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Next Step Home Builder Focus Groups

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Executive Summary

On behalf of Northwest utilities, the Northwest Energy Efficiency Alliance (NEEA) launched its Next Step Home (NSH) pilot program to advance the adoption of energy-efficient building practices and technologies in residential new construction of single-family homes. NEEA is working with builders throughout the region to build to a higher performance level to evaluate costs, challenges, building techniques, and home performance. The goal is to identify best practices and advanced technologies that can be adopted into building codes over the next three to four code cycles. NEEA is concurrently working to encourage builders to incorporate high performance features into their new projects to accelerate adoption of advanced energy efficient building practices and technologies and to facilitate the transition to future energy code advancements.

To support the NSH Initiative, NEEA commissioned Curtis Research Associates to conduct qualitative research with builders of single-family homes. The research had a primary objective of developing a better understanding of the motivations and obstacles to building more energy-efficient homes. The insights from this research will be used by NEEA to develop a builder value proposition, and to determine the types of support necessary for encouraging builders to incorporate advanced building techniques into their projects.

The research comprised three focus groups conducted in Portland, Seattle, and Spokane with a total of twenty builders. Participants included custom, speculative (spec), and production builders, whose companies varied in size from small outfits building one or two homes per year to large-scale operations that construct hundreds of homes each year. Builders spanned the range from those whose companies construct homes that are energy code-compliant, to those who build slightly above energy code requirements, to those who build ultra-energy-efficient homes. Overall, the majority of builders claimed to be building homes that surpass energy codes.

Key Findings

Some builders make a deliberate decision at the outset of a project to exceed energy codes; more commonly, energy efficiency decisions are a function of a home's target price and buyer expectations. Among the motivations cited by builders for constructing homes that exceed energy codes, some use it as a marketing tactic to differentiate their homes from other new homes on the market. Others have a strong personal ethic toward energy conservation that drives them to build more energy-efficiently. Sometimes, the impetus to build a more energy-efficient home comes at the request of the buyer. Other frequently mentioned motivations include building a better-quality home and buyer comfort, both of which builders stated are important for achieving buyer satisfaction. However, builders also indicated, based on their experiences, that buyers are often unaware of—and uninterested in—the energy efficiency components that impact quality and comfort.

Builders identified a number of barriers to building homes that are more energy efficient than codes require, including higher building costs. Builders also cited a lack of buyer awareness or appreciation for enhanced energy efficiency as a significant obstacle. Compounding buyers' lack of awareness, builders faulted real estate agents' for failing to understand and/or promote energy efficient features. Builders repeatedly emphasized that buyers are typically more motivated by

finishes and amenities than by energy performance, and that realtors tend to focus on the same. Builders also asserted that most buyers consider all new homes to be sufficiently energy efficient due to today's more stringent building codes. Builders try to address the education gap of buyers and realtors by providing information sheets detailing energy efficient products and features, and, in some cases, being on hand during open houses to talk with potential buyers.

Builders also cited real estate appraisers' failure to assess higher values for homes that are more energy efficient as another barrier. Some builders noted that if appraisers will not assess higher values for homes with better energy efficiency, they see little reason to bother constructing them.

A small number of participating builders obtain green or energy-efficient certifications, such as Northwest ENERGY STAR Homes (NWESH), Leadership in Energy and Environmental Design (LEED), and Passive House Institute, for some or all of their homes. Spec and production builders typically opt to obtain certification for market differentiation, whereas custom builders do so at the request of the buyer. Those contracted to build affordable housing obtain certification based upon the requirements of the hiring organization.

A few builders with a history of certifying homes revealed that they had recently stopped obtaining certifications, primarily due to the time and verification costs involved. Initially, certification provided these builders a means to demonstrate that their building practices met the standards for certification; now, these builders continue to build to the certification standard, but skip the certification and verification process.

A small number of builders indicated that they had occasionally experimented with having homes certified in the past, but had not found it advantageous, either as a market differentiator or on a cost-benefit basis.

The only builders in the focus groups who currently hire raters and verifiers to validate their homes' energy performance are the builders required to do so for certifications. Other builders expressed no interest in expending the time or expense for verification. A few builders, however, occasionally use a rater or verifier to provide training, which they consider a useful service for better understanding the building sciences.

The role and impact of incentives varied among builders. Some rely heavily on government and utility incentives to construct more energy-efficient homes, especially those who obtain certifications. For these builders, incentives are important for offsetting the added expense and effort of building to a higher efficiency standard. The exception is builders of affordable housing, who are contractually obligated to obtain certification

On the other hand, some builders claimed to be minimally motivated by incentives because they do not adequately cover the costs of energy-efficient upgrades, and buyers are unwilling to make up the difference. Builders also cited the time and paperwork required to submit incentive applications as a deterrent. Nonetheless, some builders indicated that the availability of more lucrative and easier to obtain incentives would motivate them to build more energy-efficiently.

Overall, builders conveyed satisfaction with their sales and marketing efforts. Most did not feel the need to make any changes to their tactics given the strength of the current housing market.

Builders offered few insights into current or expected building trends for increasing energy efficiency. However, some builders foresee a growing demand for highly energy-efficient homes as more millennial-generation buyers enter the housing market. Builders viewed millennials as more socially conscious about energy and energy performance than are baby boomers.

Overall, builders supported the Next Step Home (NSH) building specifications, which most considered to be reasonable. Builders also appreciated that the specifications provide flexibility to pick a path that works best for a given project rather than being required to meet a strict set of criteria.

Builders raised several concerns about the NSH specifications, including higher building costs. Builders working at the lower end of the housing market voiced the most trepidation about the financial impacts of the specifications. Builders also expressed concern about meeting the window specification due to the cost and limited availability of U0.25 windows. The ultra-tight shell specification also raised significant unease among builders, who feared that many in the industry lack the knowledge to implement it without creating problems with air movement.

To encourage builders to incorporate NSH specifications, participants stressed the need to create demand by educating buyers about the value of advanced energy efficiency products and building techniques. They also emphasized the need to provide builders and tradesmen with training on how to correctly implement advanced building techniques. Additionally, builders considered it important to get manufacturers on board with the new specifications so they can work toward improving product efficiencies and driving down costs. Finally, builders considered it important to offer incentives to help offset the added costs of building to the NSH standards.

Recommendations

Curtis Research Associates offers the following recommendations to support the NSH Initiative:

- The research points to the need to pursue multiple avenues to support builders' adoption of advanced building practices. This includes consumer marketing and communications to increase awareness and promote the value of highly energy-efficient homes, thereby stimulating demand among home buyers. It is recommended that communications focus on promoting the superior comfort and quality of advanced energy efficiency, with low energy bills as an added bonus.
- Develop a builder value proposition focused on comfort and quality, with the goal of creating a builder mindset in which advanced energy efficiency is synonymous with superior comfort and quality. Focusing consumer messaging and the builder value proposition on the same attributes will serve to better align the two ends of the market.
- Redouble efforts to educate realtors about energy-efficient products and building techniques. Leveraging realtor knowledge and awareness will serve as an additional means of promoting energy efficiency among homebuyers.
- Simultaneously, work to advance the training of real estate appraisers regarding high-efficiency products and advanced building techniques. If appraisers do not assess higher

values for homes that incorporate energy-efficient features, few builders will move to embrace them.

- To help offset the costs—and perceived builder risk—of building to the NSH performance target, offering builder incentives will be important. Ideally, incentives should come through local utilities, and be designed to make it easy for builders to participate.
- To ensure correct implementation of advanced building techniques and technologies, work to increase training and education opportunities for builders and tradesmen. To appeal to younger tradesmen, consider developing some of the training in the form of a video game.

1. Introduction

This report describes the findings of a focus group project conducted for the Northwest Energy Efficiency Alliance's (NEEA's) Next Step Home (NSH) Initiative by Curtis Research Associates to identify addressable barriers and opportunities for encouraging builders of single-family homes to build more energy-efficiently.

1.1. Background

The Northwest Energy Efficiency Alliance launched the Next Step Home Initiative to advance energy efficient building practices and technologies for single-family homes. Over three phases of a market test strategy, NEEA has partnered with builders throughout the region to build Next Step Homes. The market tests have provided NEEA the opportunity to evaluate costs, challenges, best practices, and the actual performance of homes built to NSH performance targets. The market tests have also identified market barriers.

The goal of the NSH market tests is to identify and develop best practices and advanced technologies that can be adopted into building codes over the next three or four code cycles, resulting in energy savings. NEEA will build off of the program infrastructure and relationships developed through the Northwest ENERGY STAR Homes program in order to continue supporting energy-efficient home building. The Next Step Home performance target is designed to achieve 30% savings above current state energy codes.

NEEA is also working to develop a standard protocol to better assess the savings associated with newly constructed homes. Establishing a standard protocol will create consistency in home energy ratings across the Northwest that would lead to utility incentive programs and validated energy savings.

In conjunction with these efforts, NEEA is working to pave the way for future energy code advancement by encouraging builders to achieve Next Step Home performance targets through a various mix of advanced building practices and technologies.

