A Comparative Overview of the ICC/ASHRAE 700-2015 National Green Building Standard & Enterprise Green Communities 2015 Criteria

NAHB
National Association of Home Builders

Contents

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This document is intended to provide a review of the features, elements and key factors of two nationally-recognized sustainability and green building systems: ICC/ASHRAE 700-2015 National Green Building Standard and Enterprise Green Communities ("Enterprise"). It reviews the similarities and differences of the two systems, as well as provides information for parties interested in integrating above-code, voluntary sustainable design and construction practices and programs into residential single-family and multifamily buildings.

Rating Systems Overview

ICC/ASHRAE 700-2015 National Green Building Standard

The ICC/ASHRAE 700-2015 National Green Building Standard, commonly referred to as the "NGBS" or simply "the standard," is a green building standard serving as a uniform national platform for the recognition and advancement of green residential construction and development. The 2015 edition is the third iteration of the standard, building upon the previous 2012 and 2008 editions. All editions were developed by consensus committees of industry and nonprofit individuals, and in partnership with the International Code Council (ICC) and the National Association of Home Builders (NAHB). The latest edition of the standard introduced a new partner in the development process: the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). Staff of these three organizations did not serve as committee members but instead helped facilitate meetings.

The standard remains the only residential-specific green building rating system to undergo the full consensus process and receive approval from the American National Standards Institute (ANSI). ANSI approval provides third-party confirmation of balance, representation, openness, consensus, and due process in the standard's development process. The consensus committee that developed the 2015 edition was composed of 42 individuals representing a variety of government agencies, municipalities, home building industry stakeholders, and non-profit organizations, including:

- Habitat for Humanity International
- National Multifamily Housing Council
- National Institute of Standards & Technology
- Northeast Energy Efficiency Partnerships
- Texas A&M University
- U.S. Department of Energy
- U.S. Department of Housing & Urban Development
- American Institute of Architects
- City of Des Moines, Iowa

The standard is a point-based system, wherein single-family or multifamily building(s) can attain certification by accumulating points for the sustainable and green practices included in design and construction, and planned for its operation and maintenance. Projects can qualify for four certification levels (Bronze, Silver, Gold or Emerald) by earning the required number of points for each level. NGBS conformance is verified through construction documents, plans, specifications, in-field inspection reports and other data that demonstrate compliance with the points being pursued. Furthermore, Green Verifiers, who serve as independent, in-field representatives of the NGBS Green certification system, perform rough and final construction inspections to ensure compliance. All relevant information is provided to an adopting entity, such as the Home Innovation Research Labs, for technical review, verification and finally, certification.

As of the time of this report, there are over 100,000 homes certified under the National Green Building Standard. This includes over 11,000 single-family homes and units in more than 2,000 multifamily buildings.

Enterprise Green Communities 2015

Enterprise Green Communities is a green building certification system designed to improve the health and well-being of low-income households by transforming the quality of affordable housing in America. The Enterprise Green Communities criterion was developed by the Enterprise Community Partners, a national Section 501(c) (3) charitable organization which focuses on the development of affordable housing. Enterprise's mission is to create opportunity for low- and moderate-income households through affordable housing in diverse and thriving communities.

Although the Enterprise Green Communities 2015 criterion is not an ANSI-approved national standard, it was developed in collaboration with industry experts, including affordable housing professionals and leading housing and green building organizations. The Technical Working Group and Criteria Advisory Group which aided in development included individuals from the following organizations:

- Global Green
- U.S. Green Building Council
- Green and Heathy Homes Initiative
- Resilient Design Institute
- Healthy Building Network
- BuildingGreen
- Building Performance Solutions
- Strategic Economics
- Delos Living

Enterprise Green Communities is a point-based system, wherein a building can attain certification depending on the green practices included in its design and construction. Certification is a two-step online submission and review process. Project teams submit their initial applicable plans and documentation to Enterprise near the end of the design

phase, prior to the start of construction. Project teams then submit their final application shortly after the project has received its Certificate of Occupancy.

Enterprise itself administers the certification system, performing technical reviews and verification of projects to determine if they have met the standards set forth by the criterion. There are no third-party on-site inspections required for certification.

Green Communities Certification is available for all buildings that contain affordable housing units. Enterprise defines affordable housing as projects serving residents at or below 60 percent Average Median Income (AMI) for rental projects and at or below 80 percent AMI for for-sale projects. Stand-alone single-family and multifamily buildings, and groups of single-family or multifamily buildings can pursue Enterprise Green Communities Certification.

As of March 2017, the Enterprise website reports that over 38,000 homes have been certified using the Enterprise Green Communities Criteria.

NGBS & Enterprise Scopes

Building Types

The NGBS was designed specifically for residential construction, development and renovation. It is not used for commercial or industrial projects. Similarly, Enterprise was designed for residential structures, specifically for the affordable housing market.

Project Types Eligible for NGBS Certification

- Single-family homes (new construction and remodels)
- Low-rise multifamily
- High-rise multifamily
- Residential areas of mixed-use buildings
- Land developments (*not covered in this report*)
- Renovations of existing homes and multifamily buildings (*not covered in report)*
- Renovations of functional areas (*not covered in this report*)

Project Types Eligible for Enterprise Green Communities Certification

- Single-family affordable housing
- Low-rise affordable multifamily housing
- High-rise affordable multifamily housing
- Rehabs of existing homes and multifamily buildings (*not covered in report)*

Categories of Green Practices

NGBS and Enterprise both have practices in six similar topic areas:

- Water Efficiency
- Energy Efficiency
- Location and Site Development
- Material and Resource Efficiency
- Indoor Environmental Quality
- Operations and Maintenance

Enterprise has an additional category for "Integrative Design," which contains mandatory and optional practices related to identifying green development goals, potential resident health factors, and possible resiliency issues. The NGBS awards integrated design when it comes to the site development, but does not have a dedicated category. In this section, Enterprise also requires the creation of design and construction documentation to serve as evidence of green building practices. The NGBS also requires documentation per the "Scope and Administration" section.

Table 1: Green Practice Categories within the NGBS and Enterprise green Communities 2015

NGBS	Enterprise Green Communities
The NGBS has six practice categories: • Lot Design, Preparation, and Development • Resource Efficiency • Energy Efficiency • Water Efficiency • Indoor Environmental Quality • Operation, Maintenance, and Building Owner Education	Enterprise has eight practice categories: • Integrative Design • Location and Neighborhood Fabric(1) • Site Improvements(1) • Water Conservation • Energy Efficiency • Materials • Healthy Living Environment • Operations, Maintenance, & Resident Engagement

(1) These categories are similar to the NGBS "Lot Design, Preparation, and Development" category.

Certification Levels

ICC/ASHRAE 700-2015 NGBS Certification Levels

Under NGBS, single-family homes and multifamily buildings can attain one of four potential certification levels: **Bronze, Silver, Gold or Emerald,** by earning a minimum number of points at each certification level, as can be seen in Table 2 below. There are 1,100 points available in the rating system. In addition to earned points, every building certified under the standard must comply with all of the relevant mandatory provisions.

The standard was specifically designed so that a project team must take a balanced and multifaceted approach to green building. Therefore, the standard requires that a project achieve a minimum number of points in each green practice category to be certified, as well as earn a minimum number of additional points from any category it chooses. This prevents project teams from obtaining all of their points from focusing on a handful of categories, and ignoring other more difficult categories. It ensures that NGBS is a rigorous green rating system.

A building's highest rating depends upon the lowest threshold met by any of the six categories. For example, if a project missed the threshold for Emerald in one category by a single point, it will still only achieve Gold certification even if it reached the required number of points for Emerald certification in all other categories.

Furthermore, for dwelling units greater than 4,000 square feet, the number of total points required to receive certification levels increases by one point for every additional 100 square feet. This makes it more challenging for larger dwellings to receive the same certification as smaller ones to account for the greater environmental impact of larger dwelling spaces.

Table: 2 NGBS Threshold Point Ratings for Certification

Green Practice Categories		Number of Mandatory Practices	Minimum Points Required Per Rating Level (1) (2)			
			BRONZE	SILVER	GOLD	EMERALD
1.	Lot Design, Preparation, and Development	0	50	64	93	121
2.	Resource Efficiency	11	43	59	89	119
3.	Energy Efficiency	13	30	45	60	70
4.	Water Efficiency	2	25	39	67	92
5.	Indoor Environmental Quality	11	25	42	69	97
6.	Operation, Maintenance, & Building Owner Ed.	2	8	10	11	12
7.	Additional Points from Any Category(2)	-	50	75	100	100
	Total Points Needed	-	231	334	489	611
	Percentage of Total Available Points	-	21%	30%	45%	56%

(1) In addition to the threshold number of points in each category, all mandatory provisions must be implemented.

(2) For dwelling units greater than 4,000 square feet, the number of points in Category 7 shall be increased by 1 point for every additional 100 sf. The "Total Points" shall be increased by the same number of points.

Enterprise Green Communities Certification

Enterprise Green Communities does not have varying certification levels based on the total number of points earned by the project team. A building is either certified or not certified. Similar to the standard, Enterprise includes mandatory practices that every project must achieve, in addition to obtaining enough points from optional practices for certification. For New Construction, a project must obtain a total of 35 optional points for certification. The project team can obtain these points from any of the green practices categories.

Table 3: Enterprise Threshold Point Ratings for Certification

Green Practice Categories		Number of Mandatory Practices	Minimum Points Required for Certification[(1)]
1.	Integrative Design	3	-
2.	Location & Neighborhood Fabric	5	-
3.	Site Improvements	5	-
4.	Water Conservation	1	-
5.	Energy Efficiency	5	-
6.	Materials	7	-
7.	Healthy Living Environment	10	-
8.	Operations, Maintenance & Resident Engagement	5	-
	Total Points Needed	-	35
	Percentage of Total Available Points	-	13%

(1) In addition to the threshold number of points in each category, all mandatory practices must be implemented.

The Certification Process

ICC/ASHRAE 700-2015 NGBS

NGBS conformance is verified through construction documents, plans, specifications, inspection reports and other data that demonstrate achievement of the points being pursued. All NGBS project teams must include a NGBS Green Verifier, who serves as an independent, in-field representative of the NGBS Green certification system. Verifiers work with project teams to perform the rough and final construction inspections described below. To achieve certification, these inspection reports, along with relevant information regarding pursued practices, are provided to Home Innovation Labs for technical review and verification.

Every project must complete two independent third-party verification inspections, one before dry-wall in installed and another post-construction. The accredited Verifier is responsible for the visual inspection of every green building practice in the building. In

multifamily certification, the verifier must perform a rough inspection before the drywall is installed to observe the wall cavities in every apartment, and a final inspection of every apartment once the project is complete. The required verification helps ensure a high level of rigor, continuity and quality assurance to the system and to the projects that are certified.

Home Innovation Research Labs

Home Innovation Research Labs is a 53-year old, internationally recognized and accredited product testing and certification laboratory. Its work is solely focused on the residential construction industry and its mission is to improve the affordability, quality, performance and durability of housing by helping overcome barriers to innovation. Its core competency is as an independent, third-party product testing and certification lab, as well as administering the NGBS green certification system for residential buildings.

Home Innovation qualifies, trains and accredits building professionals to provide independent verification services for builders participating in the NGBS Green Certification system. Verifiers must first demonstrate they possess experience in residential construction and green building before they are eligible to take the verifier training. Many verifiers are also HERS Raters, LEED Homes Green Raters, or LEED Accredited Professionals. Potential verifiers must complete thorough training on exactly how to verify every NGBS practice. After completing the training, verifiers must pass a written exam before earning Home Innovation accreditation, and accreditation must be renewed annually.

Home Innovation reviews every rough and final inspection report to ensure national consistency and accuracy. Furthermore, they regularly audit verifiers and the work they perform as part of an internal quality assurance system.

Enterprise Green Communities

Conformance with Enterprise is verified through construction documents, plans, specifications, and other data which demonstrate compliance with the practices being pursued. Certification involves a two-step online submission and review process. Project teams submit their “PreBuild” application with applicable plans and documentation to Enterprise near the end of the design phase, prior to the start of construction. Project teams then submit their “PostBuild” application shortly after the project has received its Certificate of Occupancy.

Enterprise will review the documentation internally to ensure compliance with each practice being pursued, and will award certification only if the project meets the 35 point minimum as well as all mandatory practices.

No third-party on-site inspection of green building practices is required for certification at any point during or after construction.

Enterprise

Enterprise Community Partners is a non-profit that supports owners of existing multi-family buildings in key markets with capital purchases that reduce energy and water consumption or will lead to a more healthy living environment. They provide funds to help build, rehabilitate and operate efficient and affordable housing. They work with state and local governments to ensure the development of sustainable housing and economic development policies. All projects certified to meet Enterprise Green Communities Criteria are reviewed and approved in-house by Enterprise staff.

