Dear NGBS Green Client:

Thank you for considering NGBS Green certification. When we launched NGBS Green in 2009, few thought we could deliver a certification program that was credible or rigorous or affordable or lasting – let alone all of those qualities. Ten years later, I am proud of what we have accomplished. Over 217,000 homes have earned NGBS Green certification, and almost 150,000 more homes are registered to seek certification. NGBS Green is the preferred green certification program for architects, builders, and developers who build or renovate the buildings we live in.

My goal is for the NGBS Green certification legacy to transcend the building industry. Our program goal, and the mission of Home Innovation Research Labs overall, is to help our clients improve the quality, durability, affordability, and performance of homes everywhere. We want buyers and renters to find a better place to call home.

This year we roll out the 2020 NGBS, our fourth and best version of the National Green Building Standard™. The 2020 NGBS has a number of notable improvements, including:

- An expanded scope to allow certification for the non-residential portion of mixed-use buildings, assisted living facilities, dorms, and hotels
- A streamlined compliance path for single-family homes, townhomes, and duplexes
- A new water efficiency performance path that calculates a water rating relative to a standard baseline home
- A substantially revised remodeling chapter that offers a choice of prescriptive or performance compliance paths for energy and water efficiency and allows phased renovations.

Along with the 2020 NGBS is a new suite of resources designed to help builders and developers earn green certification. Our NGBS Green Scoring Tools have been redesigned with new and improved functionality; we rewrote and improved NGBS Green Verifier training; updated training for architects and clients; created more marketing materials that address wellness, net zero energy, and resiliency; and have a more robust listing of NGBS Green Certified products.

Every NGBS version and every certification offers us an opportunity to improve, to bring more value to builders, and to help the industry build a better home. Our promise to homebuyers and renters is that when they see the NGBS Green Certified mark, they can feel confident knowing that home meets the rigorous requirements of the National Green Building Standard (NGBS).

We vow to work with you to bring you the most value for the lowest cost. Want to see us do something better or differently? Call (301.430.6205) or email (mfoster@homeinnovation.com) me directly.

We look forward to serving your green home certification needs.

Best,

Michelle Foster
Vice President, Sustainability
Home Innovation Research Labs
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**APPENDIX F: NGBS Green Multifamily Project Information Form**

**APPENDIX G: NGBS Green Certification Client Application (Sample)**
Home Innovation Research Labs
Home Innovation Research Labs (Home Innovation) was founded in 1964 as a small product testing laboratory. Over our 56-year history we have grown to become a full-service market research, consulting, product testing, and accredited third-party certification agency dedicated solely to issues related to the home building industry. Our headquarters in Upper Marlboro, Md., a suburb of Washington, DC, is a 25-acre research campus which includes a state-of-the-art product testing and market research facility, as well as several outdoor evaluation areas.

Home Innovation is an accredited standards development organization and has ushered many standards through the American National Standards Institute (ANSI) consensus process. During this process we ensure that participation is open to interested stakeholders, interests are balanced, public input is sought, and appeals are heard. The ANSI process also requires ongoing maintenance for any approved standards to ensure the content continues to reflect the most current information on technology and other industry elements. Home Innovation oversees the development and maintenance of the ICC 700 National Green Building Standard™ (NGBS) to ensure the stringent ANSI consensus process rules are followed.

Home Innovation also serves as Adopting Entity of the NGBS and provides certification services to builders, developers, and remodelers, nationwide through the NGBS Green certification program. Our core competency as an independent, third-party product testing and certification lab makes us uniquely suited to administer a green certification program for residential buildings.

ICC-700 National Green Building Standard™

Overview
The NGBS is the only green building rating system designed solely for residentially-used buildings approved by ANSI as an American National Standard.

The NGBS assigns points to green building practices. A home can attain one of five performance levels — Certified, Bronze, Silver, Gold, or Emerald. For a building to attain any certification level, all of the applicable mandatory provisions must be correctly implemented. In addition to the mandatory provisions, the NGBS requires the home include sufficient green building practices to meet the requirements for the desired green certification level.

As an ANSI-approved green building rating system, the NGBS provides builders and consumers with a credible definition of green building. Since it provides a flexible, expansive point-based system for certification, it also offers home builders an affordable process to build green homes that are appropriate for their specific climates, and meet the needs of their particular market and homebuyers.

The NGBS applies to all residential buildings, including:

- single-family homes
- townhouses
- duplexes
- triplexes
- quads
- assisted living facilities and seniors housing
- rescue squad housing
- mixed-use and multifamily buildings (no height limitation)
- student housing and dorms
- hotels and motels

In short, the NGBS applies if a building has accommodations for living, eating, cooking, sleeping, and sanitation. The NGBS can also be used to certify a building accessory to the residential building(s) such as a clubhouse building.
Under the 2020 NGBS, the commercial space of mixed-use buildings can earn the ‘Certified’ recognition. The residential portion of the building must be at least 50% of the building’s conditioned square footage. There are two options for certification—‘Core and Shell’ and ‘Full Fit-Out.’ The Core & Shell option addresses only the building envelope and fenestration. Full Fit-Out is more comprehensive and can be achieved once the non-residential space is completed.

The NGBS can be used for new construction or renovation. For existing buildings, the original and/or current use of the building is irrelevant. If the building will be renovated to accommodate residential uses, the NGBS can be used for the building’s certification.

The NGBS also applies to residential site design and development of all sizes. It can be used to certify a residential subdivision of a few lots, a 20,000-acre new community, or anything in between.

**NGBS Compliance Requirements**
The six categories of green practices in the NGBS are:

- Lot & Site Development
- Resource Efficiency
- Energy Efficiency
- Water Efficiency
- Indoor Environmental Quality
- Homeowner Education

To be certified, new buildings must meet the minimum point threshold levels in every category of green building practices (see above). This requirement ensures the completed building will reduce its environmental impact in all areas; not merely energy efficiency. The NGBS is also not merely a design standard. The NGBS includes green building practices for design, construction, verification, and operation which helps ensure that buildings designed to be sustainable and high-performing are built and occupied in a sustainable method.

For most new construction, to move up in certification level a new building must attain more points in every category of green building practices. As a result, a Silver-level NGBS Green Certified building is higher performing than a Bronze-level building; a Gold-level building is higher performing than a Silver-level building; and an Emerald-level building is the highest performing of all.

Alternatively, a single-family home can earn the Certified level by following the streamlined single-family certification path in the 2020 NGBS. To be eligible for the Certified homes path, homes must successfully incorporate all applicable practices in 2020 NGBS Chapter 12.

**Score the Project**
The NGBS Green Scoring Tool is an easy tool for architects, builders, and developers seeking certification. The Tool is an Excel-based spreadsheet that includes all NGBS practices and points. Anyone can complete the scoring tool by claiming points toward certification based on the practices and materials to be incorporated into the project.

Scoring tools for new construction, whole-house/building remodeling projects, land developments, and functional area remodeling projects are available for free at www.HomeInnovation.com/GreenScoring. Scoring tools are updated frequently, so we recommend downloading a new scoring spreadsheet for each new project to ensure you have the most current version.

The scoring tool will ultimately be used by the NGBS Green Verifier as a checklist to inspect the project and confirm the building is NGBS compliant.
NGBS GREEN CERTIFICATION PROCESS

Considering getting your home NGBS Green Certified? Follow these easy steps

1. **Find a Verifier**
   - Hire an accredited NGBS Green Verifier who will register your project and get the certification process started.

2. **Score the Building**
   - Using the downloadable spreadsheet, the building can be scored by architects, builders, or accredited verifiers.
   - Technical assistance and interpretations are always free. Get a question? HomeInnovation.com/NGBSGreenContact

3. **Score the Home**
   - The NGBS Green scoring spreadsheet provides step-by-step instructions to help you design and construct a high-performance, sustainable home.

4. **Complete the Application**
   - Submitting the builder application gives you access to NGBS Green marketing materials, technical assistance, and other program resources.
   - Buyers won’t know you’re going the extra miles with green unless you tell them. Be sure to take advantage of all NGBS Green marketing materials and ideas. HomeInnovation.com/NGBSGreenUnCertified

5. **Schedule the Inspections**
   - Every home must be inspected twice by an accredited verifier – once before drywall is installed, once when the home is complete.
   - Thorough and timely home innovation reviews every rough and final inspection report before we issue an NGBS Green certificate. But don’t worry – our average turnaround time is one business day.

NGBS GREEN CERTIFIED HOME

Build your success on ours. Get started today with NGBS Green Certification. HomeInnovation.com/Green
Simplifying NGBS Green Certification with the Bronze Cookbooks

The NGBS was designed to be flexible so it has lots of different options. This may seem daunting, even overwhelming, if you're new to green home building. How does someone approaching the NGBS for the first time decide what practices are the most cost-effective? Or even the most relevant to prospective homebuyers and renters? In an effort to help new green builders overcome this challenge, Home Innovation created the 2012, 2015, and 2020 NGBS Bronze Cookbooks.

The “cookbook” or roadmap concept is simple – it allows you to see which practices are most commonly incorporated into NGBS Green Certified homes. Home Innovation developed the Bronze Cookbook by reviewing every NGBS Green Verification Report for homes that have attained NGBS Green Certification. Based on that review, we pre-populated an NGBS Green Scoring Tool with the most commonly used practices to achieve Bronze-level NGBS Green certification. Given the widespread use of these specific practices nationally, you can assume they represent the most cost-effective and relevant green practices for residential construction. Where appropriate notes are included regarding NGBS Green Certified Product options which can further simplify the up-front selections needed for the certification process.

The Bronze Cookbook can save you time and money by streamlining what can otherwise be a complex and extensive decision-making process. But the Bronze Cookbook is just one way to approach NGBS Green certification – we always encourage builders to strategically select the most appropriate green practices for their projects based on their individual objectives and market drivers.

To start, download the NGBS Bronze Cookbooks at [www.HomeInnovation.com/BronzeCookbook](http://www.HomeInnovation.com/BronzeCookbook), complete it, and talk with an NGBS Green Verifier.

How to Select an Accredited Verifier

Rigorous verification is a hallmark of NGBS Green certification. No other green building certification has a similarly thorough verification protocol.

NGBS Green verification is straightforward and affordable. Our national network includes 250+ accredited NGBS Green Verifiers. Home Innovation qualifies, trains, and tests prospective verifier candidates. Verifiers must have previous experience in residential construction and green building before being accepted into the verifier training program. Verifiers are then trained to inspect every conceivable residential project: single-family; multifamily; new construction; remodeling/renovation (whole-house/building or small projects); and land development for compliance to the NGBS. Once the training is complete, verifiers must pass a stringent test to assess their command of the NGBS, the certification process, and building science. Before bestowing our accreditation, Home Innovation must receive proof that the verifier is adequately insured. Verifier accreditation must be renewed annually and re-accreditation (training and testing) is necessary for each version of the NGBS to ensure that verifiers remain proficient as the NGBS is amended.

Verifiers serve as independent, third-party inspectors and, as such, they set their own competitive verification prices and negotiate their own contracts. Verifiers may also provide other services in conjunction with NGBS Green verification, such as energy modeling or code compliance inspections, which may impact the fees charged. The only requirement is to use an NGBS Green accredited verifier.

An experienced verifier can help your project team get the most value out of the verification. Don’t just endure verification; embrace it! Make it work for you on whatever project you’re having certified. Verifiers can help you deliver a high-quality, high-performing real estate asset.
Here are five easy tips to maximize the value of NGBS Green verification:

1. **Select a Verifier Early**

Sooner is better. Verifiers understand the NGBS Green certification process, they are experts on the NGBS, and they know the documentation that must be collected. Currently accredited NGBS Verifiers are listed on our Find A Verifier webpage (www.HomeInnovation.com/FindNGBSVerifier). Interview Verifiers as soon as you are thinking about green certification. NGBS Green accredited verifiers are trained to do any certification type (land development, multifamily, single family, renovations), but many have specific expertise areas so it pays to speak with a few before you make your final selection.

In general, single-family builders will want to select an accredited verifier located near the home seeking certification to minimize the Verifier’s travel costs. Multifamily and land development clients may want to interview verifiers with expertise in such verifications as it may be more advantageous to hire someone who is expert in multifamily construction schedules or land development practices, rather than someone merely for their proximity to the site. Verification costs for larger projects are typically a much smaller percentage of total construction costs than verification costs for a single-family home and, as a result, can more easily absorb any necessary travel costs. Further, verifiers with multifamily experience may be more cost-effective in their verification services pricing because of experience.

Clients should inform prospective verifiers if they intend to seek certification for more than one project, as the verifier may offer more competitive pricing when establishing a long-term relationship.

2. **Meet & Consult with Your Verifier**

Meet with your verifier before construction starts to go through the checklist of NGBS Green practices in detail. At this meeting, review the mandatory practices that must be completed for certification. Review the rest of the green practices to hear from the verifier which practices are checked at the rough inspection and which are checked at the final inspection. Make sure you know what documentation the verifier will need to collect. Verifiers can typically suggest the most cost-effective and easy-to-implement practices, and those that make the most sense for your particular project. Confirm the project point total and points required by category so you can see what certification level (Bronze, Silver, Gold, or Emerald) you are likely to attain. Always plan to attain some extra points in each category, just in case your verifier doesn’t approve all that you’re seeking to reach a certain certification level.

3. **Build a Documentation Library**

Every builder has a number of green practices and products they rely on over and over again. For these practices, you should create Master Documentation Folders, either electronic or physical, organized by NGBS practice. For example, if you regularly use a carpet brand that complies with Practice 901.6, save a copy of the manufacturer’s literature in your appropriate NGBS folder so you have it handy to reference for future projects.

4. **Get the Whole Team On Board**

Attaining NGBS Green certification for your projects is an exciting achievement for the whole project team. Make sure you get everyone on board early and help equip them for success in reaching this shared goal. Communicate your desire to have the project certified. Tell your staff, subs, trade partners, and contractors what will be necessary from them in clear, specific terms. For example, if you need your contractors to use low-VOC adhesives and sealants, make sure they understand the specific VOC limits they need to meet. Your window supplier should understand that last-minute substitutions of windows that do not meet the NGBS requirements could jeopardize certification. Provide training, if necessary, on
specific issues such as keeping HVAC supply registers covered during the construction process. Make sure everyone understands that the project will be inspected by a verifier who will occasionally be on site.

Don’t forget to include your marketing and sales team! Too often we certify high-performance buildings that provide great benefits to the residents, but the construction teams fail to coordinate with the marketing team so prospective buyers and renters never learn about the property’s great green benefits.

5. Review, Improve, Repeat

Soon after you receive your first green certification, be sure to do a quick debrief with your team and verifier to figure out what worked well, what could be improved the next time, and how to streamline the process going forward. Many of our NGBS Green Partners have found that going through the NGBS Green certification process not only helps them construct better homes, but also helps them improve their business processes.

Third-party verification of NGBS compliance provides consumers with assurance that their home will truly be green as defined by a national, ANSI-approved standard. For builders, verifiers can serve as a trusted green adviser who can help streamline and add value to the NGBS Green certification process.

What to Expect from Verifier Inspections

Each home or multifamily building seeking NGBS Green certification needs to be inspected by the verifier at least twice—once before the drywall is installed; once when the building is complete. For multifamily buildings, the verifier will need to inspect every unit as well as the common space. As a result, larger multifamily buildings are likely to require the verifier to perform more than one visit to inspect each unit and confirm the green practices. If testing and other credits are pursued that require scheduling and complex timing coordination with your team, providing the verifier access to your construction schedule and anticipated timing of trades is advised.

Verifiers will need access to the entire building and project site. They are expected to follow construction site safety rules and use common sense when during their inspection.

Schedule the Verification

Builders or construction site superintendents should work with the verifier to schedule the inspections in a timely fashion. Verifiers must notify Home Innovation at least 24 hours in advance of conducting an on-site inspection. Further, if drywall is installed before the rough inspection resulting in the verifier to be unable to verify practices behind the wall, the project will not be able to attain certification.

The Verification Inspection

Before starting the inspection, the verifier will confirm the project’s address is correct on the NGBS Green Verification Report. The verification report includes all NGBS Green practices for which the project is claiming certification points. The verification report details what practices must be confirmed at the rough inspection and what can be confirmed at the final inspection. During the inspection, the verifier will walk through the building and project site with the verification report to visually inspect each green practice. At
the rough inspection, the verifier is likely to ask for documentation necessary for the verification. As a best practice, you may also wish to have your verifier review pertinent submittals, drawings, and other documents prior to the start of construction.

Verifiers have specific instructions as to how to complete an NGBS Green inspection. Verifiers can only award points toward certification if they are confident the practice is met. Verifiers typically verify the practice visually during the inspection. Verifiers cannot to award points for an incomplete practice, even with assurance that the practice will be completed in the future. A few NGBS practices are verified using documentation and the verifier can inform you in advance as to what documentation is necessary.

The verifier must take at least one photo of the building seeking certification that shows a portion of the surrounding lot, however, the verifier may take many photos as part of the verification documentation process. The verifier will note the date and time of the inspection on the report.

The verifier will need a builder’s representative to sign the rough verification report at the conclusion of the inspection, unless the verifier has prior authorization to submit a rough verification report without a signature. The builder’s representative must sign the final verification report. Shortly after the inspection is complete, the verifier must send a copy of the verification report to Home Innovation and the builder’s representative.

Home Innovation will typically review each verification report within one business day of receipt. If Home Innovation has any questions or issues with the verification report, we will contact the verifier as soon as possible to resolve the issue/question. If the verification report is for a rough inspection and there are no issues, or if the issues are resolved satisfactorily, construction should proceed normally until it is time for the final inspection. As with the rough, Home Innovation will review the final inspection report within one business day. If it is accurate and complete, and we have a complete Client Application and current certificate of insurance on file, Home Innovation will issue the NGBS Green certificate within one business day.

In general, Home Innovation interacts directly with the verifier, not the builder/developer/remodeler, on projects seeking certification. However, builders should contact Home Innovation directly (www.HomeInnovation.com/NGBSGreenContact) if they have any questions about the NGBS Green program or process, technical questions about the NGBS, or issues with any accredited verifiers.

**Project Registration**

Registration is mandatory and free. NGBS Green Verifiers register a project, and are encouraged to register projects as soon as they sign a contract to provide verification services.

Verifiers register projects online. After registration, the verifier and the client receive confirmation and a Project ID number. Each single-family home, multifamily community (can be multiple multifamily buildings), and land development is assigned a unique Project ID. Use this Project ID for any correspondence with Home Innovation during the certification process.

Registration for multifamily projects and land developments is a two-step process. After the verifier submits the basic information via the online form, Home Innovation will email the verifier and the client (1) a customized link to an online Project Information Form for land developments, OR (2) an spreadsheet for multifamily projects. This form/spreadsheet collects additional information about the project including a description of the project, number and size of the buildings seeking certification, and contact information for the architect, builder, marketing staff, and sales/leasing office. It does not matter who on the project team completes the Project Information Form/Spreadsheet, but it must be
completed before the verifier notifies Home Innovation of the rough inspection date. If Home Innovation does not have the completed form at that time, the verifier is unable to submit the required rough inspection notice.

See below as an example of the spreadsheet.

**NGBS Green Client Agreement**

Clients must sign an agreement. Completing the agreement in a timely fashion will streamline the certification process. Without an agreement completed, certification will be delayed.

The agreement collects three important data points:

1. Who should be invoiced for the certification fee
2. The builder/developer name and project address for the NGBS Green certificate
3. A point-of-contact should Home Innovation need to contact someone about a project in-process for certification

After project registration, Home Innovation will email an NGBS Green Client Application to the entity/individual/organization seeking certification. The client should complete, sign, and return the application. Home Innovation will countersign the application and return a copy. Only one application is needed, regardless of how many projects seek NGBS Green Certification, provided the business structure of the signatory continues to take responsibility, financial and otherwise, for the projects seeking such certification. A complete application and current proof of insurance is required for any project seeking certification.

**NGBS Green Certification Fees**

Projects seeking NGBS Green certification incur two separate fees: verification services and the certification fee.

Accredited Verifiers set their own fees. Verifier fees vary, so clients are encouraged to contact more than one Verifier to get a bid for verification services. Clients contract directly with an Accredited Verifier and pay the verification fees directly to the Verifier or Verifier’s company. Verifiers send the
results of the verification inspection to Home Innovation for review and acceptance before the project earns NGBS Green certification.

Projects also have to pay a certification fee to Home Innovation. Certification fees are listed here for all project types.

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**Home Innovation Needs to be Additional Insured**

An “Additional Insured” is a party listed on an insurance policy that has some type of liability interest in the property. The “Additional Insured” has no right or authority to make policy changes or to cancel the policy. An “Additional Insured” is ONLY afforded liability protection under the liability portion of the policy and there is no coverage for physical losses resulting from vandalism, theft, fire, wind and hail, and so on. In some cases, there is confusion between what we ask, to be an “additional insured”, and an “additional named insured” (which we don’t ask).

For example if a property is seller-financed, the seller holds the mortgage note and they are listed as an “Additional Insured” on the policy instead of as a mortgagee, then in the event of a physical loss (the home burned to the ground), the seller has no legal right under the policy to receive claim funds to pay off the mortgage debt and/or there is no control of managing claim funds to ensure repairs.

If there is litigation involving the property or its use and the “Additional Insured” is named in the suit for any reason, the policy provides liability protection for legal and defense costs for the “Additional Insured” and the insurance company issuing the coverage would have a ‘duty to defend’ any and all “Additional Insured parties” listed in the policy. The most common example of this involves commercial policies, such as general liability. Home Innovation, for instance, may be listed as an “Additional Insured” on a builder or a developer’s insurance so that in the event of a liability claim caused by the builder/developer (such as faulty work, property damage, or bodily injury) where Home Innovation is also listed in the claim, Home Innovation would receive coverage for legal and defense costs from the builder’s policy.

Insurance companies routinely provide this coverage. Also if your General Liability policy provides additional insured status when it is required in a written contract or agreement, such as the agreement you sign with Home Innovation, then a COI with said provision displayed would satisfy the requirements and should be submitted.

If you or your insurance company has an questions, please contact us.
Who is the “Client” in the NGBS Green Certification Process?

For single-family homes, the builder or builder’s representative is typically who decides to seek NGBS Green certification and hires the verifier and is the “client.” Home Innovation requires the builder to complete the NGBS Green Client Application and submit proof of insurance.

For multifamily projects, the client may be the architect, the owner, the developer, or the general contractor. In general, the entity that decides to seek certification and hires the verifier is the “client.” Home Innovation needs an NGBS Green Client Application to be completed by one of these entities. In addition, Home Innovation needs proof of insurance from one of the entities; it does not need to be the same entity that completes and signs the application. However, if the signatory of the client agreement is different than the entity that holds the required insurance, Home Innovation must have a written declaration of the relationship between the signatory and the insured.

Only one application is needed from any client, regardless of the number of projects submitted for certification. The only exception to this is if a client is operating as a separate limited liability partnership or limited liability company for each construction project; clients in those types of situations may choose to sign a new agreement for each discrete business entity.

Reconciling Differences: Local Code vs. NGBS Requirements

NGBS Green is designed to be a voluntary, above-code green building certification and is not intended to abridge safety, health, or environmental requirements contained in other applicable laws, codes, or ordinances – see NGBS 101.3 Intent. Occasionally, local code officials may determine that one of the mandatory NGBS practices is prohibited by local code, or that full implementation of a practice would violate local code. In such a circumstance, the building may still attain certification but the NGBS Green Verifier must document in the verification report which specific practice is not permitted by local code and the reason for the conflict with the NGBS practice.

In these cases, Home Innovation will not offer alternative compliance methods, either for the code or for the NGBS practice. However, if the project team (architect, builder, verifier) would like Home Innovation to consider an alternative compliance path for the specific practice, we will offer our opinion as to whether the proposed method would meet NGBS requirements. Any Home Innovation opinion provided should not be construed as guidance on whether the alternative compliance would be acceptable to the local code official or local building department. We encourage builders and verifiers to check first with the code official regarding any alternative compliance before seeking Home Innovation’s opinion on meeting NGBS requirements. As mentioned previously, a building may still attain certification if a required practice is not permitted by local code so long as the verification report notes and explains the conflict.
Get the Maximum Value Out of NGBS Green Certification

 Builders seek NGBS Green certification for their projects for one of two reasons – either they want to because they believe it is a good business decision (sell more homes, lease your apartments faster, win a higher property valuation, demonstrate corporate stewardship); or they have to because of a mandate. Regardless of which camp you’re in, below are some suggestions to help you maximize the value of the certification.

The strategy to get the most value for your certification is simple – make sure everyone knows the home will be NGBS Green Certified. First, make sure your prospective consumers, either homebuyers or renters, know the home will be NGBS Green Certified. Second, make sure that your sales team and/or local real estate professionals know the home is in process for NGBS Green certification. Last, make sure that your appraiser knows the home is seeking NGBS Green certification.

Verifiers are Independent, Third-Party Inspectors for the NGBS Green Certification

Verifiers must render judgments and services “independent,” “objective,” and “impartial.” Home Innovation has a strict prohibition against conflict of interest as it would impair objective judgment. We also strictly prohibit the appearance of a conflict of interest. Understanding our verifiers work with various other programs, we want to be sure you always stay on the right side of our conflict of interest requirements – our rules, like our certification program, are more stringent than other programs.

An NGBS Green Verifier is ineligible to provide verification services for a specific project if s/he:

- Is involved in the physical construction and/or has a financial interest in the project being verified/certified;
- Supplies materials and/or installed products or systems in the project being verified/certified;
- Is employed as a sales agent for the project being verified/certified; or
- Is an immediate family member of anyone materially, financially, or otherwise substantively tied to the project being verified/certified.

Verifiers may make some minor construction fixes, such as minimal air sealing or insulation installation corrections, while providing verification services.

This list is not exhaustive; rather it represents what Home Innovation believes to be the most likely potential conflicts of interest that may arise. If a builder or Verifier has any doubt as to whether a relationship with or connection to a key member of the client team will violate the spirit of these rules, or cause the appearance of a conflict, s/he should contact Home Innovation. Verifiers found in violation of any of these stated conflicts of interest, or the spirit of these rules, may jeopardize the project’s ability to earn NGBS Green Certified and may also lose his/her accreditation.
NGBS Green Marketing Resources
Home Innovation has a series of free, off-the-shelf marketing materials you can use to market your home(s) as NGBS Green Certified or seeking NGBS Green certification (i.e. NGBS Green Registered). Marketing materials are available at HomeInnovation.com/MarketGreenCertified. Most of the materials are available to download directly from the website, however, the certification marks are for example only – those who are eligible to use the marks receive them directly from Home Innovation Labs. If you believe you are eligible to use a particular mark and have not received it, please contact us (HomeInnovation.com/NGBSGreenContact).

Builders are encouraged to market their projects as seeking NGBS Green certification as soon as the project is registered with Home Innovation. Even registered projects can be listed on NGBS.com – see more details below.

Home Innovation periodically offers free webinars on marketing green homes to NGBS Green program participants. Please check the website or contact us for more information.

NGBS Green + Badges
NGBS Green + is designed to offer special recognition for NGBS Green homes that “go above and beyond” in certain areas of green practices. With NGBS Green +, a builder does not need to seek additional/outside certifications to highlight special features of their home. NGBS Green + badges offer a streamlined path for supplementary recognition for NGBS Green homes based on the specific features within the home/building.

Available NGBS Green + Badges
- Net Zero Energy
- Resilience
- Smart Home
- Universal Design
- Wellness
- Zero Water

Eligibility
NGBS Green + badges must be pursued concurrently with NGBS Green Certification. With the exception of the NGBS Green + ZERO WATER badge, badges are available to both new construction and remodeling projects. Badge are not available for homes pursuing NGBS Green Certification via the Single-Family Certified path (Chapter 12).

Compliance Criteria
Compliance criteria for all NGBS Green + badges is outlined within the separate NGBS Green + Badge Compliance Handbook.

Verification & Documentation
The NGBS practices that are included as part of the NGBS Green + badge criteria must be verified by an accredited NGBS Green Verifier and according to the VRG.

The 2020 NGBS Green Scoring Tools include new sections that address design and verification of the NGBS Green + badges by pulling selected practices and inputs from the main Design and Verification tabs. Download the scoring tools at www.HomeInnovation.com/GreenScoring.
For the NGBS Green + badges to be awarded, the submitted final verification report should reflect the awarded practices that support NGBS Green + achievement. The NGBS Green + signature page should be signed and submitted as part of the verification packet.

**Process & Fees**
Interest in NGBS Green + badges can be indicated at registration or rough inspection notification.

Additional fees are assessed **per badge** for the additional review associated with the NGBS Green + badges. These fees are invoiced at the same time as certification fees.

Fees are assessed at the building (not unit) level, as follows:

- $50 for single-family
- $100 for multifamily up to 3 stories
- $300 multifamily 4 stories and above

Upon request, specialized project/development-wide pricing will be considered. All homes or buildings within a project/development would need to seek NGBS Green + recognition. [Contact us](#) to request volume pricing.

**Benefits**
Builders and developers earning NGBS Green + badges unlock specialized marketing resources that can be used to distinguish their homes or building from other code-built and green certified homes on the market.

- **Logos** – Builders that have earned an NGBS Green + badge receive a customized logo that they can use in marketing of that home’s unique features or performance.
- **Certificates** – When a home achieves a NGBS Green + badge, a customized NGBS Green certificate is generated that features the badge achievement.
- **Plaques** – In the future, Home Innovation may offer new building plaques designs that reflect badge achievement.

**FTC Green Guidelines Information**
Builders marketing their homes as green need to be careful not to run afoul of the Federal Trade Commission (FTC). The FTC protects consumers by stopping unfair, deceptive, or fraudulent practices in the marketplace, and over the past few years has looked askance at the proliferation of green marketing claims, or “greenwashing,” by product manufacturers.

The FTC’s Green Guides ([Federal Trade Commission, 16 CFR Part 260 Guides for the Use of Environmental Marketing Claims; Final Rule](#)) provide guidance to help marketers avoid making misleading environmental claims. The 2012 Green Guides include new guidance on use of product certifications and seals of approval.

Specifically, the Green Guides state that certifications and seals constitute endorsements covered by the FTC’s Endorsement Guides. The FTC ruled that certifications must meet the criteria set for endorsements. Further, the FTC states that it is “deceptive to misrepresent, directly or by implication, that a product, package or service has been endorsed or certified by an independent third-party.” The FTC makes explicit distinctions between first-, second-, and third-party certifications. First-party certifications are self-certifications, for example, when a builder asserts that the homes he constructs are “green.” Builders must disclose self-certifications. Second-party certifications are those conferred by
a trade association or membership organization. If a certification is issued by a membership organization, such as a local home builders association, the builder must disclose the connection with the association (i.e., that he is a dues-paying member). If the marketer does not, the FTC has ruled that is deceptive. Independent, third-party certifications are the only type where disclosure is unnecessary.