1.2. Research Objectives

To gain insights into how NEEA might best support and facilitate builders' adoption of advanced building practices, NEEA commissioned Curtis Research Associates to conduct qualitative research with builders of single-family homes. The key objectives of the research included:

- Identifying builders' motivations for constructing more energy-efficient homes, which will inform the development of a builder value proposition
- Determining builder needs regarding marketing efforts and/or future marketing support
- Understanding if and how builders use local incentives to build higher efficiency homes
- Identifying current and anticipated building trends for higher efficiency homes in the region

Additional topics investigated as part of the research included:

- Exploring the barriers to building higher energy efficiency homes
- Learning about the sales and marketing efforts builders are currently using to sell homes
- Obtaining builders' feedback regarding the NSH performance targets

2. Methodology

The research comprised three focus groups, one each in Portland, Seattle and Spokane. Curtis Research Associates oversaw recruitment of builders to participate in the research from a sample of Northwest builders that have had some contact with the NWESH program since its inception in 2004. Information about the sample is included in Appendix A. In support of the recruitment effort, NEEA sent an email to all residential new construction builders in the sample, alerting them to the research and requesting their assistance should they be contacted.

The focus groups were designed to include a cross-section of single-family home builders. Requirements stipulated that participants be the primary decision-maker for their organizations for at least two of five key business activities, such as strategy and finances, building sciences, and sales and marketing. Appendix B contains the full list of recruitment criteria and the recruitment questionnaire.

A total of twenty builders took part in the study, for which they received \$150 as an honorarium. The table below lists the number of participants by city.

Table 1. Participants by City

Total	Portland	Seattle	Spokane
20	5	7	8

3. Findings

This section of the report summarizes key findings from the research. The report generally follows the flow of the focus group discussion guide (see Appendix C). Quotes from research participants are included to illustrate key points and to convey the tone and tenor of builders' feedback. Each quote is followed by a designation indicating from which city the quote originated.

3.1. Research Participants

Builders ranged from small-scale outfits building one or two homes per year to large-scale operations that construct hundreds of homes in a year, with nearly half being mid-sized builders that construct seven to thirty homes per year. Some specialize in custom homes—a one-of-a-kind home that is designed for a specific client and for a particular location, while others build speculative (spec) homes—a house that is built before it has a buyer. Some builders construct both spec and custom homes, depending on the opportunities available to them. Participants also included several production builders. These are larger-volume builders that construct multiple homes at once, typically as developments or communities.

Builders varied with regard to the segment of the housing market they target. Participants included builders of affordable housing, entry-level homes, mid-level homes, upper-end homes, and a few very high-end builders.

Half of the research participants own or co-own their construction businesses. Other participants' job titles included President, Vice President, Project Manager, Purchasing Manager, Program Director and Office Manager. Ninety percent of participants have decision-making responsibility for four or all five of the key business activities identified in the recruitment questionnaire.

Prior to the moderator introducing questions specific to energy efficiency, about thirty percent of participants described their work as including an emphasis on energy-efficient homes, including three in Seattle, two in Portland and one in Spokane. Two builders specialize in green construction with an emphasis on passive¹ or net-zero² ultra-low-energy-consuming residences. Three mentioned building certified homes, including to standards such as Leadership in Energy and Environmental Design (LEED), Earth Advantage, and/or NWESH. One builder described his firm's emphasis on quality as encompassing high-performance energy systems, though not to a specific certification standard.

3.2. Sales and Marketing

Builders' sales and marketing efforts generally varied depending on whether they build custom, spec, or production homes. Marketing efforts also varied with the size of operation; the larger the operation, the more sophisticated the marketing.

¹ According to "Passive house," Wikipedia, The Free Encyclopedia, the term passive house refers to a rigorous, voluntary standard for energy efficiency in a building, reducing its ecological footprint. It results in ultra-low energy buildings that require little energy for space heating or cooling.

² The US Department of Energy defines a net-zero home as one that uses sixty to seventy percent less energy than a conventional home, with the balance of its energy needs supplied by renewable technologies.

Custom builders typically rely on word-of-mouth referrals to generate projects. A few of the larger custom builders also mentioned advertising or occasionally participating in home shows to create interest and awareness. Some have also developed websites that have proved successful at generating new business leads.

“My customers come to me. I do all word-of-mouth marketing.”(Seattle)

“A lot of my business comes from architects. And I have a pretty strong website. We generate a lot of leads and a lot of interest out of that website.”(Spokane)

Speculative builders’ sales and marketing efforts tend to be basic, including listing homes with a Multiple Listing Service (MLS) and relying on real estate agents to list and show properties. Some also utilize the Internet as a marketing tool, generating buyer interest through their own websites and/or by listing homes on real estate websites such as Zillow and Redfin. Some builders, or their realtors, also stage homes prior to holding open houses.

“I have a real-estate agent I've worked with for most of the twenty-three years I've been building. Pretty much it's 'get it into MLS' if it's not already pre-sold.... I just basically get it listed. I'm not overly creative that way or aggressive that way.”(Portland)

“Probably forty-five percent of everything we sell is spec inventory and the Internet has been the driving factor. Ninety percent of people start their search online. Websites like Trillium and Zillow.”(Spokane)

A few spec builders revealed that their current sales and marketing efforts are minimal due to the robust housing market. Demand has been so strong—and prices appreciating so quickly—that one builder said he now waits until he finishes a home before setting a price and marketing it, something he would not have done previously. Another indicated that the only marketing he is doing is posting a “For Sale” sign.

“Generally, it consists of putting up a sign. ... So far, we've yet to finish a house before it gets sold.” (Portland)

“Right now, the market's pretty easy. You put a house on the market and it sells.”(Seattle)

Production builders described the most sophisticated sales and marketing operations. These included dedicated marketing personnel on staff, well-designed websites, marketing brochures, and in some cases, advertising. Advertising generally focuses on promoting the name of the company.

“We've got a website that has a really good reputation around here. ... Our marketing person is really good. ... We do everything. We do radio, website, newspaper. We've got a couple of TV ads. ... We get away with just saying the...name because around here that means quality. It's a well-known house.” (Seattle)

Most participants rely on informal methods to keep abreast of housing trends. This includes getting input from realtors about the features and amenities of most interest to buyers, conversations with potential buyers, informal discussions with other contractors and tradesmen, and online forums to learn what is happening in the housing market. A few also mentioned attending trade shows to stay informed about new products and trends.

“I try to find out what the realtors believe is selling. I’ll ask about what amenities they think ought to go in [the houses I build].” (Portland)

“We have an open house and have people come through and I listen to what they say and what they like. I try to take that in and design my next projects on that feedback.” (Portland)

Only one builder described using a data-driven approach to tracking trends in the market. By virtue of his involvement with various housing councils, he has access to a variety of market data. His company utilized that data to identify its target market niche, which includes singles and couples ages fifty and older.

“We focus from a macro level, the data, and then move into how to implement it. ... Fortunately, I sit on the Senior Housing Council for the Urban Land Institute. I also sit on the National Association of Home Builders 50+ Housing Council. A lot of data is presented to us on an annual basis.”(Spokane)

When asked if they would do anything differently if they had additional time or resources to devote to sales and marketing, most builders said no. Given current market conditions, most did not feel the need to make any changes. Only one participant indicated that he would like better access to data to understand trends and market demand within unique niches.

“In this market? Currently no. We just don’t need it right now. ... It’s definitely a sellers’ market out there right now.” (Portland)

“Right now things are selling fast. Five years ago you couldn’t give stuff away.” (Portland)

3.3. Meeting or Exceeding Energy Codes

Research participants included builders who typically build homes that are energy code-compliant and those who build homes that exceed energy codes. The majority of builders indicated that their homes exceed code. This was especially true in Spokane, where all but one builder indicated that the homes they build exceed energy codes.

“We almost always try to push it above code.”(Spokane)

Builders that exceed codes spanned the range from those that construct homes just a little above their state’s energy codes to those building homes substantially more energy efficient than required. Some builders make a deliberate decision at the outset to build a home to exceed energy codes. More commonly, however, energy efficiency decisions are more driven by a

home's target price and builders' perceptions of the buyer's or intended buyer's expectations than by a conscious decision to meet or exceed energy codes. One builder described it as a balancing act between the added cost of enhanced energy efficiency and the home's selling price.

"It's a balancing act. You've got to figure out how much you can put in and how much you're going to get out. [Buyers] want everything for the cheapest price. So you've got to exceed yourself and go above the code and do a little extra, but to what extent on a speculative basis?"(Seattle)

Interestingly, while Spokane participants included the highest percentage of builders claiming to build homes that exceed energy codes, they typically described area homebuyers as uninformed and unconcerned about energy efficiency. Seattle builders, on the other hand, conveyed that Seattle area homebuyers are generally energy-conscious and want to do the right thing by using less energy.