Registration & Certification Fees

The registration and certification fees for the NGBS are depicted in the table below. At the time this report was written, Enterprise does not have any registration or certification fees. This does not include any fees charged by possible third-party consultants useful or necessary for project certification (which is not required), such as Green Verifiers or Energy Raters. These individuals and organizations set their own rates based on market prices.

Table 7: Registration and Certification Fees

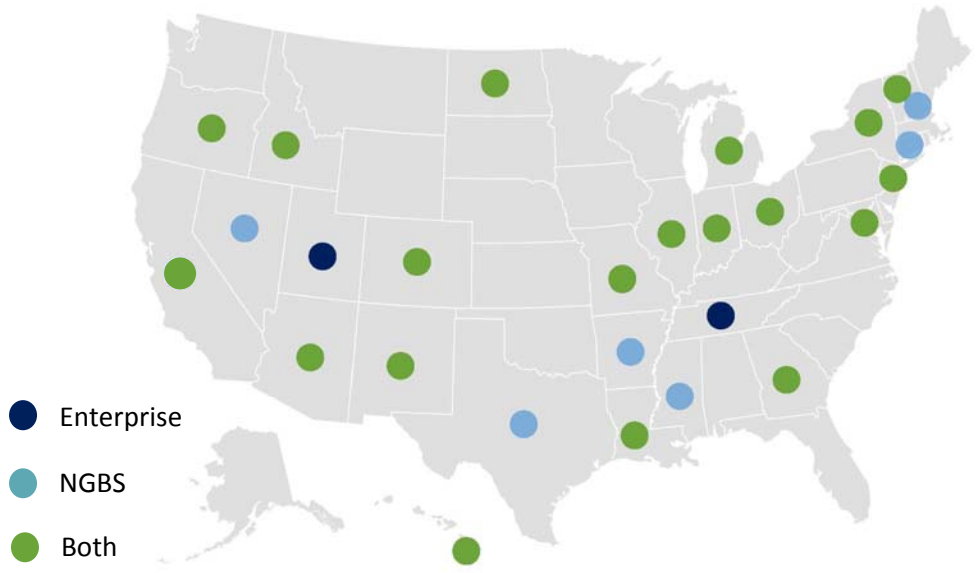
NGBS 2015		Enterprise Green Communities	
Single-Family	Registration $0	Single-Family	Registration $0
	Certification $200/Home		Certification $0
Multifamily	Registration $0	Multifamily	Registration $0
	Certification ● 1-3 Stories: $200 base + $30/unit ● ≥4 Stories: $600 base + $30/unit		Certification $0
Additional Fees	Appeals $0	Additional Fees	Appeals $0
	Inquiries $0		Inquiries $0

Legislative and Regulatory Inclusion

Both Enterprise and NGBS have been considered within a number of state and federal incentive programs. The following systems and municipalities recognize Enterprise and/or the NGBS:

- **HUD & USDA Energy Efficiency Standards:** NGBS and Enterprise are a recognized alternative compliance path for demonstrating that HUD- or USDA housing meets the agencies' energy-efficiency standards. HUD also recently adopted significant mortgage insurance premium reductions for green certified buildings and NGBS is one of the eligible systems. See more at www.gpo.gov/fdsys/pkg/FR-2015-05-06/pdf/2015-10380.pdf.
- **USDA Rural Development, Multifamily Housing Energy-Efficiency Initiative:** Applicants to several Rural Rental Housing, Farm Labor Housing, Housing Preservation Grants, and Multifamily Housing Revitalization grants and loans can receive additional points for new construction and rehabilitation projects that are certified to NGBS, LEED for Homes, Enterprise Green Communities, and/or Energy Star. See more at https://energy.gov/eere/solarpoweringamerica/rural-development-multi-family-housing-energy-efficiency-initiative.
- **State Qualified Allocation Plan**: Over 20 states mandate or incentivize NGBS and/or Enterprise certification through their Qualified Allocation Plans for the federal Low Income Housing Tax Credit program.

Qualified Allocation Plans That Recognize NGBS and/or Enterprise



Green Practice Categories

This section includes an overview of the green practice categories featured in Enterprise Green Communities and the NGBS, including mandatory practices, minimum point requirements, and green practices featured within the category.

The tables below demonstrate which practices are similar between the two programs for each category, as well as additional practices not similar to each other.

Integrative Design

ICC/ASHRAE 700-2015 NGBS – No Category

The NGBS does not have a separate category for integrative design. The NGBS awards points for integrated design when it comes to the site development under the site "Lot Design, Preparation, and Development" category, but not for integrative design in other categories.

Enterprise – Integrative Design

The "Integrative Design" category of Enterprise focuses on bringing the project team together to identify green development goals, potential resident health factors, and possible resiliency issues. It also mandates the creation of design and construction documentation to demonstrate compliance with Enterprise Green Communities Criteria.

Mandatory Practices:

- Develop a statement of the overall green development goals of the project
- Develop a summary of the integrative process that was used to select green building strategies
- Develop a description of how progress and success against goals will be measured
- Create design and construction documentation to include information on implementation of appropriate Enterprise Green Communities Criteria
- Identify potential resident health factors and design your project to address resident health and well-being
- Identify a project characteristic that would most likely impact your project's ability to withstand an unexpected weather event or loss of power

Analysis

With this category, Enterprise focuses on the importance of getting project teams involved in the green building process by identifying health and sustainability factors and establishing both goals and measurements of achievement for the project.

NGBS does not have a separate category for integrative design. The NGBS awards

points for integrated design when it comes to the site development under the site “Lot Design, Preparation, and Development” category, but not for integrative design in other categories.

One mandatory requirement within this Enterprise category, the creation of appropriate documentation for certification, is also required by the NGBS under the “Scope and Administration” section.

Resiliency, another factor featured throughout the Enterprise Green Communities Criteria, is also addressed in this category with both mandatory and optional practices.

Figure 5: Integrative Design Practices

	ICC/ASHRAE 700-2015 NGBS		Points Possible
Lot Design, Preparation & Development	502.1	**Project Team, Mission Statement, and Goals** A team is established with roles identified specifically for green lot design, preparation, and development. A mission statement is developed with green goal's and objective.	4
	102.3	**Documentation** Verification of conformance to green building practices shall be the appropriate documents, architectural plans, site plans, specifications, builder certification and sign-off, inspection reports, or other data that demonstrates conformance.	**Mandatory**

	Enterprise Green Communities		Points Possible
Location & Neighborhood Fabric	1.1a	**Goal Setting** Develop an integrative design process that works best for your project team and intentions. At minimum, document: ● A statement of the overall green development goals of the project and the expected intended outcomes from addressing those goals. ● A summary of the integrative process that was used to select the green building strategies, systems and materials that will be incorporated into the project. ● A description of how progress and success against these goals will be measured throughout the completion of design, construction and operation to ensure that the green features are included and correctly installed.	**Mandatory**
	1.1b	**Criteria Documentation** Create design and construction documentation to include information on implementation of appropriate Enterprise Green Communities Criteria.	**Mandatory**

Other Enterprise Integrative Design Practices

	Enterprise Green Communities		Points Possible
Integrative Design	1.1c	**Designing for Project Performance** Identify how the expected performance of your project compares to the actual performance of other projects in your portfolio and/or community.	9
	1.2a	**Resident Health and Well-Being: Design for Health** Identify potential resident health factors and design your project to address resident health and well-being by using the matrix provided in the Enterprise Green Communities Criteria.	**Mandatory**
	1.2b	**Resident Health and Well-Being: Health Action Plan** At pre-design and continuing throughout the project life cycle, collaborate with public health professionals and community stakeholders to assess, identify, implement and monitor achievable actions to enhance health-promoting features of the project and minimize features that could present health risks. Specifically, create a Health Action Plan and integrate the selected interventions and a plan for monitoring and evaluating progress per the full criterion.	12
	1.3a	**Resilient Communities: Design for Resilience** Given your project building type, location and expected resident population, identify a project characteristic that would most likely impact your project's ability to withstand an unexpected weather event or loss of power. Select at least one criterion from the given list that would help mitigate that impact, and incorporate this within your project plans and design. Include a short narrative providing your rationale for selecting this criterion above the others.	**Mandatory**
	1.3b	**Resilient Communities: Multi-Hazard Risk / Vulnerability Assessment** Carry out a Vulnerabilities Assessment and implement building elements designed to enable the project to adapt to, and mitigate, climate impacts given the project location, building /construction type and resident population.	15

Location and Site Development

ICC/ASHRAE 700-2015 NGBS - Lot Design, Preparation and Development

The "Lot Design, Preparation, and Development" green practice category pertains to key site-related green aspects, such as stormwater management, heat island reduction, high-priority sites (brownfields, infills, etc.), green vehicles, and access to public transportation and bicycle facilities.

This category is more process-oriented than the other NGBS categories because environmentally sensitive strategies differ depending on locale, topography, climate and other regional factors. Regardless, the standard requires a minimum number of points be earned to receive any level of certification. See the chart below for the required number of points for this category.

Mandatory Practices:

NGBS does not have any mandatory practices in this category.

Minimum Point Requirements:

Table 8: Lot Design, Preparation, and Development Minimum Point Requirements

Green Building Categories	Minimum Points Required			
	BRONZE	SILVER	GOLD	EMERALD
Lot Design, Preparation, and Development	50	64	93	121

Enterprise - Location and Neighborhood Fabric / Site Improvements

Enterprise has two categories that focus on the location and site development of the project. The "Location and Neighborhood Fabric" category focuses on minimizing the environmental impact of the overall project based on location, such as avoiding sensitive sites and providing access to services and public transportation. The second category, "Site Improvements," pertains more to the development of the lot itself and includes environmental practices such as stormwater management, heat island reduction, and efficient irrigation.

Mandatory Practices:

- Do not locate new projects on sensitive sites (See Figure 6 below)
- Locate the project on a site with access to existing infrastructure
- Build to the residential density of the consensus block group
- Locate site within ½-mile walking of at least 4 services, or within 1-mile to 7 services
- If rural, tribal, or small town development, set aside 10% of project acreage for

unpaved open space or locate within ½-mile to 0.75 acres of open space
- Implement EPA's Best Management Practices for Construction Site Stormwater Runoff Control (or local equal)
- If located on greenfield, meet Low-Impact Development requirements (See Figure 5 below)
- All landscaping should be native/adaptive. All disturbed areas must be reseeded or xeriscaped
- Install efficient irrigation, if used (See Figure 6 below)
- Conduct an environmental site assessment and mitigate an hazardous materials present

Minimum Point Requirements:

Enterprise does not require projects to obtain a minimum number of points per category.

Analysis

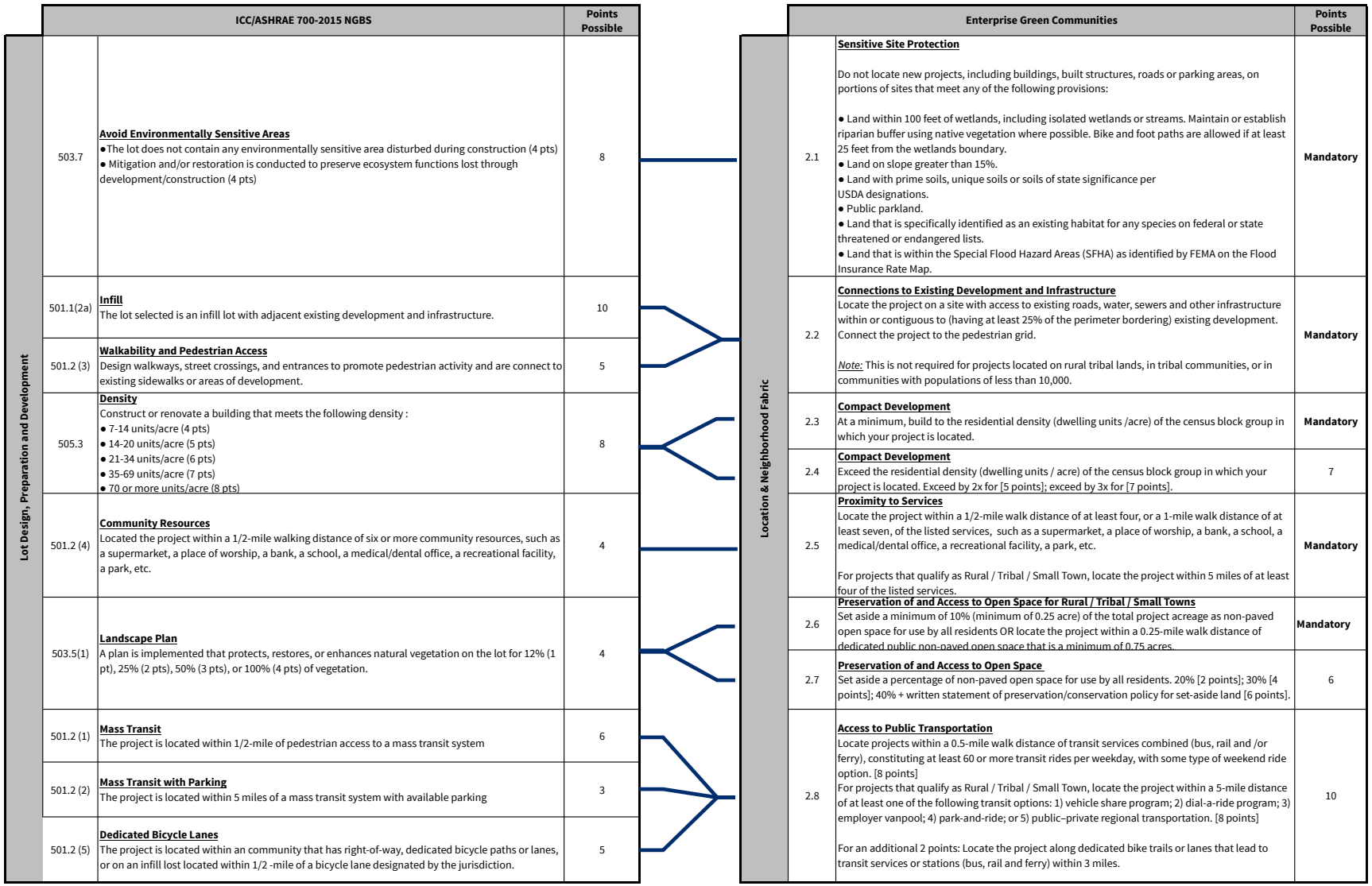
A majority of green practices within the "Lot Design, Preparation, and Development" category of the NGBS have a corresponding similar practice in the "Location and Neighborhood Fabric" and "Site Improvements" categories of Enterprise.