Home Innovation, an independent, third-party according to the FTC definition, and its NGBS Green certification provides a marketing safe harbor for builders, developers, and remodelers who want to convey the green, sustainable features of the homes they construct or remodel without being deceptive to consumers regarding the green certification.

The NGBS Green certification mark was designed specifically to help builders comply with the FTC Green Guides. The mark incorporates the “Home Innovation” name as the certification agent and “NGBS” to specify the ANSI-approved standard to which the home was certified. Further, we recommend that our clients prominently accompany the certification mark with the following statement: “NGBS Green Certified homes/residences/communities [user selects what is relevant] comply with the National Green Building Standard® ICC-700 and are designed to be more comfortable, use less water and energy, and reduce environmental impacts, during construction and occupancy.” Builders can customize the precise language, but we recommend they be specific in their claims in order to be FTC-compliant.

In addition, we recommend that builders reference our website. If they choose they can use the following sentence: “For details on which attributes were evaluated, visit www.NGBS.com.”
5 Tips to Help Market Your Green Homes

The following blog was authored by Michelle Desiderio and published in November 2014.

Some builders are dogged in their conviction that homebuyers don’t care about green. They rationalize this conclusion because homebuyers don’t typically ask for green features explicitly. However, market research consistently confirms that a majority of mainstream Americans do care about sustainable choices. A national consumer insights study completed by Walden Hyde estimates that 60 percent of Americans, roughly 185 million people, are interested in green and healthy living.

So where’s the disconnect? The problem isn’t that consumers don’t care about green. The problem is that consumers don’t necessarily care about green in the ways that builders think they should. Most home builders are not considering consumers’ values and motivations with regard to sustainability. Instead they are projecting (either intentionally or unintentionally) their values about green onto consumers. Consider how many builders insist the only valuable green home attribute is that it delivers energy savings – see my “Are You Willing to Bet it All on Energy Efficiency” post that discusses the error in this way of thinking.

Effective green marketing is no different than effective marketing in general. Marketing messages always need to resonate with customers’ interests and concerns. With that in mind, below are what I believe are the five most important rules for marketing green homes:

**Green Marketing Rule #1: Lead with Quality**

Two irrefutable facts: (1) Performance is king; and (2) green homes are better-built homes.

I am confounded by how few builders promote the quality aspect of green construction. Consumers want products that perform well. Innumerable studies conclude that a product’s performance trumps eco-attributes. But if a consumer can get superior performance AND sustainable features, that will govern their product selection. Just don’t ask them to sacrifice performance because a product is green. A number of successful brands are capitalizing on superior performance with a coincidental benefit of sustainability. Consider the Tesla Motor ads: “It’s not about energy, it’s about POWER.” “Enough speed to leave anything behind, starting with FOSSIL FUEL.” Tesla is selling its sporty roadster as fast as they can make them, and their clients comprised mostly of wealthy alpha males are certainly not looking for lower gas bills. Tesla’s electric engine serves up sustainability on top of highly-ranked performance. Mythic Paint, the fastest growing paint company in the world, is another excellent example from consumer marketing. The Mythic tagline is “Legendary Performance” and it floats atop their logo with “Non-toxic paint” below. Here is a product that offers not merely low toxicity, but zero toxicity, and still their emphasis is on performance.

So performance is paramount to consumers. But how can a builder demonstrate that the home they build performs better than other homes? Builders can demonstrate superior performance by using the National Green Building Standard® (NGBS) to design and construct their homes and seeking third-party certification to prove their home is NGBS-compliant. The NGBS is a rigorous, national, above-code green building system.

How does the NGBS improve a home’s quality? First, the NGBS mandates certain green building practices considered essential to a home’s performance. Second, it offers builders a menu of
green building practices all aimed at boosting the overall quality of construction. Third, homes that attain NGBS Green Certification have been inspected at least twice by an independent, third-party verifier to ensure that the home meets the NGBS’s stringent requirements.

**Green Marketing Rule #2: Set Yourself Apart from the Competition with Green Attributes**

A rigorous national standard and third-party certification attests to an NGBS Green Certified home’s quality. Consequently, builders who construct NGBS Green Certified homes have a distinct advantage over their code-minimum competitors. Once you’ve established your quality bona fides, flaunt your home’s environmental attributes. NGBS Green Certified homes are more comfortable, have a healthier indoor environment, and are more durable. Say it loud and say it proud! NGBS Green homes have more, do more, and save more than the other homes a buyer may be considering.

Straight talk can be very effective. But I’ve found builders are typically unwilling to play hardball with their marketing. Why not ask, “Would you rather live in a home intentionally designed to manage moisture or not?” or “Do you want to live in a home with ventilated combustion equipment or risk carbon monoxide poisoning?”

One of the most effective green marketing techniques you can use is a comparison checklist. Equip prospective buyers with a checklist of the green features (and their benefits) in your homes that they can use when comparison shopping. Help buyers understand the intrinsic value of those green features (i.e., the benefits) by explaining the intent of NGBS green building practices and technologies. The value of some green building practices can be elusive to the mainstream consumer, however, it is a mistake to think that they don’t care about the issues. Helping homebuyers understand issues of indoor air quality, moisture management, and ventilation can help cement the value proposition of both quality construction and the home’s environmental attributes.

**Green Marketing Rule #3: Promote the Benefits of Green for the Individual and Family**

Forget what economists tell you. As consumers we are not always rational. Individuals are emotional beings motivated to satisfy their own needs and their family’s needs. What could be a more emotional experience than shopping for a home? Builders need to make sure homebuyers understand the benefits of their green homes. Connect-the-dots so they don’t have to, and make the message compelling, not confusing.


HUH?!

Most buyers have no idea what an R-19 overhang is, let alone why they might want one. I understand builders are excited about the green building practices, technologies, and features they use in their homes. But they need to provide context for the green features and reasons why they are important – see Rule #2 above.

Keep the green message simple and relevant. For example, if you want to highlight optimum value engineering, why not explain: Advanced house framing uses less lumber so it saves trees, saves on
labor costs, and reduces construction waste. Less can really be more – less lumber means more room for insulation and greater comfort.

**Green Marketing Rule #4: Women Lean Green**

Women are consistently identified in surveys as more interested in green products than men. Why? Women traditionally serve as the family caretaker and are concerned about their children’s wellbeing and their family’s health. Studies confirm that women are primarily interested in green products because of concern for personal health, a healthier home, or the health of a child. Marketing related to health, home, and children are most likely to connect with female consumers. When you factor in the fact that women influence over 80% of household purchasing decisions, women become a powerful influencer regarding green choices.

Make sure your marketing messages are relevant to your prospective female buyers. Even better, target your green marketing messages to women. In making purchasing decisions, women tend to like visual aids and tactile displays so use tactics like that wherever possible – e.g., a cut-away wall to show insulation and/or a low-E window demonstration in your model.

**Green Marketing Rule #5: Be Trustworthy and Authentic**

Green can be tricky to market. Some consumers are wary of eco-branding as a result of products that are unjustifiably labeled green. Have you seen the Hummer ad where it claims to be thirsty for adventure not fuel? Others are weary because green is overused. Builders who make green claims they can stand behind can win consumers and build brand loyalty. Builders who merely give a patina of sustainability to their new homes risk reputation and sales.

Green cleaning products exemplify the importance of authenticity. Recently, SC Johnson’s Nature Source and Clorox’s Green Works – both green cleaning products – lost considerable market share, while at the same time the smaller and premium-priced Method and Seventh Generation brands experienced double-digit growth and market share gains. Let’s repeat that: consumers are selecting the higher-priced, lesser-known green products even during the recession thus securing enviable brand loyalty. Why? Some analysts attribute their success to their parent company’s overall corporate sustainability commitment across all product lines, in contrast to Clorox, which offers one green product in a sea of conventional, less-green products.

Consumers are wise to greenwashing and don’t look favorably on companies who are guilty of it. On the other hand, consumers do look favorably on companies authentically committed to being a better environmental steward and will even reward them by paying a moderate premium on truly green products.

**Putting it All Together**

Are you looking to sell green homes? The “secret sauces” is simple: Lead with quality because an NGBS Green Certified home is simply better built than a code-minimum home. Set yourself apart with the benefits your green homes offer to the individual and the family. Target authentic green marketing messages to women who (more than men) aspire to a more sustainable lifestyle.

What’s your recipe for green marketing success? Do you use these techniques I’ve highlighted? If not, do you see where they could fit into your marketing scheme? I’d love to hear what has worked best for you in your market.
Builders increasingly select NGBS Green as their preferred green certification program for residential projects and NGBS Green recognition has increased significantly among regulators, investors, and appraisers. The 2016 launch of www.NGBS.com now puts NGBS Green Certified projects directly in front of prospective buyers, renters, and those looking to remodel their homes.

The primary objective of NGBS.com is to provide reliable information for consumers about the benefits of an NGBS Green Certified home, and importantly, allow buyers to connect with NGBS Green builder partners; allow renters to find NGBS Green apartment communities; and allow existing homeowners to find remodelers with NGBS renovation experience. Consumers can search for their next home by viewing photos of certified and in-process projects, and then send an email directly to our builder or remodeler partners, or to an apartment community. There are a couple ways you can help us ensure this site is as valuable as possible to consumers and our program partners.

**Check Your Contact Info**

Look through the "Find a Home" sections of the site to ensure your company contact information is correct - if not, let us know (via www.HomeInnovation.com/NGBSGreenContact) and we will update our database. If you are not listed in the directory and would like to be, let us know that too - you may have inadvertently opted out of being listed but we can easily change that status.

**Send Us Your Photos!**

All NGBS Green Certified and in-process homes, apartment communities, and remodeling projects are eligible to be featured on NGBS.com, provided we have high-quality photos of those homes. The photo gallery for each builder, remodeler, or apartment community can feature as many photos of NGBS Green Certified homes as you’d like - the more the better! If you would like your certified home(s) featured on NGBS.com, email the following information to NGBSPhotos@HomeInnovation.com:

- A high-res photo of your NGBS Green Certified project (300 dpi, JPG format, close ups preferred)
- Builder name, city, state, and website
- Certified home city and state
- Certification level of the project
- Certificate number
- Text (no more than 300 characters) describing the company and/or key green practices/features of the project

**Incentives & Mandates**

State and local jurisdictions are increasingly looking for ways increase the energy efficiency of new and existing buildings, including homes and apartments, and reduce potential environmental impacts of the built environment. In some jurisdictions, providing incentives is the preferred method to encourage high
performance sustainable development. Incentives come in myriad forms and can include, but are not limited to, tax credits, rebates, density bonuses, and expedited permitting. In most cases, builders can weigh the cost of compliance with the benefit of the incentive to determine if they want to participate in the incentive program. In a few circumstances, a green building incentive may be conveyed as voluntary but, due to specific market conditions, may in effect act as a mandate.

Other jurisdictions may mandate green building requirements but allow some flexibility in determining compliance. For example, some jurisdictions have mandated the ICC’s International Green Construction Code (IgCC), but allow the builder to demonstrate compliance via the traditional building code inspection process or an independent, third-party certification such as NGBS Green.

Home Innovation has a list of the incentives and mandates that recognize the NGBS – HomeInnovation.com/NGBSIncentives. The list is updated regularly but may not include every local program. Please contact us if our list is missing any incentives or mandates, or if we can help you advocate for an incentive in your jurisdiction.

Multifamily buildings seeking NGBS Green certification are eligible for preferred financing from Fannie Mae, Freddie Mac, and HUD HFA. See Appendix F for more information.

Get a Qualified Appraiser
Many appraisers are unfamiliar with above-code green practices, products, and technologies and, therefore, do not know how to appropriately value them within the context of that particular market. Further, even if the appraiser appreciates the additional value of above-code green practices, products, and technologies, he or she may not be able to confirm many of those practices, products, and technologies because they are hidden behind the drywall by the time the appraiser is called to value the home.

There are two solutions to green home valuation issues.

1. **Ensure the appraiser has experience and/or training in valuing high-performance green homes.**

   Builders can work with their lender partners to ensure that appraisers hired to value their homes are qualified. One builder partner in Vancouver, Wash., worked with the three primary lenders in the region to get every appraiser trained in green home valuation. Alternatively, builders can add a clause in their sales contracts to require an experienced appraiser. One NGBS Green Partner provided the following example:

   This Home is being built/renovated/updated to nationally recognized standards above prevailing code. It is designed and constructed with unique features and materials and with high efficient equipment and in accordance with high efficiency standards. The Lender shall choose an Appraiser educated and knowledgeable in this type of valuation of these specialized Homes, preferably an appraiser who holds a professional appraisal designation that requires advanced education on such issues as the valuation of sustainable buildings (e.g. MAI or SRA designations from the Appraisal Institute). The appraiser shall provide verification of green valuation education of 14 hours or more from a qualified educational provider and knowledge to be permitted to conduct the appraisal for this project.
2. Help your experienced appraiser appropriately value the home by completing the Green Addendum.

Most are considered “non-complex.” Green, high-performance buildings however, are atypical properties because of their green features. The Appraisal Institute developed the Green and Energy Efficient Addendum for residential buildings and commercial (multifamily) buildings to signal that a building is not typical and help appraisers appropriately value green, high-performance homes. The Addendum inventories the green practices, products, and technologies in the building and even recognizes NGBS Green certification specifically for the valuation process.

One significant benefit of using the Addendum and a trained appraiser is that it will allow the appraiser to go further afield for comparable homes. An NGBS Green Certified building is not “comparable” to the code-minimum home down the street, why should that home be used as a comparable in the valuation process? Instead, the Appraisal Addendum can help identify the home as unique and look for homes that are more similar. Builders can go even one step further and maintain a list of any nearby comparable green homes and looking for any NGBS Green Certified homes in your region is on NGBS.com.

Take Advantage of New Appraisal Tool for Green Homes

The following blog was authored by Sandy Adomatis and published in December 2014.

Imagine a buyer expecting the builder to provide a proposal for a new home without knowing what they plan to build. What a ridiculous and impossible request! Well imagine an appraiser being required to value a house without knowing the details of the construction and, most importantly, the high-performance features. That is not too far off from what often happens in high-performance appraisal requests.

If you had a tool in your toolbox that saved you time and money, would you use it? That’s exactly what the Appraisal Institute’s Residential Green and Energy Efficient Addendum is – a valuable new tool in your green home marketing toolbox. The Addendum is a high-performance communication tool that standardizes terms for lenders, appraisers, real estate agents, and homeowners. This makes it easier for all parties to understand the benefits and value of the high-performance homes you build.

To do their jobs effectively, appraisers must choose comparable sales of houses that compete for the same buyer. The informed buyer of a high-performance house would only consider other high-performance houses as substitute properties. If the appraiser cannot find a higher performance sale in the area, they need sufficient detail to identify how a given high performance house differs from a code-built house that might be the only comparable they can use. An Addendum completed with emphasis on how a property compares to the code-built house will assist appraisers in analyzing appropriate adjustments for energy, quality, and/or green features. It also assists real estate agents or sales teams in explaining the benefits of high performance to potential buyers.

But, just like any tool, if you do not use the Addendum appropriately, it will not produce good results. Ideally, NGBS Green Verifiers and builders of NGBS Green Certified homes are the most qualified to complete the Addendum, because they have the most significant details about performance and knowledge of how it differs from code. The following tips will enhance your use of the Appraisal Addendum providing optimal results for the appraiser using it or resale agent marketing it.
Use a Qualified Real Estate Agent
For all the same reasons that you want an appraiser experienced in green home valuation, a builder should also seek out real estate agents trained in the benefits and value of green home features. Many green, high-performance features and practices can be unnerving and difficult for the untrained sales agent to discuss with prospective home buyers. As a result, they may avoid promoting these features for fear of getting a question that they can’t answer.

 Builders large enough to maintain an in-house sales and marketing staff should ensure that they sales team understand the green practices that are installed in the home and the value to the buyer. Too often our staff hears that while the construction team fully understands and appreciates the value of the green features in a NGBS Green certified home, the sales team has never been brought into the discussion. As a result, many builders report that they sales team reports that buyers “never ask about green.” This leads builders to mistakenly conclude that “buyers don’t care about green, only the ‘sexy’ features like granite and cabinets. And yet when we talk to the construction team who accompany buyers on the pre-drywall walk-through, they inevitably state that the buyers ALWAYS ask about the
insulation installation. And what could be less sexy than insulation? The bottom-line is that buyers DO care about the benefits of green features – but they have to have someone talk to them about these features to even know that a builder is using them.

There are two national credentialing programs for real estate professionals: The National Association of Realtor’s (NAR) Green Designation and EcoBroker’s Designation. Both programs provide real estate professionals with the training and tools they need to understand and effectively communicate to home buyers the value of green homes.

Green Features in the MLS
While builders have made great progress in designing and constructing green, high-performance homes, these green features are often overlooked by consumers because until recently green features were not searchable within Multiple Listing Service (MLS) features.

Fortunately, green features are rising in prominence in the real estate transaction process. In 2010, only 125 MLs offered fields for green or high-performance homes. Now, the National Association of REALTORS® (NAR) claim that 79 percent of the 100 most populous metropolitan areas have access to an MLS with green fields. All members of the real estate industry, from appraisers, lenders, agents, builders, contractors and remodelers, gain when the MLS offers a way to locate, market, and appraise properties with green features or certifications.

When the MLS offers a way for consumers to find information about green features, statistics compiled from those MLs makes a compelling case for the tangible value certified green homes offer. In Portland, for instance, 14 percent of homes on the market between mid-2007 to mid- 2008 were green. By mid-2010, that figure grew to 23 percent. And between mid-2008 and mid-2009, Portland's green properties sold 18 days faster than their non-green competitors. Likewise, in Atlanta, certified green homes sold 15 days faster than traditionally built new homes during 2010. In 2009, that number was 31 days. Certified green homes in Atlanta have also seen a year-to-year increase in market share of total homes sold. Last, in Seattle, the MLS statistics show a clear sale price premium for certified green homes versus non-certified homes.

One way to ensure that the industry is prepared for this greater demand is by making it simpler to find, promote, and evaluate green homes. A green MLS does just that. Read more about the importance of a Green MLS at The Green MLS Toolkit.

Elevate Energy and NAR’s Green REsource Council developed the Green MLS Implementation Guide to speed up and ensure consistency in how green features are represented in the MLs. If you are one of the lucky builders that constructs NGBS Green homes within the territory of an MLS that has long offered fields for green, high-performance homes, Home Innovation encourages you to work with your local MLS to transition to the standardized green fields found in the Green MLS Guide. Or if you are building within an MLS that does not yet offer green fields, the Green MLS Guide offers a streamlined roadmap for including searchable green features.

As a builder of NGBS Green homes make sure that you maximize the value of your green certification by listing your home’s green features in the MLS listing if you are using the MLS to market your for-sale properties.
APPENDIX A:
Home Innovation Staff

The NGBS Green Team is here to assist you however we can through the certification process. Please do not hesitate to reach out for assistance, however, we prefer that you use the Contact Us form so that we can be sure you get a timely response.

Michelle Foster, Green Team Lead

Tom Kenney, Green Quality Manager
   Certification oversight, QA/QC

Cindy Wassar, Senior Green Programs Manager
   Customer Care, Green Certified Products oversight, verification oversight, program advocacy,
   technical assistance, program liaison

Chinedu Moneke, Research Engineer
   Verification and quality assurance oversight, Verification Report Reviewer

Lynda Mosteller, Green Certifications Administrator
   Verifier accreditation, certification administration (which includes client agreements, certificate
   issuance), database management

Elina Thapa, Verification Report Reviewer, training narrator

Nay Shah, Verification Report Reviewer

Pam Barksdale, Verification Report Reviewer, training narrator

Dave Mallay, Verification Report Reviewer, energy efficiency expert

Mario Gozum, Verification Report Reviewer

Anne Holtz Schmick, Green Communications
   Marketing materials, logos, news releases, media coordination, NGBS.com
   coordination/management, events calendar manager

Kelly Jerald, Green Billing Administration and Support
   Payment notices, billing issues

Bill Watkins, Green IT Manager
   Database administration, scoring spreadsheet assistance, Verifier administration support
   (registration, inspection notification), automation, program software engineering

NGBS Green Appeals Board:
   Michael Luzier (President & CEO), Bill Ingley (CFO), Tom Kenney (VP, Engineering & Research)
APPENDIX B:
NGBS Green Certification Resources

Below are resources for those who design, build, remodel, develop, verify, and advocate for NGBS Green certification of single-family homes, multifamily buildings, and land developments. There are also resources for consumers interested in living in an NGBS Green Certified home. Contact us if you have any questions about NGBS Green Certification.

Design & Build a Green Home
- 2020 NGBS Overview Webinar
- Review the Builder’s Resource Guide
- Find an Architect
- Find NGBS Green Certified Products
- Compare NGBS to Other Green Rating Systems
- Multifamily Financing Incentives
- Qualified Allocation Plans (QAPs) that reference NGBS
- Overview: 2012 vs. 2015 NGBS Green
- 2012 NGBS Sunset Policy
- NGBS Green Compliance Guidance for Tropical Zone

Get Your Green Home NGBS Certified
- Review the Builder’s Resource Guide
- Score Your NGBS Project (video)
- Introduction to NGBS Scoring Tool (video)
- New to Green? Use the NGBS Bronze Cookbook
- Find a Verifier
- Find a Multifamily Verifier
- NGBS Certification Fees
- Find Available Incentives

Market & Sell NGBS Green
- Market Your NGBS Project
- Green the Real Estate Transaction Process
- Guide to the Residential Green & Energy Efficient Addendum
- Residential (SF homes and townhouses)
- Appraisal Institute Green & Energy Efficient Appraisal Addendum
- Commercial (Multifamily) Appraisal Institute Green & Energy Efficient Appraisal Addendum
- Compare NGBS to Other Green Rating Systems
- Get Your Products Green Certified
- Feature Green Homes via Porch.com
- Review the Builder’s Resource Guide
- Summary of Green Consumer Studies

Live NGBS Green
- What Does it Mean to ‘Live Green?’
- Find Your Green Home – Visit NGBS Green.com

NGBS Green Program Info
- Learn About the NGBS
- Track NGBS Certification Activity
- Review the Builder’s Resource Guide
- Become an NGBS Green Verifier
- Sign Up for NGBS Green Insider Update
- Follow NGBS Green on Twitter
- Join the NGBS Conversation on LinkedIn
- Find NGBS Green Certified Products
- Find Available Incentives

Stand Up for NGBS as a Choice in Your Market
- NGBS Advocacy – LEED Equivalency, IgCC Alternate Compliance Path, Annual Report
- NGBS Green for Local Compliance – Overview
- Use NGBS to Comply with IgCC
- Find Available Incentives
APPENDIX C:
NGBS Green Certification Program Policies
NGBS Green Certification Program Policies

1. **NGBS GREEN CERTIFICATION POLICIES**

1.1 **Applicable Buildings (Effective April 2013)**

The NGBS specifically addresses single-family homes, multi-unit buildings, the residential portions of mixed-used buildings, land developments, and remodeling projects, but the definition of dwelling unit allows for broader use beyond these types of residential construction. There are no restrictions based on end-use, height, or construction type.

The NGBS covers residential construction with units that meet the definition of a dwelling unit—i.e., “a single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living sleeping, cooking, and sanitation.”

Home Innovation has established the following rules regarding applicable buildings. NGBS Green Verifiers should be aware of these requirements and communicate requirements to all builder/developer clients.

**Multifamily & Mixed-Use Buildings**

There is no height limit for buildings seeking NGBS Green certification. All units within the building and the residential common areas must comply with the NGBS, as certification is issued for the entire building, not individual apartments.

Existing buildings can also attain one of the four levels of certification when units and the residential common areas are remodeled according to the NGBS requirements.

The residential portions of mixed-use buildings can earn NGBS Green certification. The retail and commercial areas are outside the NGBS scope and need not comply with the NGBS requirements.

**Townhouses**

Home Innovation defines multifamily buildings as those where several units share common areas, as well as common foundation and roof. Townhouses, rowhouses, and quads must be scored and certified as single-family homes, unless they are permitted locally as multifamily. Home Innovation requires that all buildings consisting of eight units or less submit a copy of the local building permit.

When townhouses are certified as multifamily, one certificate is provided and it contains a group of addresses (e.g., 100, 102, 104, 106 Main Street). Additional copies of this certificate may be obtained for an additional $50 per copy.

Townhouses permitted as multifamily can be certified as single-family if desired and each unit will get a certificate.
**Hotels**

The NGBS can be used for hotels, provided that all units meet the NGBS definition of dwelling unit. In general, the NGBS is not applicable to traditional hotels where the rooms are equipped with only a bed(s) and bathroom.

The NGBS is applicable to hotels that offer amenities that make it function more like a residence than merely a sleeping room. Each unit should have at a minimum a refrigerator; a microwave, range, or cooktop; a bed(s), bathroom; and living area.

Hotel projects are certified following the verification and certification rules for multifamily buildings. Multifamily certification fees apply.

**Other Buildings (Effective January 2014)**

Buildings with a residential end-use may be applicable for NGBS Green certification, including dorms, military housing, shelters, rescue squad facilities, etc. These facilities should adhere to the guidelines established for hotel certification.

If the units do not have a separate kitchen area but has shared kitchen facilities accessible for the occupants of the units without an additional fee, the building should be verified as if it were a single-family home.

1.2 **Team Verification**

NGBS Green Verifiers may verify projects as a team. Home Innovation allows multiple accredited verifiers to perform rough and final inspections and documentation collection for a single building. Only fully-accredited verifiers are permitted to perform verification inspections for any project seeking NGBS Green Certification. Home Innovation recognizes one “Verifier of Record” per building, the verifier who signs the final verification report, and Home Innovation holds the Verifier of Record responsible for the accuracy of the compliance report.

NGBS Green Verifiers or the verifier’s company may choose to establish a sub-contract agreement with accredited NGBS Green Verifier(s) to provide verification services.

1.3 **Field Inspections Dates (Revised November 2014)**

The date on the verification report (either rough or final) should be the date of the site visit, not the date when the report is submitted, even if the final report submission is delayed by documentation collection or payment. For multifamily buildings, the date should be the date of the last inspection for that stage (rough or final). Verifiers are expected to keep their own records regarding inspection dates when multiple visits are required for large multifamily projects. If there is a delay in submitting the final report due to waiting for documentation, a note explaining the time difference between the rough and final inspection dates should be included on the final signature page. Submission of the rough report should not be delayed because of pending documentation. The Verifier should not award points, but instead include a note that points will be awarded at final pending review and acceptance of the documentation.

1.4 **Document Retention (Effective October 2009)**

Verifiers must maintain inspection documents for a minimum of three years after final inspection. Verifiers are required to keep a copy of the scoring spreadsheet with final verification, digital photos, a
copy of the energy analysis if the Performance Path is used, and any information related to uncertain items noted.

Documents can be kept electronically but must be appropriately backed-up and easily retrievable should Home Innovation need to obtain copies during the three-year post-certification period.

1.5 “Verified by City Inspector” Not Acceptable (Effective September 2010)

The NGBS Green Verifier who signs a verification report is responsible for ensuring that the building meets the awarded NGBS practices. Verifiers must not assume that any NGBS practice is met simply because the local building code aligns with the NGBS practice(s).

For example, points are awarded for insulation installation according to the “grade” given during inspection. Building inspectors do not grade insulation according to the NGBS requirements. A Verifier cannot claim that a city inspector performed the third-party insulation grading unless the inspector provides a written statement that includes the grade. Also, the typical jurisdictional plan review by the local Building Department does not qualify to meet the intent of 701.3. Points should be awarded based on first-hand visual inspection when the VRG instructs that the practice be verified by inspection.

1.6 Missing a Mandatory Practice at Rough Inspection (Effective September 2010)

If a Verifier misses an NGBS practice during the rough inspection, it is typically acceptable for him/her to approve the practice at final inspection, provided that s/he can properly inspect the practice during the final inspection.

Missing a mandatory practice that can only be verified at rough will cause the building to be ineligible for certification unless the builder is willing to remove drywall and/or siding for inspection. Photos by the builder and other evidence are not acceptable for after-the-fact verification, unless expressly stated in the Verifier’s Resource Guide (VRG).

1.7 Transition to Updated Versions of the NGBS (Effective July 2013)

The NGBS is typically updated on a three-year cycle to parallel the building code cycle. ANSI requires that the NGBS be updated at least every five years. When a new version of the NGBS is approved by ANSI, Home Innovation will announce the transition period for projects seeking certification. Typically, builders and developers who wish to transition quickly to the new NGBS version may do so shortly after ANSI approval and as soon as Home Innovation releases the updated NGBS Green Scoring Tools and verification resources.

Whenever the NGBS is updated, Home Innovation will schedule webinars to help architects, builders, developers, and verifiers make the transition and understand the new practices and requirements. NGBS Green Verifiers will be required to earn accreditation to the new NGBS version prior to conducting inspections to the new version.

Deadlines for NGBS transitions are published in the Verifier and Insider Updates and on the Home Innovation website in the “News and Events” section. NGBS Green Verifiers and clients should read program updates from Home Innovation to be kept informed of important transition deadlines.

1.8 Complaints & Appeals (Revised October 2016, May 2018)

Home Innovation provides the opportunity for NGBS Green Partners and verifiers to submit complaints or appeals via the “contact us” link on our corporate website. Home Innovation will also receive written
complaints and appeals via email, US mail, or another document delivery. If staff receives a phone call or verbal complaint, the complainant is asked to submit it in writing.

Formal complaints and appeals will be recorded and responded to promptly. When a complaint or appeal is submitted, the Vice-President for Innovation Services should inform the following Home Innovation staff: NGBS Green Quality Director, the CFO, and the President/CEO. The Vice-President for Innovation Services is responsible for investigating the cause of the complaint, initiating any needed corrective action, and responding to the client. Home Innovation staff that receive a complaint are expected to document it appropriately and notify their division director; and when the complaint is regarding the NGBS Green certification program, the Vice-President for Innovation Services must also be notified.

In general, the difference between a complaint and an appeal is the scope of the issue. Complaints are typically specific to an individual project or an individual Verifier or builder. Appeals may be specific to a project or they can be a request for a new interpretation, policy, or procedure that would apply more broadly to the NGBS Green certification program. Complaints are typically kept confidential. Appeals are typically shared with program participants because they have a potentially broader application.

**PROCESS**

The following process is used to address complaints or appeals.

1) Upon receipt of an appeal or a complaint, the NGBS Green Certification Manager will submit the necessary information to the NGBS Green Certification Administrator to be recorded into the formal log.