"I think that what we see [here in Spokane] is we have clients come in that ninety-nine percent of them are ignorant. ... They don't understand what [higher energy efficiency] means. When you say 'comfort' they think 'I'll just buy carpet.'"(Spokane)

"There is a certain amount of [energy efficiency] that is expected. I think especially in Washington, we're a very liberal state. People [in Seattle] want to make the conscious effort to do the right thing." (Seattle)

3.3.1. Motivations for Exceeding Code

Among the reasons for building homes that exceed energy codes, some builders mentioned market differentiation as a motivating factor. Whether a home exceeds energy codes by a little or a lot, some builders use more energy-efficient products or building techniques as a marketing tactic.

"It's a marketing thing. We came up with this whole little marketing—we've got brochures that feature our houses. They tell everything that we're doing in the house that is above code. 'Your house will be more comfortable and more energy efficient.'"(Seattle)

"I use it more as a marketing thing than as an energy thing. ... On every home I build I use the Reid Steel Truss, as an example, just as a marketing thing. I use windows that are below .30 as standard. ... We can market it as an above-code home even though it's just a tiny bit above code."(Portland)

For some builders, a commitment to quality motivates them to build more energy-efficient homes. A number of participants explained that they have built their reputations on constructing high-quality homes. Their clients expect it of them. Exceeding energy codes is one component of achieving quality; it is part and parcel of how they build homes. Many further noted that buyers are often not aware of the many behind-the-scenes details that go into achieving higher energy efficiency or how those details impact the overall quality of the home.

“The quality aspect of building...just starting out from the framing components to probably paying more for things and going with the energy high-performance home systems. Ninety-eight percent furnaces and putting the ductwork with the heated envelopes. Insulation using closed cell foam in certain areas for the airflows that we have to meet now. ... A lot of things that the homeowner is not going to see nor will they even ask about.”(Seattle)

“We have this whole part about pleasing the customer and making sure the customer is going to be happy one year later and even five and ten years later. So we want to do the right thing for that reason.”(Seattle)

Builders working at the higher end of the market most commonly mentioned the interconnection between quality and energy efficiency; nonetheless, for some builders, commitment to quality means building the best-performing house they can at any given price point.

“Making sure that they’re going to perform at their best, that’s usually what I as a builder would do. If the budget is for code, then I’m like ‘We’re going to do the best we can.’ We’re going to seal the plate really well and make sure we check on the foam. If they can’t afford spray foam in the attic before they blow the attic, you seal around all the light fixtures in the seams with foam. ... We do the best we can with what we can.” (Spokane)

Builders also cited comfort as an important reason why they choose to build to a higher level of energy efficiency. Comfort is an important component of buyer satisfaction. Moreover, buyer satisfaction is good for business. Satisfied customers lead to more referrals and keep warranty calls down.

“We want every customer to say ‘I would recommend a [Company X] Home.’ ... We have a ninety-seven percent referral rate. We try to keep that there or higher so we're always focused around that. I think it's just one of the little things that you do. It's that you try to build a comfortable home.”(Seattle)

“I’ve learned over all these years I’ve been in business the things that make people comfortable and the things that create callbacks and the things that don’t bring callbacks. ... We do heat pumps in every house and things that we would do anyway.” (Spokane)

A builder of passive and net-zero homes described coming to the realization that comfort is as important—and sometimes more important—to buyers of his homes as is energy efficiency. Sometimes energy efficiency is the added bonus to the comfort and health benefits of his homes. Similarly, another builder said he regularly gets feedback from owners living in his homes who have come to appreciate a higher than expected level of comfort and air quality. He further noted that these benefits are hard to sell to homebuyers.

“I’ve come to realize some of the other advantages in the type of construction we’re doing in terms of health and comfort that you sell to people are at least as much, if not

more[important] than energy efficiency. It depends on the person, but I'd say for at least half of the buyers, energy efficiency is kind of a cherry on the top.”(Portland)

“The percentage of people that come back after they are in the home and say ‘Wow, I don't have any dust in my house and I breathe a lot better. The comfort is unbelievable....’ That stuff is hard to sell.”(Spokane)

Some builders conveyed that their strong personal ethic toward energy conservation is a motivating factor for energy efficient building. Builders committed to passive or net-zero construction articulated this ethic most intensely; yet, it was also shared by others, including some builders of lower-priced homes who make small, incremental changes to improve energy efficiency because they believe it is the right thing to do.

“I'm hoping that the homes that we're building are going to be around in fifty or seventy-five years. I try to think about how I think a home should be performing that's being built now that's going to be around for that long. To me it doesn't make sense to build something that uses a lot of energy.”(Portland)

“I think it's to do the right thing, is actually the main reason.”(Seattle)

In some cases, the impetus to build a more energy-efficient home comes from the client. Several builders mentioned that they have had clients who have requested that they incorporate specific energy efficiency features or build to a particular certification standard, such as LEED, NWESH or Earth Advantage. This includes builders of affordable housing that construct homes to the specifications required by the non-profits that hire them.

“I've done some very energy-efficient homes for clients, but they were for specific needs—solar, increased insulation values, two-by-eight walls—I've done some of that but it was all client-driven. I've done ENERGY STAR Homes; I've done Earth Advantage.”(Portland)

“Everything we do is ENERGY STAR or above. ... A lot of that is mandated by some of the money that's in the [affordable housing] project and we have to build to that.”(Spokane)

3.3.2. Barriers to Higher Energy Efficiency

Among the barriers to building more energy-efficiently, builders cited higher building costs as a major obstacle. Builders constructing homes for the entry or mid-level sectors of the market considered costs particularly problematic because those buyers have less discretionary income. Nonetheless, even builders catering to higher-end buyers say their customers often balk at the added costs associated with energy-efficient upgrades. Builders also said that some energy-efficient products simply do not pencil out on a cost-benefit basis.

“The entry-level buyer that is maybe a first-time homebuyer or maybe has bought only one or two homes, they don't have the discretionary income to put toward things like energy efficiency if they even knew maybe what that meant.” (Spokane)

“Energy efficiency when it doesn’t cost very much, our customers are interested in that. It’s the next steps that really separate the customers.”(Seattle)

Builders also identified buyers’ lack of awareness or appreciation for higher energy efficiency features as a significant barrier. Builders repeatedly asserted that buyers are typically much more concerned about a home’s aesthetics than they are about its energy performance. Finishes, high-end appliances, and square footage take precedence over energy efficiency upgrades. Participants posited that one reason for this is buyers’ perceptions that new homes are already sufficiently energy efficient due to strong building codes.

“Our customers come in and they rarely say ‘I want a really energy-efficient house.’ They come in and say ‘I want granite. I want a mud-set shower. I want a Wolf range.’” (Spokane)

“They’ll take granite counters over advanced framing any day.”(Seattle)

A few builders even questioned the value of investing in building more energy-efficiently given today’s higher energy codes.

“Back when the energy codes weren’t as severe as they are now, we could do things that were cost-effective to do. ... Now, in my view, it’s much more difficult to show the future buyer the advantages of the various energy upgrades.” (Portland)

Builders cited real estate agents’ failure to understand and/or promote energy efficient features as another obstacle contributing to buyers’ lack of regard for energy efficiency. This is particularly problematic for energy-efficient upgrades and building techniques that cannot be seen. Builders try to educate realtors and buyers by providing information sheets describing energy-efficient products and features, but they do not know whether real estate agents utilize them when showing the home to potential buyers.

“I use realtors and they’re all about the easy sale. ... You put it on the MLS and a realtor is going to come in and they’re going to show the house. They may not talk about the energy efficiency at all. ... Education to the buyer is critical.” (Portland)

“There are certain things you put behind the wall that nobody sees and the real estate agents don’t know how to sell and educate [the buyer]. [For example,] advanced framing. I can’t explain to a real estate agent what advanced framing is unless she comes by my house and I can show her every cavity and why we’re putting the furnaces where we’re putting them and why they’re not in the garage and they’re in the attic.” (Seattle)

Some builders felt strongly that if buyers were more knowledgeable about energy efficiency, they would be more interested in buying energy-efficient homes. Some builders try to bridge the education gap by being on-site during open houses to answer buyers’ questions.

“One thing is the education for the buyer. I think the buyer would tend to want to do some of these things if they understood them more.” (Portland)

“I’ll go on-site and I’ll stay there at an open house and try to answer questions for people that walk through the door.”(Seattle)

Builders also expressed frustration with the appraisal process. They repeatedly singled out real estate appraisers’ failures to assess higher values for more energy-efficient homes as a significant barrier. Appraisers typically do not factor in the added costs of building more energy-efficiently.

“The appraisal process is terribly skewed. They look at nothing but square footage.” (Spokane)

“The last custom home I did was a pretty energy-efficient home. I had to meet the appraiser on the job and give him a list of everything we put in the home with associated costs, and he still came in with a below-appraisal. It was less than what I was selling the house for.” (Portland)

One participant cited a lack of quality on the part of US manufacturers for some high-efficiency products—triple glazed windows, for example—as another challenge to building more energy-efficient homes.