A clear difference between the two programs is that Enterprise contains multiple mandatory practices in both of its categories while the NGBS has no mandatory requirements when it comes to site development. Within Enterprise, this sets a firm and standardized strategy for approaching how the site is developed, as well as where a project may reside. For example, projects must, at a minimum, build to the residential density (dwelling units /acre) of the census block group in which the project is located.

While not having any mandatory practices in this category, in order to earn NGBS certification, a minimum number of points must be obtained within the category, allowing builders and designers to select from a wide variety of green practices that best apply to their specific project, location, and climate, while still requiring a minimum level of site- and location-related sustainability at each certification level.

As seen in Figure 6, a number of practices in the Enterprise "Location and Neighborhood Fabric" and "Site Improvements" categories feature practices that are similar to practices in other NGBS categories. For example, irrigation systems are featured the "Water Efficiency" category of the NGBS, but the "Site Improvements" category of Enterprise. This cross-pollination of practices can be observed in a number of categories.

Figure 6: Location and Site Development Practices



Lot Design, Preparation and Development		ICC/ASHRAE 700-2015 NGBS	Points Possible
	503.7	**Avoid Environmentally Sensitive Areas** ●The lot does not contain any environmentally sensitive area disturbed during construction (4 pts) ● Mitigation and/or restoration is conducted to preserve ecosystem functions lost through development/construction (4 pts)	8
	501.1(2a)	**Infill** The lot selected is an infill lot with adjacent existing development and infrastructure.	10
	501.2 (3)	**Walkability and Pedestrian Access** Design walkways, street crossings, and entrances to promote pedestrian activity and are connect to existing sidewalks or areas of development.	5
	505.3	**Density** Construct or renovate a building that meets the following density : ● 7-14 units/acre (4 pts) ● 14-20 units/acre (5 pts) ● 21-34 units/acre (6 pts) ● 35-69 units/acre (7 pts) ● 70 or more units/acre (8 pts)	8
	501.2 (4)	**Community Resources** Located the project within a 1/2-mile walking distance of six or more community resources, such as a supermarket, a place of worship, a bank, a school, a medical/dental office, a recreational facility, a park, etc.	4
	503.5(1)	**Landscape Plan** A plan is implemented that protects, restores, or enhances natural vegetation on the lot for 12% (1 pt), 25% (2 pts), 50% (3 pts), or 100% (4 pts) of vegetation.	4
	501.2 (1)	**Mass Transit** The project is located within 1/2-mile of pedestrian access to a mass transit system	6
	501.2 (2)	**Mass Transit with Parking** The project is located within 5 miles of a mass transit system with available parking	3
	501.2 (5)	**Dedicated Bicycle Lanes** The project is located within an community that has right-of-way, dedicated bicycle paths or lanes, or on an infill lost located within 1/2 -mile of a bicycle lane designated by the jurisdiction.	5

Location & Neighborhood Fabric		Enterprise Green Communities	Points Possible
	2.1	**Sensitive Site Protection** Do not locate new projects, including buildings, built structures, roads or parking areas, on portions of sites that meet any of the following provisions: ● Land within 100 feet of wetlands, including isolated wetlands or streams. Maintain or establish riparian buffer using native vegetation where possible. Bike and foot paths are allowed if at least 25 feet from the wetlands boundary. ● Land on slope greater than 15%. ● Land with prime soils, unique soils or soils of state significance per USDA designations. ● Public parkland. ● Land that is specifically identified as an existing habitat for any species on federal or state threatened or endangered lists. ● Land that is within the Special Flood Hazard Areas (SFHA) as identified by FEMA on the Flood Insurance Rate Map.	**Mandatory**
	2.2	**Connections to Existing Development and Infrastructure** Locate the project on a site with access to existing roads, water, sewers and other infrastructure within or contiguous to (having at least 25% of the perimeter bordering) existing development. Connect the project to the pedestrian grid. *Note:* This is not required for projects located on rural tribal lands, in tribal communities, or in communities with populations of less than 10,000.	**Mandatory**
	2.3	**Compact Development** At a minimum, build to the residential density (dwelling units /acre) of the census block group in which your project is located.	**Mandatory**
	2.4	**Compact Development** Exceed the residential density (dwelling units / acre) of the census block group in which your project is located. Exceed by 2x for [5 points]; exceed by 3x for [7 points].	7
	2.5	**Proximity to Services** Locate the project within a 1/2-mile walk distance of at least four, or a 1-mile walk distance of at least seven, of the listed services, such as a supermarket, a place of worship, a bank, a school, a medical/dental office, a recreational facility, a park, etc. For projects that qualify as Rural / Tribal / Small Town, locate the project within 5 miles of at least four of the listed services.	**Mandatory**
	2.6	**Preservation of and Access to Open Space for Rural / Tribal / Small Towns** Set aside a minimum of 10% (minimum of 0.25 acre) of the total project acreage as non-paved open space for use by all residents OR locate the project within a 0.25-mile walk distance of dedicated public non-paved open space that is a minimum of 0.75 acres.	**Mandatory**
	2.7	**Preservation of and Access to Open Space** Set aside a percentage of non-paved open space for use by all residents. 20% [2 points]; 30% [4 points]; 40% + written statement of preservation/conservation policy for set-aside land [6 points].	6
	2.8	**Access to Public Transportation** Locate projects within a 0.5-mile walk distance of transit services combined (bus, rail and /or ferry), constituting at least 60 or more transit rides per weekday, with some type of weekend ride option. [8 points] For projects that qualify as Rural / Tribal / Small Town, locate the project within a 5-mile distance of at least one of the following transit options: 1) vehicle share program; 2) dial-a-ride program; 3) employer vanpool; 4) park-and-ride; or 5) public–private regional transportation. [8 points] For an additional 2 points: Locate the project along dedicated bike trails or lanes that lead to transit services or stations (bus, rail and ferry) within 3 miles.	10

Figure 6: Location and Site Development Practices

	ICC/ASHRAE 700-2015 NGBS		Points Possible
Lot Design, Preparation and Development	501.2 (6)	**Bicycle Parking** Dedicated bicycle parking and racks are provided for mixed-use and multifamily buildings: *Path 1:* Minimum of 1 bike space per 3 residential units (2 pts) *Path 2:* Minimum of 1 bike space per 2 residential units (4 pts) *Path 3:* Minimum of 1 bike space per 1 residential units (6 pts)	6
	703.7.1	**Passive Solar Design** The building is designed for passive solar, including but not limited to, the long side of the building facing within 20 degrees of true south, overhangs or adjustable canopies or awnings or trellises provide shading on south-facing glass for the appropriate climate zone, and the south face windows have a SHGC of 0.40 or higher.	4
	501.1(2b)	**Greyfield** The lot selected is a greyfield (previously developed).	10
	501.1(2c)	**Brownfield** The lot selected is an EPA-recognized brownfield.	15
	505.5	**Community Gardens** A portion of the site is established as a community garden, available to all occupants, to provide for local food production	3
	501.1 (1)	**NGBS Certified Neighborhood** The project is located in a NGBS Certified Site or equivalent	15
	504.3	**Soil Erosion and Soil Implementation** Soil disturbance and erosion is minimized by using one or more of the following practices in accordance with the SWPPP: ● Sediment/erosion controls installed per SWPPP (5 pts) ● Limits of clearing/grading staked out (5 pts) ● "No disturbance" zones created to protect veg. and sensitive areas (5 pts) ● Topsoil stockpiled and stabilized for later use (5 pts) ● Distribute weight of equipment to reduce soil compaction (4 pts) ● Disturbed areas to be left unworked for 21 days are stabilized with 14 days (3 pts) ● Soil is improved with organic amendments and mulch ● Utilities are installed by alternative means, such as tunneling (5 pts) ● Inspection reports of best practices are available (3 pts)	38
	503.3	**Limiting Soil Disturbance** Soil disturbance and erosion is minimized by using one or more of the following: ● Disturbed soil stabilized within 14 days (5 pts) ● 75% or more of utility installation is tunneled, in shared trenches, under pavement, or use equipment uses geomats (5 pts) ● Limits of clearing and grading demarcated in plans (5 pts)	15

	Enterprise Green Communities		Points Possible
Location & Neighborhood Fabric	2.9	**Improving Connectivity to the Community** Improve access to community amenities through at least one of the transit, auto or biking mobility measures listed. For example, Provide outdoor bicycle racks that are accessible for visitors and residents. [1 point]. Provide secure, lockable, sheltered and accessible bicycle storage. Provide one bicycle parking space for every two residential units. Post signage directing residents to bicycle parking areas and programs. [2 points] See Enterprise Criteria for more options.	8
	2.10	**Passive Solar Heating / Cooling** Design and build with passive solar design, orientation and shading that meet specified guidelines in Criteria, including: ● Building orientation: Elongate the building on an east–west axis with a minimum ratio of width to depth of 2:1 and orient the east–west axis of the building to be within 20 degrees of true east–west. ● Glazing: Climate Zones 1–3: The glazing area on the north- and south-facing façades should be 50% greater than the sum of the glazing areas on the east- and west-facing walls; Climates Zones 4–7: The glazing area on the south-facing façade should be 30% greater than the sum of the glazing areas on the east-, west- and north-facing façades. ● Glazing type: Provide windows with U-values and solar heat gain coefficients (SHGC) by orientation and Climate Zone that meet the requirements in the following table and map. ● Shading: For south-facing windows, follow the shading requirements in the following table and the map in the Appendix.	5
	2.11	**Brownfield Site or Adaptive Reuse Building** Rehabilitate an existing structure that was not previously used as housing or locate the project on a brownfield site.	4
	2.12	**Access to Fresh, Local Foods** Pursue one of three options to provide residents and staff with access to fresh, local foods, including neighborhood farms and gardens, community-supported agriculture, or proximity to farmers markets.	6
	2.13	**LEED for Neighborhood Development Certification** Locate building(s) in a Stage 2 Pre-Certified or Stage 3 Certified Neighborhood Development.	4
Site Improvements	3.2	**Erosion and Sedimentation Control** Implement EPA's Best Management Practices for Construction Site Stormwater Runoff Control, or local requirements, whichever is more stringent. *Note:* Infill sites with buildable area smaller than one acre are exempt from this requirement.	**Mandatory**