2) For an appeal or complaint, the following information must be collected:
   
   i. COMPANY
   
   ii. CONTACT INFORMATION
   
   iii. PROJECT ADDRESS (if relevant)
   
   iv. As relevant, PROJECT ID or Verifier ID
   
   v. REASON FOR APPEAL/COMPLAINT
   
   vi. VERIFIER NAME (If relevant/available)
   
   vii. NEW POLICY, INTERPRETATION, OR PROCESS (If relevant) OR
   
   viii. ACTION REQUESTED (i.e. waiver of a program requirement, probation for a Verifier, or reinspection of a project)

3) The Vice-President for Innovation Services will send an email of receipt to the appellant/complainant and will review each appeal and complaint to assess its validity relative to the work and responsibility of Home Innovation.

4) All documents should be forwarded via email to the President, CFO, and NGBS Green Quality Director regardless of their validity within one business day. The VP of Innovation services will also include an initial recommendation if the appeal of complaint is valid as described below.

5) For complaints, the Quality Director shall provide notice to the person or organization that is the subject of the complaint that a formal complaint has been filed.
6) The voting members of the Home Innovation NGBS Green Appeals Board are the President, the CFO, and the NGBS Green Quality Director. The VP, Innovation Services may take part in the deliberations, but cannot vote on an appeal.

7) An appeal or complaint is considered “valid” so long as it is within the scope of the NGBS Green certification program and/or that Home Innovation has responsibility over the subject issue.

8) Invalid submissions will be followed up by VP, Innovation Services with a written reply to the submitter with an explanation of why their concern is not within the scope or responsibility of Home Innovation. The individual or the organization that is the subject of the complaint will also be provided notice of such a decision.

9) Valid submissions will receive an acknowledgement that it has been received and is being investigated. For an appeal to proceed, the appellant must pay an Appeal Fee of $500 to Home Innovation. Once the Appeal Fee is paid, the CFO’s Office will notify the VP Innovation Services and NGBS Green Certification Administrator and the Appeal can be investigated.

10) For complaints, the Quality Director will forward formal notice and relevant documents to the individual or organization that is the subject of the complaint and they will be permitted 30 days to respond in writing to Home Innovation via the VP Innovation Services to refute or confirm the allegations.

11) The VP Innovation Services will investigate the cause, the impact, and appropriate corrective actions. As part of the investigation, the VP Innovation Services will schedule a meeting of the NGBS Green Appeals Board to hear from the appellant their reasons for the appeal. The results of the investigation will be reviewed with the President, CFO, and NGBS Green Quality Director and they will initiate appropriate corrective actions to resolve the issue.

12) The submitter and the individual or the organization that is the subject of the complaint if relevant, will receive progress reports every 30 days until the situation has been resolved or the final appeal has been completed. When the Appeal is finally resolved the VP Innovation Services will send an explanation of the decision and instructions if a project can proceed with certification.

13) Decisions regarding an appeal will be filed with the NGBS Green Certification Administrator so the decision can be recorded in the Appeals log. Decisions regarding a complaint will be recorded in the Complaints log and in the appropriate Project/Verifier/Builder file, as relevant.

14) Submissions related to appeal or disputes related to certification activities shall be communicated to the Certification Impartiality & Oversight Committee for their review.

15) If an appeal is successful regarding an interpretation; program policy; or certification requirement, the decision and any resulting new policies shall be communicated to the relevant NGBS Green program participants and included in revisions to the Builders Resource Guide and/or Verifier Resource Guide.
1.9 Responding to Homeowner Issues [Effective November 2014]

Home Innovation does not have a direct relationship with owners/renters of NGBS Green Certified homes. If a homeowner or renter contacts Home Innovation regarding a specific project or client (builder, developer, or Verifier), Home Innovation will try to understand the specific issue(s). Our policy is to act only if the dispute is directly related to the NGBS Green certification. If the issue is outside the scope of the certification, we will encourage the owner/renter to work with the builder to resolve the issue at hand.

Home Innovation’s process for responding to homeowner/renter issues is as follows:

1) Gain understanding of the homeowner/renter’s issues:
   a. Obtain building address and builder’s name to confirm it is an in-process or certified building.
   b. Ask the buyer/renter for details about their issues, particularly how it relates to NGBS requirements.
   c. Ask the buyer/renter if they have discussed the problem with the builder and how the builder is addressing the issue.
   d. If the issue relates to the NGBS Green certification, tell the buyer/renter that we will investigate the situation and get back to them. If the issue is completely unrelated to the NGBS Green certification, we will encourage the buyer/renter to work directly with the builder to address the situation.

2) Document the complaint in an internal email to alert management of the issue.

3) Contact the builder/developer client and NGBS Green Verifier:
   a. If the complaint is specific to an NGBS practice, review the verification report to see if the verifier awarded points for that practice (or indicated that a mandatory practice was applicable and met).
   b. If it appears that the verifier missed something during the inspection process, Home Innovation will contact the verifier to discuss the issue.
   c. If the issue appears to be the responsibility of the builder/developer client, Home Innovation will contact the builder and ask about the situation.

4) Follow-up:
   a. If the issue is outside of the scope of the NGBS Green certification, Home Innovation will contact the homeowner/renter in writing to explain why the issue is outside the scope of certification. The individual will be encouraged to work with the builder to resolve the issue, if possible.
   b. If the issue is related to the NGBS Green certification, an internal meeting with the Executive Management Team and the Green Team staff will be arranged to determine the appropriate response. Once a decision is made, but prior to contacting the owner/renter, Home Innovation will inform the verifier and the builder of how we intend to resolve the issue. We will subsequently contact the owner/renter with our decision.
Home Innovation considers the verification report a document that contains the builder’s proprietary information and does not share the report to any outside party without the builder’s permission. Verifiers should follow the same policy. The builder can provide the information to anyone at their discretion.

Home Innovation typically does not provide the verifier name and contact information directly to the homeowner/renter except when we are unable to reach anyone at the builder company, required by a court, or permission has been expressly granted by the verifier.

1.9 Deadlines for Final Inspection Package: Single-Family Homes (Effective February 2012)
Within 30 days after a building’s final inspection, the Verifier must submit the final inspection package to Home Innovation. If, at that time, the Verifier has unresolved payment or other issues with the client and wishes for Home Innovation to delay processing of the verification report/issuing of the certificate pending resolution, he/she must provide Home Innovation an email explaining the situation. Upon receipt of the Verifier’s written request, Home Innovation will contact the client to inform them we have received the final verification submittal but are delaying processing it at the Verifier’s request. We will also remind the client that if 90 days elapses after the date of final inspection of a building, the project seeking certification will need to be re-inspected before it can be certified.

Verifiers who do not submit the final inspection package for a home within the 30-day period after completing a final inspection will jeopardize the building’s ability to be certified and will receive a failing grade for the final inspection package, per the grading rubric. Repeat offenders will be put on probation.

1.10 Energy Modeling Policy (Adopted January 1, 2020, Revised April 2020, Effective July 1, 2020)
Summary: This document identifies the appropriate software programs and modeling approach for each of the energy efficiency compliance pathways in the NGBS.

Effective Date: All projects registered on or after July 1, 2020 must meet the requirements outlined in this policy.

Software Versions: For all “List 1” software programs listed within this document, accepted versions are identified on this list. For all “List 2” software programs listed within this document, accepted versions are identified on this list. The submitted energy performance report should reflect an accepted version at time of project registration.

Note on Eligible Software: Qualifying software programs are those listed within this document. Modeling outputs from other software programs are not accepted.

Ideally, software should be selected that can be used to accurately model both residential and commercial spaces. For software that cannot accurately account for common/halls uses (i.e. REM, Ekotrope, EnergyGuage, etc.), these spaces should be either a) modeled separately to show equivalent compliance using Commercial software or b) shown to be better than the IECC using COMcheck software outputs that show compliance with the requirements of IECC C402 through C406, provided that no equipment is shared across the dwelling units and common areas.

Notes on Energy Performance Reports: Energy performance reports should reflect as-built conditions.

“Confirmed rating” refers to an energy performance report that is complete and shared with the appropriate oversight body. Where a confirmed rating is required, the energy efficiency performance report should not show language such as “DRAFT” or “Unconfirmed.”
**Professional Qualifications for Energy Modelers:** The 2020 NGBS Green Scoring Tools include field for the NGBS Green Verifier to identify the name and credential(s) of the professional who generated the energy model.

The following professional energy modeling credentials are **encouraged but not required** for multifamily energy modeling work:

*For Single-Family Homes and Multifamily Building 3 Stories and Below:*

- RESNET Certified Home Energy Rater (“HERS Rater”)

*For Multifamily Buildings 4 Stories and More:*

- AEE Building Energy Simulation Analyst (BESA)
- BEMP – Building Energy Modeling Professional Certification
- ENERGY STAR Multifamily High Rise Licensed Professional
## NGBS Green Energy Modeling Guidelines

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<td>Section 702 - Performance Path (2012, 2015, and 2020)</td>
<td>Residential Permitting: ICC IECC, Section R405</td>
<td>Residential Permitting: model dwelling units using software from List 1. For common areas, model using software from List 2 or verify using whole-building REScheck or COMcheck reports.</td>
<td>Single-Family &amp; Multifamily up to 3 stories: unitary; unit-by-unit approach, or a building average of a unit-by-unit approach. Sampling of multifamily energy modeling is permitted per 2018 IECC R405.4.2.</td>
<td>Energy performance report showing energy savings above ICC IECC. NGBS Green report is utilized when available in selected software program. Energy performance matches value entered in scoring tool. <strong>Multifamily notes:</strong> If employing building average or unit-by-unit approaches, submit analysis showing the units modeled and corresponding performance. This can be submitted as an Excel table or another file format.</td>
<td>N</td>
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<td></td>
<td>Commercial Permitting: ICC IECC Section C407.2 through C407.5, as applied as defined in the ICC IECC</td>
<td>Commercial Permitting: whole-building modeling using software from List 2.</td>
<td>Multifamily 4+ Stories: whole-building energy modeling Energy modelers can group dwelling units together as “thermal blocks” for the purposes of modeling per ANSI/ASHRAE/IES Standard 90.1-2016.</td>
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<tr>
<td>Section 704 – HERS Index Target Path (2015)</td>
<td>HERS Index Target Procedure for National Program Requirements for ENERGY STAR Certified Homes, Version 3</td>
<td>See List 1.</td>
<td>Unitary or unit-by-unit approach. Sampling of multifamily energy model is permitted per ANSI/RESNET/ICC Standard 301 – 2019 S1.4.4 Sample Ratings for Attached Dwelling Units.</td>
<td>HERS report, showing confirmed* features and energy performance. For multifamily, worst case scenario for the building is submitted. HERS score matches value entered in scoring tool. <strong>Multifamily notes:</strong> submit analysis showing the units modeled and corresponding performance. This can be submitted as an Excel table or another file format.</td>
<td>Y</td>
</tr>
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</table>
### NGBS GREEN ENERGY MODELING GUIDELINES

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<td><strong>Section 704 - HERS Index Target Path (2015) or ERI Path (2020)</strong></td>
<td><strong>National ERI Target Procedures for ENERGY STAR Certified Homes Version 3.0</strong></td>
<td>See List 1.</td>
<td>Unitary or unit-by-unit approach.</td>
<td>ERI report, showing confirmed* features and energy performance. For multifamily, worst case scenario for the building is submitted. ERI score matches value entered in scoring tool. Multifamily notes: submit analysis showing the units modeled and corresponding performance. This can be submitted as an Excel table or another file format.</td>
<td>Y</td>
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</tbody>
</table>
| **Section 701.1.4 - Alternative Bronze and Silver Path (2015 and 2020)**          | **Single-Family Homes and Multifamily 3 Stories or Below:**  
  - ENERGY STAR Version 3.0 Certified Homes (2015, 2020 – for Bronze)  
  - 2018 IECC (2020 – for Bronze)  
  - Chapter 11 of the 2018 IRC (2020 – for Bronze)  
  **Single-Family Homes and Multifamily 3 Stories or Below:**  
    - For ENERGY STAR, model dwelling units using software from List 1. For common areas, model using software from List 2 or verify using whole-building REScheck or COMcheck reports.  
    - For IECC or IRC compliance, verify by review of whole-building REScheck or COMcheck report. | **Single-Family Homes and Multifamily 3 Stories or Below:**  
  For ENERGY STAR, model dwelling units using software from List 1. For common areas, model using software from List 2 or verify using whole-building REScheck or COMcheck reports.  
  For IECC or IRC compliance, verify by review of whole-building REScheck or COMcheck report. | **Single-Family Homes and Multifamily 3 Stories or Below:** unitary; unit-by-unit approach, or a building average of a unit-by-unit approach.  
  Sampling of multifamily energy model is permitted per ANSI/RESNET/ICC Standard 301 – 2019 5.1.4.4 Sample Ratings for Attached Dwelling Units. | REScheck or COMcheck report showing IECC or IRC compliance.  
  OR  
  ENERGY STAR certification and energy performance report documentation, showing confirmed* features and energy performance | N (IECC/IRC) | Y (ENERGY STAR) |
### NGBS GREEN ENERGY MODELING GUIDELINES

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<tr>
<td>Section 701.1.4 - Alternative Bronze and Silver Path (2015 and 2020) (CONTINUED)</td>
<td>Multifamily 4+ Stories • 2018 IECC (2020 – for Bronze) • ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 (2015, 2020 – for Bronze) • ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 with a baseline at ASHRAE 90.1-2010 (2020 – for Silver)</td>
<td><strong>Multifamily 4+ Stories</strong>: For IECC or IRC compliance, verify by review of whole-building REScheck or COMcheck report. For ENERGY STAR, see List 2.</td>
<td><strong>Multifamily 4+ Stories</strong> whole-building energy modeling Follow ENERGY STAR Multifamily High Rise Simulation Guidelines, available <a href="#">here</a>.</td>
<td>REScheck or COMcheck report showing IECC or IRC compliance. OR ENERGY STAR certification and energy performance report documentation, showing confirmed* features and energy performance</td>
<td></td>
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<tr>
<td>Any Building Size:</td>
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<td>N/A – Energy Modeling &amp; Documentation Not Required</td>
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<td>701.5 Alternative Gold Level Compliance (2020)</td>
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<td>N/A – not accepting compliance via this option</td>
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<td>701.1.6 Alternative Gold Level Compliance for Tropical Zones (2020)</td>
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<td>N/A – Energy Modeling &amp; Documentation Not Required</td>
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For more details on eligibility, visit the [ENERGY STAR website](#).

*(ENERGY STAR Multifamily New Construction can be sought in lieu of ENERGY STAR Multifamily High Rise for comparable energy efficiency levels.)*
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<td>Chapter 11 Energy Consumption Reduction Path</td>
<td>Reduction in annual energy cost savings or source energy as determined by a third-party energy audit or utility consumption data. Project teams can demonstrate compliance via either modeling or utility documentation.</td>
<td>Residential Permitting: model dwelling units using software from List 1. For common areas, model using software from List 2.</td>
<td>Entire building, not just altered portions, should be modeled. Same assumption and modeling configurations should be used for both the 'before' and 'after' analysis. If applicable, the 'after' remodel analysis should reflect any additions or other changes to the configuration of conditioned space. Sampling of multifamily energy model is permitted per 2018 IECC R405.4.2 or ANSI/ASHRAE/IES Standard 90.1-2016.</td>
<td>Energy performance reports showing energy savings above pre-renovation conditions OR utility bill documentation. When modeling, NGBS Green report is utilized when available in the selected software program. Energy consumption reduction matches values entered in scoring tool.</td>
<td>N</td>
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<td>IECC Section R405</td>
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<td>Whole-building approach Sampling is not permitted.</td>
<td>Energy performance report showing energy savings (minimum 7.5%) above IECC. NGBS Green report is utilized when available in the selected software program. Energy savings matches values entered in scoring tool.</td>
<td>N</td>
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<td>See List 1.</td>
<td>Whole-building approach Sampling is not permitted.</td>
<td>ERI report showing confirmed ERI value at least 8 points less than reference home. HERS or ERI score matches value entered in scoring tool.</td>
<td>Y</td>
</tr>
</tbody>
</table>
### COMMERCIAL SPACES – 2020 NGBS

Reference code is 2018 IECC commercial code.

*Energy performance*: Energy demand for commercial spaces should be reflected in the analysis for the broader residential mixed-used building and submitted as part of documentation for New Construction certification.

*Other energy efficiency requirements*: Verifier should confirm that building features are in compliance with requirements of Section 13.105. Verifiers are expected to confirm that building features, including maximum UA, matches those shown on REScheck or COMcheck report provided by the Architect or Engineer of Record. Reports should be retained by verifier but does not need to be submitted with verification packet.

* When sampling is permitted, Sampled ERI or HERS reports can be submitted in lieu of Confirmed ERI reports.

#### Eligible Software

**List 1: Unitary Modeling Software**
1. Ekotrope
2. EnergyGauge USA
3. REM/Rate

**List 2: Whole-Building Modeling Software**
1. DesignBuilder
2. DeST
3. DOE-2.2
4. EnergyPlus
5. eQUEST
6. Hourly Analysis Program (HAP)
7. IES<Virtual Environment>
8. Open Studio with EnergyPlus
9. TAS
10. TRACE 3D PLUS
11. TRACE 700
12. TRNSYS

*Note*: Treat software, both single-family and multifamily options, are accepted for Renovation projects.
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</tbody>
</table>
1.11 Energy Efficiency Testing Policy
Adopted January 2020, effective for all projects registered on or after July 1, 2020

Energy efficiency testing should be conducted in accordance with the following. When tests are performed by someone other than the NGBS Green Verifier, the verifier should collect and retain proof of the professional’s credentialing information.

<table>
<thead>
<tr>
<th>Test</th>
<th>Relevant 2020 NGBS Practices</th>
<th>Reference Standards</th>
<th>Qualified Professional</th>
<th>Guidance/Areas to Test</th>
<th>Sampling Allowed for Multifamily Buildings</th>
</tr>
</thead>
</table>
| Building Envelope Tightness / Air Leakage Validation of Building or Dwelling Unit or Sleeping Units (Blower Door Test) | 703.4.3.2(1)* 11.701.4.3.2(1)* 705.6.2.1(1) 703.2.4 11.703.2.4 11.705.6.2.1 11.705.6.2.1 1203.7(A)* | ASTM E779 or ASTM E1827 or ANSI 380** | Qualified professional has received infiltration and duct leakage training and certification from one of the following organizations:  
  - Building Performance Institute (BPI)  
  - Residential Energy Services Network (RESNET) | Building, groups of dwelling units, dwelling unit, or sleeping unit  
  
  **Single-family homes: mandatory**  
  
  For the 2012 NGBS, testing OR visual inspection is required. For the 2015 and 2020 version, both are mandatory.  
  
  **Multifamily: required, unless building is classified as commercial by IECC, and building is in compliance with IECC C402.5 (Air Leakage-thermal envelope). Commercial buildings have option to comply via testing or per C402.5. Also see Multifamily Air Leakage Alternative on page 3 below.**  
  
  If the party performing the testing is not an accredited verifier, a written report of the results should be signed by the party conducting the test and provided to the NGBS Green Verifier. | Y |
<table>
<thead>
<tr>
<th>Test</th>
<th>Relevant 2020 NGBS Practices</th>
<th>Reference Standards</th>
<th>Qualified Professional</th>
<th>Guidance/Areas to Test</th>
<th>Sampling Allowed for Multifamily Buildings</th>
</tr>
</thead>
</table>
| Duct Testing / Duct Leakage | 703.1.3 703.4.4 705.6.2.3(2) 11.703.1.2 11.703.4.4 11.705.6.2.3(2) 1203.4* 1203.14* | **Mandatory Duct Leakage** *(703.1.3):* ICC IECC R403.3.2 through R403.3.5, as applicable  
*HVAC Duct Leakage Testing* *(705.6.2.3):* IECC R403.3.3 and R403.3.4 | Qualified professional has received infiltration and duct leakage training and certification from one of the following organizations:  
- **Building Performance Institute (BPI)**  
- **Residential Energy Services Network (RESNET)**  
The person performing the test must be a third-party. The HVAC contractor would not qualify if they are directly involved with installing the system being tested. | Mandatory for all 2015 and 2020 NGBS projects complying with Chapter 7 via the Prescriptive Path.  
Where duct testing is not required and conducted (i.e., low-rise multifamily projects pursuing performance path), default values are to be utilized in building energy model. Whenever testing is performed, the test values should be utilized in the model.  
Under certain conditions, testing of common areas may be required. See additional guidance.  
For renovation, duct leakage testing is required if the ducts are being replaced.  
A written report of the results shall be signed by the party conducting the test and provided to the NGBS Green Verifier.  
*For HVAC Duct Leakage Testing:* points available under 705.6.2.3 where duct testing is not required by IECC. Sampling is permitted. | Y                                                                 |
<table>
<thead>
<tr>
<th>Test</th>
<th>Relevant 2020 NGBS Practices</th>
<th>Reference Standards</th>
<th>Qualified Professional</th>
<th>Guidance/Areas to Test</th>
</tr>
</thead>
</table>
| HVAC Airflow Testing    | 705.5.1 705.5.2 705.6.2.2(1) | ACCA 5 QI-2010, Section 5.2 | 705.5.1(1-2) awards points when the following professionals are involved with HVAC design and installation:  
  • HVAC contractor certified by the Air Conditioning Contractors of America Quality Assured Program (ACCA/QA) or equivalent;  
  • EPA-recognized HVAC Quality Installation Training Oversight Organization (H-QUITO) or equivalent;  
  • HVAC installation technician(s) certified by North American Technician Excellence, Inc. (NATE) or equivalent.  
Home Innovation recognizes the following multifamily/commercial sector credentials as equivalent to those under 705.5.1(1).  
  • Associated Air Balance Council (AABC) Test and Balance Technician;  
  • Associated Air Balance Council (AABC) Test and Balance Engineer; and  
  • National Environmental Balancing Bureau (NEBB) Personnel Certification.  
Testing and balancing demonstrated via flow hood or other acceptable flow measurement tool. Test should be performed within multifamily common areas, unless there are extenuating circumstances (e.g., location of ducts) that make testing difficult. When testing is not performed, an explanation is provided within verification.  
Verifiers should review and retain testing and balance report for all areas tested. |                                                                 |

* = Mandatory practice

** = only referenced in Renovation chapter
Additional Guidance

Sampling of Energy Efficiency Testing
Sampling of the energy efficiency testing is allowed per the RESNET sampling protocol for projects registered prior to July 1, 2020 or Home Innovation’s Alternative Multifamily Verification Protocol for projects registered on or after July 1, 2020. See those protocols for more details.

Multifamily Air Leakage Alternative
701.4.3.3 states that multifamily buildings four stories or more in height and in compliance with IECC section C402.5 are automatically in compliance with 701.4.3.1 (building thermal envelope air sealing) and 701.4.3.2 (air sealing and insulation).

This alternative is available for buildings that are 4+ stories and permitted as commercial. If the building is permitted as residential, testing is required per the IECC and NGBS.

If there is question about how a particular building is classified, verifiers should discuss with the builder/developer. Home Innovation is not expected to respond to questions about code eligibility.

Multifamily Common Area Duct Testing
The following guidance should be followed for multifamily common areas (see NGBS definition) but does not necessarily apply to accessory structures or commercial space.

Where low-rise (up to 3 stories) multifamily buildings are complying via the Prescriptive Path and ducts are outside of conditioned space, duct leakage testing is required for multifamily common areas.

In a scenario where units have ductless systems and common areas have ducted systems (or vice versa), testing is required when common areas comprise a significant portion (~30% or more) of the building. The verifier should use their best judgment to determine when to test. Where there are extenuating circumstances (e.g., duct location, room configuration, etc.) that make testing difficult, a verifier may elect not to test. If testing is not completed, an explanation is provided within the verification report.

Regardless of whether testing is completed, visual inspection for sealing is required.

If the units and common areas have any mix of ductless and ducted systems, points cannot be claimed for both completing duct leakage testing (705.6.2.3) and having ductless systems (703.4.1 and/or 703.4.2). Points should be awarded for the predominant system.
2. **NGBS GREEN PROGRAM – PROCESS-RELATED GUIDANCE**

2.1 **Mandatory, Free Registration** *(Effective November 2012)*

NGBS Green certification has a mandatory online registration process. Registration is free.

Only accredited NGBS Green Verifiers can register projects for certification. Projects are registered at [www.homeinnovation.com/verifiercentral](http://www.homeinnovation.com/verifiercentral).

A project, for purposes of registration, is defined as one of the following: a single-family home; a stand-alone multifamily building; one phase of a residential land development; development/community of multiple multifamily buildings; a development/community of mixed multifamily and single family, or a small remodeling project. Single-family homes must all be registered separately, even if all homes within a community will seek certification.

A verifier can register a project any time after he/she has a formal commitment with a client for verification services.

Registration provides each project with a unique Project ID. The Project ID is required at: (1) rough inspection notification; (2) rough verification report submission; (3) final inspection notification; and (4) final verification report submission.

Registration of multifamily buildings and land developments is a two-step process. After the initial registration process, the online Multifamily Information Form must be completed. This form can be completed by the verifier, builder/developer, or architect. The inspection notice for the project cannot be submitted until this form has been completed.

2.2 **Rough/Final Verification Reports** *(Effective August 2008)*

There are two verification inspections for most projects: rough and final. The same spreadsheet is used for recording both the rough and final inspections. The verification report includes a cell to indicate if the submission is for a rough or final inspection. Please accurately note the inspection phase being conducted. The Rough/Final report type controls which items are mandatory based on the verification phase. Mandatory items for a Final inspection will not be highlighted if the report still says Rough. Do not change any entry in the rough column when preparing the final. If something was incorrectly recorded or missed, correct it in the final column and add a note of explanation.

2.3 **Alternatives for Builder Signature** *(Effective October 2011)*

NGBS Green Verifiers may experience challenges with obtaining timely builder signatures on verification reports. To streamline the process, Home Innovation will accept two alternative forms of signatures.

1) Acknowledgement Form signed by the builder that authorizes the NGBS Green Verifier to submit reports without an actual builder signature. Verifiers can request this form by contacting the Certification Programs Coordinator.

2) Email between builder and verifier where the builder asserts that the specific home has been built in accordance with the practices for which points have been awarded. A separate email sign-off must be submitted for each project.
To be eligible to use either of these alternative sign-offs, the builder must have previously earned at least three NGBS Green certifications by Home Innovation and apply. If a verifier is interested in using one of these alternatives, please contact us at least 3 weeks in advance of the rough inspection so the application for alternative signature can be completed by the builder. Verifiers may not use the alternative signature approach until Home Innovation has approved the request. This approval is builder specific and must be done for each builder who seeks to use one of these alternatives, but once a builder has been approved, the alternative approach may be used for all future projects.

2.4 Project Address Changes (Effective June 2013)
If a project is mistakenly registered with an incorrect address, the NGBS Green Verifier should send an email to gbverifications@homeinnovation.com with the Project ID that was issued and the correct address. Home Innovation will update the address in the database using the Project ID that was originally issued. Please do not create another registration for the same house with a different address.

Home Innovation does not need to be notified of an address change if the home was registered with a lot number (if the lot number was correct) when the final report has a postal address.

The address on both the verification report and the signature page must match the address for the home that was inspected. The final report must contain the physical address of the project. The NGBS Green certificate cannot be issued with a Lot # or PO Box.

2.5 Certificate Reissuance (Revised November 2014; March 2019)
A $50 administrative fee is charged for a reprint/reissuance of a certificate that is not the result of a Home Innovation error. This includes instances where the builder company name in our database is different than how the builder wants to be listed on the NGBS Green certificate, as ample opportunity is provided for the builder to confirm the correct company name prior to the certificate being sent. NGBS Green Verifiers are responsible for informing clients of this administrative fee. This fee is also charged for requests for duplicate certificates.

Anyone may request an NGBS Green certificate for a home, multifamily building, or land development provided they pay the administrative fee.

2.6 Verifier Changes / Reassignment (Revised March 2019)
If a client would like to change the Verifier hired to provide verification services after a project has been registered (and it is a Verifier from a different Company), the client must email Home Innovation to notify us of that change. If we have already received the rough inspection documentation for the project, on request of the client we will provide the new verifier with the rough documentation submitted for review so that it can be used for the final inspection. Verifiers within the same company can switch between projects without notifying Home Innovation.

2.7 Overnight Delivery (Revised November 2014)
Some builders may seek additional expediency for their NGBS Green certificate, because they require the certificate in time for closing. Home Innovation offers overnight delivery to meet the needs of these clients. The builder should be sure that the option for overnight delivery is checked on the verification report, and the correct address is identified for shipping. The builder company will be invoiced for a $40 flat fee for overnight shipping.
2.8 **NGBS Version Transition** *(Revised October 2016)*

No fee is charged for a project to transition from one NGBS version to another NGBS version before the rough inspection and before the completion deadline has passed.

A $50 review fee is charged when a building seeks to transition from an earlier version of the NGBS to a newer version after the completion deadline is passed, if the rough inspection has already been completed and verification report submitted.

3. **NGBS GREEN VERIFIER ACCREDITATION POLICIES**

3.1 **Maintaining Verifier Accreditation Policy** *(Revised November 2014)*

NGBS Green Verifier accreditation is specific to an individual; a company or organization is not accredited. If an individual intends to provide verification services on behalf of an organization for which the verifier is not the sole owner, an officer of that company must provide consent.

Verifier accreditation is portable and a Verifier can maintain their accreditation at no additional cost even if they switch employers, provided that the Verifier re-submits proof of insurance, an application/listing form, and a signed agreement prior to the expiration date of their accreditation. If a verifier is unable to submit new insurance and a complete Verifier Agreement prior to the expiration date of their accreditation, s/he will be required to re-submit payment along with a new application. If the application is not renewed within the 30-day grace period, the Verifier must start the accreditation process from the beginning, including the training and exam.

If Home Innovation is informed that a Verifier was removed from his/her job due to reasons that may reflect poor performance and/or lack of compliance with Home Innovation’s verification protocols, the Verifier’s accreditation will be suspended until Home Innovation completes an audit and is satisfied that the Verifier is competent to provide verification services.

Full terms of NGBS Green Verifier accreditation are outlined in the Verifier Agreement.

3.2 **Verifier Termination Policy** *(Revised November 2014)*

Home Innovation reserves the right to terminate an NGBS Green Verifier for a variety of reasons, including but not limited to:

- Failure to provide accurate, credible, and timely verification inspections and reports
- Failure to remain independent
- Failure to renew the accreditation annually
- Failure to maintain the require insurance
- Lack of verification activity

Verifiers should consult the Verifier Agreement to review all the items that are enforceable with termination.

NGBS Green Verifiers who are terminated due to violation of any of the below requirements are reminded of the provisions of the verifier agreement are enforceable after termination. These items include prohibition of service to a competing program for one year and the requirement to dispose of any proprietary information about the NGBS Green program.
Violation of the Non-compete Clause – Paragraph 8.3 of Verifier Agreement

- Verifiers must not provide services to other NGBS-based programs.