“There are some issues with product availability. A lot of times I’d much prefer not to go to Europe to get [triple glazed] windows. ... There is basically one US option and it’s terrible. It’s a terrible product. ... There is a lot of potential for using more local products that work in better systems. But it’s a chicken-and-the-egg issue that manufacturers don’t think there’s a market. If there’s no market, there’s no product. But there’s a cost.” (Portland)

3.4. Certification Programs

A small number of builders indicated that they obtain certification for some or all of the homes they construct. Builders most commonly mentioned receiving NWESH certification. Other certifications included LEED, Passive House Institute, Earth Advantage, and Built Green.

Builders opt for home certification for a variety of reasons. Spec and production builders typically obtain certification for market differentiation. Custom builders generally do so at the request of the buyer; in the case of one builder, the neighborhood in which his company was working required it. Those contracted to build affordable housing obtain certification based upon the requirements of the hiring nonprofit organization.

“If they buy it for \$250,000, they get a LEED certification of Platinum and they get an ENERGY STAR certification, period. In every home. ... [We do it] just to differentiate and to go down the path of durable construction.” (Spokane)

“We are a one hundred percent ENERGY STAR builder. Everything we build is ENERGY STAR-related. It differentiated us from everybody else pretty much. We’ve been doing it for ten years. That’s how we try to communicate quality.” (Seattle)

A few participants pointed out that they have had homes certified in the past, but recently stopped doing so primarily due to the time and verification costs involved. This included two Seattle production builders who formerly obtained NWESH certifications for their homes and a Portland builder who had previously certified homes with the Passive House Institute. These builders indicated that certification initially provided a means to demonstrate that their building practices met the standard for certification. Now they continue to build to the certification standard, but do not bother getting the certification, nor do they have the homes verified by an outside entity.

“In my business, \$1,200 [extra for NWESH certification] is a lot. We talk about \$50 being a lot. ... [Barriers are] cost. Verifiers. You've got to deal with that if you want to go the ENERGY STAR route. But you don't have to go the ENERGY STAR route. That was the decision that our company made. We were going to build to the ENERGY STAR levels and maybe beyond, but we didn't want to do it because it was ENERGY STAR. We wanted to do it because we were [Company X]. ... We didn't want to have to worry about anybody telling us what it was. ... We just stopped doing the certification part of it. We didn't stop doing anything else.” (Seattle)

“Now [instead of NWESH certification] it is purely what we’ve chosen to do to make the house more marketable and more efficient. It’s this ‘Living Wise’ thing. ... Nobody verifies it and blesses it. It’s what we do as extra.” (Seattle)

A few other builders indicated that they have occasionally experimented with constructing homes that have been certified, including to NWESH standards; however, they felt that it did not pay off, either from a marketing perspective or from a cost-benefit standpoint. Moreover, they do not believe that buyers value certifications.

“Every time I’ve done [a NWESH] it’s been a matter of experimentation to see if I sell a home faster or if I get a higher dollar amount for the home. ... My own personal experience is that I haven’t found that many clients that have been overly sensitive to the energy-efficient field at all. ... If I’m [building a] spec home, I don’t tend to do it.” (Portland)

“I’ve done the ENERGY STAR home, and quite frankly it didn’t make any difference in the marketing. We definitely marketed that, but it seemed like people that were interested in the home, it was really more about the price than it was about how the house was performing.” (Spokane)

Appraisers’ frequent failure to assess higher values for certified homes serves as another deterrent to builders in seeking certification.

“In the market right now appraisals are a problem, too. We're fighting appraisals. Let's just say that I build a spec house and I do an ENERGY STAR house and it cost \$3,000 more. The appraiser is not going to give me anything for that. ... You've got to sell it for whatever it's appraised at. ... They don't look at cost.” (Spokane)

“Even on the high end, you don't get a dime more from your appraiser because you're a four-star or a five-star [green home].” (Seattle)

Some builders expressed frustration with the proliferation of certification programs and the challenge of keeping up with changing certification standards.

“There are a lot of different programs and they're all sort of confusing.” (Seattle)

“One of the problems is that the standards keep changing, so no one knows.” (Portland)

3.5. Raters, Verifiers, and Energy Ratings

Builders in the focus groups are not hiring— or interested in hiring— raters and verifiers to evaluate homes and verify energy efficiency gains unless they are required to do so for certification. Many Spokane builders flatly stated that they are “not going to do that.”

“I'm using a rater only because I'm [building] Passive. It's the first time I've ever used a rater.” (Spokane)

“We have to use an ENERGY STAR rater-certifier. ... I wouldn't independently do it.” (Spokane)

A few builders occasionally use the services of a rater, verifier, or other building sciences expert for training purposes, which they considered a valuable resource. One expounded on the benefit of having an expert evaluate the home as a whole package. He noted that implementing piecemeal energy efficiency changes may not yield the anticipated improvements or may cause unintended consequences.

“I use my Built Green verifier to help me pick up tips on air sealing and pick up tips in energy efficiency. He's a great resource person.” (Seattle)

“We brought in somebody specifically that was a building sciences type of guy who looked at the whole package. You get inundated whether it's magazines or whatever of all the new products. But until you see how the whole package comes together explained by someone that's an expert on that, you're not really benefiting yourself sometimes by pulling little things. You might be helping a little bit, but sometimes it backfires on you because we've tested things.” (Spokane)

Seattle participants expressed interest in an energy rating system for homes analogous to the miles-per-gallon rating system used for automobiles. They felt that an easy-to-understand rating system would spur demand for more energy-efficient homes.

“When we all go out and buy vehicles, we're thinking of how many miles per gallon we're getting out of this. When we have a like standard for houses with the energy consumption that we can compare to all of our houses, suddenly there'll be more demand for energy efficiency. Just a simple standard that everyone can understand. I just see a number on the door. ... People aren't thinking about the lifecycle costs. 'How much is this going to cost me over ten years or over twenty years?' ... So really educating people and coming up with a simplified system that everyone can understand right off the bat would make a huge difference.” (Seattle)

“It's very, very hard to have that conversation with somebody. 'This house is going to cost you this much a month to heat at these degrees or to cool in an average year.' I don't understand why that is not right out there. 'This house costs \$200,000, plus here's your rating.’” (Seattle)

Some builders in both Seattle and Spokane familiar with the Home Energy Rating System³ (HERS) consider it a useful rating for home builders and a good resource for better understanding building sciences. Some also thought it beneficial because it can inform buyers about a home's energy costs.

“The HERS rating can also be a great resource for learning the building science, that sort of thing. There's a benefit in that.” (Spokane)

“The one thing that they[the NWESH program] have given us is a tool now that is doing all HERS ratings on our houses so we can tell the customer, 'You're going to save this much every month on this house.’” (Seattle)

Builders also noted drawbacks to the HERS, the biggest being the difficulty of understanding the HERS rating even for builders, let alone consumers. In addition, it lacks widespread recognition among either builders or consumers. One builder also indicated that his company lacked confidence in the accuracy of HERS, so it is removing information pertaining to HERS from its marketing materials.

“The HERS standard is a good standard. It's easy to understand once you understand what it is. It's easy to put it into dollars. But it's not understood. It doesn't have a big brand recognition with builders, much less with consumers. And it's not universally accepted. And it's a little bit of a project to come up with that.” (Seattle)

“It's nothing for the consumer. I've barely got my head wrapped around it and I've been to quite a bit of training on it.” (Seattle)

³ The HERS Index measures a home's energy efficiency. A certified Home Energy Rater assesses the energy efficiency of a home, assigning it a relative performance score. The lower the number, the more energy efficient the home.

Portland participants expressed similar reservations regarding the Energy Performance Score⁴ (EPS) used in Oregon. Builders questioned its accuracy and indicated that they had seen little in the way of consumer interest in the EPS.

“I’m more skeptical of the overall house ratings.... From what I understand, it’s based on models and they plug in all kinds of figures. I’m just skeptical that when they say the payback is five years or ten years, that that’s going to prove to be true. It may in fact be, but I’m still skeptical based on my twenty years of building that it’s going to be true.” (Portland)

“I’m not participating in the whole performance score thing. I’ve found the customers are just not interested in that pretty much at all. I’ve done some houses with the performance scores. Most buyers do not bite on that. ... Most people aren’t even aware of it.” (Portland)

In Seattle, participants briefly responded to a question about their interest in co-branding with local utilities to market highly energy-efficient homes. Utility co-branding intrigued several participants, who indicated that it had the potential of conveying credibility about a home’s energy efficiency.

“I think that would give you credibility as far as energy efficiency, that they give you a thumbs-up on it.” (Seattle)

“I think that might say something if the utility was willing to put their name next to yours on a house, because they obviously want less energy being used.” (Seattle)

3.6. Incentives

The importance of incentives varied widely among builders. Some builders rely heavily on incentives to construct more energy-efficient homes, particularly those that obtain certifications. These included small-volume builders of ultra-energy-efficient homes, spec builders, and production builders. They indicated that federal, state, and utility incentives help to offset the higher costs and effort required to construct and certify homes to a given standard.

