or informs the business goals of my organization/company.

a. Strongly agree
b. Agree
c. Neither agree nor disagree
d. Disagree
e. Strongly disagree

3. Attendees were encouraged to interact with each other and the presenter(s) during this session.

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4. I would recommend this session to others.

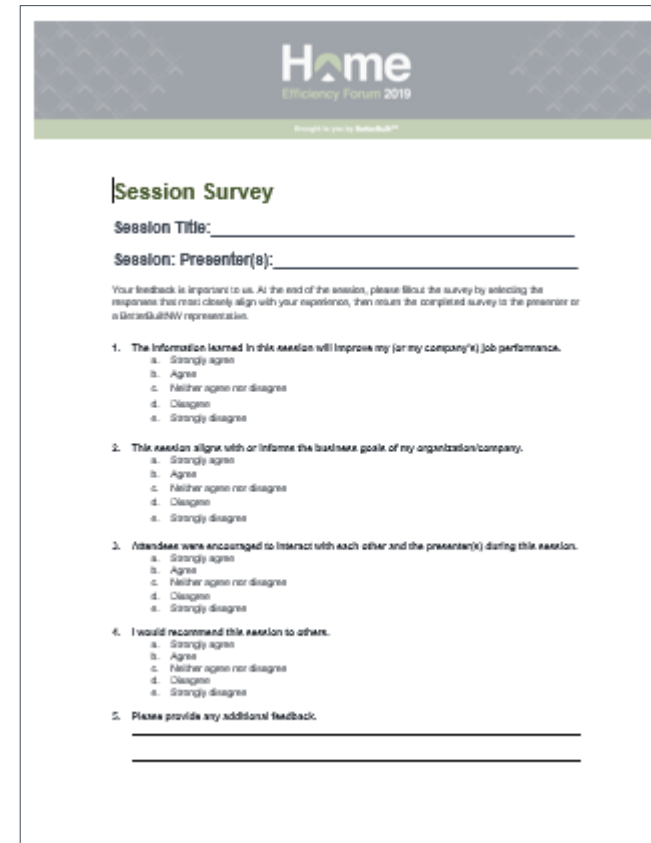
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b. Agree
c. Neither agree nor disagree
d. Disagree
e. Strongly disagree

5. Please provide any additional feedback.

Complete the Session Survey

The 2020 NGBS: The Path Toward More Sustainable Housing

- Michelle Foster
- Jerud Martin



The screenshot shows a survey form titled "Home Efficiency Forum 2019" with the tagline "Bringing the green to better built™". The survey is titled "Session Survey" and includes fields for "Session Title:" and "Session: Presenter(s):". A note states: "Your feedback is important to us. At the end of the session, please fill out the survey by selecting the responses that most closely align with your experience, then return the completed survey to the presenter or a BetterBuiltNW representative." The survey consists of five numbered questions, each with five response options: a. Strongly agree, b. Agree, c. Neither agree nor disagree, d. Disagree, and e. Strongly disagree.

Home
Efficiency Forum 2019
Bringing the green to better built™

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The Path to More Sustainable Housing

Michelle Foster & Jerud Martin



A person wearing a green polo shirt and safety glasses is working on a wooden structure in a workshop. They are using a tool to work on a piece of wood that has some tape on it. The background shows various wooden beams and workshop equipment.

Home Innovation Research Labs

- Founded in 1964
- Focus is residential construction
- Clients are architects, builders, developers, and product manufacturers
- Four categories of services:
 - Market Research
 - Product testing
 - Applied building science research
 - Standards developer
 - Accredited third-party lab and certification agency



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The Authority in Green Building

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NGBS GREENTM

CERTIFICATION



Creating a Better Place to Call Home since 2009



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2018 NGBS Green
Partner of Excellence

Improved Living. Reduced Impact.

Our building practices, when employed in construction and development, improve the living environment for residents and reduce the project's environmental impacts.

[SUSTAINABLE GREEN BUILDING PRACTICES](#)



12

3

4

5

THINGS
YOU
NEED
TO KNOW



Prescriptive
Path

Performance
Path

ENERGY STAR
Homes or MF

HERS / ERI
Target Index

Tropical Path

IECC
Compliance

**ENERGY EFFICIENCY
FOUNDATION**

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	43	59	89	119
3.	Chapter 7	Energy Efficiency	30	60	80	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

THE NGBS GREEN PROMISE

HOME | THE NGBS GREEN PR



A BETTER PLACE TO CALL HOME

With an NGBS Green Certified home, “going green” has never been easier, or more affordable. When you see our mark, you feel confident knowing that your home meets the National Green Building Standard ICC-700 (NGBS). It’s more than a mark, it’s a commitment to bettering our planet and improving your life.