NGBS Green Verifiers are prohibited from providing verification services for a program based substantially on the National Green Building Standard ICC-700. NGBS Green Verifiers are expected to understand the NGBS and other programs that they are participating in well enough to recognize when they violate this clause.

Verifiers may provide verification services for other non-NGBS certification programs.

Home Innovation vigorously protects its intellectual property and believes that an individual or company cannot service a program based on the NGBS without utilizing knowledge gained from participating in the Home Innovation NGBS Green program.

Being listed or advertised, on a website or in other materials, as a verifier/rater for a NGBS-based program is enough evidence for Home Innovation to terminate a verifier. NGBS Green Verifiers who violate the non-compete clause will be notified in writing, along with the associated company management if applicable, that the verifier is immediately terminated.

Verifiers can provide verification services for any other green certification program based on another rating system or standard.

Verifiers terminated for this reason may not reapply for a period of one year. When s/he reapplies, acceptance is at the discretion of Home Innovation.

Conflict of Interest or Failure to Remain Independent – Paragraph 8.9 of Verifier Agreement

- Verifiers must remain independent.

NGBS Green Verifiers shall not have any conflicts of interest and must remain independent from the clients whose projects they are verifying such that the credibility of their verification is not open to question.

NGBS Green Verifiers are strongly encouraged to be careful to avoid potential conflicts and to ask Home Innovation for clarification prior to undertaking any activity that might be a conflict or jeopardize their independence.

NGBS Green Verifiers who do not maintain independence will be notified in writing, along with the associated company management if applicable, that the Verifier Agreement has been immediately terminated. NGBS Green Verifiers terminated for this reason may not reapply for a period of one year. When s/he reapplies, acceptance is at the discretion of Home Innovation.

Failure to Complete Annual Renewal – Paragraph 1.3 of Verifier Agreement

- Verifiers must renew accreditation annually.
- Failure to renew accreditation in a timely manner requires the verifier to repeat the entire training, testing, and application process.

NGBS Green Verifiers must renew their accreditation annually and are notified on the first of the month when their accreditation is set to expire. A follow up reminder is sent around the 15th of the month.
Notification is sent via an email generated by the online Training/Testing Center and directly from Home Innovation.

If the renewal is not completed within the specified time period, verifiers are notified via email that they have been removed from the website for failure to renew their accreditation. This final email includes a 30-day termination notification pursuant to Paragraph 2.2 of the Verifier Agreement. Verifiers who complete the renewal within 30 days will be reinstated and re-listed on the website. If the accreditation is not renewed within that 30-day grace period, then the NGBS Green Verifier (and company management, if applicable) is notified by email that the agreement has been terminated.

NGBS Green Verifiers terminated for this reason may re-apply immediately.

**Failure to Maintain Appropriate Insurance – Paragraph 6.2 of Verifier Agreement**

- Verifiers must maintain insurance.
- Failure to update insurance with Home Innovation Research Labs will lead to termination.

NGBS Green Verifiers are requested via email to provide an updated certificate of insurance approximately 30 days before the insurance expiration date on the certificate of insurance on file. If an updated insurance certificate is not received by the expiration date, the NGBS Green Verifier will be notified by email that they have been removed from the website and must provide the updated insurance information within 30 days, or they will be terminated. During this 30-day period after a verifier’s insurance has expired, the verifier’s accreditation is suspended and Home Innovation will not accept verification reports, and the NGBS Green Verifier will not be able to access the Verifier Resource Center webpage.

If the insurance information is received within the 30-day post-expiration period, the NGBS Green Verifier will be reinstated and re-listed on the website. Verification inspections conducted while an NGBS Green Verifier’s accredited status is suspended may be accepted once evidence is provided that the insurance was effective at the time of the inspection.

If the insurance information is not updated, the NGBS Green Verifier (and company management, if applicable), will be notified by email that the agreement has been terminated. NGBS Green Verifiers who have been terminated for this reason must re-apply for accreditation, complete the training and testing, and submit a new application, agreement, and evidence of insurance in order to be reinstated. Verification inspections will not be accepted from terminated verifiers.

**Lack of Activity – Paragraph 2.2 of Verifier Agreement**

- Verifiers are expected to stay active in and current with the certification program.
- Verifiers who do not submit at least one verification report in a two-year period may be terminated.

NGBS Green Verifiers who do not submit any verification reports within a two-year period will be reviewed for possible termination. Other required activities, such as opening and reading Verifier Updates, may be considered in this review.

If Home Innovation decides to proceed with termination due to inactivity, the NGBS Green Verifier will be given a 30-day notice prior to termination. At the end of the 30-day period, if the NGBS Green Verifier has not had any new verification activity, the NGBS Green Verifier (and company management,
if applicable), will be notified by email that the agreement has been terminated. NGBS Green Verifiers terminated for this reason must re-apply for accreditation, complete the training and testing, and submit a new application, agreement, and evidence of insurance in order to be reinstated.

**Poor Performance—Paragraph 2.3 of Verifier Agreement**

- Client complaints of poor performance may lead to termination.
- Inaccurate verification or lack of compliance with the Home Innovation’s protocols may lead to an audit and/or termination.

NGBS Green Verifiers serve as Home Innovation’s field agents and are expected to provide accurate, credible, and timely verification inspections and reports. Home Innovation provides specific feedback to verifiers when verification issues are identified, as well as general guidance in monthly *Verifier Updates*.

NGBS Green Verifiers who do not consistently provide acceptable verification reports and verification services may be terminated at Home Innovation’s discretion.

Beyond report quality, complaints from clients or homeowners are also factored into Home Innovation’s assessment of verifier performance. Home Innovation will fully investigate all complaints received.

Home Innovation will typically provide a 30-day notice of poor performance issue. However, immediate termination is possible. Termination notices are sent in writing. Verifiers (and company management, if applicable) will be notified via email that the agreement has been terminated (company management, if applicable). Verifiers terminated for this reason may not reapply for a period of one year, and acceptance is at Home Innovation’s discretion.

**Responsibility of Home Innovation**

Home Innovation will attempt to contact any builders who have registered projects with terminated verifiers and inform the builder(s) that another accredited verifier will need to be hired to finish the project. Home Innovation will assist the builder, if needed, in finding another accredited NGBS Green Verifier to complete the verification process.

### 3.3 Verifier Performance (Effective April 1, 2015; Revised August 1, 2016)

The NGBS Green certification’s credibility and integrity relies on the performance of Home Innovation's independent agents in the field. NGBS Green Verifiers are expected to comply with the **Verifier's Resource Guide** (VRG) regarding the inspection of projects seeking NGBS Green certification and the completion of verification reports. Each verification report provides the Home Innovation review team a snapshot of a Verifier’s:

- Understanding of the NGBS practices and compliance requirements
- Adherence to the verification protocol and certification process outlined in the VRG
- Attention to detail

Home Innovation reviewers assess verification reports according to the attached rubric. A Verifier’s report submission packet is marked as either “OK” or “Not OK” based on completeness-inclusion of verification report, photo, energy report, and signature page. A verifier can earn an A, B, C, D, or F grade for a verification report based on accuracy and completeness. Projects seeking higher levels of
certification (i.e., Gold or Emerald) are reviewed with greater stringency. Verifiers inspecting these projects may receive more follow-up questions.

A “report card” with average grades observed for both submission packets and verification reports is distributed to the Verifier twice annually, during April and September. If necessary, the report card will outline corrective steps required for the Verifier to remain in good standing with Home Innovation.

*Verifier Performance Issues*

Verifiers receiving a “C” as an average grade are encouraged to discuss verification issues with the NGBS Green Certification Program Manager.

Verifiers receiving a “D” or an “F” as an average grade will enter a 1-year probationary period. Accreditation renewal after the probation period is contingent upon the Verifier’s performance and completion of remedial actions.

Beginning March 2015, new Verifiers and Verifiers re-accrediting after a 14-month or longer lapse in accreditation enter 1-year probationary period upon accreditation.

*Verifier Probation*

Home Innovation may also place a Verifier under probation mid-term, should performance issues warrant immediate action.

Verifiers under probation are expected to discuss performance issues with the NGBS Green Certification Program Manager at time of renewal and submit evidence of at least four hours of CEU credits. They may also be asked to complete additional CEUs on topics suggested by Home Innovation’s review team and will be subject to more frequent Desktop Reviews and in-person Spot Checks.

Verifiers with performance issues are ineligible to become Master Verifiers until an average grade of “B” or higher is maintained for a one-year period.

*Grading: Verification Packet*

Verifiers are expected to interpret, discuss, and learn the NGBS. A demonstrated misunderstanding of the NGBS practices, verification protocol, or failure to adjust verification reports will warrant lower grades on verification reports.

Home Innovation reviewers will email verifiers in the following scenarios:

1. Points incorrectly awarded for an NGBS practice(s) for which there was a recent policy change or interpretation.
2. Comments in the verification report gives the perception that the verifier does not understand an NGBS practice.
3. Points were incorrectly awarded for an NGBS practice(s) where repeated mistakes have been observed (either by a specific verifier on multiple reports and/or repeated mistakes across multiple verifiers).

An informational email to clarify an interpretation when points denied is <10 - will not affect grade. The New Verifiers should participate in an orientation/welcome call to fully appreciate the expectations.
### Submission Packet Complete

<table>
<thead>
<tr>
<th>Pass</th>
<th>Fail</th>
</tr>
</thead>
</table>

### VERIFICATION GRADES
(Rough Report based on 1-3; Final Report based on 1-5; all 10 considered)

<table>
<thead>
<tr>
<th>1. Scoring Spreadsheet (33% Rough; 20% Final)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scoring spreadsheet is current version available on <a href="http://www.homeinnovation.com/GreenScoring">www.homeinnovation.com/GreenScoring</a></td>
<td>Current version is used</td>
<td>Current version is used</td>
<td>Spreadsheet is outdated by &lt; 1 year</td>
<td>Spreadsheet is outdated by &lt; 1 year</td>
<td>Spreadsheet is outdated by &gt; 1 year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Appropriate Practice/ Denial (33% Rough; 20% Final)</th>
<th>&lt;5 pts</th>
<th>5-10 pts</th>
<th>11-20 pts</th>
<th>21-30 pts</th>
<th>&gt;30 pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error where practices awarded don’t align with project information provided.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Photos (33% Rough; 20% Final)</th>
<th>Good</th>
<th>Adequate</th>
<th>Poor</th>
<th>Poor</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photos are taken from the curb/ driveway entrance, show full front elevation and adjacent landscape. Photos are clear, appropriate size/resolution for reviewer to see Lot Design practices – no thumbnail shots.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Recommendations on rough report – not addressed at final (20% Final)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point shortfalls of minimum chapter requirements for targeted certification level.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

### NOMINAL CONSIDERATION IN GRADING:

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>An Energy Performance Report must be submitted for all projects complying with the Performance Path in Chapter 7. RemRate is the preferred modeling software for generating the compliance report. Energy performance should match that claimed in the verification report.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Follow-up emails</th>
<th>0*</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>None required*</td>
<td>5-10 days</td>
<td>11-20 days</td>
<td>&gt; 20 days</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Verifier follow-up duration</th>
<th>None required*</th>
<th>&lt; 5 days</th>
<th>5-10 days</th>
<th>11-20 days</th>
<th>&gt; 20 days</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>9. Failure Cells (red or yellow)</th>
<th>0-1</th>
<th>1-2</th>
<th>2</th>
<th>3</th>
<th>4+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity of red or yellow cells on report (e.g. ignoring the scoring sheet cells)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. Failure to address a recommendation through numerous reports</th>
<th>Good response</th>
<th>Good response</th>
<th>Limited</th>
<th>Limited</th>
<th>No response</th>
</tr>
</thead>
</table>

* A higher level certification justifies 1 follow up email with less than a 5-day turnaround by verifier.
3.4 Verifier Candidate Mentoring Policy (Effective August 2017)

Home Innovation requires NGBS Green Verifier Candidates to have previous experience and/or training in residential construction and green building before accessing the Verifier training. Specific requirements are detailed in the NGBS Green Verifier Candidate Handbook.

Some Verifier companies have robust internal training programs where Verifier candidates can train alongside experienced Accredited Verifiers. In this case, onsite verification training with an experienced Verifier mentor can be as good, if not better, than unrelated experience and training.

A Verifier Candidate can access the NGBS Green certification training and test without meeting the pre-requisites, provided that the Verifier Candidate is employed by a company with at least 2 Accredited NGBS Green Verifiers in good standing and the Verifier Company has an approved internal training protocol specific to NGBS Green verification that includes a field training component. At least one of the Accredited Verifiers at the company must have been accredited for at least 2 years and been actively verifying projects during that time.

How to Apply
Verifier companies that wish to take advantage of this program should submit a written request to gbverifications@homeinnovation.com. The request should include a copy of the internal training that meets the minimum requirements below. Please be as specific as possible in the written request if it is not apparent how the internal training meets Home Innovation’s requirements. Please include an explanation of how Home Innovation will know a Verifier Candidate has successfully completed the internal training (i.e. certificate, or email) and who will submit the documentation to Home Innovation (the Verifier Candidate may not be the one to submit proof of completing the internal training). Home Innovation will not accredit any Verifier Candidates without meeting these requirements.

Verifier Mentoring Program
Verifier organizations, that meet the following criteria, may apply to have their staff access the NGBS Green Verifier training and testing if that individual is concurrently in an internal training program working with experienced Accredited Verifiers. Verifier candidates can access NGBS Green verification training as they complete the internal training and even take the Verifier accreditation test. However, Home Innovation will withhold the Verifier candidate’s accreditation until the internal training is successfully completed.

Internal Verification Training
At a minimum, the company’s internal training must include an opportunity to attend and observe in-person an Accredited Verifier performing a variety of rough and final inspections. The observation should include specific verification instruction from the supervising Accredited Verifier. During the mentoring period, the Verifier Candidate must observe a diversity of verification inspections that reflects the typical inspections performed by the Company’s Verifiers. For example, if a Verifier Company performs inspections on single-family homes, garden style apartments, and mid-rise multifamily buildings, the Verifier Candidate should have an opportunity to observe an equally diverse number or inspections. Verifier candidates that work for an organization solely focused on single family homes will base their training and observation on such homes, however, it is highly desirable if possible, for the Verifier candidate to be exposed to a variety of project types and building science issues.

During the training and mentoring period, the Verifier Candidate is prohibited from performing an NGBS Green verification inspection solo. Further, while the Verifier Candidate may assist in the preparation of
the documentation and inspection report, an Accredited Verifier must review the submission as well as sign the report as the Verifier of Record. The Verifier of Record is solely responsible for complying with NGBS Green process and policy, must respond to any questions or corrections from the Home Innovation green report reviewer, will manage the process and documentation collection should the project be selected for a Desktop Audit, and for any errors and/or omissions on the verification package submission. The verification report submission will be graded, and any the corresponding grade accrues to the Verifier of Record.

When the Verifier candidate has successfully completed the internal training the Verifier Company must submit to Home Innovation written documentation that internal training is complete and the Verifier candidate has passed the internal assessment to determine competency. No specific documentation for completion is required, but at a minimum it should indicate the name of the Verifier candidate and the date s/he completed the training and competency assessment.

**Minimum Internal Training Requirements**

- Opportunity to register a project under supervision of Accredited Verifier and to be submitted by Accredited Verifier (see Verifier Mentor requirements above)
- At least 6 opportunities to review plans for buildings seeking NGBS Green certification and using plans, score the building using the NGBS Green Scoring Tool
- In-field mentoring on preparation of both rough and final reports
- Opportunity to complete rough and final verification report under supervision of Accredited Verifier and to be submitted by Accredited Verifier (see Verifier Mentor requirements above)
- Assist with documentation collection and review
- In-field training and/or classroom training on at least two of the following subjects:
  - Sustainable land development practices
  - Resource efficient construction
  - Indoor air quality
  - Water efficient practices

**Supplemental Green Building Training**

Verifier candidates often have enough training in energy efficiency practices, but insufficient green building practices and training to meet the Verifier Candidate prerequisites. In these cases, the Verifier training should address this deficiency either through internal training or supplemental external training. Further, field training should focus on non-energy practices to ensure the Verifier candidate understands the intent of the practice, how to determine successful implementation, and proper NGBS Green verification.

**Probationary Period**

Verifier candidates that attain accreditation via the mentoring process will be placed on a 1-year probation like all NGBS Green Accredited Verifiers. (See Policy 3.3 Verifier Performance) The probation period may be extended by Home Innovation should the Verifier exhibit performance issues or not remain in good standing as discussed in the VRG.
3.5 Stay Informed (Effective June 2011; Revised April 2016)
NGBS Green Verifiers must keep Home Innovation informed of their current contact information including primary email, phone number, and mailing address. Verifiers must also ensure their email service will accept email from the @homeinnovation.com domain. Home Innovation’s primary means of communicating critical, often time-sensitive, program news, developments, and changes to verifiers is the monthly Verifier Update e-newsletter (VU), which is sent to the primary email address of every accredited Verifier. Each newsletter is archived in the Verifier-Only Resource Center. Failure to keep up with these monthly communications may result in verifiers missing key program deadlines, thereby jeopardizing the successful certification of their clients’ projects. In short, Home Innovation expects verifiers to read the VU.

3.6 Anti-Trust Statement (Effective November 2014)
Home Innovation’s policy is to comply fully with all laws, including federal and state antitrust laws. Compliance with the letter and spirit of the antitrust laws is an important goal of Home Innovation Labs and is essential to maintaining our corporate reputation for the highest standards of ethical conduct. NGBS Green Verifiers must fully support this antitrust mandate, as it is critical to Home Innovation Labs continued success not only for the NGBS Green certification program but for all our business.

Verifiers who are found to be working in cooperation to allocate or divide service markets or otherwise discourage competition will be terminated. Verifiers terminated for this reason may not reapply for a period of one year. Upon re-application, acceptance is at the discretion of Home Innovation.

3.7 Architects as NGBS Green Verifiers (Effective April 11, 2014; Revised February 25, 2016, March 2019)
Home Innovation recognizes that architects may see value in obtaining NGBS Green Verifier accreditation and guiding existing clients through the certification process.

To ensure that verifiers serve as independent, third-party inspectors for NGBS compliance, verifiers cannot be engaged to provide construction contract administration. While AIA Document A201™-2007 General Conditions of the Contract for Construction indicates that architects do not have the “authority to act on behalf of the Owner” nor “have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures,” Home Innovation recognizes that architects involved in construction phase services have a greater professional and financial stake in the project’s construction to the NGBS and may not provide a fair, independent assessment of the home/building features.

Architects who are retained to provide design services, but do not provide construction phase services, are permitted to serve as Verifiers on projects they design. Conducting the rough and final inspections of a project as the architect is not considered construction oversight; however, a higher level of involvement in the construction process beyond verification of the NGBS practices would constitute oversight and a conflict of interest. Architects who provide both design and construction phase services are not permitted to verify those projects. Similarly, architects who are employed by a design-build firm are ineligible to verify projects that are built by the firm.

A verifier employed by an architectural firm may verify a project that another employee in the firm is involved with the construction oversight provided the verifier does not report to the staff managing the construction process.
Verifiers are expected to disclose any potential conflicts of interest, or the appearance of a conflict of interest, to clients before signing a contract to provide verification services. If the potential conflict, or appearance of a conflict, of interest is not known at the time a verification services contract is signed, the verifier is expected to notify the client as soon as the issue arises.

Verifiers must disclose services provided by their company on the NGBS Green Verification Report, including design services. Verifiers must provide thorough and accurate information for every project. In a situation where the verifier’s company is also providing construction oversight, the details of this arrangement need to be clearly disclosed. Failure to properly disclose services provided to a client may result in a suspension of verifier accreditation. If a Verifier is ever presented with a situation where it is unclear if the situation would be acceptable to Home Innovation, the Verifier should seek prior approval from Home Innovation before committing to provide and/or providing verification services.

3.8 Cooperating with Competing Programs (Effective October 15, 2013)

Home Innovation copyrighted and/or trademarked materials may not be used in connection with a local program or requirement unless the project is seeking NGBS Green certification from Home Innovation.

A growing number of state and local jurisdictions are requiring NGBS compliance. Some jurisdictions accept Home Innovation NGBS Green certification to demonstrate this compliance. Others do not mandate certification but instead accept Home Innovation scoring tools as compliance documentation. These jurisdictions may allow a builder to self-score a project on the NGBS Green Scoring Tool. Alternatively, the jurisdiction may require a Home Innovation-accredited NGBS Green Verifier, or even a Certified Green Professional (CGP), to verify compliance.

Several HBAs also offer their own green building certification programs, either based on the NGBS. Some employ their own set of verifiers/raters; others do not. Like the jurisdictions noted above, some HBAs may even specify use of the NGBS Green Scoring Tool to demonstrate compliance with their programs.

Home Innovation’s tools and resources developed for NGBS Green certification are copyright protected for the sole use of those seeking certification through Home Innovation Labs. Verifiers are prohibited from using these materials for any other purpose. Verifiers are also prohibited from providing verification or certification services to clients using the NGBS if the project is not seeking Home Innovation certification. Verifiers are expected to notify Home Innovation of any instance were Home Innovation materials are being used improperly.

Services that violate the NGBS Green Verifier agreement include, but are not limited to:

- Providing verification services to a builder to comply with the NGBS for local code compliance, when that project is not seeking Home Innovation Certification
- Submitting Home Innovation NGBS Green materials of any kind to a government agency for a project that will not be certified by Home Innovation
- Serving as a verifier for another NGBS-based green building certification program
- Sharing Home Innovation verification materials (e.g., Verifier’s Resource Guide, agreement forms, study materials, etc.)

Verifiers in violation of their agreements with Home Innovation will be terminated immediately.
3.9 Service Disclosure (Effective October 2008)
Any services provided to a client by an NGBS Green Verifier, aside from verification services, must be disclosed by including a note in the final inspection sign-off box. Services requiring disclosure include, but are not limited to: consulting, design support, HERS or other energy ratings, and serving as a verifier/rater for another non-NGBS-based green program (e.g., ENERGY STAR) on that building. Disclosure of these services is critical to ensure Verifiers are not involved in potentially conflicting activities.

Please note, this process does not absolve a Verifier from the conflicts of interest prohibitions under the Verifier Termination Policy.

3.10 Insurance (Revised February 2013)
NGBS Green Verifiers are required to maintain minimum insurance coverage (below) for their accreditation. Verifiers are required to submit evidence of their insurance coverage to Home Innovation annually. Failure to demonstrate insurance coverage will result in termination.

“Home Innovation Research Labs” must be listed as the additionally insured.

Minimum required coverage is as follows:

<table>
<thead>
<tr>
<th>Insurance Type</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Liability</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Automobile Liability</td>
<td>$500,000</td>
</tr>
<tr>
<td>Workers Compensation</td>
<td>As required by law</td>
</tr>
<tr>
<td>Employer’s Liability (typically part of Workers Compensation)</td>
<td>$500,000</td>
</tr>
<tr>
<td>Professional Liability</td>
<td>$500,000</td>
</tr>
<tr>
<td>Covers professional for negligence, errors, and omissions that injure clients.</td>
<td></td>
</tr>
</tbody>
</table>

3.11 Use of Materials (Revised September 2013)
i. Copyright Protection of NGBS Green Scoring Documents
The Verifier’s Resource Guide and the NGBS Green Scoring Tool are protected by United States copyright law. Home Innovation authorizes the use of these materials only to individuals participating in Home Innovation’s NGBS Green certification program. No part of these materials may be reproduced in any form or used without Home Innovation’s prior written consent.

The NGBS Green Scoring Tool spreadsheet has been locked/protected to prevent changes that would affect the logic of the tool. NGBS Green Verifiers should not attempt to alter the format or logic of the spreadsheet. The NGBS Green Scoring Tool is a copyrighted work, and the embedded code is proprietary property of Home Innovation. Unprotecting this document is a violation of copyright law that may result in termination and/or legal action, as outlined in Paragraph 4.6 of the Verifier Agreement.

ii. Proper Program References (Revised February 2013)
NGBS Green Verifiers are expected to read and adhere to NGBS Green Partner Brand & Marketing Style Guide, downloadable at www.homeinnovation.com/marketgreencertified.

Referring to the NGBS Green certification program as “NAHB Green” or similar is technically inaccurate and misrepresents the program, as the certification program is managed by Home Innovation Research Labs, not the National Association of Home Builders (NAHB).

“Home Innovation Labs” and “Home Innovation” are acceptable alternative references for Home Innovation Research Labs. The company is not identified by an acronym.
APPENDIX D:
NGBS Mandatory Practices

To be Inspected Pre-Drywall Installation by Accredited NGBS Green Verifier
2012 NGBS MANDATORY ITEMS

This document is not intended to serve as a substitute for the 2015 NGBS, but rather as a quick guide to the mandatory items required for compliance.

Overview

The ICC 700 National Green Building Standard™ (NGBS) is a green building rating system that provides four certification levels. To attain NGBS Green certification, buildings must successfully incorporate the NGBS’s relevant mandatory practices. There is no exception to this requirement.

To demonstrate compliance with the mandatory requirements, an accredited NGBS Green Verifier must visually inspect the building to confirm these practices have been fulfilled. A hallmark of NGBS Green certification is its rigorous verification protocol, requiring practices to be visually inspected when possible. The pre-drywall inspection is critical. If a verifier is unable to inspect a building before drywall is installed and, as a result, the verifier cannot confirm compliance with one or more NGBS mandatory practices, the building may not be able to attain NGBS Green certification at any level.

In cases where a rough inspection has been missed, the project must follow the Appeals Process to determine if certification is possible. Please refer to Home Innovation’s Complaints and Appeals Policy for guidance on how to proceed. Each appeal is considered individually, and the necessary compliance documentation will vary depending on the project’s specific circumstances.

Below are the mandatory NGBS practices with the instructions provided to verifiers in Home Innovation’s Verifier’s Resource Guide (VRG). This list is intended to help builders understand the importance of the pre-drywall inspection and the certification implications if an inspection is missed.

If photos are allowed as part of the acceptable documentation noted, be sure they have a time and date stamp. Photos should also be accompanied by a signed affidavit by the builder or the relevant trade contractor that they pertain to the subject property. Photos with GIS coordinates are preferred as evidence of compliance.

Energy Efficiency Compliance Requirements

The NGBS offers three compliance paths to demonstrate energy efficiency.

1. **Alternative Bronze Compliance**: Buildings that attain ENERGY STAR® certification or can demonstrate compliance with the 2012 IECC via accepted code compliance modeling software are eligible to be NGBS Green Certified at the Bronze level using this path. Buildings seeking Alternative Bronze Compliance do not need to demonstrate compliance with the Chapter 7 practices noted in this Appendix.

2. **Prescriptive Path**: Buildings must demonstrate compliance with the Chapter 7 mandatory practices below and attain sufficient points toward certification from Sections 701 and 703.

3. **Performance Path**: Buildings must demonstrate compliance by exceeding the baseline minimum performance required by the 2009 ICC IECC by 15% and must include a minimum of two practices from Section 704.
NGBS Mandatory Practices

602.1.3.1 Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed.

VRG – Verifiers must verify by inspection. If visual inspection is not possible, the alternate verification is to review building plans, review photos if available, and ask the site superintendent to confirm the drain tile was installed in accordance with the plans. The practice for exterior drain tile is mandatory regardless of local code. The only exceptions are for foundations in well-drained soils per the IRC, or if a professional engineer (PE) provides a letter stating the foundation drainage system provided for the building will provide protection equivalent to or better than the 602.1.3.1 practice. If not applicable, the verifier must put a note of explanation in the comment area of the verification report. Verifier must include a note on the verification report indicating the use of any alternate verification procedure and why it was used.

602.1.4.1(2) Vapor retarer in unconditioned vented crawlspace is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped. (2) Walls. Dampproof walls are provided below finished grade.

VRG – Verifiers must verify by inspection. If visual inspection is not possible, the alternate verification is to review plans and/or specifications that confirm dampproofing was installed. Verifier must include a note on the verification report indicating the use of any alternate verification procedure and why it was used.

602.1.4.2(2) Crawlspace that is built as a conditioned area is sealed to prevent outside air infiltration and provided with conditioned air at a rate not less than 0.02 cfm (.009 L/s) per square foot of horizontal area and one of the following is implemented:

(2) 6 mil polyethylene sheeting, lapped a minimum of 6 inches (152 mm), and taped at the seams.

VRG – Verifier must verify by inspection. There is no alternate verification protocol.

602.1.7.1(2) Moisture control measures are in accordance with the following: Insulation in cavities is dry in accordance with manufacturer’s instructions when enclosed (e.g., with drywall).

VRG – Verifier must verify the insulation is dry by inspection. When dry insulation is installed, verify that it was protected from weather. When wet-applied insulation is installed, verify that it dried to the manufacturer’s recommended level of dryness, not just time period, before drywall installation. This practice is not applicable for wall systems such as SIPS and ICFs.

602.1.8 Water-resistive barrier. Where required by the ICC, IRC, or IBC, a water-resistive barrier and/or drainage plane system is installed behind exterior veneer and/or siding.

VRG – Verifier must verify by inspection. If visual inspection is not possible, the alternate verification is to review the plans and ask the site superintendent to confirm the water-resistive barrier was installed in accordance with the plans. Verifier must include a note on the verification report indicating the use of any alternate verification procedure and why it was used.

602.1.11 Tile backing materials. Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.

VRG – Verifier must verify by inspection. If visual inspection is not possible, the alternate verification is review of product literature or an ESR report for code-compliant membrane
materials. Verifier must include a note on the verification report indicating the use of any alternate verification procedure and why it was used.

602.1.13 Ice barrier. In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves of pitched roofs and extends a minimum of 24 inches (610 mm) inside the exterior wall line of the building.

VRG – Verifier must verify by inspection. If visual inspection is not possible, the alternate verification is to review the plans and ask the site superintendent to confirm the ice barrier was installed in accordance with the plans and extends at least 24 inches inside the wall line. Photos can be used only to confirm the plan, specs, and the superintendent’s statement. Verifier must include a note on the verification report indicating the use of any alternate verification procedure and why it was used.

701.4.2.2 Supply ducts. Building cavities are not used as supply ducts.

VRG – Verifier must verify by inspection that no building cavities have been used as supply ducts.

701.4.3.1 Building Thermal Envelope. The building thermal envelope is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film, or solid material:

(a) All joints, seams and penetrations.
(b) Site-built windows, doors, and skylights.
(c) Openings between window and door assemblies and their respective jambs and framing.
(d) Utility penetrations.
(e) Dropped ceilings or chases adjacent to the thermal envelope.
(f) Knee walls.
(g) Walls and ceilings separating a garage from conditioned spaces.
(h) Behind tubs and showers on exterior walls.
(i) Common walls between dwelling units.
(j) Attic access openings.
(k) Rim joist junction.
(l) Other sources of infiltration.