“Because we go ENERGY STAR, we push all the utility companies. So, Avista right now I think is doing a \$1,600-dollar rebate to me if I do an ENERGY STAR home. Kootenai Electric is a co-op in our area. We were getting \$1,800. ... Also, when we run our HERS ratings and run the analysis with Washington State on the \$2,000 filing, we get \$2,000 of a house tax credit right on it, so twenty or thirty homes at 2,000 bucks and that comes right off the top. ... If I get a \$2,000 check from Avista or Kootenai Electric, I’m putting it in my pocket because we’re the ones doing the brain damage that brought this thing together. So, I can get \$4,000 a house. Now, remember I have to spend money to get a surcharge.” (Spokane)

⁴ EPS is an energy performance score that rates the efficiency of a home and measures it against similar-sized homes in Oregon. The lower the score, the more efficient the home.

“For us, it’s huge. At 400 homes a year, that pays for a person to do [the paperwork] and a whole lot more. We are all about getting our base cost per house down.” (Seattle)

One Seattle NWESH builder stressed the need for increased incentives with the next code cycle. As codes become more stringent, the cost to achieve the NWESH certification gets more expensive. Without added incentives to help defray the extra costs, this builder predicted that his company will no longer remain with the NWESH program.

“They need to come up with more incentives. I mean we’ve been committed to [building NWESH] for going on twelve years now. But this next code cycle? We probably won’t be anymore. ...As the efficiency keeps going up, the cost to get that seventeen percent is going up! ... If [Puget Sound Energy] can’t figure out how ENERGY STAR can create more demand for energy efficiency or come up with some rebates to pay for some of this stuff, I don’t think we’re going to stick with it, unfortunately.” (Seattle)

Builders of affordable housing take advantage of incentives for certifying homes as green or energy efficient, but indicated that they have little or no impact on the decision to obtain certification. As mentioned previously, that decision is determined by the hiring entity. As such, one builder described the incentives they receive as “just like the cherry on top.”

“We take advantage of probably everything that’s there and it has a minuscule effect.... You can’t ignore it. You do use it. It’s not part of a big decision.” (Portland)

“It’s all really buyer-driven, so it is a coincidence, really. ... It’s just like the cherry on the top.” (Portland)

Whether or not a builder obtains certifications, they sometimes take advantage of available manufacturer incentives to install more highly-energy efficient products such as windows, heating and/or cooling systems, and tankless water heaters. One small custom builder explained that he uses such rebates to encourage customers to upgrade to more energy-efficient products.

“I do [take advantage of incentives] on occasion. I’ll get notices like they might be paying for a high-efficiency furnace or for the windows.” (Portland)

“Some of the heating systems, some of the heating companies, they offer rebates on certain products. If my heating company told me ‘There’s a rebate on this. You can have this unit and it’s going to be the same price after the rebate than the cheaper one,’ then everyone’s like ‘I’m all over that.’ Those are big.” (Spokane)

Some builders are minimally motivated by incentives because they say the incentives do not adequately compensate for the added costs of implementing energy-efficient upgrades. Furthermore, buyers are often unwilling to make up the difference. The time and paperwork required to submit incentive applications are other deterrents. In the words of one builder, “the paperwork is horrendous,” thus negating the value of rebates.

“So my experience on something like that would be we're putting in a more efficient window. [Because of an incentive] it cost half of what it may [normally] cost, but the buyers are not willing to pay the extra money for it. They don't distinguish that difference. Even though you educate them and even though you show them what it will do, you can't recoup that money, that additional cost, out of the house.” (Portland)

“For me to chase \$300, with the paperwork and energy and trying to do that, to me it's not worth it. It's just not worth the effort. We'll spend more money in manpower in trying to chase down that money because of the paperwork and bureaucracy to get an incentive.” (Seattle)

Participants indicated that keeping up with the availability of incentives can be challenging, given the array of organizations that offer them and the fact that incentives change when codes change.

“That's one of the problems... because the codes are always changing, so they're constantly changing the incentive programs.” (Portland)

Some builders indicated that they would be motivated to build more energy-efficiently if more incentives were available. Yet, builders cautioned that the incentives must be easy to redeem in order to encourage participation, and they must cover a sufficient portion of the added costs.

“If they came back with more incentives, there would definitely be more [energy efficient upgrades] done.” (Seattle)

“It has to be simple and easy to get the mainstream building community to participate.” (Portland)

On the other hand, additional incentives are not sufficient to motivate some builders toward energy efficiency. When Spokane builders working at the entry level of the market were asked what kind of incentives might motivate them to install more energy-efficient upgrades, they offered no suggestions. Instead, one builder replied that builders have no need to worry about energy efficiency because energy costs are low.

“We don't worry about those things. Energy costs and water costs, there's no reason for people to really push it.”(Spokane)

A few participants also noted that improved incentives will not be enough to motivate builders if appraisers do not recognize higher values for enhanced energy efficiency.

“Why go do it if the appraiser doesn't recognize it?” (Spokane)

3.7. Trends

Participants offered a few insights into current or expected building trends for increasing energy efficiency. One builder mentioned the recent introduction of super-efficient carbon dioxide heat pump water heaters in the US market. He also indicated that European and Canadian window

manufacturers are starting to offer high-efficiency options in the US, helping to make up for what he considered a deficiency of good windows.

“There are carbon dioxide heat pump water heaters coming out. It’s got a coefficient performance of three and a half percent.” (Portland)

A few builders mentioned that prices are coming down for some higher-performing insulation products, such as Blow-In-Blanket System (BIBS®) insulation and foam insulation, rendering the use of these products more feasible for builders.

In a longer-range trend, some builders anticipate a growing demand for energy-efficient homes as the millennial generation enters the housing market in greater numbers. Builders viewed millennials as more socially conscious about energy and energy performance than are baby boomers. One builder indicated that his company is working to develop smaller, more energy-efficient homes with millennial buyers in mind.

“I’m twenty-six years old. I read a lot of news, the ‘Green Building News’ and sustainable energy news. A lot of it is pointing at us millennials as being climate-conscious and wanting those energy-efficient homes. You get a smaller monthly bill, but I think it’s about doing good as well. Whereas somebody in their forties or fifties, making \$70,000 to \$150,000 a year, they might not care as much.” (Portland)

“One of the things we’re looking at is building smaller, providing smaller homes. ... We’re looking at more the millennial market, which is another big piece of it, rather than the boomers. ... [Later in the group] They are a lot more conscious about what’s going on with the planet and those kinds of things. It’s a little bit different market.” (Spokane)

In a related trend, one participant mentioned that his company is testing e-monitoring equipment in three homes, which he anticipates will appeal to millennial homebuyers and possibly others.

“We have e-monitors in three of our homes. I can pop it up on a laptop and you can see in the morning if the oven’s on and what’s happening. These kids like that stuff now because they’re so visual. They take that iPad and they’re spinning that screen. ... You can see some of that is going to come around. Is it going to be the masses? I don’t know. But it is coming.” (Spokane)

Builders utilize a variety of resources for keeping up with building trends occurring in higher energy efficiency homes, including:

- Periodicals
- National Association of Home Builders (NAHB)
- Home Builders Associations
- Builder trade shows
- Conferences and training classes
- Online forums
- Other builders

- Subcontractors
- Vendors

Builders expressed a need for additional education and training resources to keep up with changing technology and evolving building sciences. One participant pointed out that builders are the only construction professionals that are not required to complete continuing education. Builders are cognizant that without proper education and training, implementing new energy-efficient building techniques and technologies can result in unintended adverse consequences. For this reason, some builders are reticent to try new things. Resources for ongoing education and training would help mitigate such problems and encourage faster adoption of new technologies and practices.

“I think that one of the problems with our industry is there's not enough education that we builders en masse understand the new technology and what it really means. We're getting a tidbit of it that says ‘Oh, yeah. Let's go ahead and super-insulate that wall.’ But what they don't tell you is if you don't do this and this, you could have a real problem in that wall. To me, I think almost always it's a lack of education that leads to the problems, whether it's educating builders or educating consumers, between the two.”(Spokane)

“I see quality control as a key issue for all of us. ... There are a lot of mistakes made out in the field. There are a lot of guys that aren't trained as well as they should be or not doing as good of quality on a given day. I think there's just a need for all of us to be paying a lot more attention and really a need for people being trained on just the basic building science.” (Seattle)

3.8. Next Step Home Specifications

Participants provided feedback on the energy efficiency specifications included in the NSH pilot program, which allows builders to pick one of several paths to follow to achieve greater energy efficiency for a particular home. The NSH specifications include the following:

1. Advanced wall efficiency (insulation and windows); U0.035 in Climate Zone 1, U0.030 in Climate Zones 2 and 3
2. Ultra-tight shell (2.0 ACH₅₀) and subsequent ventilation implications (heat recovery ventilation (HRV))
3. Ducts inside the building shell (if applicable)
4. Mechanical system strategies
 - a. Gas furnace – 94% annual fuel utilization efficiency (AFUE)
 - b. Heat pump – 9.0 Heating Seasonal Performance Factor (HSPF), 12.0/11.5 energy efficiency ratio (EER)
 - c. Ductless heat pump – 3.0 coefficient of performance (COP)
5. Heat pump water heaters or natural gas with 0.81 efficiency
6. U0.25 windows

3.8.1. Feedback on Specifications

Overall, participants supported the NSH Initiative and considered the specifications to be reasonable. As one Portland builder said, “There is nothing on the list that...doesn't make

sense,” which reflected the view of most participants. Participants appreciated that the NSH specifications allow builders to pick a path that works best for a given house rather than being required to meet a strict set of criteria. As builders indicated, this is important because some of the specifications would be difficult to achieve with certain types of homes or conditions.