Figure 6: Location and Site Development Practices

	ICC/ASHRAE 700-2015 NGBS		Points Possible
Lot Design, Preparation and Development	503.2	**Slope Disturbance** Use practices to minimize slope disturbance, including but not limited to terrain adaptive architecture, soil stability studies, aligning pavements with natural topography, and others listed in the NGBS.	27
	503.4	**Stormwater Management** Complete one or more of the following: ● Implement a plan to maintain the natural site hydrology by preserving important permeable soils, natural drainage ways, and other water features (7 pts) ● Design stormwater management system so that post-construction runoff rate, volume, and duration do not exceed pre-development (natural, stable) conditions (10 pts) ● Use LID and Green Infrastructure to manage the 80th percentile (5 pts), 90th percentile, (8 pts), or 95th percentile (10 pts) storm event ● Permeable materials are used for less than 25% (5 pts), 25-50% (8 pts), or greater than 50% (10 pts) of surfaces	37
	503.5 (2)-(12)	**Landscape Plan (cont'd)** A landscaping plan is developed with one ore more of the following: ● Only non-invasive native or regionally appropriate plants selected to promote biodiversity (7 pts) ● To improve pollinator habitat, 10% or more of planted area are non-invasive flowering and nectar producing plants (3 pts) ● EPA WaterSense Water Budget Tool used to implement mas % of turf area (2 pts) ● Max % of vegetated areas that are turf is 0% (5 pts), less than 20% (4 pts), less than 40% (3 pts), less than 60% (2 pts) ● Plants with similar watering needs are grouped (5 pts) ● 30% or more of building walls shaded in summer by plants (5 pts) ● Vegetative wind breaks/channels designed to protect lot (5 pts) ● On-site or community tree trimmings of native trees used as mulch (3 pts) ● Developer creates a plan to remove or contain invasive plants from disturbed areas of the site (3 pts) ● Developer creates a plan to remove or contain invasive plants from undisturbed areas of the site (6 pts) ● Integrated pest management plan is developed to minimize chemical use in pesticides and fertilizers (4 pts)	48

	Enterprise Green Communities		Points Possible
Site Improvements	3.3	**Low-Impact Development (greenfields)** Projects located on greenfields must meet the list of low-impact development criteria, including: ● Retain, infiltrate and /or harvest the first 1.0 inch of rain that falls on the entire site in a 24-hour period. (Option 1 of Criterion 3.6 Surface Stormwater Management). ● Design roadways to be along topographic contours and ridgelines so as to avoid erosion and unnecessary cut and fill. ● Design roadway plans to utilize the minimum necessary pavement required by code, such as narrower roads, minimized parking and thoughtful road layout. Consult with local fire department(s) regarding roadway sizing as needed. ● Design roadway sections with localized retention such as swales, retention basins, plantings and permeable paving to convey, capture, infiltrate and /or reuse stormwater. This can be accomplished in a manner that also complies with Option 2 of Criterion 3.6 Surface Stormwater Management. ● For projects located in Rural / Tribal / Small Towns, do not implement a curb and gutter system. Minimize sidewalks or pathways to one side of the road where people would naturally travel. Projects located in municipalities that require curb and gutter infrastructure for all developments are exempt from this sub-requirement.	**Mandatory**
	3.4	**Landscaping** If providing plantings, all should be native or adapted to the region, appropriate to the site's soil and microclimate, and none of the new plants is an invasive species. Reseed or xeriscape all disturbed areas. Recommendations also include limiting turf, mitigating existing invasive species use of organic and nontoxic fertilizers and pesticides.	**Mandatory**

Figure 6: Location and Site Development Practices

	ICC/ASHRAE 700-2015 NGBS		Points Possible
Lot Design, Preparation and Development	801.6	**Irrigation Systems** ● **Mandatory:** Irrigation plans must be executed by a qualified professional certified by WaterSense labeled program. ● Sprinkler nozzles have a max precipitation rate of 1.2 in/hr, tested by a third-party laboratory. (6 pts) ● Drip irrigation is installed in landscapes beds, turf, and zone specs show plant type and water need for each emitter. (13 pts max) ● Either no irrigation (& corresponding landscape plan), irrigation. controller with rain sensor/soil moisture sensor installed, or irrigation. controller labeled by WaterSense installed. (15 pts max) ● Irrigation zones use pressure regulation. (3 pts)	**Mandatory** + 26 Points
	503.4	**Stormwater Management** Complete one or more of the following: ● Implement a plan to maintain the natural site hydrology by preserving important permeable soils, natural drainage ways, and other water features (7 pts) ● Design stormwater management system so that post-construction runoff rate, volume, and duration do not exceed pre-development (natural, stable) conditions (10 pts) ● Use LID and Green Infrastructure to manage the 80th percentile (5 pts), 90th percentile, (8 pts), or 95th percentile (10 pts) storm event ● Permeable materials are used for less than 25% (5 pts), 25-50% (8 pts), or greater than 50% (10 pts) of surfaces	See above
	505.2	**Heat Island Mitigation** ● 50% or more of the hardscape area is either shaded with vegetation, paving with high SRI (SRI 29 or greater), or permeable. (5 pts) ● 75% or more of the roof area is vegetated with noninvasive plants (5 pts)	10

	Enterprise Green Communities		Points Possible
Site Improvements	3.5a	**Efficient Irrigation and Water Reuse** If irrigation is used, install an efficient irrigation or water reuse system per the guidelines, including: ● Drip irrigation system for landscape planting beds ● Separately zoned turf and bedding areas, based on watering needs of turf/plantings ● Timer /controller that activates the valves for each watering zone at the best time of day to minimize evaporative losses while maintaining healthy plants and obeying local regulations and water-use guidance ● Moisture sensor controller or rain delay controller	**Mandatory**
	3.5b	**Efficient Irrigation and Water Reuse** Install an efficient irrigation system equipped with a WaterSense-labeled weather-based irrigation controller (WBIC) OR at least 50% of the site's irrigation should be satisfied by reusing water.	8
	3.6	**Surface Stormwater Management** Retain, infiltrate and /or harvest the first 1.0 inch of rain that falls [4 points] OR as calculated for a 24-hour period of a one-year (1) storm event, so that no stormwater is discharged to drains / inlets. [8 points] For both options, permanently label all storm drains and inlets.	8
	3.7	**Reducing Heat-Island Effect: Paving** Use light-colored, high-albedo materials and/or an open-grid pavement, with a minimum solar reflectance of 0.3, over at least 50% of the site's hardscaped area.	1

Figure 6: Location and Site Development Practices

Other NGBS Location/Site Practices

	ICC/ASHRAE 700-2015 NGBS		Points Possible
Lot Design, Preparation and Development	502.1	**Project Team, Mission Statement, and Goals** A team is established with roles identified specifically for green lot design, preparation, and development. A mission statement is developed with green goal's and objective.	4
	503.1	**Natural Resources** Natural resources are conserved by one or more of the following: ● A natural resource inventory is completed under the direction of a qualified professional (5 pts) ● A plan is implemented to conserve the elements identified by the natural resource inventory (6 pts) ● Listed items are protected under direction of qualified professional (4 pts) ● Basic training on resource protection provided to on-site supervisor (4 pts) ● Tree pruning conducted by certified arborist (3 pts) ● Vegetation maintenance in accordance with TCIA A300 (4 pts) ● Protection plan of adjacent common areas implemented (5 pts)	31
	503.6	**Wildlife Habitat** At least two of the following practices must be selected to earn this credit: ● Plants and garden are selected that encourage wildlife, such as bird and butterfly gardens (3 pts) ● Include a certified "backyard wildlife" program (3 pts) ● The lot is designed in regard to wildlife corridors, fish and game parks, and preserved areas (3 pts) ● Outdoor lighting techniques are utilized with regard to wildlife (3 pts)	12
	504.2	**Tree and Vegetation Preservation** Trees and vegetation are preserved by one ore more of the following: ● Fencing is installed to protect trees and other vegetation (3 pts) ● Trenching, significant changes of grade, and soil compaction in "tree save" areas are avoided (5 pts) ● Damage to existing trees and vegetation is mitigated during construction (4 pts)	12
	505.1	**Driveways and Parking Reduction** Impervious areas are minimized by one or more of the following: ● Off-street parking and driveways are shared (5 pts) ● For multifamily, parking does not exceed local minimums (5 pts) ● Structured parking is use or reduce footprint by 25% (4 pts), 50% (5 pts), or greater than 75% (6 pts) ● Water permeable surfacing is used to reduce impervious driving and parking surfaces by 10% (1 pt), 25% (2 pts), and greater than 75% (3 pts)	16
	505.6 / 706.8	**Electric Vehicle Charging Stations** Plug-in electric vehicle charging capability (Level 2) is provided for 1% or more of parking stalls. Stalls are equipped with either Level 2 charging AC grounded outlets or Level 2 charging stations.	4
	503.8	**Demolition of Existing Building** A demolition waste management plan is implemented to recycle and/or salvage a minimum of 50% of nonhazardous demolition waste. One additional point awarded for every 10% above 50%.	5-10
	504.1	**On-site Supervision of Green Practices** On-site supervision is provided during clearing, grading, trenching, paving, an utility installation to ensure green practices are implemented	4
	505.4	**Mixed-Use Development** The lot contains a mixed-use building	8
	602.1.5	**Termite Barrier** *For areas of moderate to heavy termite infestation potential:* Install no or low-toxicity treatment measures *For areas of very heavy termite infestation potential:* Install above measures, as well as implement low toxicity bait/kill treatment plan.	4
	602.1.6	**Termite-resistant materials** *Slight to moderate termite infestation probability:* install termite resistive materials for foundation, structural walls, floors, exterior decks, and exterior claddings 2 feet above top of foundation. *Moderate to heavy termite infestation probability:* Install termite resistive materials in all above areas as well as exterior claddings 4 feet above top of foundation. *Very heavy termite infestation probability:* Install termite resistive materials in all above areas as well as all exterior claddings.	6

Other Enterprise Green Communities Location/Site Practices

	Enterprise Green Communities		Points Possible
Location & Neighborhood Fabric	2.14	**Local Economic Development and Community Wealth Creation** Demonstrate that local preference for construction employment and subcontractor hiring was part of your bidding process [2 points] OR demonstrate that you achieved at least 20% local employment [3 points] OR provide physical space for small business, nonprofits, and /or skills and workforce education [3 points].	6
Location & Transportation	3.1	**Environmental Remediation** Conduct an environmental site assessment to determine whether any hazardous materials are present on-site; mitigate any found.	**Mandatory**

Materials & Resource Efficiency

ICC/ASHRAE 700-2015 NGBS - Resource Efficiency

The "Resource Efficiency" green practice category is focused on minimizing the environmental impact of buildings by incorporating environmentally efficient building systems and materials, and reducing waste generated during construction and after the home is occupied. Practices include using products and systems with enhanced durability and reduced maintenance, as well as reused, recycled, regional or salvaged materials. It was encourages projects to develop smaller dwelling units, recognizing the inherent impact on the environment of larger homes.

Mandatory Practices:

- For dwelling units greater than 4,000 ft^2, the number of points required for certification increases by one point for every additional 100 ft^2.
- A capillary break and vapor retarder must be installed at concrete slabs in accordance with ICC, IRC or IBC codes referenced in the standard.
- Where required, exterior drain tile must be installed
- Crawlspaces:
    - Damp proof walls must be provided below grade
    - 6-mil PE sheeting or Class I Vapor retarder must be installed
- Insulation in cavities must be dry
- Where required, water-resistive barrier or drainage plane system must be installed behind exterior veneer/siding.
- Flashing must be installed at all locations listed in ICC/ASHRAE-700 2015
- Tile backing materials must be installed under tiled surfaces in wet areas
- Where required, ice barriers must be installed at roof eaves of pitched roofs
- All horizontal ledgers must be sloped away to provide gravity drainage
- Finished grades at all sides of a building must provide a minimum of 6 inches of fall within 10 feet of the building for proper drainage.

Minimum Point Requirements:

Table 9: Resource Efficiency Minimum Point Requirements

Green Building Categories	Minimum Points Required			
	BRONZE	SILVER	GOLD	EMERALD
Resource Efficiency	43	59	89	119

Enterprise Green Communities - Materials

The "Materials" category of Enterprise focuses on the environmental impacts of

products and materials within the home, as well as mitigating materials that could have a potential impact on human health. Practices in this category include selecting environmentally preferable materials, such as recycled and regional materials, as well as materials with low or no Volatile Organic Compounds (VOCs).

Mandatory Practices:

- All interior paints and primers must be low-or no-VOC
- All adhesives and sealants must be low- or no-VOC
- All composite wood must emit low or no formaldehyde
- No carpets are installed in entryways, laundry rooms, bathrooms, kitchens, utility rooms, or any rooms building on the foundation slab. Any carpets and flooring installed must be certified appropriately (See Figure 6)
- Surfaces installed in bathrooms, kitchens, and laundry rooms must be durable and cleanable
- Use moisture-resistant backing materials such as cement board, fiber cement board or equivalent behind tub & shower enclosures
- Commit to following a waste management plan that reduces non-hazardous construction and demolition waste through recycling, salvaging or diversion strategies

Minimum Point Requirements:

Enterprise does not require projects to obtain a minimum number of points per category.