VRG – Verifier must verify by inspection. If visual inspection is not possible the alternate verification is to verify by documentation review and ask the site superintendent to confirm the thermal envelope was sealed in accordance with the plans and/or specs. Verifier must include a note on the verification report indicating the use of any alternate verification procedure and why it was used.

701.4.3.2 Air sealing and insulation. Grade 3 insulation installation is not permitted. The compliance of the building envelope air tightness and insulation installation is demonstrated in accordance with Section 701.4.3.2(1) or 701.4.3.2(2).

(1) Testing option. Building envelope tightness and insulation installation is considered acceptable when air leakage is less than seven air changes per hour (ACH) when tested with a blower door at a pressure of 33.5 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing is conducted under the following conditions:
(a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed;
(b) Dampers are closed, but not sealed, including exhaust, intake, makeup air, backdraft and flue dampers;
(c) Interior doors are open;
(d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed;
(e) Heating and cooling systems are turned off;
(f) HVAC duct terminations are not sealed; and
(g) Supply and return registers are not sealed.

VRG – Verifier must review blower door test report and confirm proper test conditions and ACH50 is less than or equal to 7. Verifier does not have to grade the insulation, but must verify by inspection that insulation installation is better than Grade 3.

(2) **Visual inspection option.** Building envelope tightness and insulation installation are acceptable when the items listed in Table 701.4.3.2(2) applicable to the method of construction are field verified.

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CRITERIA</th>
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</table>
| Air barrier and thermal barrier | • Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier.  
• Breaks or joints in the air barrier are filled or repaired.  
• Air-permeable insulation is not used as a sealing material.  
• Air-permeable insulation is installed with an air barrier. |
| Ceiling/attic | • Air barrier in dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed.  
• Attic access (except unvented attic), knee wall door, or drop-down stair is sealed. |
| Exterior walls | • Corners and headers are insulated.  
• Junction of foundation and sill plate is sealed. |
| Windows and doors | • Space between window/door jambs and framing is sealed. |
| Rim joists | • Rim joists are insulated and include an air barrier. |
| Floors (including above-garage and cantilevered floors) | • Insulation is installed to maintain permanent contact with underside of subfloor decking.  
• Air barrier is installed at any exposed edge of insulation. |
| Crawlspace walls | • Where installed, insulation is permanently attached to walls.  
• Exposed earth in unvented crawlspaces is covered with Class I vapor retarder with overlapping joints taped. |
| Shafts, penetrations | • Duct shafts, flue shafts, and utility penetrations opening to the exterior or an unconditioned space are sealed. |
| Narrow cavities | • Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulation. |
| Garage separation | • Air sealing is provided between the garage and conditioned spaces. |
| Recessed lighting | • Recessed light fixtures not installed in the conditioned space are air tight, IC rated, and sealed to drywall. |
| Plumbing and wiring | • Insulation is placed between the outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation extends behind piping and wiring. |
| Shower/tub adjacent to exterior wall | • Showers and tubs adjacent to exterior walls have insulation and an air barrier separation from the exterior. |
| Electrical/phone box in exterior walls | • Air barrier extends behind boxes or air sealed-type boxes are installed. |
| Common wall | • Air barrier is installed in common walls between dwelling units. |
| HVAC register boots | • HVAC register boots that penetrate building envelope are sealed to subfloor or drywall. |
| Fireplace | • Fireplace walls include an air barrier. |
VRG – When a multifamily building is built above a garage on a concrete slab podium that has a plenum between the garage ceiling and the podium slab and the plenum contains piping that interferes with the ability for the insulation to be “installed to maintain permanent contact with the underside of the subfloor decking, ...” as stated in the mandatory requirement 701.4.3.2(1)(a), the intent of the NGBS is met if the following conditions are met:

- The podium/plenum is insulated in compliance with the 2009 IECC
- The plenum is air sealed

An analysis is done to show that the residential units adjoining the podium achieve the same number of points for section 702 or 703 (as applicable). When the prescriptive path is used the analysis must show that the percentage above is proportional to the points awarded. For example, a building earning 45 points in 703 would need to be analyzed to show that the worst-case unit sitting on the podium must be at least 22.5% better than the 2009 IECC.

701.4.5 Boiler supply piping. Boiler supply piping in unconditioned space is insulated.

VRG – Verifier must verify by inspection. There is no alternate verification protocol.

901.4(1) Wood materials. A minimum of 85 percent of material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following:

(1) Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.

VRG – Verifier must verify by inspection that the grade stamp shows PS1 or PS2 and Exposure 1 or Exterior.

902.6 Living space contaminants. The living space is sealed in accordance with Section 701.4.3.1 to prevent unwanted contaminants.

VRG – Verifier must verify by inspection. If visual inspection is not possible, the alternate verification is to verify by documentation review (e.g., the contractor’s work order and sign-off to confirm it was done, P.O. specifications, and/or MSDS) and ask the site superintendent to confirm the living space is sealed in accordance with the plans. Verifier must verify all items listed in 701.4.3.1. Verifier must include a note on the verification report indicating the use of any alternate verification procedure and why it was used.
2015 NGBS MANDATORY ITEMS

This document is not intended to serve as a substitute for the 2015 NGBS, but rather as a quick guide to the mandatory items required for compliance.

<table>
<thead>
<tr>
<th>GREEN BUILDING PRACTICES</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION 4: SITE DESIGN AND DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>402 PROJECT TEAM, MISSION STATEMENT, AND GOALS</td>
<td></td>
</tr>
<tr>
<td>402.3 Project checklist. A checklist of green development practices to be used on the project is created, followed, and completed by the project team regarding the site.</td>
<td>M 4</td>
</tr>
<tr>
<td>403 SITE DESIGN</td>
<td></td>
</tr>
<tr>
<td>403.1 Natural resources. Natural resources are conserved by one or more of the following:</td>
<td></td>
</tr>
<tr>
<td>(1) A natural resources inventory is used to create the site plan.</td>
<td>M 5</td>
</tr>
<tr>
<td>(2) A plan to protect and maintain priority natural resources/areas during construction is created. (Also see Section 404 for guidance in forming the plan.)</td>
<td>M 5</td>
</tr>
<tr>
<td>SECTION 6 RESOURCE EFFICIENCY</td>
<td></td>
</tr>
<tr>
<td>602 ENHANCED DURABILITY AND REDUCED MAINTENANCE</td>
<td></td>
</tr>
<tr>
<td>602.1 Moisture management – building envelope</td>
<td></td>
</tr>
<tr>
<td>602.1.1 A capillary break and vapor retarder are installed at concrete slabs in accordance with ICC IRC Sections R506.2.2 and R506.2.3 or ICC IBC Sections 1907 and 1805.4.1.</td>
<td>M</td>
</tr>
<tr>
<td>602.1.3.1 Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed.</td>
<td>M</td>
</tr>
<tr>
<td>602.1.4.1 Vapor retarder in unconditioned vented crawlspace is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.</td>
<td></td>
</tr>
<tr>
<td>(2) Walls. Dampproof walls are provided below finished grade.</td>
<td>M</td>
</tr>
<tr>
<td>602.1.4.2 Crawlspace that is built as a conditioned area is sealed to prevent outside air infiltration and provided with conditioned air at a rate not less than 0.02 cfm (.009 L/s) per square foot of horizontal area and one of the following is implemented:</td>
<td></td>
</tr>
<tr>
<td>(2) 6-mil polyethylene sheeting, or other Class I vapor retarder installed in accordance with Section 408.3 or Section 506 of the International Residential Code.</td>
<td>M</td>
</tr>
<tr>
<td>602.1.7.1 Moisture control measures are in accordance with the following:</td>
<td></td>
</tr>
<tr>
<td>(2) Insulation in cavities is dry in accordance with manufacturer’s instructions when enclosed (e.g., with drywall).</td>
<td>M 2</td>
</tr>
</tbody>
</table>
602.1.8 Water-resistive barrier. Where required by the ICC, IRC, or IBC, a water-resistive barrier and/or drainage plane system is installed behind exterior veneer and/or siding.

602.1.9 Flashing. Flashing is provided as follows to minimize water entry into wall and roof assemblies and to direct water to exterior surfaces or exterior water-resistive barriers for drainage. Flashing details are provided in the construction documents and are in accordance with the fenestration manufacturer’s instructions, the flashing manufacturer’s instructions, or as detailed by a registered design professional.

   (1) Flashing is installed at all of the following locations, as applicable:
      (a) around exterior fenestrations, skylights, and doors
      (b) at roof valleys
      (c) at all building-to-deck, -balcony, -porch, and -stair intersections
      (d) at roof-to-wall intersections, at roof-to-chimney intersections, at wall-to-chimney intersections, and at parapets
      (e) at ends of and under masonry, wood, or metal copings and sills
      (f) above projecting wood trim
      (g) at built-in roof gutters, and
      (h) drip edge is installed at eave and rake edges.

602.1.11 Tile backing materials. Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.

602.1.13 Ice barrier. In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves of pitched roofs and extends a minimum of 24 inches (610 mm) inside the exterior wall line of the building.

602.1.14 Architectural features. Architectural features that increase the potential for water intrusion are avoided:

   (1) All horizontal ledgers are sloped away to provide gravity drainage as appropriate for the application.

602.4.1 Finished grade at all sides of a building is sloped to provide a minimum of 6 inches (150 mm) of fall within 10 feet (3048 mm) of the edge of the building. Where lot lines, walls, slopes, or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), the final grade is sloped away from the edge of the building at a minimum slope of 2 percent.

SECTION 7: ENERGY EFFICIENCY

701 MINIMUM ENERGY EFFICIENCY REQUIREMENTS

701.4 Mandatory practices

701.4.1 HVAC system sizing. Space heating and cooling system is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent. Equipment is selected using ACCA Manual S or equivalent.

701.4.1.2 Radiant and hydronic space heating. Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed, installed, and documented, using industry-approved guidelines and standards (e.g., ACCA Manual J, AHRI I=B=R, ACCA 5 QI-2010, or an accredited design professional’s and manufacturer’s recommendations).

701.4.2 Duct air sealing. Ducts are air sealed. All duct sealing materials are in conformance with UL 181A or UL 181B specifications and are installed in accordance with manufacturer’s instructions.
701.4.2.2 Ducts and Plenums. Building framing cavities are not used as ducts or plenums. .......................... M

701.4.2.3 Duct system sizing. Duct system is sized and designed in accordance with ACCA Manual D or equivalent .......................................................... M

701.4.3.1 Building Thermal Envelope Air Sealing. The building thermal envelope is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film, or solid material: .......................................................... M

(a) All joints, seams and penetrations.
(b) Site-built windows, doors, and skylights.
(c) Openings between window and door assemblies and their respective jambs and framing.
(d) Utility penetrations.
(e) Dropped ceilings or chases adjacent to the thermal envelope.
(f) Knee walls.
(g) Walls and ceilings separating a garage from conditioned spaces.
(h) Behind tubs and showers on exterior walls.
(i) Common walls between dwelling units.
(j) Attic access openings.
(k) Rim joist junction.
(l) Other sources of infiltration.

701.4.3.2 Air sealing and insulation. Grade II and III insulation installation is not permitted. Building envelope air tightness and insulation installation is verified to be in accordance with Section 701.4.3.2(1) and 701.4.3.2(2). ........................................................................................................................................................................................................................................................................................................ M

(1) Testing. Building envelope tightness is tested. Testing is conducted in accordance with ASTM E-779 using a blower door at a test pressure of 1.04 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing is conducted under the following conditions:

(a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed;
(b) Dampers are closed, but not sealed, including exhaust, intake, make-up air, backdraft and flue dampers;
(c) Interior doors are open;
(d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed;
(e) Heating and cooling systems are turned off;
(f) HVAC duct terminations are not sealed; and
(g) Supply and return registers are not sealed.

Multifamily Building Note: Testing by dwelling units, groups of dwelling units, or the building as a whole is acceptable.

(2) Visual inspection. The air barrier and insulation items listed in Table 701.4.3.2(2) are field verified by visual inspection. (Table not provided here; please see 2015 NGBS)
701.4.3.2.1 Grade I insulation installations are in accordance with the following: 

(1) Grading applies to field-installed insulation products.
(2) Grading applies to ceilings, walls, floors, band joists, rim joists, conditioned attics basements and crawlspaces, except as specifically noted.
(3) Inspection is conducted before insulation is covered.
(4) Air-permeable insulation is enclosed on all six sides and is in substantial contact with the sheathing material on one or more sides (interior or exterior) of the cavity. Air permeable insulation in ceilings is not required to be enclosed when the insulation is installed in substantial contact with the surfaces it is intended to insulate.
(5) Cavity insulation uniformly fills each cavity side-to-side and top-to-bottom, without substantial gaps or voids around obstructions (such as blocking or bridging).
(6) Cavity insulation compression or incomplete fill amounts to 2 percent or less, presuming the compressed or incomplete areas are a minimum of 70 percent of the intended fill thickness; occasional small gaps are acceptable.
(7) Exterior rigid insulation has substantial contact with the structural framing members or sheathing materials and is tightly fitted at joints.
(8) Cavity insulation is split, installed, and/or fitted tightly around wiring and other services.
(9) Exterior sheathing is not visible from the interior through gaps in the cavity insulation.
(10) Faced batt insulation is permitted to have side-stapled tabs, provided the tabs are stapled neatly with no buckling, and provided the batt is compressed only at the edges of each cavity, to the depth of the tab itself.
(11) Where properly installed, ICFs, SIPs, and other wall systems that provide integral insulation are deemed in compliance with the Grade 1 insulation installation requirements.

701.4.3.3 Multifamily air leakage alternative. Multifamily buildings four or more stories in height and in compliance with IECC section C402.5 (Air leakage-thermal envelope) are deemed to comply with Sections 701.4.3.1 and 701.4.3.2.

701.4.3.4 Fenestration air leakage. Windows, skylights and sliding glass doors have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m²), when tested in accordance with NFRC 400 or AAMA/WDMA/CSA 101/l.S.2/A440 by an accredited, independent laboratory and listed and labeled. This practice does not apply to site-built windows, skylights, and doors.

701.4.3.5 Recessed lighting. Recessed luminaires installed in the building thermal envelope are sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires are IC-rated and labeled as meeting ASTM E283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All recessed luminaires are sealed with a gasket or caulk between the housing and the interior of the wall or ceiling covering.

701.4.4 High-efficacy lighting. Lighting efficacy in dwelling units is in accordance with one of the following:

(1) A minimum of 75 percent of the total hard-wired lighting fixtures or the bulbs in those fixtures qualify as high efficacy or equivalent
(2) Lighting power density, measured in watts/square foot, is 1.1 or less.

701.4.5 Boiler supply piping. Boiler supply piping in unconditioned space is insulated.
## Green Building Practices

### Performance Path

#### 702 Point Allocation

Points from Section 702 (Performance Path) shall not be combined with points from Section 703 (Prescriptive Path) or Section 704 (HERS Index Target Path).

### ICC IECC Analysis

Energy efficiency features are implemented to achieve energy cost or source energy performance that meets the ICC IECC. A documented analysis using software in accordance with ICC IECC, Section R405, or ICC IECC Section C407.2 through C407.5, applied as defined in the ICC IECC, is required.

### Prescriptive Path

#### 703 Mandatory Practices

**703.1 UA Compliance.** The building thermal envelope is in compliance with Section 703.1.1.1 or 703.1.1.2.

Exception: Section 703.1.1 is not required for Tropical Climate Zone.

**703.1.1.2 Maximum UA.** For IECC commercial, the total UA is less than or equal to the sum of the UA for 2015 IECC Tables C402.1.4 and C402.4, including the U-factor times the area and C-factor or F-factor times the perimeter. The total UA proposed and baseline calculations are documented. REScheck or COMcheck is deemed to provide UA calculation documentation.

**703.1.2 Building Envelope Leakage.** The building thermal envelope is in accordance with 2015 IECC R402.4.1.2 or C402.5 as applicable.

Exception: Section 703.1.2 is not required for Tropical Climate Zone.

**703.1.3 Duct Testing.** The duct system is in accordance with 2015 IECC R403.3.2 through R403.3.5 as applicable.

**703.2.5.1 NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in Table 703.2.5.1. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.
### GREEN BUILDING PRACTICES

#### SECTION 8: WATER EFFICIENCY

**801  INDOOR AND OUTDOOR WATER USE**

801.5 Water closets and urinals. Water closets and urinals are in accordance with the following:

*Points awarded for 801.5(2) or 801.5(3), not both.*

1. Gold and emerald levels: All water closets and urinals are in accordance with Section 801.5. ..........

801.6.3 Where an irrigation system is installed, an irrigation plan and implementation are executed by a qualified professional certified by a WaterSense labeled program or equivalent program as approved by Adopting Entity. .............................................

#### SECTION 9: INDOOR ENVIRONMENTAL QUALITY

**901  POLLUTANT SOURCE CONTROL**

901.1.4 Gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the NFPA 54, ICC IFGC, or the applicable local gas appliance installation code. Gas-fired fireplaces within dwelling units and direct heating equipment are vented to the outdoors. .............................................

901.2.1 Solid fuel-burning fireplaces, inserts, stoves and heaters are code compliant and are in accordance with the following requirements: .................................................................

1. Site-built masonry wood-burning fireplaces use outside combustion air and include a means of sealing the flue and the combustion air outlets to minimize interior air (heat) loss when not in operation. ........

2. Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified or Phase 2 Qualified. .................................................................

3. Wood stove and fireplace inserts, as defined in UL 1482 Section 3.8, are in accordance with the certification requirements of UL 1482 and are in accordance with the emission requirements of the EPA Certification and the State of Washington WAC 173-433-100(3). .................................................................

4. Pellet (biomass) stoves and furnaces are in accordance with ASTM E1509 or are EPA certified............

5. Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC Section 2112.1. ....

901.3 Garages. Garages are in accordance with the following:

1. Attached garage

   a. Doors installed in the common wall between the attached garage and conditioned space are tightly sealed and gasketed. ........................................................................................................

   b. A continuous air barrier is provided separating the garage space from the conditioned living spaces.
GREEN BUILDING PRACTICES

901.4 Wood materials. A minimum of 85 percent of material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following:

(1) Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.

901.12 Carbon monoxide (CO) alarms. A carbon monoxide (CO) alarm is provided in accordance with the IRC Section R315.

902 POLLUTANT CONTROL

902.1.1 Spot ventilation is in accordance with the following:

(1) Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms. [Points are awarded only if a window complying with IRC Section R303.3 is provided in addition to mechanical ventilation.]

(2) Clothes dryers (except listed and labeled condensing ductless dryers) are vented to the outdoors.

902.2 Building ventilation systems

902.2.1 One of the following whole building ventilation systems is implemented and is in accordance with the specifications of Appendix B and an explanation of the operation and importance of the ventilation system is included in either 1001.1 or 1002.2. [* Mandatory where the maximum air infiltration rate is less than 5.0 ACH50]

(1) exhaust or supply fan(s) ready for continuous operation and with appropriately labeled controls

(2) balanced exhaust and supply fans with supply intakes located in accordance with the manufacturer’s guidelines so as to not introduce polluted air back into the building

(3) heat-recovery ventilator

(4) energy-recovery ventilator

902.3 Radon control. Radon control measures are in accordance with ICC IRC Appendix F. Zones as defined in Figure 9(1).

(1) Buildings located in Zone 1

(a) a passive radon system is installed

(b) an active radon system is installed

902.6 Living space contaminants. The living space is sealed in accordance with Section 701.4.3.1 to prevent unwanted contaminants.
SECTION 10: OPERATION, MAINTENANCE, AND BUILDING OWNER EDUCATION

1001 HOMEOWNER’S MANUAL AND TRAINING GUIDELINES FOR ONE- AND TWO-FAMILY DWELLINGS

1001.0 Intent. Information on the building’s use, maintenance, and green components is provided.

1001.1 Homeowner’s manual. A homeowner’s manual is provided and stored in a permanent location in the dwelling that includes the following, as available and applicable. [Points awarded per two items. Points awarded for non-mandatory items.]

(1) A National Green Building Standard certificate with a web link and completion document................
(2) List of green building features (can include the national green building checklist).........................
(3) Product manufacturer’s manuals or product data sheet for installed major equipment, fixtures, and appliances. If product data sheet is in the building owners’ manual, manufacturer’s manual may be attached to the appliance in lieu of inclusion in the building owners’ manual..................

1001.2 Training of initial homeowners. Initial homeowners are familiarized with the role of occupants in achieving green goals. Training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include: ..........................................................................................................

(1) HVAC filters.
(2) Thermostat operation and programming.
(3) Lighting controls.
(4) Appliances operation.
(5) Water heater settings and hot water use.
(6) Fan controls.
(7) Recycling and composting practices.

1002 CONSTRUCTION, OPERATION, AND MAINTENANCE MANUALS AND TRAINING FOR MULTIFAMILY BUILDINGS

1002.0 Intent. Manuals are provided to the responsible parties (owner, management, tenant, and/or maintenance team) regarding the construction, operation, and maintenance of the building. Paper or digital format manuals are to include information regarding those aspects of the building’s construction, maintenance, and operation that are within the area of responsibilities of the respective recipient. One or more responsible parties are to receive a copy of all documentation for archival purposes.

1002.1 Building construction manual. A building construction manual, including five or more of the listed items (see 2015 NGBS), is compiled and distributed in accordance with Section 1002.0. [Points awarded per two items. Points awarded for non-mandatory items.]

(1) A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties’ manuals...........
(2) A local green building program certificate as well as a copy of the National Green Building Standard™, as adopted by the Adopting Entity, and the individual measures achieved by the building..............
(3) Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, and finishes.
1002.2 Operations manual. Operations manuals are created and distributed to the responsible parties in accordance with Section 1002.0. Between all of the operation manuals, five or more of the listed items (see 2015 NGBS) are included. [Points awarded per two items. Points awarded for non-mandatory items.]

(1) A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties’ manuals. .................................................................................................................................

(2) A list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics). ........

1002.3 Maintenance manual. Maintenance manuals are created and distributed to the responsible parties in accordance with Section 1002.0. Between all of the maintenance manuals, five or more of listed items (see 2015 NGBS) are included. [Points awarded per two items. Points awarded for non-mandatory items.]

(1) A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties’ manuals. .................................................................................................................................

1002.4 Training of building owners. Building owners are familiarized with the role of occupants in achieving green goals. On-site training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include: .................................................................................................................................

(1) HVAC filters
(2) thermostat operation and programming
(3) lighting controls
(4) appliances operation
(5) water heater settings and hot water use
(6) fan controls
(7) recycling and composting practices
# 2020 NGBS Mandatory Items

This document is not intended to serve as a substitute for the 2020 NGBS, but rather as a quick guide to the mandatory items required for compliance.

## Green Building Practices

### Section 4: Site Design and Development

#### 402 Project Team, Mission Statement, and Goals

402.3 Project checklist. A checklist of green development practices to be used on the project is created, followed, and completed by the project team regarding the site.

#### 403 Site Design

403.1 Natural resources. Natural resources are conserved by one or more of the following:

1. A natural resources inventory is used to create the site plan.
2. A plan to protect and maintain priority natural resources/areas during construction is created.
   (Also see § 404 for guidance in forming the plan.)

### Section 6: Resource Efficiency

#### 601 Quality of Construction Materials and Waste

601.1 Conditioned floor area. Finished floor area of a dwelling unit or sleeping unit is limited. Finished floor area is calculated in accordance with ANSI Z765 for single family and ANSI/BOMA Z65.4 for multifamily buildings. Only the finished floor area for stories above grade plane is included in the calculation.

[For every 100 sq. ft. (9.29 m²) over 4,000 sq. ft. (372 m²), 1 point is to be added to rating level points shown in Table 303, Category 7 for each rating level.]

6. greater than 4,000 sq. ft. (372 m²)

#### 602 Enhanced Durability and Reduced Maintenance

602.1.1 A capillary break and vapor retarder are installed at concrete slabs in accordance with IRC Sections R506.2.2 and R506.2.3 or IBC Sections 1907 and 1805.4.1.

602.1.3 Where required by the IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed.

602.1.4 Vapor retarder in unconditioned vented crawlspace is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 in. (152 mm) and are taped.

602.1.7 Moisture control measures are in accordance with the following:

2. Insulation in cavities is dry in accordance with manufacturer’s instructions when enclosed (e.g., with drywall).
### GREEN BUILDING PRACTICES

**602.1.8 Water-resistive barrier.** Where required by the IRC or IBC, a water-resistive barrier and/or drainage plane system is installed behind exterior veneer and/or siding. ..........................................................  
**602.1.9 Flashing.** Flashing is provided as follows to minimize water entry into wall and roof assemblies and to direct water to exterior surfaces or exterior water-resistive barriers for drainage. Flashing details are provided in the construction documents and are in accordance with the fenestration manufacturer’s instructions, the flashing manufacturer’s instructions, or as detailed by a registered design professional.  
(1) Flashing is installed at all the following locations, as applicable: ..........................................................  
(a) around exterior fenestrations, skylights, and doors;  
(b) at roof valleys;  
(c) at all building-to-deck, -balcony, -porch, and -stair intersections;  
(d) at roof-to-wall intersections, at roof-to-chimney intersections, at wall-to-chimney intersections, and at parapets;  
(e) at ends of and under masonry, wood, or metal copings and sills;  
(f) above projecting wood trim;  
(g) at built-in roof gutters; and  
(h) drip edge is installed at eave and rake edges.  
**602.1.11 Tile backing materials.** Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325. ...................................................................................  
**602.1.13 Ice barrier.** In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the IRC or IBC at roof eaves of pitched roofs and extends a minimum of 24 in. (610 mm) inside the exterior wall line of the building.  
**602.1.14 Architectural features.** Architectural features that increase the potential for water intrusion are avoided:  
(1) All horizontal ledgers are sloped away to provide gravity drainage as appropriate for the application...........................................................................................................................................................................  

**605 RECYCLED CONSTRUCTION WASTE**

**605.1 Hazardous waste.** The construction and waste management plan shall include information on the proper handling and disposal of hazardous waste. Hazardous waste is properly handled and disposed. ....

**SECTION 7: ENERGY EFFICIENCY**

**701 MINIMUM ENERGY EFFICIENCY REQUIREMENTS**

**701.1 Mandatory requirements.** The building shall comply with § 702 (Performance Path), § 703 (Prescriptive Path), or § 704 (ERI Target Path). Items listed as “mandatory” in § 701.4 apply to all Paths. Unless otherwise noted, buildings in the Tropical Climate Zone shall comply with Climate Zone 1 requirements.  
**701.1.1 Minimum Performance Path requirements.** A building complying with § 702 shall include a minimum of two practices from § 705, or a minimum of one practice from § 705 and a minimum of one practice from § 706.
GREEN BUILDING PRACTICES

**701.1.3 ERI Target Path requirements.** A building complying with § 704 shall obtain a minimum of 30 points from § 704 and shall include a minimum of two practices from § 705, or a minimum of one practice from § 705 and a minimum of one practice from § 706.

**701.1.4 Alternative Bronze and Silver level compliance.** As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 building or demonstrates compliance with the ICC IECC or IRC Chapter 11 achieves the Bronze level for Chapter 7. As an alternative, any building that qualifies as an ENERGY STAR Version 3.1 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 (with the baseline at ASHRAE 90.1-2010) building achieves the Silver level for Chapter 7. As an alternative in the Tropical Climate Zone, any building that meets all the requirements in ICC IECC Section R401.2.1 (Tropical Zone) achieves the Silver level for Chapter 7. The buildings achieving compliance under § 701.1.4 are not eligible for achieving a rating level above Silver.

**701.1.5 Alternative Gold level compliance.** As an alternative, any building within the scope of the NGBS that complies with Chapter 7 of the ICC IgCC achieves the Gold level for Chapter 7. Additionally, acceptable air tightness of individual residential units shall be demonstrated by a blower door test. The testing and sampling procedure shall be in accordance with the ENERGY STAR Multifamily High Rise Program Testing and Verification Protocols, Version 1.0, Revision 03 - 2015, with an allowable maximum leakage of 0.3 cfm/sf of enclosure bounding the apartment at an induced pressure difference of 50 pascals.

**701.1.6 Alternative Gold level compliance for tropical zones.** One- or two-family dwelling in the tropical zone at an elevation less than 2,400 ft. (731.5 m) above sea level that complies with the following shall achieve the Gold level for Chapter 7:

1. The residence complies with ICC IECC R401.2.1 Tropical zone.
2. The residence includes a minimum of 2 kW of PV and a minimum of 6 kWh of battery storage.
3. Any air conditioning has a minimum of 18 SEER.
4. Solar, wind or other renewable energy source supplies not less than 90% of the energy for service water heating.
5. Glazing in conditioned spaces has a solar heat gain coefficient of less than or equal to 0.25, or has an overhang with a projection factor equal to or greater than 0.30.
6. The exterior roof/ceiling complies with at least two of the following:
   a. Minimum roof reflectance and emittance in ICC IECC Table C402.3.
   b. Roof or ceiling has insulation with an R-value of R-15 or greater.
   c. Includes a radiant barrier.
7. Walls comply with at least one of the following:
   a. Walls have an overhang with a projection factor equal to or greater than 0.30.
   b. Walls have insulation with an R-value of R-13 or greater.
   c. Walls have a solar reflectance of 0.64.
8. A ceiling fan is provided for bedrooms and the largest space that is not used as a bedroom; alternately a whole house fan is provided.
9. Wiring sufficient for a Level 2 (208/240V 40-80 amp) electric vehicle charging station is installed on the building site.

**701.2 Emerald level points.** The Performance Path (§ 702) or the ERI Target Path (§ 704) shall be used to achieve the Emerald level.

**701.3 Adopting entity review.** A review by the Adopting Entity or designated third party shall be conducted to verify design and compliance with Chapter 7.
### GREEN BUILDING PRACTICES

**701.4 Mandatory practices**

**701.4.1 HVAC system sizing.** Space heating and cooling system is sized according to heating and cooling loads calculated using ACCA Manual J or equivalent. Equipment is selected using ACCA Manual S or equivalent. ...........................................................................................................................................................................

**701.4.2 Radiant and hydronic space heating.** Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed, installed, and documented, using industry-approved guidelines and standards (e.g., ACCA Manual J, AHRI I=B=R, ACCA 5 QI, or an accredited design professional’s and manufacturer’s recommendation)............................................................................................................................................................................

**701.4.2.1 Duct air sealing.** Ducts are air sealed. All duct sealing materials are in conformance with UL 181A or UL 181B specifications and are installed in accordance with manufacturer’s instructions. ..............

**701.4.2.2 Ducts and Plenums.** Building framing cavities are not used as ducts or plenums. .................

**701.4.2.3 Duct system sizing.** Duct system is sized and designed in accordance with ACCA Manual D or equivalent...........................................................................................................................................................................