3



100% third-party inspected and verified by Verifiers who are NGBS Green qualified, trained, tested, and accredited

3RD PARTY GREEN CERTIFICATION

All of our homes are certified to the
National Green Building Standard (NGBS)
Silver level or higher.



4





INDOOR AIR QUALITY

Breathe easy knowing Urban NW uses low off gassing products, protecting your family's health.





ADVANCED THERMAL ENVELOPE

Cool summers and warm winters with our Tyvek home wrap, superior air sealing and BIB insulation.



5

Barriers to Certified Green Housing (Real or Perceived)

- Additional Cost
- Inflexibility of rating system
- Increased time
- Complexity
- Need for an outside consultant
- Difficulty finding products
- Appraisal valuations
- More expert labor and installations
- Additional costs don't align with homebuyer values
- Fear of failure



NGBS Project Type	Certified	In Process
Single-Family Homes (new & remodeled) *	15,997	5,496
Multifamily Buildings (new)	4,355	2,618
Unit count Multifamily Buildings (new) *	169,953	127,881
Multifamily Buildings (remodeled)	475	364
Unit count Multifamily Buildings (remodeled) *	5,477	6,289
Land Developments	27	8
Lots within NGBS Land Developments	1,683	24,501



The Urban NW Homes Experience

- WHY we went 100% green certified
- HOW we did it
- WHAT we learned

2022

A red target with a white arrow hitting the bullseye. The target consists of four concentric red circles. A white arrow with a black outline is positioned diagonally, pointing towards the center bullseye. The entire graphic is set against a solid black background.

Expand How To Define Residential

- Boarding House
- Congregate Living Facilities, Group Homes
- Hotels, Motels (transient & non-transient)
- Apartment Houses
- Convents, monasteries
- Dorms, fraternities, sororities
- Assisted Living Facilities
- Alcohol and drug centers



Include Non-Residential Portion of Mixed-Use Buildings

Expanded scope to apply to design, construction, alteration, enlargement, and renovation of

- 1) all residential buildings,
- 2) residential portions of mixed-use buildings, or
- 3) *mixed-use buildings where the residential portion is greater than 50 percent of the gross floor area.*



Provide Core and Shell Certification Option

- Exterior air barrier, insulation, air sealing, and fenestration requirements
- Must be verified at time of certification



Provide Full Mixed-use Building Certification Option

- Residential portion must comply with NGBS Chapters 5-10
- Chapter 13 practices for non-residential space are mandatory
- Alternative compliance path for non-residential space is IgCC





The Need for a Simpler Path

- Production Builders with dozens of models and unlimited combinations of feature variations
- Builders who purchase finished lots
- Smaller builders with fewer resources and time to navigate a complex process
- Increasing interrelatedness of products and complexity of building systems

Make it Simpler (Not Less Rigorous) for SF Homes

- Fewer choices, all mandatory
- Applies to single-family homes, townhomes, and duplexes
- Compliance earns “Certified”
- Focus on most impactful green measures
 - Energy efficiency
 - Water efficiency
 - Moisture and mold management
 - Indoor environmental quality
- Efficiency level = Silver level



General Chapter 12 Principles

- Most NGBS mandatory practices from Chapters 5 – 10 included
 - General code baseline is 2018 IECC and IRC, higher code than most states
 - No exemptions for mandatory practices
- Focus on most impactful green measures
 - Energy efficiency
 - Water efficiency
 - Moisture and mold management
 - Indoor environmental quality
- Energy efficiency requirements above Bronze certification level
- Every homes must be third-party verified which increases compliance and quality

Streamlined Path Myths

- Compliance requires improvements above 2018 IECC baseline and Bronze EE level
- Verification ensures compliance
- Removing barriers to third-party green certification doesn't lessen positive environmental impacts