Analysis

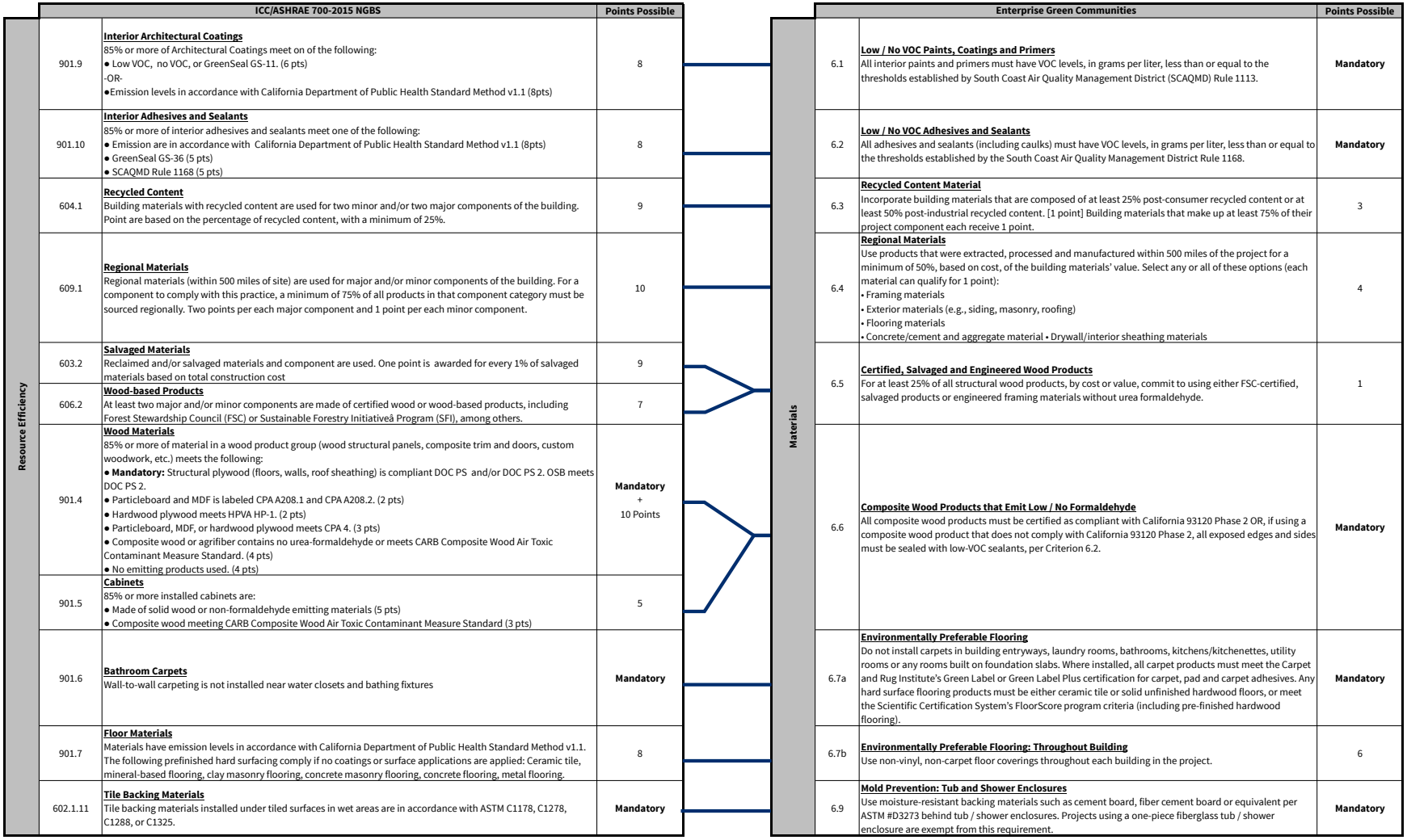
As seen in Figure 7 below, the NGBS and Enterprise include several similar practices in their Materials and Resources categories. Both systems award projects that utilize recycled and regional materials, which helps reduce their overall impact on the environment. They also both promote certified wood products, developing construction waste management plans, and providing recycling stations within the dwelling unit(s).

In this category, Enterprise focuses on not only material origins and construction waste, but also on health-related properties when it comes to materials. For example, it mandates low- or no-VOC paints and adhesives and certified flooring materials, such as “Green Label” carpets. Once again, this is an example of cross-pollination between categories noted in the previous section, as the NGBS contains similar practices in the “Indoor Environmental Quality” category, however they are not mandatory.

The NGBS focuses on construction practices that affect the long-term durability of the home in this category, mandating several practices that aide in reducing potential damage in increasing lifetime resiliency of the home. This includes installing flashing,

water barriers, foundation drainage, capillary breaks, and tile backing materials, among others. Similar practices for a number of NGBS materials practices can be found in the Enterprise “Healthy Living Environment” category of Enterprise (See Figure 10).

Figure 7: Material and Resource Efficiency Practices



Resource Efficiency	ICC/ASHRAE 700-2015 NGBS		Points Possible
	901.9	**Interior Architectural Coatings** 85% or more of Architectural Coatings meet on of the following: ● Low VOC, no VOC, or GreenSeal GS-11. (6 pts) -OR- ●Emission levels in accordance with California Department of Public Health Standard Method v1.1 (8pts)	8
	901.10	**Interior Adhesives and Sealants** 85% or more of interior adhesives and sealants meet one of the following: ● Emission are in accordance with California Department of Public Health Standard Method v1.1 (8pts) ● GreenSeal GS-36 (5 pts) ● SCAQMD Rule 1168 (5 pts)	8
	604.1	**Recycled Content** Building materials with recycled content are used for two minor and/or two major components of the building. Point are based on the percentage of recycled content, with a minimum of 25%.	9
	609.1	**Regional Materials** Regional materials (within 500 miles of site) are used for major and/or minor components of the building. For a component to comply with this practice, a minimum of 75% of all products in that component category must be sourced regionally. Two points per each major component and 1 point per each minor component.	10
	603.2	**Salvaged Materials** Reclaimed and/or salvaged materials and component are used. One point is awarded for every 1% of salvaged materials based on total construction cost	9
	606.2	**Wood-based Products** At least two major and/or minor components are made of certified wood or wood-based products, including Forest Stewardship Council (FSC) or Sustainable Forestry Initiativeâ Program (SFI), among others.	7
	901.4	**Wood Materials** 85% or more of material in a wood product group (wood structural panels, composite trim and doors, custom woodwork, etc.) meets the following: ● **Mandatory:** Structural plywood (floors, walls, roof sheathing) is compliant DOC PS and/or DOC PS 2. OSB meets DOC PS 2. ● Particleboard and MDF is labeled CPA A208.1 and CPA A208.2. (2 pts) ● Hardwood plywood meets HPVA HP-1. (2 pts) ● Particleboard, MDF, or hardwood plywood meets CPA 4. (3 pts) ● Composite wood or agrifiber contains no urea-formaldehyde or meets CARB Composite Wood Air Toxic Contaminant Measure Standard. (4 pts) ● No emitting products used. (4 pts)	**Mandatory** + 10 Points
	901.5	**Cabinets** 85% or more installed cabinets are: ● Made of solid wood or non-formaldehyde emitting materials (5 pts) ● Composite wood meeting CARB Composite Wood Air Toxic Contaminant Measure Standard (3 pts)	5
	901.6	**Bathroom Carpets** Wall-to-wall carpeting is not installed near water closets and bathing fixtures	**Mandatory**
	901.7	**Floor Materials** Materials have emission levels in accordance with California Department of Public Health Standard Method v1.1. The following prefinished hard surfacing comply if no coatings or surface applications are applied: Ceramic tile, mineral-based flooring, clay masonry flooring, concrete masonry flooring, concrete flooring, metal flooring.	8
	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.	**Mandatory**

Materials	Enterprise Green Communities		Points Possible
	6.1	**Low / No VOC Paints, Coatings and Primers** All interior paints and primers must have VOC levels, in grams per liter, less than or equal to the thresholds established by South Coast Air Quality Management District (SCAQMD) Rule 1113.	**Mandatory**
	6.2	**Low / No VOC Adhesives and Sealants** All adhesives and sealants (including caulks) must have VOC levels, in grams per liter, less than or equal to the thresholds established by the South Coast Air Quality Management District Rule 1168.	**Mandatory**
	6.3	**Recycled Content Material** Incorporate building materials that are composed of at least 25% post-consumer recycled content or at least 50% post-industrial recycled content. [1 point] Building materials that make up at least 75% of their project component each receive 1 point.	3
	6.4	**Regional Materials** Use products that were extracted, processed and manufactured within 500 miles of the project for a minimum of 50%, based on cost, of the building materials' value. Select any or all of these options (each material can qualify for 1 point): • Framing materials • Exterior materials (e.g., siding, masonry, roofing) • Flooring materials • Concrete/cement and aggregate material • Drywall/interior sheathing materials	4
	6.5	**Certified, Salvaged and Engineered Wood Products** For at least 25% of all structural wood products, by cost or value, commit to using either FSC-certified, salvaged products or engineered framing materials without urea formaldehyde.	1
	6.6	**Composite Wood Products that Emit Low / No Formaldehyde** All composite wood products must be certified as compliant with California 93120 Phase 2 OR, if using a composite wood product that does not comply with California 93120 Phase 2, all exposed edges and sides must be sealed with low-VOC sealants, per Criterion 6.2.	**Mandatory**
	6.7a	**Environmentally Preferable Flooring** Do not install carpets in building entryways, laundry rooms, bathrooms, kitchens/kitchenettes, utility rooms or any rooms built on foundation slabs. Where installed, all carpet products must meet the Carpet and Rug Institute's Green Label or Green Label Plus certification for carpet, pad and carpet adhesives. Any hard surface flooring products must be either ceramic tile or solid unfinished hardwood floors, or meet the Scientific Certification System's FloorScore program criteria (including pre-finished hardwood flooring).	**Mandatory**
	6.7b	**Environmentally Preferable Flooring: Throughout Building** Use non-vinyl, non-carpet floor coverings throughout each building in the project.	6
	6.9	**Mold Prevention: Tub and Shower Enclosures** Use moisture-resistant backing materials such as cement board, fiber cement board or equivalent per ASTM #D3273 behind tub / shower enclosures. Projects using a one-piece fiberglass tub / shower enclosure are exempt from this requirement.	**Mandatory**

Figure 7: Material and Resource Efficiency Practices

		ICC/ASHRAE 700-2015 NGBS	Points Possible
Resource Efficiency	901.7	**Floor Materials** See above	See above
	901.8	**Wall Coverings** 85% of more wall coverings are in accordance with California Department of Public Health Standard Method v1.1.	4
	901.11	**Insulation** 85% or more of wall, ceiling, and floor insulation materials are in accordance with emission levels of California Department of Public Health Standard Method v1.1	4
	602.2	**Roof Surfaces** At least 90% of roof surfaces are comprised of one or more of the following: ● ENERGY STAR® cool roof certification or equivalent materials ● A vegetated roof system ● Materials with a minimum initial SRI of 78 for low-sloped roof (a slope less than 2:12) and a minimum initial SRI of 29 for a steep-sloped roof (a slope equal to or greater than 2:12). *Note:* Do not include roof area that is used for roof penetrations and associated equipment, on-site renewable energy systems such as photovoltaics or solar thermal energy collectors, or rooftop decks, amenities and walkways.	3
	605.1	**Construction Waste Management** Develop & implement a Construction Waste Management Plan that results in 50% of construction and demolition waste and 95% of e-waste from demolition being diverted from landfills.	6
	607.1	**Recycling and Composting** ● A built-in collection space in each kitchen and a aggregation/pickup space in a covered area for recycling containers is provided (3 pts) ● A compost facility is provided on-site (3 pts) ● A minimum of one food waste disposer is installed at the primary kitchen sink. (1 pt)	7

		Enterprise Green Communities	Points Possible
Materials	6.10	**Asthmagen-Free Materials** Do not install products that contain ingredients that are known to cause or trigger asthma. Key products to avoid are: • Insulation: Do not use spray polyurethane foam (SPF) or formaldehyde-containing fiberglass batts. [4 points] • Flooring: Do not use flexible vinyl (PVC) roll or sheet flooring or carpet-backed with vinyl with phthalates. Do not use fluid applied finish floors. [4 points] • Wall coverings: Do not use wallpaper made from vinyl (PVC) with phthalates or site-applied high-performance coatings that are epoxy or polyurethane based. [4 points] • Composite wood: Use only ULEF products for cabinetry, subflooring and other interior composite wood uses. [4 points]	12
	6.11	**Reduced Heat-Island Effect: Roofing** Use an ENERGY STAR–certified roofing product for 100% of the roof area OR install a "green" (vegetated) roof for at least 50% of the roof area and ENERGY STAR–certified roofing product for the remainder of the roof area.	5
	6.12	**Construction Waste Management** Follow a waste management plan that reduces non-hazardous construction and demolition waste through recycling, salvaging or diversion strategies through one of the three options below. Achieve optional points by meeting multiple options. *Option 1: Measured by Percentage(Select one)* a. Provide a waste plan that diverts 50% of the construction waste from the landfill. [1 pt] b. Provide a waste plan that diverts 75% of the construction waste from the landfill. [2 pts] *Option 2: Material Specific (Select two)* c. Recycle all cardboard. [1 pt] d. Recycle all wood. [1 pt] e. Recycle all drywall. [1 pt] f. Recycle all metals. [1 pt] g. Recycle all concrete, brick and asphalt. [1 pt] h. Develop and implement a comprehensive efficient framing plan that minimizes all waste by design. [1 pt] *Option 3: Minimizing Construction Waste — New Construction only (Select one)* i. Total construction waste to landfill or incinerator <2.5 lbs /SF of building [1 pts] j. Total construction waste to landfill or incinerator <1.5 lbs /SF of building [2 pts]	**Mandatory** + 6 Points Max
	6.12	**Recycling Storage** Provide separate bins for the collection of trash and recycling for each dwelling unit and all shared community rooms (if applicable). Additionally, in multifamily buildings, provide at least one easily accessible, permanent and dedicated indoor area for the collection and storage of materials for recycling. In single-family homes, points will be accrued only if curb-side recycling pickup is available. Collected materials should include, at a minimum, paper, cardboard, glass, metals and plastics.	**Mandatory**