**701.4.3.1 Building thermal envelope air sealing.** The building thermal envelope is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film, or solid material: ...........................................

- (a) All joints, seams and penetrations.
- (b) Site-built windows, doors, and skylights.
- (c) Openings between window and door assemblies and their respective jambs and framing.
- (d) Utility penetrations.
- (e) Dropped ceilings or chases adjacent to the thermal envelope.
- (f) Knee walls.
- (g) Walls, ceilings, and floors separating conditioned spaces from unconditioned spaces.
- (h) Behind tubs and showers on exterior walls.
- (i) Common walls between dwelling units or sleeping units.
- (j) Attic access openings.
- (k) Joints of framing members at rim joists.
- (l) Top and bottom plates.
- (m) Other sources of infiltration.

**701.4.3.2 Air barrier, air sealing, building envelope testing, and insulation.** Building envelope air barrier, air sealing envelope tightness, and insulation installation is verified to be in accordance with this Section and § 701.4.3.2.1. Insulation installation other than Grade 1 is not permitted...........................................

(1) **Testing.** Building envelope tightness is tested. Testing is conducted in accordance with ASTM E779 using a blower door at a test pressure of 1.04 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing is conducted under the following conditions:

- (a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed;
- (b) Dampers are closed, but not sealed, including exhaust, intake, make-up air, backdraft and flue dampers;
- (c) Interior doors are open;
- (d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed;
- (e) Heating and cooling systems are turned off;
GREEN BUILDING PRACTICES

(f) HVAC duct terminations are not sealed; and
(g) Supply and return registers are not sealed.

Multifamily Building Note: Testing by dwelling units, groups of dwelling units, or the building as a whole is acceptable.

(2) Visual inspection. The air barrier and insulation items listed in Table 701.4.3.2(2) are field verified by visual inspection.

701.4.3.2.1 Grade I insulation installations. Field-installed insulation products to ceilings, walls, floors, band joists, rim joists, conditioned attics, basements, and crawlspaces, except as specifically noted, are verified by a third-party as Grade I in accordance with the following:

(1) Inspection is conducted before insulation is covered.
(2) Air-permeable insulation is enclosed on all six sides and is in substantial contact with the sheathing material on one or more sides (interior or exterior) of the cavity. Air permeable insulation in ceilings is not required to be enclosed when the insulation is installed in substantial contact with the surfaces it is intended to insulate.
(3) Cavity insulation uniformly fills each cavity side-to-side and top-to-bottom, without substantial gaps or voids around obstructions (such as blocking or bridging).
(4) Cavity insulation compression or incomplete fill amounts to 2% or less, presuming the compressed or incomplete areas are a minimum of 70% of the intended fill thickness; occasional small gaps are acceptable.
(5) Exterior rigid insulation has substantial contact with the structural framing members or sheathing materials and is tightly fitted at joints.
(6) Cavity insulation is split, installed, and/or fitted tightly around wiring and other services.
(7) Exterior sheathing is not visible from the interior through gaps in the cavity insulation.
(8) Faced batt insulation is permitted to have side-stapled tabs, provided the tabs are stapled neatly with no buckling, and provided the batt is compressed only at the edges of each cavity, to the depth of the tab itself.
(9) Where properly installed, ICFs, SIPs, and other wall systems that provide integral insulation are deemed in compliance with this section.

701.4.3.4 Fenestration air leakage. Windows, skylights and sliding glass doors have an air infiltration rate of no more than 0.3 cfm per sq. ft. (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per sq. ft. (2.6 L/s/m²), when tested in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled. For site-built fenestration, a test report by an accredited, independent laboratory verifying compliance with the applicable infiltration rate shall be submitted to demonstrate compliance with this practice. This practice does not apply to field-fabricated fenestration products.

Exception: For Tropical Zones Only, Jalousie windows are permitted to be used as a conditioned space boundary and shall have an air infiltration rate of not more than 1.3 cfm per sq. ft.

701.4.3.5 Lighting in building thermal envelope. Luminaires installed in the building thermal envelope which penetrate the air barrier are sealed to limit air leakage between conditioned and unconditioned spaces. All luminaires installed in the building thermal envelope which penetrate the air barrier are IC-rated and labeled as meeting ASTM E283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All luminaires installed in the building thermal envelope which penetrate the air barrier are sealed with a gasket or caulk between the housing and the interior of the wall or ceiling covering.
### GREEN BUILDING PRACTICES

**701.4.4 High-efficacy lighting.** Lighting efficacy in dwelling units or sleeping units is in accordance with one of the following: .................................................................

1. A minimum of 75% of the total hard-wired lighting fixtures or the bulbs in those fixtures qualify as high efficacy or equivalent

2. Lighting power density, measured in watts/sq. ft., is 1.1 or less.

**701.4.5 Boiler piping.** Boiler piping in unconditioned space supplying and returning heated water or steam is insulated.................................................................

**702 PERFORMANCE PATH**

**702.1 Point allocation.** Points from § 702 (Performance Path) shall not be combined with points from § 703 (Prescriptive Path)........................................................................................................

**702.2 Energy performance levels**

**702.2.1 ICC IECC analysis.** Energy efficiency features are implemented to achieve energy cost or source energy performance that meets the ICC IECC. A documented analysis using software in accordance with ICC IECC Section R405, or ICC IECC Section C407.2 through C407.5, applied as defined in the ICC IECC, is required.................................................................

**703 PRESCRIPTIVE PATH**

**703.1 Mandatory practices ..................................................................................................................**

**703.1.1 Building thermal envelope compliance.** The building thermal envelope is in compliance with § 703.1.1.1 or § 703.1.1.2. .................................................................................................................................

**Exception:** Section 703.1.1 is not required for Tropical Climate Zone.

**703.1.1.1 Maximum UA and SHGC.** For ICC IECC residential buildings, the total building UA is less than or equal to the total maximum UA as computed by ICC IECC Section R402.1.5. The SHGC requirements for fenestration in Table R402.1.2 are also met. For ICC IECC commercial buildings, the total UA is less than or equal to the sum of the UA for ICC IECC Tables C402.1.4 and C402.4, including the U-factor times the area and C-factor or F-factor times the perimeter. The SHGC requirements for fenestration in Table C402.4 are also met. The total UA proposed and baseline calculations are documented. REScheck or COMcheck is deemed to provide UA calculation documentation.

**703.1.1.2 Prescriptive R-values and fenestration requirements.** The building thermal envelope is in accordance with the insulation and fenestration requirements of ICC IECC Table R402.1.2 or Table C402.1.3. The fenestration U-factors and SHGC’s are in accordance with Table 703.2.5.1 or ICC IECC Table C402.4.

**703.1.2 Building envelope leakage.** The building thermal envelope is in accordance with ICC IECC R402.4.1.2 or C402.5 as applicable. .................................................................................................................................

**Exception:** Section 703.1.2 is not required for Tropical Climate Zone.

**11.703.1.3 Duct testing.** The duct system is in accordance with ICC IECC R403.3.2 through R403.3.5 as applicable.
### Green Building Practices

**703.2.5 Fenestration**

**703.2.5.1** NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in Table 703.2.5.1. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 sq. ft. (1.39 m²) or 10% of the total glazing area, whichever is less, are not required to comply with this practice.

### ERI Target Path

**704.1 ERI target compliance.** Compliance with the energy chapter shall be permitted to be based on the EPA National ERI Target Procedure for ENERGY STAR Certified Homes. Points from § 704 (ERI Target) shall not be combined with points from § 702 (Performance Path) or § 703 (Prescriptive Path).

Dwelling ratings shall be submitted to a Rating Certification Body approved by the Adopting Entity for calculating points under this section.

### Section 8: Water Efficiency

**801 Indoor and Outdoor Water Use**

**801.1 Mandatory requirements.** The building shall comply with § 802 (Prescriptive Path) and § 803 (Innovative Practices) or § 804 (Performance Path). Points from § 804 (Performance Path) shall not be combined with points from § 802 (Prescriptive Path) or § 803 (Innovative Practices). The mandatory provisions of § 802 (Prescriptive Path) are required when using the Water Rating Index of § 804 (Performance Path) for Chapter 8 Water Efficiency compliance.

**802 Prescriptive Path**

**802.5.4** Water closets and urinals are in accordance with the following:

1. Gold and Emerald levels: All water closets and urinals are in accordance with § 802.5.4.

**802.6.1** Where an irrigation system is installed, an irrigation plan and implementation are executed by a qualified professional or equivalent.

### Section 9: Indoor Environmental Quality

**901 Pollutant Source Control**

**901.1.4** Gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the NFPA 54, ICC IFGC, or the applicable local gas appliance installation code. Gas-fired fireplaces within dwelling units or sleeping units and direct heating equipment are vented to the outdoors. Alcohol burning devices and kerosene heaters are vented to the outdoors.

**901.2.1** Solid fuel-burning fireplaces, inserts, stoves and heaters are code compliant and are in accordance with the following requirements:

1. Site-built masonry wood-burning fireplaces use outside combustion air and include a means of sealing the flue and the combustion air outlets to minimize interior air (heat) loss when not in operation.

2. Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are an EPA Phase 2 Emission Level Qualified Model.

3. Wood stove and fireplace inserts, as defined in UL 1482 Section 3.8, are in accordance with the certification requirements of UL 1482 and are in accordance with the emission requirements of the EPA Certification and the State of Washington WAC 173-433-100(3).
**GREEN BUILDING PRACTICES**

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<td>(4) Pellet (biomass) stoves and furnaces are in accordance with ASTM E1509 or are EPA certified.</td>
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<td>6</td>
<td>(5) Masonry heaters are in accordance with the definitions in ASTM E1602 and IBC Section 2112.1.</td>
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### 901.3 Garages

Garages are in accordance with the following:

1. **Attached garage**
   - (a) Doors installed in the common wall between the attached garage and conditioned space are tightly sealed and gasketed. 
   - (b) A continuous air barrier is provided separating the garage space from the conditioned living spaces.

### 901.4 Wood materials

A minimum of 85% of material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following:

- Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.

### 901.6 Carpets

Wall-to-wall carpeting is not installed adjacent to water closets and bathing fixtures.

### 901.13 Carbon monoxide (CO) alarms

A carbon monoxide (CO) alarm is provided in accordance with the IRC Section R315.

### 902 POLLUTANT CONTROL

#### 902.1.1 Spot ventilation

1. Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.

   \[1 \text{ point awarded only if a window complying with IRC Section R303.3 is provided in addition to mechanical ventilation.}\]

2. Clothes dryers (except listed and labeled condensing ductless dryers) are vented to the outdoors.

#### 902.2.1 Whole building ventilation

One of the following whole building ventilation systems is implemented and is in accordance with the specifications of ASHRAE Standard 62.2-2010 Section 4 and an explanation of the operation and importance of the ventilation system is included in either § 1001.1 or § 1002.2.

- (1) Exhaust or supply fan(s) ready for continuous operation and with appropriately labeled controls
- (2) Balanced exhaust and supply fans with supply intakes located in accordance with the manufacturer’s guidelines so as to not introduce polluted air back into the building
- (3) Heat-recovery ventilator
- (4) Energy-recovery ventilator
- (5) Ventilation air is preconditioned by a system not specified above

#### 902.3 Radon reduction measures

Radon reduction measures are in accordance with IRC Appendix F or § 902.3.1. Radon Zones as identified by the AHJ or, if the zone is not identified by the AHJ, as defined in Figure 9(1).

1. Buildings located in Zone 1
   - (a) a passive radon system is installed
902.3.2 Radon testing. Radon testing is mandatory for Zone 1.

Exceptions: 1) Testing is not mandatory where the authority having jurisdiction has defined the radon zone as Zone 2 or 3; and 2) testing is not mandatory where the occupied space is located above an unenclosed open space.

(1) Testing specifications. Testing is performance as specified in (a) through (j). Testing of a representative sample shall be permitted for multifamily buildings only .......................................................... 8

(a) Testing is performed after the residence passes its airtightness test.
(b) Testing is performed after the radon control system installation is complete. If the system has an active fan, the residence shall be tested with the fan operating.
(c) Testing is performed at the lowest level within a dwelling unit which will be occupied, even if the space is not finished.
(d) Testing is not performed in a closet, hallway, stairway, laundry room, furnace room, kitchen or bathroom.
(e) Testing is performed with a commercially available test kit or with a continuous radon monitor that can be calibrated. Testing shall be in accordance with the testing device manufacturer’s instructions.
(f) Testing shall be performed by the builder, a registered design professional, or an approved third party.
(g) Testing shall extend at least 48 hours or to the minimum specified by the manufacturer, whichever is longer.
(h) Written radon test results shall be provided by the test lab or testing party. Written test results shall be included with construction documents.
(i) An additional pre-paid test kit shall be provided for the homeowner to use when they choose. The test kit shall include mailing or emailing the results from the testing lab to the homeowner.
(j) Where the radon test result is 4 pCi/L or greater, the fan for the radon vent pipe shall be installed.

(2) Testing results. A radon test done in accordance with 902.3.2(1) and completed before occupancy receives a results of 2 pCi/L or less .......................................................... 6

902.6 Living space contaminants. The living space is sealed in accordance with § 701.4.3.1 to prevent unwanted contaminants .......................................................... M

904 INDOOR AIR QUALITY

904.3 Microbial growth & moisture inspection and remediation. A visual inspection is performed to confirm the following:

(1) Verify that no visible signs of discoloration and microbial growth on ceilings, walls or floors, or other building assemblies; or if minor microbial growth is observed (less than within a total area of 25 sq. ft.) in homes or multifamily buildings, reference EPA Document 402-K-02-003 (A Brief Guide to Mold, Moisture, and Your Home) for guidance on how to properly remediate the issue. If microbial growth is observed, on a larger scale in homes or multifamily buildings (greater than 25 sq. ft.), reference EPA Document 402-K-01-001 (Mold Remediation in Schools and Commercial Buildings) for guidance on how to properly remediate the issue.......................................................... M

(2) Verify that there are no visible signs of water damage or pooling. If signs of water damage or pooling are observed, verify that the source of the leak has been repaired, and that damaged materials are either properly dried or replaced as needed .......................................................... M
## GREEN BUILDING PRACTICES

### SECTION 10: OPERATION, MAINTENANCE, AND BUILDING OWNER EDUCATION

#### 1001 HOMEOWNER’S MANUAL AND TRAINING GUIDELINES FOR ONE- AND TWO-FAMILY DWELLINGS

**1001.1 Homeowner’s manual.** A homeowner’s manual is provided and stored in a permanent location in the dwelling that includes the following, as available and applicable.  

* [1 point awarded per two items. Points awarded for non-mandatory items.]*  

1. A National Green Building Standard certificate with a web link and completion document. 
2. List of green building features (can include the National Green Building Standard checklist).  
3. Product manufacturer’s manuals or product data sheet for installed major equipment, fixtures, and appliances. If product data sheet is in the building owners’ manual, manufacturer’s manual may be attached to the appliance in lieu of inclusion in the building owners’ manual.

**1001.2 Training of initial homeowners.** Initial homeowners are familiarized with the role of occupants in achieving green goals. Training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include:

1. HVAC filters.  
2. Thermostat operation and programming.  
3. Lighting controls.  
4. Appliances operation.  
5. Water heater settings and hot water use.  
6. Fan controls.  
7. Recycling and composting practices.  
8. Whole-dwelling mechanical ventilation systems.

#### 1002 CONSTRUCTION, OPERATION, AND MAINTENANCE MANUALS AND TRAINING FOR MULTIFAMILY BUILDINGS

**1002.1 Building construction manual.** A building construction manual, including five or more of the following, is compiled and distributed in accordance with § 1002.0.  

* [Points awarded for non-mandatory items.]*  

1. A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties’ manuals.  
2. A local green building program certificate as well as a copy of the National Green Building Standard™, as adopted by the Adopting Entity, and the individual measures achieved by the building.  
3. Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, and finishes.

**1002.2 Operations manual.** Operations manuals are created and distributed to the responsible parties in accordance with § 1002.0. Between all of the operation manuals, five or more of the following options are included.  

* [Points awarded for non-mandatory items.]*  

1. A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties’ manuals.  
2. A list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics).
GREEN BUILDING PRACTICES

1002.3 Maintenance manual. Maintenance manuals are created and distributed to the responsible parties in accordance with § 1002.0. Between all of the maintenance manuals, five or more of the following options are included. [Points awarded for non-mandatory items.]

1. A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties’ manuals.

1002.4 Training of building owners. Building owners are familiarized with the role of occupants in achieving green goals. On-site training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include:

1. HVAC filters
2. Thermostat operation and programming
3. Lighting controls
4. Appliances operation
5. Water heater settings and hot water use
6. Fan controls
7. Recycling and composting practices
8. Whole-dwelling mechanical ventilation systems

1002.5 Multifamily occupant manual. An occupant manual is compiled and distributed in accordance with § 1002.0. [Points awarded for non-mandatory items.]

1. NGBS certificate
2. List of green building features
3. Operations manuals for all appliances and occupant operated equipment including lighting and ventilation controls, thermostats, etc.

SECTION 11: REMODELING

11.601 QUALITY OF CONSTRUCTION MATERIALS AND WASTE

11.601.1 Conditioned floor area. Finished floor area of a dwelling unit or sleeping unit after the remodeling is limited. Finished floor area is calculated in accordance with ANSI Z765 for single family and ANSI/BOMA Z65.4 for multifamily buildings. Only the finished floor area for stories above grade plane is included in the calculation. [For every 100 sq. ft. (9.29 m²) over 4,000 sq. ft. (372 m²), 1 point is to be added the threshold points shown in Table 305.3.7 for each rating level.]

11.602 ENHANCED DURABILITY AND REDUCED MAINTENANCE

11.602.1.1 A capillary break and vapor retarder are installed at concrete slabs in accordance with IRC Sections R506.2.2 and R506.2.3 or IBC Sections 1910 and 1805.4.1. [*This practice is not mandatory for existing slabs without apparent moisture problem.]

11.602.1.3.1 Where required by the IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed. [*This practice is not mandatory for existing space without apparent moisture problem.]

11.602.1.4.1 Vapor retarder for all new unconditioned vented crawlspace foundations and not less than 25% of the total area after the remodel is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 in. (152 mm) and are taped.

2. Walls. Dampproof walls are provided below finished grade. [*This practice is not mandatory for existing walls without apparent moisture problem.]
### 11.602.1.4.2 For all new foundations and not less than 25% of the total area of the crawlspace after the remodel, crawlspace that is built as a conditioned area is sealed to prevent outside air infiltration and provided with conditioned air at a rate not less than 0.02 cfm (.009 L/s) per sq. ft. of horizontal area and one of the following is implemented:

1. 6 mil polyethylene sheeting or other Class I vapor retarder installed in accordance with IRC Section 408.3 or Section 506.

   [*This practice is not mandatory for existing foundations without apparent moisture problem.*]...........

### 11.602.1.7.1 Moisture control measures are in accordance with the following:

1. Insulation in cavities is dry in accordance with manufacturer’s instructions when enclosed (e.g., with drywall).

### 11.602.1.8 Water-resistant barrier. Where required by the IRC or IBC, a water-resistant barrier and/or drainage plane system is installed behind newly installed exterior veneer and/or siding and where there is evidence of a moisture problem.

### 11.602.1.9 Flashing. Flashing is provided as follows to minimize water entry into wall and roof assemblies and to direct water to exterior surfaces or exterior water-resistant barriers for drainage. Flashing details are provided in the construction documents and are in accordance with the fenestration manufacturer’s instructions, the flashing manufacturer’s instructions, or as detailed by a registered design professional.

   [Points awarded only when practices (2)-(7) are implemented in all newly installed construction and not less than 25% of the applicable building elements for the entire building after the remodel.]

1. Flashing is installed at all the following locations, as applicable:

   [*These practices are not mandatory for existing building elements without apparent moisture problem.*]..........................

   a. around exterior fenestrations, skylights and doors;
   b. at roof valleys;
   c. at all building-to-deck, -balcony, -porch, and -stair intersections;
   d. at roof-to-wall intersections, at roof-to-chimney intersections, at wall-to-chimney intersections, and at parapets;
   e. at ends of and under masonry, wood, or metal copings and sills;
   f. above projecting wood trim;
   g. at built-in roof gutters; and
   h. drip edge is installed at eave and rake edges.

### 11.602.1.11 Tile backing materials. Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.

   [*This practice is not mandatory for existing tile surfaces without apparent moisture problem.*].................

### 11.602.1.13 Ice barrier. In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the IRC or IBC at roof eaves of pitched roofs and extends a minimum of 24 in. (610 mm) inside the exterior wall line of the building.

### 11.602.1.14 Architectural features. Architectural features that increase the potential for the water intrusion are avoided:

1. All horizontal ledgers are sloped away to provide gravity drainage as appropriate for the application.

### 11.602.4.1 Finished grade at all sides of a building is sloped to provide a minimum of 6 in. (152 mm) of fall within 10 ft. (3048 mm) of the edge of the building. Where lot lines, walls, slopes, or other physical barriers prohibit 6 in. (152 mm) of fall within 10 ft. (3048 mm), the final grade is sloped away from the edge of the building at a minimum slope of 2%.
GREEN BUILDING PRACTICES

11.605 RECYCLED CONSTRUCTION WASTE

11.605.1 Hazardous waste. The construction waste management plan shall include information on the proper handling and disposal of hazardous waste. Hazardous waste is properly handled and disposed..........

11.701 MINIMUM ENERGY EFFICIENCY REQUIREMENTS

305.2.5 Energy efficiency. The building shall comply with § 305.2.5.1 or § 305.2.5.2.

11.701.4 Mandatory practices

11.701.4.0 Minimum energy efficiency requirements. Additions, alterations, or renovations to an existing building, building system or portion thereof shall comply with the provisions of the ICC IECC as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with the ICC IECC. An addition complies with the ICC IECC if the addition complies or if the existing building and addition comply with the ICC IECC as a single building..........

11.701.4.1.1 HVAC system sizing. Newly installed or modified space heating and cooling system is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent. New equipment is selected using ACCA Manual S or equivalent.........................................................

11.701.4.1.2 Radiant and hydronic space heating. Where installed as a primary heat source in the building, new radiant or hydronic space heating system is designed, installed, and documented, using industry-approved guidelines and standards (e.g., ACCA Manual J, AHRI I=B=R, ANSI/ACCA 5 QI, or an accredited design professional’s and manufacturer’s recommendation). .........................................................

11.701.4.2.1 Duct air sealing. Ducts that are newly installed, modified, or are exposed during the remodel are air sealed. All duct sealing materials are in conformance with UL 181A or UL 181B specifications and are installed in accordance with manufacturer's instructions. .........................................................

11.701.4.2.2 Ducts and plenums. Building framing cavities are not used as ducts or plenums. Existing building cavities currently used as supply ducts exposed during the remodel are lined. ..................

11.701.4.2.3 Duct system sizing. New or modified duct system is sized and designed in accordance with ACCA Manual D or equivalent. .................................................................

11.701.4.3.1 Building thermal envelope air sealing. The building thermal envelope exposed or created during the remodel is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film or solid material: ...........

(a) All joints, seams and penetrations.
(b) Site-built windows, doors and skylights.
(c) Openings between window and door assemblies and their respective jambs and framing.
(d) Utility penetrations.
(e) Dropped ceilings or chases adjacent to the thermal envelope.
(f) Knee walls.
(g) Walls, ceilings, and floors separating conditioned spaces from unconditioned spaces.
(h) Behind tubs and showers on exterior walls.
(i) Common walls between dwelling units or sleeping units.
(j) Attic access openings.
(k) Joints of framing members at rim joists.
(l) Top and bottom plates.
(m) Other sources of infiltration.
**GREEN BUILDING PRACTICES**

**11.701.4.3.2 Air barrier, air sealing, building envelope testing and insulation.** For portions of the building envelope that are exposed or created during the remodel, building envelope air tightness and insulation installation is verified to be in accordance with this Section and § 11.701.4.3.2.1. Insulation installation other than Grade 1 is not permitted.

(1) **Testing.** Building envelope tightness is tested. Testing is conducted in accordance with ASTM E 779 using a blower door at a test pressure of 1.04 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances. Testing is conducted under the following conditions:

- (a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed;
- (b) Dampers are closed, but not sealed, including exhaust, intake, make-up air, backdraft, and flue dampers;
- (c) Interior doors are open;
- (d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed;
- (e) Heating and cooling system(s) is turned off;
- (f) HVAC duct terminations are not sealed; and
- (g) Supply and return registers are not sealed.

**Multifamily Building Note:** Testing by dwelling units, groups of dwelling units, or the building as a whole is acceptable.

(2) **Visual inspection.** The air barrier and insulation items listed in Table 11.701.4.3.2(2) are field verified by visual inspection.

**11.701.4.3.2.1 Grade I insulation installation.** Field-installed insulation products to ceilings, walls, floors, band joists, rim joists, conditioned attics, basements, and crawlspaces, except as specifically noted, are verified by a third-party as Grade I in accordance with the following:

(1) Inspection is conducted before insulation is covered.

(2) Air-permeable insulation is enclosed on all six sides and is in substantial contact with the sheathing material on one or more sides (interior or exterior) of the cavity. Air permeable insulation in ceilings is not required to be enclosed when the insulation is installed in substantial contact with the surfaces it is intended to insulate.

(3) Cavity insulation uniformly fills each cavity side-to-side and top-to-bottom, without substantial gaps or voids around obstructions (such as blocking or bridging).

(4) Cavity insulation compression or incomplete fill amounts to 2% or less, presuming the compressed or incomplete areas are a minimum of 70% of the intended fill thickness; occasional small gaps are acceptable.

(5) Exterior rigid insulation has substantial contact with the structural framing members or sheathing materials and is tightly fitted at joints.

(6) Cavity insulation is split, installed, and/or fitted tightly around wiring and other services.

(7) Exterior sheathing is not visible from the interior through gaps in the cavity insulation.

(8) Faced batt insulation is permitted to have side-stapled tabs, provided the tabs are stapled neatly with no buckling, and provided the batt is compressed only at the edges of each cavity, to the depth of the tab itself.

(9) Where properly installed, ICFs, SIPs, and other wall systems that provide integral insulation are deemed in compliance with this section.

**11.701.4.3.3 Multifamily air leakage alternative.** Multifamily buildings four or more stories in height and in compliance with ICC IECC section C402.5 (Air leakage-thermal envelope) are deemed to comply with § 701.4.3.1 and § 701.4.3.2.
GREEN BUILDING PRACTICES

11.701.4.3.4 Fenestration air leakage. Newly installed Windows, skylights and sliding glass doors have an air infiltration rate of no more than 0.3 cfm per sq. ft. (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per sq. ft. (2.6 L/s/m²), when tested in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled. For site-built fenestration, a test report by an accredited, independent laboratory verifying compliance with the applicable infiltration rate shall be submitted to demonstrate compliance with this practice. This practice does not apply to field-fabricated fenestration products.

Exception: For Tropical Zones only, jalousie windows are permitted to be used as a conditioned space boundary and shall have an air infiltration rate of not more than 1.3 cfm per sq. ft.

11.701.4.3.5 Lighting and building thermal envelope. Newly installed luminaires installed in the building thermal envelope which penetrate the air barrier are sealed to limit air leakage between conditioned and unconditioned spaces. All luminaires are IC-rated and labeled as meeting ASTM E283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All luminaires installed in the building thermal envelope which penetrate the air barrier are sealed with a gasket or caulk between the housing and the interior of the wall or ceiling covering.

11.701.4.4 High-efficacy lighting. A minimum of 90% of newly installed hard-wired lighting fixtures or the bulbs in those fixtures shall be high efficacy.

11.701.4.5 Boiler piping. Boiler piping in unconditioned space supplying and returning heated water or steam that is accessible during the remodel is insulated. Exception: where condensing boilers are installed, insulation is not required for return piping.

11.701.4.6 Fenestration specifications. The NFRC-certified U-factor and SHGC of newly installed windows, exterior doors, skylights, and tubular daylighting devices (TDDs) do not exceed the values in Table 703.2.5.1.

11.701.4.7 Replacement fenestration. Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the NFRC-certified U-factor and SHGC of the replacement fenestration unit do not exceed the values in Table 703.2.5.1.

305.2.5.1 Energy consumption reduction path. The energy efficiency rating level shall be based on the reduction in energy consumption resulting from the remodel in accordance with Table 305.2.5.1. The reduction in energy consumption resulting from the remodel shall be based on the estimated annual energy cost savings or source energy savings as determined by a third-party energy audit and analysis or utility consumption data. The reduction shall be the percentage difference between the consumption per square foot before and after the remodel calculated as follows:

\[
\text{[(consumption per square foot before remodel – consumption per square foot after remodel)/ consumption per square foot before remodel]×100}
\]

The occupancy and lifestyle assumed and the method of making the energy consumption estimates shall be the same for estimates before and after the remodel. The building configuration for the after-remodel estimate shall include any additions to the building or other changes to the configuration of the conditioned space. For multifamily buildings, the energy consumption shall be based on the entire building including all dwelling units/sleeping units and common areas.

If a building can demonstrate through documentation approved by the Adopting Entity that the remodel activities started prior to project registration, the energy baseline (consumption per square foot before remodel) can be calculated based on data and building systems that was existing in the building up to 3 years prior project registration.
GREEN BUILDING PRACTICES

11.703 PRESCRIPTIVE PATH

11.703.1 Mandatory practices .................................................................................................................................................. 30

11.703.1.1 Building thermal envelope compliance. The building thermal envelope is in compliance with § 11.703.1.1.1 or § 11.703.1.1.2. .................................................................................................................................................. M for § 11.703

Exception: Section 11.703.1.1 is not required for Tropical Climate Zone.

11.703.1.1.1 Maximum UA. For ICC IECC residential, the total building UA is less than or equal to the total maximum UA as computed by ICC IECC Section R402.1.5. For ICC IECC commercial, the total UA is less than or equal to the sum of the UA for ICC IECC Tables C402.1.4 and C402.4, including the U-factor times the area and C-factor or F-factor times the perimeter. The total UA proposed and baseline calculations are documented. REScheck or COMcheck is deemed to provide UA calculation documentation.

11.703.1.1.2 Prescriptive R-value and fenestration requirements. The building thermal envelope is in accordance with the insulation and fenestration requirements of ICC IECC R502.1.1.1. The SHGC is in accordance with the ICC IECC requirements.

11.703.1.2 Building envelope leakage. The building thermal envelope is in accordance with ICC IECC R502.1.1.1 or R503.1.1 as applicable. Exception: Section 11.703.1.2 is not required for Tropical Climate Zone.