“Most of these are really good ideas.” (Spokane)

“We always like to have options because what’s the most cost-effective on a given house in a given climate is different, and different manufacturers and different builders as well.” (Seattle)

Builders are already implementing some or all of the specifications. Most commonly, builders claimed to be meeting or beating the mechanical system strategies and water heater specifications. A number of builders are also already putting ducts inside the building shell. Passive builders indicated that they are already incorporating all six steps into their construction practices.

“We’re already doing some of them like gas water heaters and gas furnaces, ninety-four percent. They’re ninety-five percent efficient now.” (Portland)

“We do the ducts inside the building shell, the furnace, water tanks.” (Seattle)

A primary concern associated with the specifications included higher building costs. Builders working at the entry level and lower end of the housing market were particularly concerned about the financial impact—both to themselves and their buyers—of incorporating the NSH specifications.

“Most of these things are going to add significant cost to the home.” (Portland)

“It’s tough. When you build a 1,400 square foot home and they want you to do double-wall construction that meets some code, you’re not going to be able to do it. The costs and everything involved would be just extremely difficult. Some of the stuff is easy. Some of it – at least from our standpoint, being more of a production builder and selling to the consumers we are – it’s not reasonable.” (Spokane)

The window and ultra-tight shell specifications raised the most trepidation among builders. Builders expressed concern about both the cost and availability of U0.25 windows. Some builders also worried about the expense of constructing an ultra-tight shell with two air changes, especially at the lower end of the market. Nevertheless, they expressed the bigger concern that many builders and tradesmen lack the knowledge to properly construct an ultra-tight shell without introducing air problems.

“For that entry-level buyer, it’s going to be very difficult to provide him with that shell when you’re doing single-wall construction. It’s virtually impossible to do that.” (Spokane)

“I think a super-tight shell, per my view, is loaded with many problems. Unless you do it right! Unless you do it right, you can screw it up real easy. A lot of builders would screw it up. It's happening all over. They're not getting the proper air movement in the house.” (Portland)

To help address cost concerns, builders indicated the importance of informing manufacturers of the specifications and encouraging them to work toward improving product efficiencies and driving down costs.

“I would want to make sure that change like this was done with a lot of cooperation with heat pump manufacturers, the hot water manufacturers, window manufacturers. I would want them to have known about this for three years prior and be developing how we're going to be able to build efficiently.” (Seattle)

A Spokane participant from Coeur d'Alene with experience building to the NSH specifications—he participated in the market test that NEEA has been conducting—spoke very favorably about the home. He described it as the equivalent of a Mercedes due to its engineering and air quality.

“We just built one for these guys for NEEA. I'm telling you, after being in it as the model a bunch of times, it's just—the air – fresh air system, you just know. You just feel like you sat down in a Mercedes. I'm not saying my house is a Mercedes, but you know that you just sat down in something that's engineered. It just feels that way.” (Spokane)

3.8.2. Builder Support

To facilitate adoption of the NSH specifications, participants suggested that NEEA provide builders with support in several areas. They advised spurring demand first and foremost by educating buyers about the value of energy-efficient features and technologies. Time and again, builders stressed that consumer demand for homes with NSH features, and their willingness to pay for them, is what will compel them to build them.

“It's educating the buyers because they're the ones that are going to say, they're the ones that are going to tell us what we want to build.” (Spokane)

“I think the education needs to happen for the general public. ... The people who are going to live in these houses, the people that are going to buy this energy, they're the ones that are going to make us build what we build. So put the knowledge in their hands and we'll build it.” (Seattle)

The builders also frequently recommended providing builder and tradesmen training for facilitating builders' transitions to the NSH specifications. One suggested designing a training program in the style of a video game to appeal to younger tradesmen.

“I would take worker training. ... If you could make a really fun video game to learn to do air tightening, so workers are actually claiming that it's a fun thing.” (Seattle)

“I would go to education classes. I could use continuing education.” (Seattle)

Participants also considered incentives an important component for encouraging builders to adopt the NSH specifications. Builders emphasized that incentives need to be ample enough to cover a substantial portion of the added building costs and risk that builders assume. Some also suggested making it easier for builders to incorporate the specifications by having the utilities assume responsibility for inspections and certifications.

*“I’d say rebates are huge. ... But they have to be enough where it’s worth the risk of doing it in the major market like we’re selling to, the entry-level and the step-up buyer.”
(Spokane)*

“You’re asking us to step above the bar. We’re building to code. Why would we want to step above the bar? Because I want Avista or Kootenai to give me a \$4,000 check. Not [to] my client, but us! Because we have to go do it.” (Spokane)

4. Conclusions/Recommendations

Builders face a variety of challenges in building homes that exceed energy efficiency requirements. Facilitating builders' adoption of NSH specifications for advanced energy efficiency will necessitate that NEEA and its utility partners work on a variety of fronts.

1. Work to stimulate demand for highly energy-efficient homes through marketing and communications focused on comfort and quality, with low energy bills as an added bonus.

Currently, a lack of demand from mainstream home buyers for homes that surpass energy codes is discouraging many builders from focusing on enhancing energy efficiency. Builders repeatedly asserted that they respond to consumer demand; therefore, encouraging builders to incorporate advanced energy efficiency products and practices will require stimulating consumer interest in such homes. This will require putting more effort into marketing and communications aimed at educating home buyers about the benefits of highly energy-efficient homes. Marketing should promote the enhanced comfort and quality of homes built to advanced standards, with low energy bills as an added bonus.

2. Develop a builder value proposition targeting comfort and quality.

Many builders already consider comfort and quality when making building decisions; however, energy efficiency is often not at the core of those decisions, it is merely a byproduct. The goal should be to more closely align advanced energy efficiency with comfort and quality so that builders make a conscious decision to incorporate NSH specifications in order to achieve superior comfort and quality.

Focusing both the consumer messaging (i.e., the demand) and the builder proposition (i.e., the supply) on the comfort and quality benefits of advanced energy efficiency will serve to better align the two ends of the market.

3. Better utilize realtors' influence in the buying process by intensifying efforts to educate realtors about the value and benefits of advanced energy efficiency.

Real estate agents continue to be an important resource for builders to market their homes, but realtors frequently lack an understanding of energy-efficient products and building techniques. Instead, they typically focus buyers' attention on finishes, high-end appliances, and other amenities. Educating and leveraging realtors in the buying process will serve to increase consumer interest in high-efficiency homes.

4. Step up efforts to train residential appraisers on the value of high-efficiency homes.

In addition to focusing attention on generating front-end demand, focus additional efforts on the back end of the process by working to ensure that real estate appraisers assess higher values for homes built to advanced energy efficiency standards. Builders complained that appraisals frequently fail to factor in the added costs or benefits of more energy efficient-products and building practices. Without rectifying this by training appraisers to recognize and value such practices, few builders will move to incorporate NSH specifications into their projects.

5. Offer incentives to encourage builders to build to a higher performance level.

Builder incentives will be an important component for overcoming builders' apprehensions about incurring the added costs and risks of building to a higher standard of energy efficiency. To encourage a wide range of builders to participate, incentives need to be lucrative enough to help defray the costs of incorporating highly-efficient products and building practices, and must be relatively easy for builders to redeem. If incentives are too onerous to collect, builders will not be swayed.

6. Increase opportunities for builders and tradesmen to obtain education and training.

Many builders lack the know-how to correctly implement advanced building techniques, such as constructing an ultra-tight shell without creating air problems. To help builders learn proper building techniques, work to increase training and education opportunities. To appeal to younger tradesmen, consider developing some training tools in the form of a video game.

Appendix A – Recruitment Sample

Focus group participants were recruited from a sample of builders in the regions surrounding Portland, Seattle and Spokane. The sample was assembled by Tim Davis of CLEAResult from information available from the national ENERGY STAR program, which is managed by the Environmental Protection Agency (EPA).

The sample included each builder's contact information as well as the number of Northwest ENERGY STAR Homes the builder had certified in each year from 2004 to 2015. The list included builders with zero certified homes, which indicated that they had registered with the NWESH program prior to 2012 but never certified a home.

The recruitment sample identified three categories of builders:

- “Active” included builders who have certified homes within the last four quarters
- “Inactive” included builders who have not certified homes within the last four quarters
- “Not the EPA Profile” included builders who did not make the transition to register with the EPA, therefore contact information was obtained prior to 2012 when the NWESH program managed builder enrollment

Builders from each of the three categories were included in each of the focus groups.