Figure 7: Material and Resource Efficiency Practices

Other NGBS Resource Efficiency Practices

		ICC/ASHRAE 700-2015 NGBS	Points Possible
Resource Efficiency	601.1	**Conditioned Floor Area** Total finished floor area of a dwelling unit is limited to the following areas: ● ≤ 700 sqft: 14 points ● ≤ 1,000 sqft: 12 points ● ≤ 1,500 sqft: 9 points ● ≤ 2,000 sqft: 6 points ● ≤ 2,500 sqft: 3 points ● ≤ 4,000 sqft: **Mandatory:** No point awarded and for every 100 sqft over 4,000 sqft, one additional point is required to be earned elsewhere in the home for every level of certification. **Multifamily:** A weighted average of the individual unit sizes is used for this practice.	14 (**Mandatory** if over 4,000 sqft)
	601.2	**Material Usage** Structural systems are designed or construction techniques are implemented that reduce and optimize material usage. (i.e. choosing minimum structural member sizes in accordance with advanced framing techniques, selecting higher-grade or higher-strength materials and reducing sizes accordingly, etc.)	9
	601.3	**Building Dimensions and Layouts** Building dimensions and layouts are designed to reduce material cuts and waste. This practice is used for a minimum of 80 percent of the following areas: ● floor area (3 pts) ● wall area (3 pts) ● roof area (3 pts) ● cladding or siding area (3 pts) ● penetrations or trim area (1 pt)	13
	601.4	**Framing and Structural Plans** Detailed framing or structural plans, material quantity lists and on-site cut lists for framing, structural materials, and sheathing materials are provided.	4
	601.5	**Prefabricated Components** Precut or preassembled components, or panelized or precast assemblies are utilized for a minimum of 90 percent for the following system or building: ● floor system (4 pts) ● wall system (4 pts) ● roof system (4 pts) ● modular construction for the entire building located above grade (13 pts) ● manufactured home construction for the entire building located above grade (13 pts)	13
	601.6	**Stacked Stories** Stories above grade are stacked, with support floors at least 1/2 the size of ground floor and 7-foor ceiling. First stacked floor is worth 4 points, with 2 points for each additional floor, 8 points max.	8
	601.7	**Prefinished Materials** Prefinished building materials or assemblies, such as trim, walls, floors, ceilings, and fenestrations, have no additional site-applied finishing material are installed.	12
	601.8	**Foundations** The foundation system minimizes soil disturbance, excavation quantities, and material usage.	3
	601.9	**Above-Grade Wall Systems** Above-grade wall systems provide the structural and thermal characteristics of mass walls and are used for at least 75% of the gross exterior wall area of the building.	4
	602.1.1	**Capillary Breaks** ● **Mandatory**: 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. ● A capillary break between the footing and the foundation wall is provided to prevent moisture migration into foundation wall. (3 pts)	**Mandatory** + 3 Points
	602.1.2	**Foundation Waterproofing** Enhanced foundation waterproofing is installed using one or both of the following: ● rubberized coating ● drainage mat	4
	602.1.3	**Foundation Drainage** ● **Mandatory:** Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed. ● Interior and exterior foundation perimeter drains are installed and sloped to discharge to daylight, dry well, or sump pit. (4 pts)	**Mandatory** + 4 Points
	602.1.4	**Crawlspaces** *For unconditioned and vented crawlspace:* ● **Mandatory:** Dampproof walls are provided below finished grade. ● Minimum 6-mil vapor retarder installed on the crawlspace floor and extended at least 6 inches up the wall and is attached and sealed to the wall. (6 pts) *For conditioned crawlspace:* ● **Mandatory:** 6-mil polyethylene sheeting, or other Class I vapor retarder installed in accordance with Section 408.3 or Section 506 of the IRC. ● A concrete slab over 6-mil polyethylene sheeting, or other Class I vapor retarder installed in accordance with Section 408.3 or Section 506 of the IRC. (8 pts)	8

Other Enterprise Materials Practices

		Enterprise Green Communities	Points Possible
Materials	6.8	**Mold Prevention: Surfaces** Use materials that have durable, cleanable surfaces throughout bathrooms, kitchens and laundry rooms. Materials installed in these rooms should not be prone to deterioration due to moisture intrusion or encourage the growth of mold.	**Mandatory**

Figure 7: Material and Resource Efficiency Practices

Other NGBS Resource Efficiency Practices (cont'd)

		ICC/ASHRAE 700-2015 NGBS	Points Possible
Resource Efficiency	602.1.5	**Termite Barrier** *For areas of moderate to heavy termite infestation potential:* Install no or low-toxicity treatment measures (4 pts) *For areas of very heavy termite infestation potential:* Install above measures, as well as implement low toxicity bait and kill treatment plan. (4 pts)	4
	602.1.6	**Termite-resistant materials** *Slight to moderate termite infestation probability:* Install termite resistive materials for foundation, structural walls, floors, exterior decks, and exterior claddings 2 feet above top of foundation. (2 pts) *Moderate to heavy termite infestation probability:* Install termite resistive materials in all above areas as well as exterior claddings 4 feet above top of foundation. (4 pts) *Very heavy termite infestation probability:* Install termite resistive materials in all above areas as well as all exterior claddings. (6 pts)	6
	602.1.7	**Moisture Control Measures** ● **Mandatory:** Insulation in cavities is dry in accordance with manufacturer's instructions when enclosed (2 pts) ● **Mandatory:** Moisture content of subfloor, substrate, or concrete slabs is in accordance with the appropriate industry standard for the finish flooring to be applied. ● Building materials with visible mold are not installed or are cleaned or encapsulated prior to concealment and closing. (2 pts) ● The moisture content of lumber is sampled to ensure it does not exceed 19 percent prior to the surface and/or cavity enclosure. (4 pts) ● Building envelope assemblies are designed for moisture control based on documented hygrothermal simulation or field study analysis. (4 pts)	**Mandatory** + 14 Points
	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.	**Mandatory**
	602.1.9	**Flashing** ● **Mandatory:** 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. ● All window and door head and jamb flashing is either self-adhered flashing complying with AAMA 711-13 or liquid applied flashing complying with AAMA 714-15 and installed in accordance with fenestration or flashing manufacturer's installation instructions. (2 pts) ● Pan flashing is installed at sills of all exterior windows and doors. (3 pts) ● Seamless, preformed kickout flashing or prefabricated metal with soldered seams is provided at all roof-to-wall intersections. (3 pts) ● A rainscreen wall design is used for exterior wall assemblies. (4 pts) ● Through-wall flashing is installed at transitions between wall cladding materials or wall construction types. (2 pts) ● Flashing is installed at expansion joints in stucco walls. (2 pts)	**Mandatory** + 16 Points
	602.1.10	**Exterior Doors** Entries at exterior door assemblies, inclusive of side lights , are covered by installing a porch roof or awning, extending the roof overhang, recessing the exterior door, or installing a storm door. (2 pts per door, 6 pts max)	**6**
	602.1.12	**Roof Overhangs** Roof overhangs are provided over at least 90% of exterior walls to protect the envelope.	**4**
	602.1.13	**Ice Barrier** In applicable climates, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves of pitched roofs and extends at least 24 inches inside the exterior wall line.	**Mandatory**
	602.1.14	**Architectural Features** ● **Mandatory:** All horizontal ledgers are sloped away to provide gravity drainage. (1 pt) ● No roof configurations create horizontal valleys in roof design. (2 pts) ● No recessed windows and architectural features trap water on horizontal surfaces. (2 pts)	**Mandatory** + 5 Points

Figure 7: Material and Resource Efficiency Practices

Other NGBS Resource Efficiency Practices (cont'd)

		ICC/ASHRAE 700-2015 NGBS	Points Possible
Resource Efficiency	602.3	**Roof Water Discharge** A gutter and downspout system or splash blocks and effective grading are provided to carry water a minimum of 5 feet away from perimeter foundation walls.	4
	602.4	**Finished Grade** ● **Mandatory:** Finished grade at all sides of a building is sloped to provide a minimum of 6 inches of fall within 10 feet of the edge of the building. Where there is not 10 feet available, the final grade is sloped away from the edge of the building at 2% or greater. ● Final grade is sloped away from the edge of the building at a minimum slope of 5%. (1 pt) ● Water is directed to drains or swales to ensure drainage away from the structure. (1 pt)	**Mandatory** + 2 Points
	603.1	**Reuse of Existing Building** Major elements or components of existing buildings and structures are reused, modified, or deconstructed for later use (1 Point awarded for ever 200 sqft of floor area)	12
	603.3	**Scrap Materials** Sorting and reuse of scrap building material is facilitated.	4
	605.2	**On-Site Recycling** On-site recycling measures following are implemented, such as the following: ● Materials are ground or otherwise safely applied on-site as soil amendment or fill. At least of 50% (by weight) of construction and land-clearing waste is diverted from landfill. ● Compatible untreated biomass material are set aside for combustion if a solid fuel-burning appliance will be available for on-site renewable energy.	7
	605.3	**Recycled Construction Materials** Construction materials are recycled offsite. A minimum of two types of materials are recycled (3 pts), and one additional point is earned for each additional recycled material type.	6
	606.1	**Biobased Products** Use two types of biobased materials for at least 0.5% of the total construction cost, including but not limited to bamboo, cotton, cork, and straw.	8
	606.3	**Manufacturing Energy** Materials manufactured using a minimum of 33% of manufacturing process energy from renewable or combustible waste sources, or renewable energy credits. Two points are awarded per material.	6
	608.1	**Resource-Efficient Materials** Products containing fewer materials are used to achieve the same end-use requirements as conventional products. (3 pts per material)	9
	610.1.1	**Whole Building Life Cycle Assessment (LCA)** ● Execute LCA at the whole building level through a comparative analysis between the final and reference building designs as set forth under Standard Practice, ASTM E2921. (8 pts) The assessment criteria includes the following environmental impact categories: - Primary energy use - Global warming potential - Acidification potential - Eutrophication potential - Ozone depletion potential - Smog potential ● Execute LCA on regulated loads throughout the building operations life cycle stage. (5 pts) ● Execute full LCA, including use-phase, through calculation of operating energy impacts using local or regional emissions factors from energy supplier, utility, or EPA. (2 pts)	15
	610.1.2	**Product and/or Building Assembly Life Cycle Assessment (LCA)** Select products and/or building assemblies that have completed a LCA using the following environmental impact measures: - Primary energy use - Global warming potential - Acidification potential - Eutrophication potential - Ozone depletion potential - Smog potential	10
	611.1	**Manufacturer's Environmental Management System Concepts** Product manufacturer's operations and business practices include environmental management system concepts, and the production facility is registered to ISO 14001. One point is awarded for every 1% of materials from ISO 14001 facilities based on total construction cost.	10
	611.2	**Sustainable Products** One or more of the following products are used for at least 30% of the floor or wall area of the entire dwelling unit (9 pts max): ● 50% or more of carpet installed is certified to NSF 140. (3 pts) ● 50% or more of resilient flooring installed is certified to NSF 332. (3 pts) ● 50% or more of the insulation installed is certified to EcoLogo CCD-016. (3 pts) ● 50% or more of interior wall coverings installed is certified to NSF 342. (3 pts) ● 50% or more of the gypsum board installed is certified to UL 100. (3 pts) ● 50% or more of the door leafs installed is certified to UL 102. (3 pts) ● 50% or more of the tile installed is certified to TCNA A138.1 (3 pts)	9

Figure 7: Material and Resource Efficiency Practices

Other NGBS Resource Efficiency Practices (cont'd)

	ICC/ASHRAE 700-2015 NGBS		Points Possible
Resource Efficiency	611.3	**Universal Design Elements** Dwelling incorporates one or more of the following universal design elements. (12 pts max): ● Any no-step entrance into the dwelling which is accessible from a substantially level parking or drop-off area (no more than 2%) via an accessible path which has no individual change in elevation or other obstruction of more than 1-1/2 inches in height with the pitch not exceeding 1 in 12, and provides a minimum 32-inch wide clearance into the dwelling. (3 pts) ● Minimum 36-inch wide accessible route from the no-step entrance into at least one visiting room in the dwelling and into at least one full or half bathroom which has a minimum 32-inch clear door width and a 30-inch by 48-inch clear area inside the bathroom outside the door swing. (3 pts) ● Minimum 36-inch wide accessible route from the no-step entrance into at least one bedroom which has a minimum 32-inch clear door width. (3 pts) ● Blocking or equivalent installed in the accessible bathroom walls for future installation of grab bars at water closet and bathing fixture, if applicable. (1 pt) ● All interior and exterior door handles are levers rather than knobs. (1 pt) ● All sink faucet controls are single-handle controls of both volume and temperature. (1 pt) ● Interior convenience Power receptacles, communication connections and switches are placed between 15" and 48" above the finished floor. Additional switches to control devices and systems (such as alarms, home theaters and other equipment) not required by the local building code may be installed as desired. (1 pt) ● All light switches are rocker-type switches or other similar switches that can be operated by pressing them (with assistive devices). Toggle-type switches may not be used. (1 pt) ● Any of the following can be controlled with a (wireless) mobile device such as a smartphone, tablet or laptop computer: HVAC, lighting, alarm system or door locks. (1 pt)	12
	611.4	**Product Declarations** A minimum of 10 different installed products have either industry-wide or product specific Environmental Product Declarations (EPDs). Product-specific EPD's are weighted 2x higher than industry-wide EPDs.	5

Energy Efficiency

ICC/ASHRAE 700-2015 NGBS – Energy Efficiency

This NGBS category focuses on design and construction practices that help increase the energy efficiency of a project while encouraging the use of renewable energies. There are multiple paths for a project to comply, providing builders and project teams the flexibility to choose the best means of demonstrating increased energy efficiency based on their local conditions and market. Regardless of the path selected, this category includes multiple mandatory practices to ensure a solid base of energy efficiency regardless of project type and location.