11.703.1.3 Duct testing. The duct system is in accordance with ICC IECC R403.3.2 through R403.3.5 as applicable.

11.703.2.5 Fenestration

11.703.2.5.1 NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in Table 11.703.2.5.1. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 sq. ft. (1.39 m²) or 10% of the total glazing area, whichever is less, are not required to comply with this practice. .................................................................................................................................................. M for § 11.703

11.703.2.5.1.1 Dynamic glazing. Dynamic glazing is permitted to satisfy the SHGC requirements of Table 11.703.2.5.1 provided the ratio of the higher to lower labeled SHGC is greater than or equal to 2.4 and the dynamic glazing is automatically controlled to modulate the amount of solar gain into the space in multiple steps. Fenestration with dynamic glazing is considered separately from other fenestration and area-weighted averaging with fenestration that does not use dynamic glazing is not permitted. Dynamic glazing is not required to be automatically controlled or comply with minimum SHGC ratio when both the lower and higher labeled SHGC already comply with the requirements of Table 11.703.2.5.1.

11.801 INDOOR AND OUTDOOR WATER USE

11.801.1 Mandatory requirements. The building shall comply with § 11.802 (Prescriptive Path) and § 11.803 (Innovative Practices). Points from § 11.804 (Performance Path) shall not be combined with points from § 11.802 (Prescriptive Path) or § 11.803 (Innovative Practices).

305.2.6.1 Water consumption reduction path. The water efficiency rating level shall be based on the reduction in water consumption resulting from the remodel in accordance with Table 305.2.6.1.

Water consumption shall be based on the estimated annual use as determined by a third-party audit and analysis or use of utility consumption data. The reduction shall be the percentage difference between the consumption before and after the remodel calculated as follows:
GREEN BUILDING PRACTICES

The occupancy and lifestyle assumed and the method of making the water consumption estimates shall be the same for estimates before and after the remodel. The building configuration for the after-remodel estimate shall include any changes to the configuration of the building such as additions or new points of water use. For multifamily buildings, the water consumption shall be based on the entire building including all dwelling units and common areas.

Where a building can demonstrate through documentation approved by the Adopting Entity that the remodel activities started prior to project registration, the water baseline (consumption before remodel) shall be calculated based on data and building systems that existed in the building up to 3 years prior project registration.

11.802 PRESCRIPTIVE PATH

11.802.5.4 Water closets and urinals are in accordance with the following:

(1) Gold and Emerald levels: All water closets and urinals are in accordance with § 11.801.5. .........................

11.802.6.1 Where an irrigation system is installed, an irrigation plan and implementation are executed by a qualified professional or equivalent. ............................................................

11.901 POLLUTANT SOURCE CONTROL

11.901.1.4 Newly installed gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the NFPA 54, ICC IFGC, or the applicable local gas appliance installation code. Gas-fired fireplaces within dwelling units or sleeping units and direct heating equipment are vented to the outdoors. Alcohol burning devices and kerosene heaters are vented to the outdoors. .........................

11.901.2.1 Newly installed solid fuel-burning fireplaces, inserts, stoves and heaters are code compliant and are in accordance with the following requirements: ............................................................

(1) Site-built masonry wood-burning fireplaces are equipped with outside combustion air and a means of sealing the flue and the combustion air outlets to minimize interior air (heat) loss when not in operation.

(2) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are an EPA Phase 2 Emission Level Qualified Model.

(3) Wood stove and fireplace inserts, as defined in UL 1482 Section 3.8, are in accordance with the certification requirements of UL 1482 and are in accordance with the emission requirements of the EPA Certification and the State of Washington WAC 173-433-100(3).

(4) Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E1509 or are EPA certified.

(5) Masonry heaters are in accordance with the definitions in ASTM E1602 and IBC Section 2112.1.

(6) Removal of or rendering unusable an existing fireplace or fuel burning appliance that is not in accordance with § 11.901.2.1 or replacement of each fireplace or appliance that is not in accordance with § 11.901.2.1 with a compliant appliance.

11.901.3 Garages. Garages are in accordance with the following:

(1) Attached garage

(a) Where installed in the common wall between the attached garage and conditioned space, the door is tightly sealed and gasketed. ............................................................

(b) A continuous air barrier is provided between walls and ceilings separating the garage space from the conditioned living spaces. ............................................................
<table>
<thead>
<tr>
<th>POINTS</th>
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</thead>
<tbody>
<tr>
<td>11.901.4 Wood materials.</td>
<td>A minimum of 85% of newly installed material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following:</td>
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<td></td>
<td>(1) Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.</td>
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<tr>
<td>11.901.6 Carpets.</td>
<td>Carpets are in accordance with the following:</td>
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<td></td>
<td>(1) Wall-to-wall carpeting is not installed adjacent to water closets and bathing fixtures.</td>
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<tr>
<td>11.901.9.4 When the building is occupied during the remodel, a minimum of 85% of the newly applied interior architectural coatings are in accordance with either § 11.901.9.1 or § 11.901.9.3.</td>
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<tr>
<td>11.901.13 Carbon monoxide (CO) alarms.</td>
<td>A carbon monoxide (CO) alarm is provided in accordance with the IRC Section R315.</td>
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<td>11.901.16 Lead-safe work practices.</td>
<td>For buildings constructed before 1978, lead-safe work practices are used during the remodeling.</td>
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<tr>
<td>11.902 Pollutant control</td>
<td>Spot ventilation is in accordance with the following:</td>
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<td></td>
<td>(1) Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.</td>
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<td>[1 point awarded only if a window complying with IRC Section R303.3 is provided in addition to mechanical ventilation.]</td>
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<td></td>
<td>(2) Clothes dryers (except listed and labeled condensing ductless dryers) are vented to the outdoors.</td>
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<tr>
<td>11.902.1.2 Bathroom and/or laundry exhaust fan is provided with an automatic timer and/or humidistat:</td>
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<td></td>
<td>(1) for first device</td>
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<td></td>
<td>(2) for each additional device</td>
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<td>11.902.2.1 One of the following whole building ventilation systems is implemented and is in accordance with the specifications of ASHRAE Standard 62.2-2010 Section 4 and an explanation of the operation and importance of the ventilation system is included in either § 11.1001.1 or § 11.1002.2.</td>
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<td>[*Mandatory where the maximum air infiltration rate is less than 5.0 ACH50]</td>
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<td></td>
<td>(1) exhaust or supply fan(s) ready for continuous operation and with appropriately labeled controls</td>
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<td>(2) balanced exhaust and supply fans with supply intakes located in accordance with the manufacturer’s guidelines so as to not introduce polluted air back into the building</td>
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<td></td>
<td>(3) heat-recovery ventilator</td>
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<td></td>
<td>(4) energy-recovery ventilator</td>
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<td>(5) Ventilation air is preconditioned by a system not specified above</td>
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</table>
### GREEN BUILDING PRACTICES

**11.902.3 Radon reduction measures.** Radon reduction measures are in accordance with IRC Appendix F or § 11.902.3.1. Radon Zones as identified by the AHJ or, if the zone is not identified by the AHJ, as defined in Figure 9(1). This practice is not mandatory if the existing building has been tested for radon and is accordance with federal and local acceptable limits.

1. Buildings located in Zone 1
   a. a passive radon system is installed ................................................................. M

**11.902.6 Living space contaminants.** The living space is sealed in accordance with § 11.701.4.3.1 to prevent unwanted contaminants................................................................. M

### INDOOR AIR QUALITY

**11.904 Microbial growth & moisture inspection and remediation.** A visual inspection is performed to confirm the following:

1. Verify that no visible signs of discoloration and microbial growth on ceilings, walls or floors, or other building assemblies; or if minor microbial growth is observed (less than within a total area of 25 sq. ft.) in homes or multifamily buildings, reference EPA Document 402-K-02-003 (A Brief Guide to Mold, Moisture, and Your Home) for guidance on how to properly remediate the issue. If microbial growth is observed, on a larger scale in homes or multifamily buildings (greater than 25 sq. ft.), reference EPA Document 402-K-01-001 (Mold Remediation in Schools and Commercial Buildings) for guidance on how to properly remediate the issue................................................................. M

2. Verify that there are no visible signs of water damage or pooling. If signs of water damage or pooling are observed, verify that the source of the leak has been repaired, and that damaged materials are either properly dried or replaced as needed ................................................................. M

### HOMEOWNER’S MANUAL AND TRAINING GUIDELINES FOR ONE- AND TWO-FAMILY DWELLINGS

**11.1001.1 Homeowner’s manual.** A homeowner’s manual is provided and stored in a permanent location in the dwelling that includes the following, as available and applicable.

[1 point awarded per two items. Points awarded for non-mandatory items.] ................................................................. 1 [8 max]

1. A National Green Building Standard certificate with web link and completion document ....................... M

2. List of green building features (can include the national green building checklist). ....................... M

3. Product manufacturer’s manuals or product data sheet for newly installed major equipment, fixtures, and appliances including product model numbers and serial numbers. If product data sheet is in the building owners’ manual, manufacturer’s manual may be attached to the appliance in lieu of inclusion in the building owners’ manual. ................................................................. M

**11.1001.2 Training of initial building owners.** Initial building owners are familiarized with the role of occupants in achieving green goals. Training is provided to the responsible party(ies) regarding newly installed equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include: ................................................................. M

1. HVAC filters
2. thermostat operation and programming
3. lighting controls
4. appliances operation
5. water heater settings and hot water use
6. fan controls
7. Recycling and composting practices
8. Whole-dwelling mechanical ventilation systems
11.1002 CONSTRUCTION, OPERATION, AND MAINTENANCE MANUALS AND TRAINING FOR MULTIFAMILY BUILDINGS

11.1002.1 Building construction manual. A building construction manual, including five or more of the following, is compiled and distributed in accordance with § 11.1002.0. [Points awarded per two items. Points awarded for non-mandatory items.] .................................................

(1) A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties’ manuals. M

(2) A local green building program certificate as well as a copy of the National Green Building Standard™, as adopted by the Adopting Entity, and the individual measures achieved by the building. M

(3) Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, and finishes. M

11.1002.2 Operations manual. Operations manuals are created and distributed to the responsible parties in accordance with § 11.1002.0. Among all of the operation manuals, five or more of the following options are included. [Points awarded per two items. Points awarded for non-mandatory items.] .................................................

(1) A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties’ manuals. M

(2) A list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics). M

11.1002.3 Maintenance manual. Maintenance manuals are created and distributed to the responsible parties in accordance with § 11.1002.0. Between all of the maintenance manuals, five or more of the following options are included. [Points awarded for non-mandatory items.] .................................................

(1) A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties’ manuals. M

11.1002.4 Training of building owners. Building owners are familiarized with the role of occupants in achieving green goals. On-site training is provided to the responsible party(ies) regarding newly installed equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. .................................................

These include:

(1) HVAC filters
(2) thermostat operation and programming
(3) lighting controls
(4) appliances operation
(5) water heater settings and hot water use
(6) fan controls
(7) recycling and composting practices
(8) Whole-dwelling mechanical ventilation system

11.1002.5 Multifamily occupant manual. An occupant manual is compiled and distributed in accordance with § 1002.0. [Points awarded for non-mandatory items.] .................................................

(1) NGBS certificate .......... M

(2) List of green building features .......... M

(3) Operations manuals for all appliances and occupant operated equipment including lighting and ventilation controls, thermostats, etc. .......... M
APPENDIX E:
NGBS Green Compliance Guidance for Tropical Zone
NGBS GREEN COMPLIANCE GUIDANCE
for Homes and Buildings in the Tropical Zone

The National Green Building Standard ICC/ASHRAE-700 (NGBS) is the only green building rating system for specifically designed for homes and apartments approved by the American National Standards Institute (ANSI), as an American National Standard. The NGBS provides a blueprint for architects, builders and developers to follow for the design and construction of new and renovated single-family homes and multifamily apartment buildings.

Home Innovation Research Labs serves as Adopting Entity for the NGBS providing building certification of compliance nationwide. The NGBS Green certification program is an above-code, voluntary program and is recognized by the U.S. Department of Housing and Urban Development, Fannie Mae, Freddie Mac, and many federal, state, and local government agencies. A home or multifamily building can attain one of four performance levels — Bronze, Silver, Gold, or Emerald. The 2020 NGBS offers a fifth certification level, Certified, for single-family homes and multifamily buildings. For a building to attain NGBS Green certification, all applicable mandatory provisions must be correctly implemented. The NGBS has specific provisions for homes and buildings in the Tropical Zone to be compliant.

Below are NGBS requirements, interpretations, and verification guidance for homes and buildings seeking NGBS Green certification in the Tropical Zone.

2015 NGBS Compliance for Tropical Zone Homes/Buildings

Fast Facts:
- 2015 IECC is baseline (local code modifications not allowed)
- Allows certification of single-family homes, multifamily buildings, or the residential portion of a mixed-use building
- Buildings that meet the requirements in 2015 ICC IECC Section R401.2.1 (Tropical Zone) achieve the Silver level for NGBS Chapter 7, and highest level that the building can achieve is Silver
- Meets HUD requirements for CDBG disaster recovery funding for CDBG disaster recovery funding

2020 NGBS Compliance for Tropical Zone Homes/Buildings

Fast Facts:
- 2018 IECC is baseline (local code modifications not allowed – see below for 2018 IECC requirements)
- Allows certification of single-family homes, multifamily buildings, the residential portion of a mixed-use building, or the entire building when the residential portion is >50% of the gross floor area
- Buildings that meet the requirements in 2018 ICC IECC Section R401.2.1 (Tropical Zone) achieve the Silver level for Chapter 7, and highest level that the building can achieve is Silver
- Buildings that comply with 2020 NGBS 701.1.6 Alternative Gold level compliance for tropical zones achieve the Gold level for NGBS Chapter 7 (but no higher)
- NEW Simplified Chapter 12 Certified Path for SF or townhomes
- More flexibility for renovation with a Prescriptive Path for energy and water efficiency compliance
- Resiliency design and construction earns points toward certification
• New construction should select the Prescriptive Path (not the Performance Path – WRI) for water efficiency compliance
• Meets HUD requirements for CDBG disaster recovery funding

NGBS Green Interpretations for Tropical Zone

• A few NGBS practices qualify for waivers for buildings in the Tropical Zone – when claiming a waiver select “N/A” for the practice in the NGBS Green Scoring Tool and add a Designer’s or Verifier’s note to indicate that the waiver is being claimed
• NGBS 703.2.5 SHGC and NGBS 703.1.1 UA requirements waivered for unconditioned buildings and unconditioned portions
• Glazing in conditioned spaces must have a SHGC of less than or equal to 0.40
• Tropical Zone elevation requirement is waivered for unconditioned homes/buildings
• Only for the 2020 NGBS – 1202.13 Roof overhang requirement waivered if roof overhangs are not part of the original design – if roof overhangs are planned other than those above the door, then the home/building must meet the practice (NOTE: roof overhangs are NOT mandatory for the 2015 NGBS so no waiver is necessary)
• 2015 NGBS or 2020 NGBS 902.1.1(1) Bathroom exhaust fans that vent to the outside required even if the bathroom has operable fenestration (this is an Indoor Environmental Quality practice to mitigate excess indoor moisture)

2018 IECC Tropical Zone Requirements

R401.2.1 Tropical zone. Residential buildings in the tropical zone at elevations less than 2,400 feet (731.5 m) above sea level shall be deemed to be in compliance with this chapter provided that the following conditions are met:

1. Not more than one-half of the occupied space is air conditioned.
2. The occupied space is not heated.
3. Solar, wind or other renewable energy source supplies not less than 80 percent of the energy for service water heating.
4. Glazing in conditioned spaces has a solar heat gain coefficient of less than or equal to 0.40, or has an overhang with a projection factor equal to or greater than 0.30.
5. Permanently installed lighting is in accordance with Section R404.
6. The exterior roof surface complies with one of the options in Table C402.3 or the roof or ceiling has insulation with an R-value of R-15 or greater. Where attics are present, attics above the insulation are vented and attics below the insulation are unvented.
7. Roof surfaces have a slope of not less than one-fourth unit vertical in 12 units horizontal (21% slope). The finished roof does not have water accumulation areas.
8. Operable fenestration provides a ventilation area of not less than 14% of the floor area in each room. Alternatively, equivalent ventilation is provided by a ventilation fan.
9. Bedrooms with exterior walls facing two different directions have operable fenestration on exterior walls facing two directions.
10. Interior doors to bedrooms are capable of being secured in the open position.
11. A ceiling fan or ceiling fan rough-in is provided for bedrooms and the largest space that is not used as a bedroom.

**Tropical Zone NGBS Green Verification Requirements**

- Homes/buildings seeking NGBS Green certification typically have a minimum of two on-site inspections by an NGBS Green accredited Verifier – immediately before the drywall is installed (rough inspection) and when the building is complete (final inspection) – for multifamily buildings there are frequently multiple rough inspections to accommodate the drywall schedule.

- When a home/building in the Tropical Zone does not have drywall and/or fiberglass insulation, Home Innovation will *waive* the rough inspection with following requirements:
  - Building construction must be concrete, masonry, or SIP-panel construction
  - Builder/developer and Verifier must agree to remote verification schedule before construction starts
  - Remote verification subject to Home Innovation audit
  - Verifier must submit rough inspection notification before virtual verification scheduled and notify of actual date of remote inspection
  - Virtual inspections will be recorded by Verifier and saved for a minimum of three years
  - Verifier will submit rough verification report after virtual verification as usual – must include note when remote verification was used to determine compliance

- Air-sealing verification – some building types, such as poured concrete and CMU walls, do not face issues with air-tightness and therefore verification can be *waived* – however, the Verifier must obtain detailed architectural drawings regarding the roof-to-wall intersection for their review and approval for NGBS compliance – these drawings will be subject to NGBS Green audit. Air-tightness verification for other construction types can be handled remotely.

- Chapter 5 practices, such as *Natural Resource Protection*, and other practices typically verified at the rough stage can be verified by the NGBS Green Remote Verification Protocol in conjunction with a builder/developer sediment control and resource protect plan.

**Tropical Zone NGBS Green Mandatory Practice Verification Guidance**

See attached.
# 2015 NGBS MANDATORY ITEMS
## FOR CONSTRUCTION IN TROPICAL ZONE

This document is not intended to serve as a substitute for the 2015 NGBS, but rather as a quick guide to the mandatory items required for compliance and any waivers/interpretations for the Tropical Zone generally, and Puerto Rico specifically.

## GREEN BUILDING PRACTICES

### CHAPTER 5: LOT DESIGN, PREPARATION, AND DEVELOPMENT

No mandatory practices

### CHAPTER 6 RESOURCE EFFICIENCY

<table>
<thead>
<tr>
<th>602</th>
<th>ENHANCED DURABILITY AND REDUCED MAINTENANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>601.1 Conditioned floor area.</strong> Finished floor area of a dwelling unit is limited. Finished floor area is calculated in accordance with ANSI Z765 for single family and ANSI/BOMA Z65.4 for multifamily buildings. Only the finished floor area for stories above grade plane is included in the calculation.</td>
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<tr>
<td><em>(6) greater than 4,000 square feet (372 m²)</em></td>
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</tr>
<tr>
<td><em>(For every 100 square feet (9.29 m²) over 4,000 square feet (372 m²), one point is to be added to rating level points shown in Table 303, Category 7 for each rating level.)</em></td>
<td></td>
</tr>
<tr>
<td>Calculate from architectural plans and drawings.</td>
<td></td>
</tr>
<tr>
<td><strong>602.1 Moisture management – building envelope</strong></td>
<td></td>
</tr>
<tr>
<td><strong>602.1.1 A capillary break and vapor retarder are installed at concrete slabs in accordance with ICC IRC Sections R506.2.2 and R506.2.3 or ICC IBC Sections 1907 and 1805.4.1.</strong></td>
<td></td>
</tr>
<tr>
<td>Verify by plans/specifications AND scope of work(s) detailing how mandatory requirement has been met. Photo(s) with a geotag showing installation.</td>
<td></td>
</tr>
<tr>
<td><strong>602.1.3.1 Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed.</strong></td>
<td></td>
</tr>
<tr>
<td>N/A if no habitable and usable spaces below grade.</td>
<td></td>
</tr>
<tr>
<td><strong>602.1.4.1 Vapor retarder in unconditioned vented crawlspace is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.</strong></td>
<td></td>
</tr>
<tr>
<td>(2) Walls. Dampproof walls are provided below finished grade.</td>
<td></td>
</tr>
<tr>
<td>N/A if no habitable and usable spaces below grade.</td>
<td></td>
</tr>
<tr>
<td><strong>602.1.4.2 Crawlspace that is built as a conditioned area is sealed to prevent outside air infiltration and provided with conditioned air at a rate not less than 0.02 cfm (.009 L/s) per square foot of horizontal area and one of the following is implemented:</strong></td>
<td></td>
</tr>
<tr>
<td>(2) 6-mil polyethylene sheeting, or other Class I vapor retarder installed in accordance with Section 408.3 or Section 506 of the International Residential Code.</td>
<td></td>
</tr>
<tr>
<td>N/A if no crawlspace</td>
<td></td>
</tr>
<tr>
<td><strong>602.1.7.1 Moisture control measures are in accordance with the following:</strong></td>
<td></td>
</tr>
<tr>
<td>(2) Insulation in cavities is dry in accordance with manufacturer’s instructions when enclosed (e.g., with drywall).</td>
<td></td>
</tr>
<tr>
<td>N/A if no insulation and drywall</td>
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</tbody>
</table>
GREEN BUILDING PRACTICES

602.1.8 Water-resistive barrier. Where required by the ICC, IRC, or IBC, a water-resistive barrier and/or drainage plane system is installed behind exterior veneer and/or siding.

Verify compliance from architectural drawings and photo(s) with a geotag showing installation.

602.1.9 Flashing. Flashing is provided as follows to minimize water entry into wall and roof assemblies and to direct water to exterior surfaces or exterior water-resistive barriers for drainage. Flashing details are provided in the construction documents and are in accordance with the fenestration manufacturer’s instructions, the flashing manufacturer’s instructions, or as detailed by a registered design professional.

(1) Flashing is installed at all of the following locations, as applicable:
   (a) around exterior fenestrations, skylights, and doors
   (b) at roof valleys
   (c) at all building-to-deck, -balcony, -porch, and -stair intersections
   (d) at roof-to-wall intersections, at roof-to-chimney intersections, at wall-to-chimney intersections, and at parapets
   (e) at ends of and under masonry, wood, or metal copings and sills
   (f) above projecting wood trim
   (g) at built-in roof gutters, and
   (h) drip edge is installed at eave and rake edges.

Air sealing or flashing is required if there are seams, joints or gaps between building components and needs to be verified by review of architectural plan and geotagged photo(s) if these seams, joints or gaps will be covered and cannot be verified at final.

602.1.11 Tile backing materials. Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.

Verify with manufacturer’s literature/specification/labeling showing ASTM compliance. Plans/specifications and scope of work showing installation.

602.1.14 Architectural features. Architectural features that increase the potential for water intrusion are avoided:
   (1) All horizontal ledgers are sloped away to provide gravity drainage as appropriate for the application.

Verify by inspection at final.

602.4.1 Finished grade at all sides of a building is sloped to provide a minimum of 6 inches (150 mm) of fall within 10 feet (3048 mm) of the edge of the building. Where lot lines, walls, slopes, or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), the final grade is sloped away from the edge of the building at a minimum slope of 2 percent.

Verify by inspection at final proper grade slope.

SECTION 7: ENERGY EFFICIENCY

701 MINIMUM ENERGY EFFICIENCY REQUIREMENTS

701.4 Mandatory practices

701.4.1 HVAC system sizing. Space heating and cooling system is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent. Equipment is selected using ACCA Manual S or equivalent.

N/A if no HVAC system installed. Otherwise verify Manual J & Manual S reports are for the building being verified and that the square footage and specifications used in the report are consistent with the building being verified. Verify HVAC equipment sizes installed for this specific building comply with the analysis recommendation. Report must be done by a qualified professional – see NGBS Green policy regarding who is qualified.
GREEN BUILDING PRACTICES

701.4.1.2 Radiant and hydronic space heating. Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed, installed, and documented, using industry-approved guidelines and standards (e.g., ACCA Manual J, AHRI I=B=R, ACCA 5 QI-2010, or an accredited design professional’s and manufacturer’s recommendations).

N/A if no space heating. Otherwise verify by documentation review. The statement must be done by a qualified professional and be specific to the building being verified. When there is not a radiant or hydronic system as primary heat indicate that via the appropriate dropdown menu choice.

701.4.2.1 Duct air sealing. Ducts are air sealed. All duct sealing materials are in conformance with UL 181A or UL 181B specifications and are installed in accordance with manufacturer’s instructions.

N/A if no ducts. Indicate No Ducts on verification report if there is no ductwork. Otherwise verify that approved duct sealing methods have been used. All field assembled seams and joints should be sealed. This must be inspected by Verifier at rough if ductwork cannot be verified at final.

701.4.2.2 Ducts and Plenums. Building framing cavities are not used as ducts or plenums.

Verify by observation no building cavities have been used as SUPPLY ducts. This must be inspected by Verifier either on-site or remotely. If remotely inspected, statement from mechanical engineer or contractor that no building cavities other than the mechanical closet is used as a duct or plenum.

701.4.2.3 Duct system sizing. Duct system is sized and designed in accordance with ACCA Manual D or equivalent.

N/A when no ducts. Otherwise verify Manual D reports are for the building being verified and that the square footage and specifications used in the report are consistent with the building being verified. Report must be done by a qualified professional. Verify duct system was installed consistent you the Manual D design.

701.4.3.1 Building Thermal Envelope Air Sealing. The building thermal envelope is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-striped or otherwise sealed with an air barrier material, suitable film, or solid material:

(a) All joints, seams and penetrations.
(b) Site-built windows, doors, and skylights.
(c) Openings between window and door assemblies and their respective jambs and framing.
(d) Utility penetrations.
(e) Dropped ceilings or chases adjacent to the thermal envelope.
(f) Knee walls.
(g) Walls and ceilings separating a garage from conditioned spaces.
(h) Behind tubs and showers on exterior walls.
(i) Common walls between dwelling units.
(j) Attic access openings.
(k) Rim joist junction.
(l) Other sources of infiltration.

Air sealing or flashing is required when the building is conditioned if there are seams, joints or gaps between building components and needs to be verified by review of architectural plan and geotagged photo(s) if these seams, joints or gaps will be covered and cannot be verified at final. Some building types, such as poured concrete and CMU walls, do not face issues with air-tightness, and therefore verification can be waived – however, the Verifier must obtain detailed architectural drawings regarding the roof-to-wall intersection for their review and approval for NGBS compliance – these drawings will be subject to NGBS Green audit. Air-tightness verification when necessary for other construction types can be handled remotely.
**GREEN BUILDING PRACTICES**

**701.4.3.2 Air sealing and insulation.** Grade II and III insulation installation is not permitted. Building envelope air tightness and insulation installation is verified to be in accordance with Section 701.4.3.2(1) and 701.4.3.2(2).

1) **Testing.** Building envelope tightness is tested. Testing is conducted in accordance with ASTM E-779 using a blower door at a test pressure of 1.04 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing is conducted under the following conditions:
   - (a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed;
   - (b) Dampers are closed, but not sealed, including exhaust, intake, make-up air, backdraft and flue dampers;
   - (c) Interior doors are open;
   - (d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed;
   - (e) Heating and cooling systems are turned off;
   - (f) HVAC duct terminations are not sealed; and
   - (g) Supply and return registers are not sealed.

N/A if building not conditioned. Otherwise verify at final.

**Multifamily Building Note: Testing by dwelling units, groups of dwelling units, or the building as a whole is acceptable.**

2) **Visual inspection.** The air barrier and insulation items listed in Table 701.4.3.2(2) are field verified by visual inspection. (Table not provided here; please see 2015 NGBS)

N/A if no cavity insulation is installed. Otherwise verify before covering.

**701.4.3.2.1 Grade I insulation installations are in accordance with the following:**

1) Grading applies to field-installed insulation products.

2) Grading applies to ceilings, walls, floors, band joists, rim joists, conditioned attics basements and crawlspace, except as specifically noted.

3) Inspection is conducted before insulation is covered.

4) Air-permeable insulation is enclosed on all six sides and is in substantial contact with the sheathing material on one or more sides (interior or exterior) of the cavity. Air permeable insulation in ceilings is not required to be enclosed when the insulation is installed in substantial contact with the surfaces it is intended to insulate.

5) Cavity insulation uniformly fills each cavity side-to-side and top-to-bottom, without substantial gaps or voids around obstructions (such as blocking or bridging).

6) Cavity insulation compression or incomplete fill amounts to 2 percent or less, presuming the compressed or incomplete areas are a minimum of 70 percent of the intended fill thickness; occasional small gaps are acceptable.

7) Exterior rigid insulation has substantial contact with the structural framing members or sheathing materials and is tightly fitted at joints.

8) Cavity insulation is split, installed, and/or fitted tightly around wiring and other services.

9) Exterior sheathing is not visible from the interior through gaps in the cavity insulation.

10) Faced batt insulation is permitted to have side-stapled tabs, provided the tabs are stapled neatly with no buckling, and provided the batt is compressed only at the edges of each cavity, to the depth of the tab itself.

11) Where properly installed, ICFs, SIPs, and other wall systems that provide integral insulation are deemed in compliance with the Grade 1 insulation installation requirements.