Appendix B – Recruitment Questionnaire

Curtis Research Associates
NEEA/Next Step Home Builder Focus Groups
Recruitment Criteria

Dates & Time:	Portland: Wednesday, May 27 at 6:00 – 7:45 Spokane: Thursday, May 28 at 6:30 – 8:15 Kirkland: Monday, June 1 at 6:30 – 8:15
Recruit:	Recruit 8 singly-family home builders with the goal of seating 6 or 7
Experience:	Must have worked in the industry building homes for a minimum of 3 years
Responsibilities:	Must be the primary decision-maker responsible for at least 2 of the following. Recruit at least 6 whose responsibilities include business decisions. Across participants, recruit a diverse mix of the other 4 responsibilities. <ul style="list-style-type: none">- Business decisions (strategy & financial)- HVAC systems- Building sciences (framing strategies and envelope systems, air sealing, materials selection, etc.)- Design (floor plans, architectural style, etc.)- Marketing & sales
Homes Built	Prefer that everyone has built 1 or more homes in each of the last 3 years. If we have trouble filling the group, this can be relaxed to 1 or more homes in 3 of the last 5 years.
Custom Homes:	Prefer a maximum of 3 who only build custom homes. If quota fills up, complete the screening process and put on hold for possible call back.
Code Compliant:	Recruit 3 or 4 who build 100% code compliant homes. If quota fills up, complete the screening process and put on hold for possible callback.
Past Participation:	Track past participation in a focus group
Security:	Hold names of those who have worked in the energy industry or who have family members who have and only recruit if needed to fill group
Track Sample:	Track and report the disposition of the sample (bad numbers, outright refusals, terminates, etc.)
Incentive:	\$150 and a light dinner will be provided

Home Builder Screening Questionnaire

Hello, my name is _____ and I'm with _____ Research, a market research firm located in _____. We are conducting a short survey with home builders on behalf of Northwest ENERGY STAR Homes and the Northwest Energy Efficiency Alliance. May I please speak to the company owner or business manager?

If you have a couple of minutes I would like to ask you a few brief questions. *[If needed]*...This is not a sales call. All questions are for research purposes only.

1. Do you currently work in the business of building single-family homes?

1. Yes 2. No...*Terminate*

2. What is your position or job title? _____

3. How long have you been in your current position? _____

4. How long have you worked in the industry building homes? _____

- ***Must be a minimum of 3 years; if not, terminate or ask to speak to some other decision-maker in the business and start over.***

5. In your current position, which, if any, of the following building activities are you responsible for? Are you the primary decision-maker for...?

A	Deciding which HVAC system to install?	Yes	No
B	Building science, such as framing strategies and envelope systems, air sealing, materials selection, etc?	Yes	No
C	Design, such as floor plans, architectural style, etc.	Yes	No
D	Business decisions, including strategy and financial—i.e. are you the one who holds the purse strings	Yes	No
E	Decisions regarding marketing and sales	Yes	No

- ***Must answer yes to at least 2 of the 5 responsibilities; if not, ask to speak to the person who has responsibility for more of these decisions and start over***

- ***Recruit at least 6 whose responsibilities include business decisions***

- ***Across participants, recruit a diverse mix of the other 4 responsibilities***

6. Over the last 3 years—2012, 2013 and 2014—approximately how many homes has your company built in total? _____ (***Low<6; Medium=7-29; High>30***)

7. **A.** Did your company build at least one single-family home in each of the last 3 years—2012 to 2014—or were there some years when you didn't build any single-family homes?

1. Yes, built at least 1 home per year...***Go to Q8***

2. No, not in each of the last 3 year...***Ask follow-up:*** In which of those years did you build homes? _____

- ***Specify years and continue to 7B***

7B. Did your company build any single family homes in 2010 or 2011? If so, in which years?

1. Yes, built homes in _____
2. No...*terminate*

- *If built homes in 3 of the last 5 years, hold name; only recruit if needed to fill the group*
- *If they did not build in 3 of the last 5 years, terminate*

8. Over the last 3 years, have the homes your company built been located mostly in urban, suburban or rural areas?

1. Urban
2. Suburban
3. Rural

9. Over the last 3 years, what percentage of the homes your company has built have been more custom in nature, with the homeowner highly involved in the entire process and making decisions about most or all aspects of the home, and what percentage have been production built homes, where you and your company made many or all of the key building decisions?

Custom built homes _____% Production built homes _____ %

- *Maximum of 3 who do 100% custom building. If quota is full, continue through screening process and put on hold for possible callback.*

10. Over the last 3 years, what percentage of the homes were energy code compliant and what percentage were more energy efficient than code?

Code compliant _____% More energy efficient than code _____ %

- *Recruit 3 or 4 who build 100% code compliant homes. If quota is full, continue through screening process and put on hold for possible callback.*

11. Do you participate in any green building programs, such as LEED, Earth Advantage, PHIUS (Passive House Institute US), Built Green, etc?

1. Yes
2. No

12. Are you a member of your local Home Builders Association?

1. Yes
2. No

13. Please describe the most important factors that influence the decision regarding whether to build a home that is energy code compliant or more energy efficient than code?

{Screen for articulation. DO NOT recruit anyone who seems apathetic or is not articulate.}

Invitation for Portland

As part of this research our company is assembling a panel of home builders to participate in a focus group discussion. We would like to include you in our discussion so we can hear your opinions. The discussion will last **1 hour and 45 minutes**. In appreciation for your time and input, you would receive **\$150**. Could you take part in a focus group on **Wednesday, May 27th from 6:00 to 7:45 pm?**

The focus group will be held at our office, which is located in downtown Portland.

If yes - fill out name and address & circle group they will attend:

May I have your name and address so we can send you a confirmation letter that will verify the date, time and place of the meeting?

NAME _____

COMPANY _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP _____

DAY PHONE _____

EMAIL: _____

The focus group will be held at our office, which is located in downtown Portland at...

We are asking only a few people to take part in this discussion, so your presence is very important. If something comes up and you are unable to attend please give us a call. Our phone number is _____. Please arrive at least 15 minutes early so we can sign you in and get you seated to begin on time. **A light dinner will be provided.**

Thank you for your time. We look forward to seeing you on **Wednesday, May 27th by 5:45 pm.**

Recruited By: _____

Confirmation Letter Sent: _____ Reminder Call Made _____

Invitation for Spokane

As part of this research our company is assembling a panel of home builders to participate in a focus group discussion. We would like to include you in our discussion so we can hear your opinions. The discussion will last **1 hour and 45 minutes**. In appreciation for your time and input, you would receive **\$150**. Could you take part in a focus group on **Thursday, May 28th from 6:30 to 8:15 pm?**

The focus group will be held at our office, which is located in Spokane.

If yes - fill out name and address & circle group they will attend:

May I have your name and address so we can send you a confirmation letter that will verify the date, time and place of the meeting?

NAME _____

COMPANY _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP _____

DAY PHONE _____

EMAIL: _____

The focus group will be held at our office, which is located in Spokane at...

We are asking only a few people to take part in this discussion, so your presence is very important. If something comes up and you are unable to attend please give us a call. Our phone number is _____. Please arrive at least 15 minutes early so we can sign you in and get you seated to begin on time. **A light dinner will be provided.**

Thank you for your time. We look forward to seeing you on **Thursday, May 28th by 6:15 pm.**

Recruited By: _____

Confirmation Letter Sent: _____ Reminder Call Made _____

Invitation for Seattle

As part of this research our company is assembling a panel of home builders to participate in a focus group discussion. We would like to include you in our discussion so we can hear your opinions. The discussion will last **1 hour and 45 minutes**. In appreciation for your time and input, you would receive **\$150**. Could you take part in a focus group on **Monday, June 1 from 6:30 – 8:15 pm?**

The focus group will be held at our office, which is located in Kirkland

If yes - fill out name and address & circle group they will attend:

May I have your name and address so we can send you a confirmation letter that will verify the date, time and place of the meeting?

NAME _____

COMPANY _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP _____

DAY PHONE _____

EMAIL: _____

The focus group will be held at our office, which is located in Kirkland at...

We are asking only a few people to take part in this discussion, so your presence is very important. If something comes up and you are unable to attend please give us a call. Our phone number is _____. Please arrive at least 15 minutes early so we can sign you in and get you seated to begin on time. **A light dinner will be provided.**

Thank you for your time. We look forward to seeing you on **Monday, June 1st by 6:15 pm.**

Recruited By: _____

Confirmation Letter Sent: _____ Reminder Call Made _____

Appendix C – Discussion Guide

<p style="text-align: center;">Next Step Home Builder Focus Groups Portland, Spokane & Seattle Discussion Guide</p>
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Research Objectives:

- ♦ Understand current and anticipated building trends regarding higher efficiency homes in the region.
- ♦ Determine builder needs regarding marketing efforts and or future marketing support.
- ♦ Understand if and how builders use local incentives to build higher efficiency homes.
- ♦ Ascertain what factors do/would motivate builders to build more energy-efficient homes to aid in the creation of a builder value proposition.

Research Questions/Topics

- ♦ What are the motivations and challenges to building higher energy efficiency homes?
- ♦ What sales/marketing efforts do builders currently use? What resources do they have?
- ♦ Introduce Next Step Home and get feedback.