Table 10 below shows the pathways available to demonstrate compliance with this category. Also listed are the corresponding levels of certification a project can achieve by selecting the various pathways. For example, a project selecting an EnergyStar 3.0 Certified Home label as the compliance method can only achieve Bronze Certification, while only a project pursuing the Performance Path can achieve the highest level of Certification, Emerald.

Table 10: NGBS Energy Efficiency Compliance Paths

Energy Performance Compliance Path	Summary	Rating Levels Achievable
Performance Path	Meet or surpass ICC IECC 2015 baseline performance, and include at least two additional energy efficiency practices, such as occupancy sensors & lighting controls. Two points are earned for every percentage point above IECC 2015	• Bronze • Silver • Gold • Emerald
Prescriptive Path	Obtain at least 30 points through prescriptive practices detailed in the ICC/ASHRAE-700 2015, and include at least two additional energy efficiency practices, such as occupancy sensors & lighting controls.	• Bronze • Silver • Gold
HERS Index Target	Complete EPA HERS Index Target Procedure with final value equal to or less than EPA HERS Index Target, and include at least two additional energy efficiency practices, such as occupancy sensors & lighting controls.	• Bronze • Silver • Gold
ENERGY STAR Version 3.0	Qualify as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev 03	• Bronze Only
ENERGY STAR Version 3.1	Qualify as an ENERGY STAR Version 3.1 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev 03 (with a baseline at ASHRAE 90.1-2010)	• Silver Only

Mandatory Practices:

- One of the available compliance pathways from Table 1 must be selected.
- All installation of insulation must meet Grade 1 standards.
- Building envelope tightness must be tested in accordance with ASTM E-779 using a blower door at 1.05 psf (50 Pa).
- The building thermal envelope must be durably sealed to limit infiltration. All openings, penetrations, joints, seams, connections, common walls and other sources of infiltration are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film or solid material
- The HVAC system must be sized per load calculations using ACCA Manual J.
- Radiant and hydronic space heating systems must be designed, installed and documented using industry-approved guidelines and standards.
- All ducts must be air sealed with materials in conformance with UL 181A or UL 181B.
- Framing cavities cannot be used as ducts or plenums.
- Duct systems must be sized and designed in accordance with ACCA Manual D (or equal).
- Fenestrations, such as windows, must not have an infiltration rate of 0.3 cfm per square foot, while swinging doors must not exceed 0.5 cfm per square foot.
- Recessed luminaries installed in the thermal envelope must be sealed to limit air leakage, IC-rated and labeled as meeting ASTM E283, and sealed with a gasket or caulk.
- Dwelling unit(s) must either have a minimum of 75% of total hard-wired lighting fixtures or bulbs qualify as high efficacy, or the lighting power density be 1.1 watts/square foot or less.
- Any boiler supply piping in unconditioned space must be insulated.

Minimum Point Requirements:

Table 11: Energy Efficiency Minimum Point Requirements

Green Building Categories	Minimum Points Required			
	BRONZE	SILVER	GOLD	EMERALD
Energy Efficiency	30	45	60	70

Enterprise Green Communities – Energy Efficiency

The "Energy Efficiency" category of Enterprise is focused on practices that help increase the energy efficiency of a project while encouraging the use of renewables. To comply, single-family homes and low-rise multifamily projects must meet the requirements of ENERGY STAR New Homes. For mid-rise and high-rise buildings, the project must be certified through the ENERGY STAR Multifamily High-Rise program, or use the multi-faceted approach described in Figure 8 below. The project must also install ENERGY STAR labeled appliances, high-efficacy lighting, and submeters for each unit.

Mandatory Practices:

- Single-family and Low-rise Multifamily: Certify each dwelling unit through the ENRGY STAR New Homes program
- Mid-rise and High-rise Multifamily: Certify the project through the ENERGY STAR Multifamily High-rise Program, or use the multi-faceted approach in Figure 7
- Size heating and cooling equipment in accordance with the Air Conditioning Contractors of America (ACCA) Manuals J and S or ASHRAE handbooks
- Install ENERGY STAR clothes washer, dishwashers and refrigerators. If appliances not installed, specify ENERGY STAR models must be used if installed later
- Permanent lighting must comply with high-efficacy and other guidelines stated in Figure 8
- Individual electric meters or submeters must be installed for all dwelling units.

Minimum Point Requirements:

Enterprise does not require projects to obtain a minimum number of points per category.

Analysis

The NGBS provides multiple pathways for demonstrating the baseline compliance with this category, as seen in Table 10 above. This includes energy modeling, utilizing the ENERGY STAR Home Energy Rating System (HERS) Index Target, and/or certifying the project through ENERGY STAR. It also includes a number of additional mandatory practices, such as HVAC and duct-sizing requirements, to ensure a baseline of energy efficiency. Notably, the NGBS requires all insulation to be installed to Grade 1 standards, which is verified pre-drywall to ensure no visual defects. This ensures that no matter what path is selected, a minimum baseline of efficiency practices is completed.

Enterprise requires single-family and low-rise units to certify through ENERGY STAR. Mid-

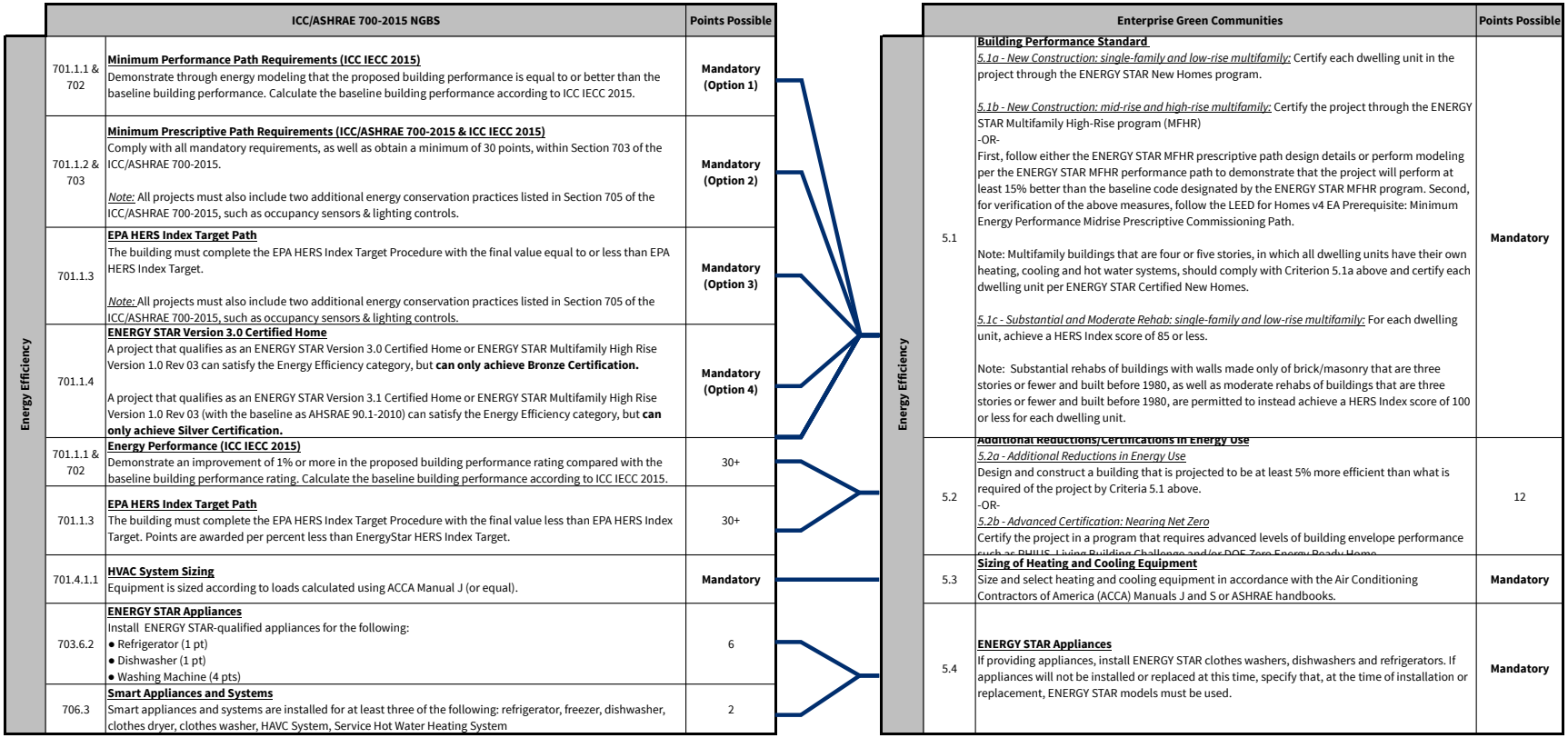
rise and higher buildings can either choose the ENERGY STAR Multifamily High-rise Program, or use the multi-faceted approach described in Figure 7 below. The ENERGY STAR program ensures that the performance of the home meets the minimum requirements of the ENERGY STAR Reference Design Home. The home is evaluated against the Reference Design Home using HERS software. The ENERGY STAR Reference Design Home uses a set of efficiency features modeled to determine the ENERGY STAR HERS Index Target for each home pursuing certification. While the Design Home features, such as Grade 1 insulation installation, are not mandatory, if they are not used then other measures will be needed to achieve the ENERGY STAR HERS Index Target.

Overall, the NGBS contains a greater number individuals mandatory practices no matter what energy compliance pathway is selected. The full list can be seen in Figure 7 below. Even more mandatory requirements are involved if a project team uses the "Prescriptive Path" for compliance.

When it comes to equipment, both the NGBS and Enterprise mandate the proper sizing and selection of Heating, Ventilation and Air Conditioning systems using ACCA Manual J, or equal. Enterprise also mandates that clothes washer, dishwasher and refrigerators be labeled ENERGY STAR, while the NGBS encourages it through points but does not mandate it.

Both systems encourage the on-site generation of renewable energy by awarding projects that pursue these strategies with additional points. Additionally, Enterprise awards points for projects that focus on resiliency when it comes to energy, such as systems operate during floods or emergency power is available through an islandable photovoltaic system or generator.