N/A when no insulation is installed behind drywall. Otherwise visual inspection must demonstrate that it is Grade 1 as defined above. Other Grade 1 definitions should NOT be used. Inspection can be done via remote protocol. Sampling is NOT permitted for on-site or remote inspections unless the Verifier is Accredited as a Master. Projects must comply with Table 701.4.3.2(2) insulation installation requirements that specifically defines what is considered a Grade I insulation installation – not any other organization, technical resource, or grading rubric. Multifamily buildings following 701.4.3.3 Multifamily Air Leakage Alternative must be in conformance with Table 701.4.3.2(2) for insulation installation even if they are not testing for air leakage.
**GREEN BUILDING PRACTICES**

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td><strong>701.4.3.3 Multifamily air leakage alternative.</strong></td>
<td>Multifamily buildings four or more stories in height and in compliance with IECC section C402.5 (Air leakage-thermal envelope) are deemed to comply with Sections 701.4.3.1 and 701.4.3.2.</td>
</tr>
<tr>
<td><strong>N/A for unconditioned buildings or unconditioned spaces within building with partial conditioning.</strong></td>
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</tbody>
</table>
| **701.4.3.4 Fenestration air leakage.** | Windows, skylights and sliding glass doors have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m²), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m²), when tested in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled. This practice does not apply to site-built windows, skylights, and doors.  
  *Verify by manufacturer’s label or literature. N/A for unconditioned buildings or unconditioned spaces within building with partial conditioning.* |
| **701.4.3.5 Recessed lighting.** | Recessed luminaires installed in the building thermal envelope are sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires are IC-rated and labeled as meeting ASTM E283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All recessed luminaires are sealed with a gasket or caulk between the housing and the interior of the wall or ceiling covering.  
  *Verify by documentation review. When no recessed lights penetrate the thermal envelop indicate so in the verification report. This practice can be verified at final.* |
| **701.4.4 High-efficacy lighting.** | Lighting efficacy in dwelling units is in accordance with one of the following:  
  1. A minimum of 75 percent of the total hard-wired lighting fixtures or the bulbs in those fixtures qualify as high efficacy or equivalent  
  2. Lighting power density, measured in watts/square foot, is 1.1 or less.  
  *Verify by inspection at final.* |
| **701.4.5 Boiler supply piping.** | Boiler supply piping in unconditioned space is insulated.  
  *N/A when no boiler.* |

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**703 PRESCRIPTIVE PATH**

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>703.1 Mandatory practices</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **703.1.1 UA Compliance.** | The building thermal envelope is in compliance with Section 703.1.1.1 or 703.1.1.2.  
  *Exception: Section 703.1.1 is not required for Tropical Climate Zone.* |
| **703.1.1.1 Maximum UA.** | For IECC residential, the total building UA is less than or equal to the total maximum UA as computed by 2015 IECC Section R402.1.5. For IECC commercial, the total UA is less than or equal to the sum of the UA for 2015 IECC Tables C402.1.4 and C402.4, including the U-factor times the area and C-factor or F-factor times the perimeter. The total UA proposed and baseline calculations are documented. REScheck or COMcheck is deemed to provide UA calculation documentation.  
  *703.1.1.2 Prescriptive R-values and fenestration requirements.* |
| **703.1.2 Building Envelope Leakage.** | The building thermal envelope is in accordance with 2015 IECC R402.4.1.2 or C402.5 as applicable.  
  *Exception: Section 703.1.2 is not required for Tropical Climate Zone.*  
  *Not required for Tropical Zone.* |
GREEN BUILDING PRACTICES

703.1.3 Duct Testing. The duct system is in accordance with 2015 IECC R403.3.2 through R403.3.5 as applicable.

*N/A when no ducts. If duct work is installed, then sampling per NGBS Green Protocol allowed. Testing must be conducted by qualified professional. Where a "qualified professional" is required the work must be provided by a licensed or trained person with expertise in the referenced field and who provides that service professionally, such as a HERS Rater or qualified mechanical contractor.*

703.2.5.1 NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in Table 703.2.5.1. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

SECTION 8: WATER EFFICIENCY

801 INDOOR AND OUTDOOR WATER USE

801.5 Water closets and urinals. Water closets and urinals are in accordance with the following: 
*Points awarded for 801.5(2) or 801.5(3), not both.*

1. Gold and emerald levels: All water closets and urinals are in accordance with Section 801.5.

Manufacturer's specifications or literature. Verify at final.

801.6.3 Where an irrigation system is installed, an irrigation plan and implementation are executed by a qualified professional certified by a WaterSense labeled program or equivalent program as approved by Adopting Entity.

Waived for lack of qualified Water Sense professionals and per 2020 NGBS revision that made this voluntary for points, not mandatory.

SECTION 9: INDOOR ENVIRONMENTAL QUALITY

901 POLLUTANT SOURCE CONTROL

901.1.4 Gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the NFPA 54, ICC IFGC, or the applicable local gas appliance installation code. Gas-fired fireplaces within dwelling units and direct heating equipment are vented to the outdoors.

*N/A when no fireplaces*

901.3 Garages. Garages are in accordance with the following:

1. Attached garage
   
   (a) Doors installed in the common wall between the attached garage and conditioned space are tightly sealed and gasketed.
   
   (b) A continuous air barrier is provided separating the garage space from the conditioned living spaces.

*N/A for homes without conditioned space. If garage abuts a conditioned space (such as a bedroom with air conditioning) this practice must be met.*

901.4 Wood materials. A minimum of 85 percent of material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following:

1. Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.

Applicable only for any wood products. Verify that marking on the products show compliance with the appropriate criteria. Approve points for each product group when at least 85% of the product for the group meets the requirement. Product groups available for these practices include countertops, trim, woodwork, and shelving.
## GREEN BUILDING PRACTICES

### 901.12 Carbon monoxide (CO) alarms. A carbon monoxide (CO) alarm is provided in accordance with the IRC Section R315.

* N/A when no combustion equipment in the home/building. If garage abuts a conditioned space (such as a bedroom with air conditioning) this practice must be met.

### 902 POLLUTANT CONTROL

#### 902.1 Spot ventilation is in accordance with the following:

1. Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.  
   
   ![Image](https://example.com/image)

   *Points are awarded only if a window complying with IRC Section R303.3 is provided in addition to mechanical ventilation.*

   *This is MANDATORY even if there is an operable window in the bathroom – verify at final.*

2. Clothes dryers (except listed and labeled condensing ductless dryers) are vented to the outdoors.

   *Verify at final.*

#### 902.2 Building ventilation systems

1. One of the following whole building ventilation systems is implemented and is in accordance with the specifications of Appendix B and an explanation of the operation and importance of the ventilation system is included in either 1001.1 or 1002.2.
   
   * Mandatory where the maximum air infiltration rate is less than 5.0 ACH50

   1. exhaust or supply fan(s) ready for continuous operation and with appropriately labeled controls

   2. balanced exhaust and supply fans with supply intakes located in accordance with the manufacturer’s guidelines so as to not introduce polluted air back into the building

   3. heat-recovery ventilator

   4. energy-recovery ventilator

   *If no air-tightness testing and the max air infiltration rate is unknow, this practice is N/A.*

#### 902.3 Radon control. Radon control measures are in accordance with ICC IRC Appendix F. Zones as defined in Figure 9(1).

1. Buildings located in Zone 1
   
   a. a passive radon system is installed
   
   b. an active radon system is installed

   *EPA has not mapped Radon Zones for PR. As a result, this practice is waived. When EPA completes the mapping process this will become MANDATORY for Zone 1.*

#### 902.6 Living space contaminants. The living space is sealed in accordance with Section 701.4.3.1 to prevent unwanted contaminants.
GREEN BUILDING PRACTICES

SECTION 10: OPERATION, MAINTENANCE, AND BUILDING OWNER EDUCATION

1001  HOMEOWNER'S MANUAL AND TRAINING GUIDELINES FOR ONE- AND TWO-FAMILY DWELLINGS

1001.0 Intent. Information on the building’s use, maintenance, and green components is provided.

1001.1 Homeowner’s manual. A homeowner’s manual is provided and stored in a permanent location in the dwelling that includes the following, as available and applicable. [Points awarded per two items. Points awarded for non-mandatory items.]

1. A National Green Building Standard certificate with a web link and completion document.
2. List of green building features (can include the national green building checklist).
3. Product manufacturer’s manuals or product data sheet for installed major equipment, fixtures, and appliances. If product data sheet is in the building owners’ manual, manufacturer’s manual may be attached to the appliance in lieu of inclusion in the building owners’ manual.

Verifier should review homeowner’s manual that addresses the required 3 items and any of the listed additional optional items. A placeholder for the green certificate in the manual is acceptable for 1; the builder should insert the certificate when it is received from Home Innovation. A digital owner’s manual is acceptable.

1001.2 Training of initial homeowners. Initial homeowners are familiarized with the role of occupants in achieving green goals. Training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include:

1. HVAC filters.
2. Thermostat operation and programming.
3. Lighting controls.
4. Appliances operation.
5. Water heater settings and hot water use.
6. Fan controls.
7. Recycling and composting practices.

Builder’s documented procedures & standard practices explaining the occupant training process. Examples of training materials and written confirmation from similar projects that training has been done.

1002  CONSTRUCTION, OPERATION, AND MAINTENANCE MANUALS AND TRAINING FOR MULTIFAMILY BUILDINGS

1002.0 Intent. Manuals are provided to the responsible parties (owner, management, tenant, and/or maintenance team) regarding the construction, operation, and maintenance of the building. Paper or digital format manuals are to include information regarding those aspects of the building’s construction, maintenance, and operation that are within the area of responsibilities of the respective recipient. One or more responsible parties are to receive a copy of all documentation for archival purposes.

1002.1 Building construction manual. A building construction manual, including five or more of the listed items (see 2015 NGBS), is compiled and distributed in accordance with Section 1002.0. [Points awarded per two items. Points awarded for non-mandatory items.]

1. A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties’ manuals.
2. A local green building program certificate as well as a copy of the National Green Building Standard™, as adopted by the Adopting Entity, and the individual measures achieved by the building.
3. Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, and finishes.

Verifier must review building construction manual that addresses 3 mandatory items (certificate placeholder is fine) plus at least 2 of the listed additional optional items. Verify expected process to deliver manual(s) to the responsible party.
### GREEN BUILDING PRACTICES

#### 1002.2 Operations manual. Operations manuals are created and distributed to the responsible parties in accordance with Section 1002.0. Between all of the operations manuals, five or more of the listed items (see 2015 NGBS) are included.  
[Points awarded per two items. Points awarded for non-mandatory items.]

1. A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties’ manuals.

2. A list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics).

*Review the operations manual that includes both mandatory items and at least 2 from the list of optional items.*

#### 1002.3 Maintenance manual. Maintenance manuals are created and distributed to the responsible parties in accordance with Section 1002.0. Between all of the maintenance manuals, five or more of listed items (see 2015 NGBS) are included.  
[Points awarded per two items. Points awarded for non-mandatory items.]

1. A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties’ manuals.

*Review the maintenance manual that addresses the mandatory item and at least 4 of the optional items.*

#### 1002.4 Training of building owners. Building owners are familiarized with the role of occupants in achieving green goals. On-site training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include:

1. HVAC filters
2. Thermostat operation and programming
3. Lighting controls
4. Appliances operation
5. Water heater settings and hot water use
6. Fan controls
7. Recycling and composting practices

*Builder’s documented procedures & standard practices explaining the occupant training process. Examples of training materials and written confirmation from similar projects that training has actually been done.*
APPENDIX F:
NGBS Green Multifamily Project Information Form
Registration for multifamily projects (and land developments) is a two-step process. After an NGBS Green Verifier has submitted the basic information via the online registration form, Home Innovation will email both the verifier and the client a Project Information Spreadsheet. This information requested on the spreadsheet is provided below in case a project team members wishes to collect the information off-line prior to entering it in the spreadsheet. It does not matter who on the project team completes the online Project Information Spreadsheet, but it **must be completed before the verifier notifies Home Innovation of the rough inspection date**. If only partial information is available initially, the spreadsheet can be updated at any time.

**BASIC PROJECT INFORMATION**

- **Project ID:** ________________________________
- **Verifier Name:** ________________________________
- **Verifier Organization:** ________________________________
- **Standard Selected:** ________________________________
- **Scoring Path Selected:** ________________________________
- **Anticipated Certification Level:** ________________________________
- **Project Name:** ________________________________

**Project Description (255 characters or less)**

[This should be a consumer-oriented marketing description as it will be used on NGBS.com]:

________________________________________________________________________

________________________________________________________________________

City: ________________________________ State: ______ ZIP Code: ________________________________

County: ________________________________

**Accessory Structure:** Yes/No __________ **Accessory Structure Certified:** Yes/No __________
Accessory Structure Address: __________________________________________________________

Accessory Description: ___________________________________________________________________

Estimated Completion Month: ___________ Estimated Completion Year: _______________________

Website: ____________________________________________

RESPONSIBLE FOR APPLICATION PACKET

Role: Builder/Developer/Architect/Owner_____________________

Contact Name: ________________________________________________________________________

Contact Email: ________________________________________________________________________

NAME(S) ON CERTIFICATE

Party on Certificate: Builder/Developer/Architect/Owner___________________________________

Community Name on Certificate? Yes/No___________________________________________________

PROJECT TYPE & FINANCING INFORMATION

Building(s) will include non-residential space (retail/commercial)? _Yes/No___________________

Non-residential space to be included in certification? _Yes/No______________________________

Seeking HUD Mortgage Insurance Premium Reduction? Yes/No______________________________

Seeking Fannie Mae Green financing? Yes/No_____________________________________________

Seeking Freddie Mac Green financing? Yes/No_____________________________________________

Intended to be affordable housing? Yes/No______________________________________________

BUILDER/GENERAL CONTRACTOR INFORMATION

Builder Name: ________________________________

Contact First Name: ___________________________ Last Name: ______________________________

Email: ______________________________________ Phone: ________________________________

DEVELOPER INFORMATION
Developer Name: ________________________________
Address: ___________________________________
City: ___________________________ State: ______ ZIP Code: ________________
Website: ________________________________
Contact First Name: _________________________ Last Name: ______________________
Email: ____________________________ Phone: ________________________________

OWNER INFORMATION

Owner Name: ________________________________
Address: ___________________________________
City: ___________________________ State: ______ ZIP Code: ________________
Website: ________________________________
Contact First Name: _________________________ Last Name: ______________________
Email: ____________________________ Phone: ________________________________

ARCHITECT INFORMATION

Architect Name: ________________________________
Address: ___________________________________
City: ___________________________ State: ______ ZIP Code: ________________
Website: ________________________________
Contact First Name: _________________________ Last Name: ______________________
Email: ____________________________ Phone: ________________________________

MARKETING INFORMATION

Contact First Name: _________________________ Last Name: ______________________
Email: ____________________________ Phone: ________________________________

SALES/LEASING INFORMATION
Sales/Leasing Email: ___________________________ Phone: ________________________

Website: __________________________________________

BILLING INFORMATION

Entity Responsible for payment: ________________________________

Contact First Name: ___________________________ Last Name: ________________________

Email: ___________________________ Phone: ________________________

BUILDING(S) INFORMATION

# of Buildings: __________

Building Info:

- Building #1 Address: ________________________________
- Building # 1 Unit Count: ____________________________
- Building #1 Story Count: ____________________________
- Commercial Space: [Seeking Core & Shell / Seeking Full Fit-Out/Not Seeking Certification]
- NGBS Green+ Badges (Availabe for 2020 Projects):
  - Wellness
  - Net Zero Energy
  - Zero Water
  - Smart Home
  - Resilience
  - Universal Design

[collect information for as many buildings as there are in the project]
APPENDIX G:
NGBS Green Certification Client Application (Sample)
NGBS GREEN CERTIFICATION
CLIENT AGREEMENT


To ensure Home Innovation can issue certificates and promote your participation in NGBS Green Certification, we must receive the items listed below. All items should be returned to:

Lynda Marchman Mosteller | Green Certifications Administrator
Home Innovation Research Labs | 400 Prince George’s Boulevard | Upper Marlboro, MD 20774
Phone: 301.430.6237 | Fax: 301.430.6184 | lmosteller@homeinnovation.com

1. **Client Agreement.** The Agreement can be signed by the owner of the project seeking NGBS Green Certification (“Owner”); the corporate entity developing the project seeking certification, if different (“Developer”); or the entity responsible for construction of the project (“Builder”). However, if the signatory of the Agreement is different than the entity that holds the required insurance, Home Innovation must have a written declaration of the relationship between the signatory and the insured.

Home Innovation will countersign the Agreement and return a copy to you. Only one Agreement is needed, regardless of how many projects seek NGBS Green Certification, provided the business structure of the signatory continues to take responsibility, financial and otherwise, for the projects seeking such certification.

2. **Proof of Insurance.** See below and item #28 in the Agreement, for details on our insurance requirements.

   - [ ] Check here if proof of insurance will be sent directly from the insurance company.

3. **Contact information** is necessary to ensure that we can communicate with you regarding project status and certification.

   If you have questions, contact us at ([www.HomeInnovation.com/NGBSGreenContact](http://www.HomeInnovation.com/NGBSGreenContact)) or 800.638.8556.
COMPANY AND CONTACT INFORMATION

I. COMPANY NAME: _____________________________________________________________

Mailing Address (Regular USPS Mail)          Shipping/Physical Address (Fedex/UPS/etc.)
Address 1                                   Address 1
Address 2                                   Address 2
City, State, Zip                            City, State, Zip

Project Type:
☐ Multifamily
☐ Land Development

II. CONTACT INFORMATION

Primary Contact
Name: __________________________________________________
Title: __________________________________________________
Phone: ___________________________ Cell: ___________________________ Fax: ___________________________
Website: ___________________________ E-Mail: ___________________________

Secondary Contact
Name: __________________________________________________
Title: __________________________________________________
Phone: ___________________________ Cell: ___________________________ Fax: ___________________________
E-Mail: ___________________________

Person Responsible for Payment Contact
Name: __________________________________________________
Title: __________________________________________________
Phone: ___________________________ Cell: ___________________________ Fax: ___________________________
E-Mail: ___________________________

Should this person be contacted for payment on future NGBS Green Projects? ☐ YES ☐ NO

Marketing/Website Contact
Name: __________________________________________________
Title: __________________________________________________
Phone: ___________________________ Cell: ___________________________ Fax: ___________________________
E-Mail: ___________________________
NGBS GREEN CERTIFICATION
BUILDER INSURANCE REQUIREMENTS

NGBS Green certification requires you to maintain the insurance coverage shown below while doing business with Home Innovation Research Labs.

Obtaining the needed certificate of insurance is typically a routine matter for your insurance agent/broker. Please provide him/her the following information.

**MINIMUM** required coverage per occurrence:

<table>
<thead>
<tr>
<th>GENERAL LIABILITY</th>
<th>$1,000,000</th>
</tr>
</thead>
</table>

Your insurance certificate must list, as the certificate holder and as an additional insured, Home Innovation Research Labs, 400 Prince George’s Boulevard, Upper Marlboro, MD 20774-8731. The verbiage below must be shown on the certificate of insurance:

Home Innovation Research Labs and its officers, directors, agents, affiliates, and employees as additional insureds for liability with respect to or arising out of the work of the Builder/Client.

Alternatively, if your General Liability policy provides additional insured status when it is required in a written contract or agreement, such as this, then a COI with said provision displayed would satisfy the requirements and should be submitted.

Home Innovation does not need to be an “Additional Named Insured.”

Please have your insurance agent send a Certificate of Insurance showing the required coverages for the current policy period to:

Lynda Marchman Mosteller  
Green Certifications Administrator  
Home Innovation Research Labs  
400 Prince George’s Boulevard  
Upper Marlboro, MD 20774-8731  
**Phone:** 301.430.6237 | **Fax:** 301.430.6184  
leasteller@homeinnovation.com
NGBS GREEN CERTIFICATION
CLIENT AGREEMENT

This Agreement ("Agreement") is made and entered into by and between Home Innovation Research Labs, Inc. ("the Company"), a Maryland corporation with an office at 400 Prince George's Boulevard, Upper Marlboro, MD 20774, and

("Client") having its principal place of business at:

________________________________________

regarding Client’s participation in NGBS Green Certification Program ("NGBS Green").

WHEREAS, the Company is authorized to certify compliance with the National Green Building Standard™ ("NGBS").

NOW THEREFORE, the parties agree:

1. Client’s Project(s) will be certified as meeting the applicable criteria of NGBS Green, available at www.HomeInnovation.com/green, in the sole discretion of the Company, in accordance with the terms of this Agreement. “Project” can be a single-family home, a multifamily building, a mixed-use building, or a land development. Client acknowledges and agrees that certification applies to Projects and not to Client’s business or employees.

2. Client will use NGBS Green scoring tools available at www.HomeInnovation.com/GreenScoring to specify the NGBS Green features Client plans to incorporate into each Project seeking NGBS Green certification.

3. Projects seeking NGBS Green certification will be constructed in compliance with the relevant NGBS practices for which certification points are claimed.

4. The Company will issue a certificate for each Project certified as meeting NGBS Green criteria. The form and content of the certificate may be modified at the Company’s discretion. The Company explicitly agrees that the name of the Project Owner on the certificate can be changed for an administrative fee.

5. Client will hire an NGBS Green Verifier ("Verifier") accredited by the Company to inspect each Project seeking NGBS Green certification and to verify the Project has incorporated the NGBS Green practices claimed toward certification. Verifier must be accredited by the Company at the time of each inspection. Accredited Verifiers are listed at www.HomeInnovation.com/FindNGBSVerifier. Client agrees that fees for verification services are not paid to or by the Company and are not set by the Company or NGBS Green but rather are determined between Client and Verifier. Client warrants that payment or amount of the fee is not dependent on the results of Verifier’s inspection.

6. Client will schedule with Verifier the necessary inspections for each Project seeking NGBS Green certification. Client agrees to provide the Verifier with access to each Project, the relevant scoring information, and the necessary documentation that supports the certification.

7. Client will maintain records and supporting documentation for a period of three (3) years.

8. The Verifier will inspect the project and review relevant documents according to the NGBS Green protocol. Verifier will prepare a verification report in the NGBS Green provided format.

9. The Client or a responsible, approved representative of Client, will sign the verification report(s), attesting to the fact that the verified NGBS Green features and/or processes were incorporated into each Project seeking certification. The Client may also waive their right to sign the reports.

10. Client will pay certification fees to the Company (independent of verification fees paid to Verifier) per the NGBS Green fee schedule that is current at the time of the Project’s registration.

11. Client’s Project will not achieve NGBS Green certification until and unless the Company reviews the verification report and makes a final certification determination.

12. The Company will promptly issue an NGBS Green certificate upon receipt and review of the verification report documenting compliance with NGBS Green criteria and upon the Company’s determination, in its sole discretion, that the NGBS Green certification requirements have been met; provided Client is in compliance with this Agreement, and the appropriate fees have been paid.

13. Client’s participation in NGBS Green and the location of certified Projects will be made public. The Company shall list the Project on www.ngbs.com and may make public basic project information including, but not limited to, the address and certification level.

14. The Company may request timely access to the Project(s) and supporting documentation for quality control over the NGBS Green compliance process. Quality control activities involve periodic spot checks of the
15. Should any Project be found not to have originally (as built) met the criteria for NGBS Green certification, the certification will be revoked or revised, as appropriate, and the new certification status will be communicated to Client by the Company.

16. The Company, in its sole discretion, shall make the final determination regarding any dispute over the level of certification pursuant to NGBS Green, or the points awarded or not awarded toward certification. Client shall not misrepresent the certification status of Projects.

17. The Company shall incur no liability with respect to nonperformance or delay in performing any act required of it under this Agreement, if such nonperformance or delay is caused by act of God or the public enemy, strikes, the requirements of any law or governmental regulations or orders, or any other circumstances beyond the control of the Company.

18. Client shall indemnify, hold harmless, and defend (and pay any and all other expenses and attorney’s fees in connection therewith) the Company and its officers, directors, agents, affiliates, and employees from and against any and all actions, liability, loss, claims and demands whatsoever arising out of any actual or alleged acts or omissions of Client in connection with NGBS Green, except to the extent that any such injury or damage is found to be due to the gross negligence or willful misconduct of the Company. The obligations of Client under this paragraph shall survive any suspension, revocation, termination, or cancellation of this Agreement.

19. The Agreement shall commence on the date of execution, and unless modified by mutual agreement of the parties or terminated earlier pursuant to the terms of the Agreement, shall continue for four (4) years. The Agreement may be extended or renewed by mutual agreement.

20. Except as otherwise provided herein, this Agreement may be terminated with cause by either party upon sixty (60) days prior written notice to the other. Notice shall be sent to the signatory at the address in this Agreement, or to such other person and address as the party may designate in writing.

21. This Agreement may be suspended and/or terminated by the Company upon written notice for failure by Client to comply with any term of this Agreement.

22. Marketing guidance for the NGBS Green Certification program is available on the Company’s website (www.HomeInnovation.com/MarketGreenCertified), but logos and certification marks associated with NGBS Green Certification are accessible only via a link provided directly to the Client and/or Client’s designated marketing representative. Client shall display logos or marks of the Company or NGBS Green only as expressly permitted by this Agreement, unless the Company grants a written exception.

(a) Client acknowledges and agrees that Home Innovation Research Labs has the sole and exclusive right and authority to license others to use the “Home Innovation NGBS Green Certified Mark” mark (“NGBS Green Certified Mark”), the “Home Innovation NGBS Green Registered Mark” mark (“NGBS Green Registered Mark”), the “Home Innovation NGBS Green Partner Mark” mark (“NGBS Green Partner Mark”), and the “NGBS Green Home Innovation Research Labs mark” (“NGBS Green Program Mark”), each of which is set forth below (collectively “the Marks”) in their stacked formats; horizontal formats also exist and can be used interchangeably with those included below depending on Client’s space considerations in marketing materials. Client further acknowledges and agrees that the Company may change the design, format, or text of the Marks at any time in its sole discretion.

(b) The Company grants to Client, while Client complies with Client’s obligations under this Agreement, the non-exclusive right to use the NGBS Green Partner Mark. The NGBS Green Certified Mark may only be used in connection with specific Projects NGBS certified pursuant to this Agreement. The NGBS Green Registered Mark may only be used in connection with specific projects for which Client is actively seeking certification pursuant to this Agreement. Client shall comply with all other terms of use in any style manual or other guidelines concerning use of all the Marks.

(c) Notwithstanding any other provision in this Agreement, Client shall be solely responsible for assuring its use of the Marks complies with all applicable governmental laws, rules, regulations, and guides, including but not limited to any applicable “Guides for the Use of Environmental Marketing Claims” of the Federal Trade Commission.

(d) All use of the Marks by Client shall inure to the sole and exclusive benefit of the Company. Client shall not contest the Company’s rights in the Marks. This obligation shall survive any termination of this Agreement.

(e) Client shall not use the Marks in any way that is misleading or otherwise misrepresents the certification status of any Project pursuant to this Agreement. The NGBS Green Certified Mark represents only that the
Project is in substantial conformance with the applicable level (Emerald, Gold, Silver, Bronze, or Certified for buildings; One Star, Two Stars, Three Stars, or Four Stars for land development) of the NGBS as applicable, and Client agrees not to use the NGBS Green Certified Mark to represent any broader claim. Client will not state or suggest, directly or indirectly, that the Company is guaranteeing, endorsing, recommending, warranting, or certifying code compliance of the Project that may be certified pursuant to this Agreement. None of the Marks is a representation, warranty, guarantee of Project performance, or certification of code compliance.

(g) No other right or license is granted by the Company to Client, either express or implied, with respect to any other trademark, trade name, service mark, or other intellectual property right owned, possessed, or licensed by or to the Company.

(h) Upon the expiration of this Agreement or any earlier termination thereof: (i) all rights granted to Client hereunder shall automatically revert to the Company; and (ii) Client shall discontinue use of any advertising, marketing, promotional or other material bearing the NGBS Green Partner and/or NGBS Green Registered Marks (the NGBS Green Certified Mark may continue to be used in perpetuity to market any/all Projects that were NGBS Green Certified prior to expiration or termination of this Agreement; certifications never expire).

23. This Agreement has been finally executed in the State of Maryland. This Agreement shall be governed by and construed in accordance with the substantive law of the State of Maryland, without regard to the conflicts of law rules thereof.

24. In the event any one or more of the provisions contained in this Agreement shall for any reason be held invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any of the other provisions of this Agreement.

25. This Agreement may not be modified orally or in any manner other than by an agreement in writing and signed by the parties.

26. This Agreement supersedes all proposals, oral or written, and all other communications or previous agreements between the parties relating to the subject matter of this Agreement.

27. This Agreement confers rights and obligations only on the parties hereto and is not intended, and shall not be construed, to confer any rights on any person or organization not a party hereto.

28. Client shall carry and maintain, at its expense, a standard commercial general liability insurance policy affording protection with respect to bodily injury, death, property damage, advertising injury, and personal injury of not less than one million dollars ($1,000,000) per occurrence. The insurance company providing such insurance, as well as the form of such insurance, shall be subject to the approval of the Company; such approval will not be unreasonably denied or delayed. The insurance policy shall add Home Innovation Research Labs and its officers, directors, agents, affiliates, and employees, as additional insureds for liability with respect to or arising out of the work of Client. Such insurance shall be primary and non-contributory and shall contain a provision by which the insurer agrees that such policy shall not be cancelled, materially changed, or not renewed without at least thirty (30) days notice to the Company. Each such policy, or a certificate thereof, shall be given to the Company promptly upon execution of this Agreement.

29. Each party waives all rights and claims against the other party, and its respective agents, affiliates, and employees, and against any of their subcontractors and their agents and employees, for all damages, losses, fines, expenses, costs, and fees. But only to the extent of the party’s actual recovery of insurance proceeds therefor.

30. Before any party may commence an action or amend a complaint to add a claim arising out of or in connection with this Agreement, the claim must be submitted to mediation, unless mediation is waived in writing by each party to this Agreement. The complaining party shall send a written demand for mediation to the other party. If the parties fail to agree on a mediator within fifteen (15) days of the demand, the complaining party may petition the American Arbitration Association or other recognized mediation service for the appointment of a mediator. The mediator shall commence the mediation within thirty (30) days after being selected. The mediation shall be completed no later than fifteen (15) days after being commenced. The costs of the mediation shall be shared equally between the parties. The costs of the mediation are recoverable by the party that prevails in any subsequent litigation of the claim.

31. BY THE EXECUTION AND ACCEPTANCE OF THIS AGREEMENT, EACH PARTY KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVES ANY RIGHT EACH PARTY MAY HAVE TO A TRIAL BY JURY IN RESPECT OF ANY LITIGATION ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR ANY CONDUCT, OMISSION, OR STATEMENTS (WHETHER VERBAL OR WRITTEN) OF ANY PARTY WITH RESPECT THERETO. THIS PROVISION HAS BEEN NEGOTIATED BY THE PARTIES AND IS A MATERIAL INDUCEMENT TO THE PARTIES TO ACCEPT THIS AGREEMENT. THIS WAIVER IS KNOWINGLY, WILLINGLY AND VOLUNTARILY MADE BY EACH PARTY, AND EACH PARTY REPRESENTS THAT NO REPRESENTATIONS OF FACT OR OPINION HAVE BEEN MADE BY ANY INDIVIDUAL TO INDUCE THIS WAIVER OF TRIAL BY JURY OR IN ANY WAY TO MODIFY OR NULLIFY ITS EFFECT. EACH PARTY FURTHER REPRESENTS THAT IT HAS BEEN REPRESENTED IN THE SIGNING OF THIS AGREEMENT AND IN THE MAKING OF THIS WAIVER BY INDEPENDENT LEGAL COUNSEL, SELECTED OF ITS OWN FREE WILL, AND THAT IT HAS HAD
THE OPPORTUNITY TO DISCUSS THIS WAIVER WITH COUNSEL.

IN WITNESS WHEREOF, the parties have executed this Agreement by a duly authorized officer of each party on the indicated dates, to be effective as of the day and year when fully executed.

HOME INNOVATION RESEARCH LABS, INC.

Signature

Date

Name  William M. Ingley
(Printed or Typed)

Title  Vice President and CFO
(Printed or Typed)

CLIENT

Signature

Date

Name
(Printed or Typed)

Title
(Printed or Typed)