Energy Compliance

- NGBS prohibits sampling for EE measures; NGBS Green prohibits sampling for rest
- Blower door and duct test required
- Grade I insulation per NGBS chart (NOT RESNET)
- 95% lighting must be high-efficacy hardwired or high-efficiency bulbs
- Performance Path
 - energy modeling showing 7.5% performance above 2018 IECC, **OR**
 - ERI Target Pathway 8 points less than EPA National ERI Target
- Prescriptive path = checklist of mandatory items



Water Compliance

- Performance or prescriptive compliance
- Performance Path = WRI of 70 or better
- Prescriptive path = checklist of mandatory items
 - Lavatory faucets
 - Toilets
 - Irrigation





Water Performance Path

- WRI (Water Rating Index) has 0 - 100 scale
- Like HERS, lower number is better
- Created by Green Builder Coalition, Build Green New Mexico (BGNM), Santa Fe Area Home Builders Association (SFAHBA), and Santa Fe Water Conservation Committee (SFWCC)
- Requires trained Verifier to complete tool with indoor and outdoor water use sections
- Some outdoor water inputs pre-calculated based on expected evapotranspiration for project location
- Provides flexibility to builder for compliance

Water Rating Index

- Scope
 - New construction and remodeling
 - One- and two-family homes
 - Townhomes, not more than 3 stories in height
 - Multifamily- whole-building, or units if units have separate water meter
- 3 WRI Ratings available
 - Preliminary from plans
 - Final reports with field verification
 - Existing dwellings with field-verified existing conditions
- For certification must be field-verified building

Other Notable Chapter 12 Practices

- Floodplain development prohibited (unless elevated)
- Visible suspect fungal growth
- Whole-dwelling ventilation
- Bath and kitchen ventilation must be tested
- Radon system required (active or passive depending on Zone)
- Stripped-down version of homeowner's manual and training



Streamlined Path Process

Registration

- Batch registration
- Up to 30 homes can be registered on one spreadsheet

Inspection notifications

- Batch inspection notification
- Decision non-binding, can pull home(s) from batch as needed

Verification

- Homes must be inspected; no sampling
- Batch verification reports
- Same documentation requirements apply
- Higher QA procedures and desktop audits

Streamlined Path Process

Verification Review

- Before submission, all homes must be inspected
- EE testing values must be submitted
- Verifiers identified who inspected homes in batch


Invoicing

- Batch invoicing
- Payment in advance of certification not required

Certification

- Certificates sent in batch; one per home

NEW Streamlined Path Scoring Spreadsheet

 Home Innovation Research Labs		© Home Innovation Research Labs, Inc., 2019. All rights reserved.	
Overview (Design Phase)			
Builder Name:	Urban NW	Climate Zone:	
Physical Address of Home:	1718 Green Home Lane	4 Marine	
Community/Lot #:		Radon	
City:	Portland	2	
State:	Oregon		
County:	Multnomah		
Zip:	97283		
Local Energy Code:	2018 IECC		
Local Building Code:	2018 IRC		
Above grade plane finished floor area:	2016 s.f.	Calculate per ANSI Z765.	
Total conditioned floor area:	2016 s.f.		
Stories above grade:	2		
Foundation Type:	Slab on grade		
Type of Heating System (main system):			
Type of Heating System (system 2):			
Type of Heating System (system 3):			
Primary Heating Fuel:			
Heating Ducts:			

More Flexibility for Renovation

- Added prescriptive path for energy and water efficiency compliance
- Maintained performance path option
- Buildings must be occupied for min 5 years prior to NGBS registration
- Allows 3-year look-back for remodel activities provided there is documentation for baseline conditions



Renovation

- Mandatory practices, when relevant
- Energy & water improvements
- Optional green practices for additional points
- No minimum thresholds in each category
- Existing building attributes eligible for points






2020 NGBS Chapter 3 Green Remodeling

- Recent new construction not eligible - eligible projects need to have been occupied at least 5 years prior to NGBS registration
- Prescriptive Path added for energy and water compliance
- Energy and water performance path remains
- 3-year Look-Back
 - Where building can demonstrate through documentation that remodel activities started prior to registration, energy and water baseline shall be calculated based on data and building systems that existed in the building up to 3 years prior



Home Innovation
NGBS GREEN CERTIFIED™

FOR BUILDERS

 GET UPDATES



FIND A HOME

THE NGBS GREEN PROMISE

CONTACT US

FIND A BETTER PLACE TO CALL HOME

A SMARTER INVESTMENT. A HEALTHIER HOME. A HAPPIER YOU.

BUY

RENT

REMODEL