I. Introduction (5-10 minutes)

- ♦ Moderator introduction
- ♦ Purpose & format of the group
- ♦ Ground rules:
 - One person speak at a time;
 - Be candid; and
 - Allow everyone an equal opportunity to participate in the discussion.
- ♦ Participant introductions: Please briefly introduce yourself to the group and tell us a little about your position and the business you represent.

II. Builder Background Information (15 minutes)

Note: In this initial discussion, the idea is to learn how they talk about/define their business without specifically asking about energy efficiency; however, it may come up on its own.

A. Homes Built

- ♦ Describe your business—give me an overview of your company and the homes you build.
If not mentioned, probe the following:
- ♦ On average, how many homes do you build in a typical year?
- ♦ Do you specialize in a particular part of the market or do you build a range of different types of homes?
 - As needed, probe to understand the types of homes they build, including custom vs. production, entry-level vs. higher-end, etc.

- (Briefly) Why those types of homes? What determines which segment of the market you build in?
- ♦ In your position, how involved are you in design and building decisions, such as the floor plan, HVAC, framing strategies, etc?

B. Sales & Marketing

- ♦ How are you marketing your homes? What are you doing in terms of sales and marketing?
- ♦ Do you have a process for assessing current market trends or homebuyer wants and needs?
 - If yes, how do you go about it? What resources are you using?
 - If no, why not? Probe to understand if this is something they would like to do but don't have the resources or don't feel they need to do.
- ♦ How satisfied are you with your sales and marketing efforts? (Probe to understand in what ways they are satisfied and in what ways they are dissatisfied.)
- ♦ Assuming you had unlimited time and resources, what would you like your sales and marketing efforts to be? What would that look like?

III. Build to Code versus Exceeding Code/Higher Performance (40 minutes)

A. Decision-Making Process

- ♦ When you are in the planning process for a home, how much consideration goes into whether to build to code or to build to exceed or perform higher than code?
- ♦ What percentage of the homes you build are built to code and what percent are built to perform higher than code?
- ♦ How do you decide whether to build to code or to exceed code? What is your decision-making process? What factors influence your decision?
- ♦ For those building homes designed to perform higher than code, what kinds of things are you doing to achieve that? What makes them high performance homes?

B. Energy Efficiency's Role in Achieving Higher Performance

- ♦ (If needed) What role does energy efficiency play in building a high performance home?
- ♦ What kinds of things are you doing to achieve higher energy efficiency?
- ♦ How do you decide if you are going to build a home to be energy code compliant or to exceed energy efficiency codes? What is your decision-making process?
- ♦ What factors and/or circumstances influence your decision?
- ♦ For you as the builder, what motivates you to build homes that are more energy efficient than code? What are the benefits? If not mentioned, probe the following:
 - Increased profit;
 - Market differentiation;
 - Faster sales;
 - Industry recognition;

- Personal conviction; and
- Feeling good about yourself/your work.
- ♦ What are the barriers to building a more energy efficient home? What are the things keeping you from doing it or doing it more often?

C. Buyer Interest & Motivations

- ♦ How often is the decision to build a high performance home driven internally and how often is it driven by the buyer or the intended buyer? Why?
- ♦ Are your customers asking for or expressing interest in high performance homes? If so, how often does that happen and what specifically are they asking for—how do they articulate it? What do they want or expect of a high performance home?
- ♦ (As needed) Does that encompass energy efficiency? Are your customers asking for homes that are more energy efficient than code?
 - If so, how often does this happen and what specifically are they asking for?
 - How do they assess the energy efficiency of a home? What are they looking for or most concerned about when it comes to energy efficiency?
 - Do they ask about indoor air quality? If so, what conveys that a home has good air quality?
 - Do they ask about comfort? What factors convey comfort to home buyers?
 - Do they talk about wanting lower energy bills?
- ♦ For those who build custom homes, if the buyer doesn't bring it up, will you bring up the idea of building more energy efficient than code? If yes, what do you say? If no, why not?
- ♦ For those who build more energy-efficient homes, do you market the energy efficiency or home performance? If so, how? What approach do you use to promote higher energy performance? [*How we ask about this will partially depend on what builders say during the initial discussion about sales and marketing.*]
- ♦ Do you offer or provide any buyer education related to energy efficiency?
- ♦ How satisfied are you with your efforts to market higher energy efficiency homes? (Probe to understand in what ways they are satisfied and dissatisfied.)

D. Energy Efficiency Incentives

- ♦ Are you aware of any builder incentives to construct homes that are more energy efficient than code?
- ♦ If so, what incentives are you aware of?
- ♦ Have you ever taken advantage of any incentives to construct more energy-efficient homes?
 - If so, when? How often?
 - Please describe the incentives programs you've participated in.
 - How satisfied were you with the incentive program?
 - What did you like about the program and what didn't you like about it?
- ♦ How important are builder incentives to your decision-making process? To what degree do incentives make or break the decision to build to code or higher than code?

- For those who typically build to code, what, if any, incentives would motivate you to build homes that are more energy efficient?
- For those who build some higher energy efficiency homes, what would motivate you to build more of them?
- What would motivate you to build your energy-efficient homes to be even more energy efficient, to achieve an even higher level of performance?

E. Green Building/Certification Programs

- Have you participated in any green building programs or other certifications?
- If so, please describe the programs or certifications you've participated in.
- What motivated you to participate?
- How satisfied were/are you with the program/certification?
- What did you like about the program and what didn't you like about it?
- Ultimately, what value did you derive from the program/certification?
- How has it impacted your business and/or your building practices?

IV. Energy Efficiency Ratings, Building Trends & Resources (15 minutes)

A. Raters & Verifiers

- Is there a rating or verification process your homes undergo? If so, describe that process.
- Who does the rating or verification? Who do you work with?
- How long does it take to get a rating or verification?
- What is the cost?
- What other resources do you rely on for verification?
- For those who do not use a third party for verification, why not? What is the alternative?
- Have you used a home performance rating? If so, why? What motivated you?
- Do customers ever ask for a home performance rating?
- What do you think of the idea of a 'MPG' type home rating?
- Would that be a useful or effective way to communicate the energy efficiency of a home? Why or why not?

B. Trends

- Currently, what building trends are occurring in higher energy efficiency homes in the area? What are the latest developments?
- Are these things that you've incorporated or anticipate incorporating into your homes? Why or why not?
- As you look ahead, what developments do you see on the horizon in terms of new avenues for increasing the energy efficiency of homes?
- How do you keep up with energy efficiency trends? What resources are you using?
- How do you learn about the technical aspects of achieving higher energy efficiency? What technology and building science resources do you have?

- How well are these resources meeting your needs?

V. Next Step Homes (20 minutes)

- Are you familiar with the Northwest Energy Efficiency Alliance, also referred to as NEEA?
- Are you familiar with Next Step Homes?

The Northwest Energy Efficiency Alliance (NEEA) is an alliance of more than 140 utilities and energy efficiency organizations working on behalf of more than 13 million energy consumers. NEEA is dedicated to accelerating both electric and gas energy efficiency, leveraging its regional partnerships to advance the adoption of energy-efficient products, services and practices.

Next Step Home advances energy efficient building practices and technologies for new single family homes through a performance target and maximizes cost effective energy efficiency features in new construction.

Next Step Homes are expected to deliver annual energy savings that are about double what a Northwest ENERGY STAR home would deliver. The Northwest ENERGY STAR specification is designed to deliver approximately 15% energy savings relative to state codes, and thus a Next Step Home delivers roughly 30% savings.

Builders can pick a path to follow to achieve greater energy efficiency. These include:

1. Advanced wall efficiency (insulation and windows; U-0.035 in Climate Zone 1, .030 in Climate Zones 2 & 3.
 2. Ultra tight shell (2.0 ACH50) and subsequent ventilation implications (HRV)
 3. Ducts inside the building shell (if applicable)
 4. Mechanical System Strategies
 - a. Gas Furnace – 94% AFUE
 - b. Heat Pump – 9.0 HSPF, 12.0/11.5 EER
 - c. Ductless Heat Pump – 3.0 COP
 5. Heat Pump Water heaters or Natural Gas 0.81
 6. U.25 windows
- What do you think of building homes that deliver 30% energy savings relative to state codes?
 - Have you built any homes with some of these features? If so, which features are you incorporating?
 - If no, are you interested in building such homes? Why or why not?
 - If yes, which features are you most likely to start incorporating—which do you see the most value in?
 - Which are you least likely to incorporate? Why?
 - What do you think of the different paths you can take to achieve greater energy efficiency and a performance target?

- What are the biggest challenges you would face in building such energy-efficient homes?
- What help and support could the NSH program provide to help you incorporate more energy efficient building practices into the homes you build?
- What help or support could NSH provide in terms of sales and marketing?
- If you had a magic wand that you could wave to get any type of help, support or resources you wanted, what would it be?
- What is the best method for NSH to engage with builders to provide information and support?
- How should NSH reach out to builders like you so builders are receptive to their efforts?
- How can your local utility assist you in the building/selling process?

VI. Wrap-up (5 minutes)

Before dismissing the group, the moderator will confer with research observers to determine if there are any additional questions that need to be addressed.

- Do you have any final thoughts or suggestions?