Figure 8: Energy Efficiency Practices



	ICC/ASHRAE 700-2015 NGBS		Points Possible
Energy Efficiency	701.1.1 & 702	**Minimum Performance Path Requirements (ICC IECC 2015)** Demonstrate through energy modeling that the proposed building performance is equal to or better than the baseline building performance. Calculate the baseline building performance according to ICC IECC 2015.	**Mandatory (Option 1)**
	701.1.2 & 703	**Minimum Prescriptive Path Requirements (ICC/ASHRAE 700-2015 & ICC IECC 2015)** Comply with all mandatory requirements, as well as obtain a minimum of 30 points, within Section 703 of the ICC/ASHRAE 700-2015. *Note:* All projects must also include two additional energy conservation practices listed in Section 705 of the ICC/ASHRAE 700-2015, such as occupancy sensors & lighting controls.	**Mandatory (Option 2)**
	701.1.3	**EPA HERS Index Target Path** The building must complete the EPA HERS Index Target Procedure with the final value equal to or less than EPA HERS Index Target. *Note:* All projects must also include two additional energy conservation practices listed in Section 705 of the ICC/ASHRAE 700-2015, such as occupancy sensors & lighting controls.	**Mandatory (Option 3)**
	701.1.4	**ENERGY STAR Version 3.0 Certified Home** A project that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev 03 can satisfy the Energy Efficiency category, but **can only achieve Bronze Certification.** A project 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 as AHSRAE 90.1-2010) can satisfy the Energy Efficiency category, but **can only achieve Silver Certification.**	**Mandatory (Option 4)**
	701.1.1 & 702	**Energy Performance (ICC IECC 2015)** Demonstrate an improvement of 1% or more in the proposed building performance rating compared with the baseline building performance rating. Calculate the baseline building performance according to ICC IECC 2015.	30+
	701.1.3	**EPA HERS Index Target Path** The building must complete the EPA HERS Index Target Procedure with the final value less than EPA HERS Index Target. Points are awarded per percent less than EnergyStar HERS Index Target.	30+
	701.4.1.1	**HVAC System Sizing** Equipment is sized according to loads calculated using ACCA Manual J (or equal).	**Mandatory**
	703.6.2	**ENERGY STAR Appliances** Install ENERGY STAR-qualified appliances for the following: ● Refrigerator (1 pt) ● Dishwasher (1 pt) ● Washing Machine (4 pts)	6
	706.3	**Smart Appliances and Systems** Smart appliances and systems are installed for at least three of the following: refrigerator, freezer, dishwasher, clothes dryer, clothes washer, HAVC System, Service Hot Water Heating System	2

	Enterprise Green Communities		Points Possible
Energy Efficiency	5.1	**Building Performance Standard** *5.1a - New Construction: single-family and low-rise multifamily:* Certify each dwelling unit in the project through the ENERGY STAR New Homes program. *5.1b - New Construction: mid-rise and high-rise multifamily:* Certify the project through the ENERGY STAR Multifamily High-Rise program (MFHR) -OR- First, follow either the ENERGY STAR MFHR prescriptive path design details or perform modeling per the ENERGY STAR MFHR performance path to demonstrate that the project will perform at least 15% better than the baseline code designated by the ENERGY STAR MFHR program. Second, for verification of the above measures, follow the LEED for Homes v4 EA Prerequisite: Minimum Energy Performance Midrise Prescriptive Commissioning Path. Note: Multifamily buildings that are four or five stories, in which all dwelling units have their own heating, cooling and hot water systems, should comply with Criterion 5.1a above and certify each dwelling unit per ENERGY STAR Certified New Homes. *5.1c - Substantial and Moderate Rehab: single-family and low-rise multifamily:* For each dwelling unit, achieve a HERS Index score of 85 or less. Note: Substantial rehabs of buildings with walls made only of brick/masonry that are three stories or fewer and built before 1980, as well as moderate rehabs of buildings that are three stories or fewer and built before 1980, are permitted to instead achieve a HERS Index score of 100 or less for each dwelling unit.	**Mandatory**
	5.2	**Additional Reductions/Certifications in Energy Use** *5.2a - Additional Reductions in Energy Use* Design and construct a building that is projected to be at least 5% more efficient than what is required of the project by Criteria 5.1 above. -OR- *5.2b - Advanced Certification: Nearing Net Zero* Certify the project in a program that requires advanced levels of building envelope performance such as PHIUS+ Living Building Challenge and/or DOE Zero Energy Ready Home	12
	5.3	**Sizing of Heating and Cooling Equipment** Size and select heating and cooling equipment in accordance with the Air Conditioning Contractors of America (ACCA) Manuals J and S or ASHRAE handbooks.	**Mandatory**
	5.4	**ENERGY STAR Appliances** If providing appliances, install ENERGY STAR clothes washers, dishwashers and refrigerators. If appliances will not be installed or replaced at this time, specify that, at the time of installation or replacement, ENERGY STAR models must be used.	**Mandatory**

Figure 8: Energy Efficiency Practices

		ICC/ASHRAE 700-2015 NGBS	Points Possible
Energy Efficiency	701.4.4	**High-Efficacy Lighting** Dwelling unit(s) must either have a minimum of 75% of total hard-wired lighting fixtures or bulbs qualify as high efficacy, or the lighting power density be 1.1 watts/square foot or less.	**Mandatory**
	701.4.3.5	**Recessed Lighting** Recessed luminaries installed in the thermal envelope must be sealed to limit air leakage, must be IC-rated and labeled as meeting ASTM E283, and sealed with a gasket or caulk.	**Mandatory**
	703.6.1	**Hard-wired Lighting** ● 95% percent of the total hard-wired interior luminaires or lamps qualify as ENERGY STAR or equivalent. (2-3 pts based on climate zone) ● A minimum of 80 percent of the exterior lighting wattage has a minimum efficacy of 40 lumens per watt or is solar-powered. (1 pt) ● In multifamily buildings, common area lighting power density (LPD) is less than 0.51 Watts per square foot. (7 pts)	11
	705.2.1	**Lighting Controls** Points can be earned for providing dimming controls and/or occupancy or photo sensors for interior and/or exterior lighting fixtures of dwelling units. Multifamily projects can earn points for having dimmers or occupancy sensors in common areas, and for providing automatic light reduction for unoccupied interior corridors, stairwells, garages, and parking areas.	15
	705.2.1.2	**Exterior Lighting** Photo or motion sensors are installed on 75 percent of outdoor lighting fixtures to control lighting.	1
	705.7	**Submetering System** In a multifamily building, an advanced submetering system is installed to monitor energy consumption for each unit. Information is available to occupants monthly.	1
	703.5.5	**Solar Water Heater** Solar domestic water heating system is installed and meets Solar Rating & Certification Corporation OG 300 rating. Points awarded based on Solar Energy Factor and Climate Zone.	1-33
	706.5	**On-site Renewable Energy System** An on-site renewable energy production system is installed. Two points are awarded based on kW produced, divided by the number of dwelling units.	2 or more (kW per DU)

		Enterprise Green Communities	Points Possible
Energy Efficiency	5.5	**Lighting** Follow the guidance for high-efficacy lighting controls and other characteristics for all permanently installed lighting fixtures in project dwelling units, common spaces and exterior *General:* For all permanently installed lighting fixtures, install high-efficacy lighting (including compact fluorescent bulbs, LEDs, and T-8 or smaller diameter linear fluorescents) with an efficacy of at least 40 to 60 lumens per watt. If recessed light fixtures are used anywhere in the project, install ballasted compact fluorescent fixtures or ENERGY STAR–qualified LED lamps. All recessed light fixtures must be Insulation Contact Air-Tight (ICAT) models. *Common Area Lighting* Non-apartment building spaces must use ballasted compact fluorescents and/or LED bulbs and be controlled by occupancy sensors or automatic bi-level lighting controls. *Emergency Lighting* Any new exit signs shall consume 5 watts or less. Fixtures located above stairwell doors and other forms of egress shall contain a battery backup feature. Photoluminescent exit signs may be used. *Exterior Lighting:* 100% of outdoor lighting must use fluorescent and/or LED bulbs, and lamps must be ENERGY-STAR–certified when that certification is available for the product category. All exterior lighting must be a Dark-Sky–approved "Friendly Fixture" and have motion sensor controls, integrative photovoltaic cells, photosensors or astronomic time-clock operation.	**Mandatory**
	5.6	**Electricity Meter** Install individual or submetered electric meters for all dwelling units.	**Mandatory**
	5.7a	**Photovoltaic / Solar Hot Water Ready** Orient, design, engineer, wire and /or plumb the development to accommodate installation of photovoltaic (PV) or solar hot water system in the future.	4
	5.7b	**Renewable Energy** Install photovoltaic (PV) panels or other electric-generating renewable energy source to provide a specified percentage of the project's estimated total energy demand or water heating energy demand. Points are awarded based on the number of stories if the building and percentage of energy demand served by renewable energy.	10

Figure 8: Energy Efficiency Practices

Other NGBS Energy Efficiency Practices

	ICC/ASHRAE 700-2015 NGBS		Points Possible
	701.4.1.2	**Radiant and Hydronic Space Heating** System is designed, installed, and documented using industry-approved guidelines and standards.	**Mandatory**
	701.4.2.1	**Duct Air Sealing** All duct sealing is in conformance with UL 181A or UL 181B	**Mandatory**
	701.4.2.2	**Ducts and Plenums** Building cavities are not used as ducts or plenums.	**Mandatory**
	701.4.2.3	**Duct System Sizing** Duct systems are sized and designed in accordance with ACCA Manual D (or equal).	**Mandatory**
	701.4.3.1	**Building Thermal Envelope Air Sealing** Building thermal envelope is durably sealed to limit infiltration. All openings, penetrations, joints, seams, connections, common walls, and other sources of infiltration are caulked, gasketed, weather-stripped, or otherwise sealed with an air barrier material, suitable film, or solid material.	**Mandatory**
	701.4.3.2.1	**Grade I Insulation Installation** Insulation must be installed to Grade 1 standards and visually inspected by Green Verifier before installation of drywall.	**Mandatory**
	701.4.3.2.2	**Air Sealing & Insulation Testing** ● Building envelope tightness must be tested with blower door per ASTM E-779. ● Air barrier and insulation must be field verified by Green Verifier pre-drywall and post-construction.	**Mandatory**
	701.4.3.4	**Fenestration Air Leakage** Fenestrations, such as windows, must not have an infiltration rate of 0.3 cfm per square foot, while swinging doors must not exceed 0.5 cfm per square foot.	**Mandatory**
	701.4.5	**Boiler Supply Piping** Any boiler supply piping in unconditioned space must be insulated	**Mandatory**
	703.1.1.1	**Maximum UA** The total building UA is less than or equal to the total maximum UA as computed by 2015 IECC. The total UA proposed and baseline calculations are documented. REScheck or COMcheck is deemed to provide UA calculation documentation.	**Mandatory**
	703.1.1.2	**Prescriptive R-values and Fenestration Requirements** The building thermal envelope is in accordance with the insulation and fenestration requirements of 2015 IECC.	**Mandatory**
	703.1.2	**Building Envelope Leakage** Building thermal envelope must be in accordance with 2015 IECC R402.4.1.2 or C402.5	**Mandatory** (Prescriptive Path)
	703.1.3	**Duct Testing** The duct system is in accordance with 2015 IECC R403.3.2 through R403.3.5 as applicable.	**Mandatory**
	703.2.5.1	**Efficient Fenestration** NFRC-certified U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) do not exceed the values in NGBS Table 703.2.5.1.	**Mandatory** (Prescriptive Path)
	703.2.5.2	**Enhanced Fenestration** NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) meet the values in NGBS Table 703.2.5.2.	6
	703.3	**HVAC Equipment Efficiency** Design and install HVAC equipment that is meets efficiency standards stated in NGBS Section 703.3 Tables. Points are dependent on equipment type and Climate Zone.	1-52
	703.4	**Duct Systems** Install ductless heating and/or cooling systems, install all ducts in the conditioned space, and/or have the entire HVAC duct system tested by a third party for total leakage at a pressure differential of 25 Pa and max air leakage is no more than 6% of design flow rate, or 4.0 cfm at 25 Pascals per 100 square feet. Points are dependent on climate zone.	15
	703.5	**Water Heating System** Water heating system meets the necessary Energy Factor or Solar Energy Factor required to earn points. Points are dependent on water heater type (gas, heat pump, desuperheater, solar, etc.) and climate zone.	25
	703.7.1	**Passive Solar Design** The building is designed for passive solar, including but not limited to, the long side of the building facing within 20 degrees of true south, overhangs or adjustable canopies or awnings or trellises provide shading on south-facing glass for the appropriate climate zone, and the south face windows have a SHGC of 0.40 or higher.	4
	705.2.2	**TDD's and Skylights** A tubular daylight device or skylight is installed in rooms without windows.	2
	705.2.3	**Lighting Outlets** Occupancy sensors are installed for 80% or more hard-wired lighting outlets in living spaces.	1
	705.2.4	**Recessed Luminaires** Recessed luminaires penetrating the thermal envelope is less than 1 per 400 square feet.	1

Other Enterprise Energy Efficiency Practices

	Enterprise Green Communities		Points Possible
Energy Efficiency	5.8a	**Resilient Energy Systems: Floodproofing** Conduct floodproofing, including perimeter floodproofing (barriers /shields), of lower floors. Design and install building systems as specified by the full criterion so that the operation of those systems will not be grossly affected in case of a flood.	8
	5.8b	**Resilient Energy Systems: Islandable Power** Provide emergency power through an islandable photovoltaic (PV) system or an efficient and portable generator that will offer at least limited electricity for critical circuits during power outages per one of the three options listed. *Option 1* [8 points] With PV systems, install inverters that provide limited access to solar-generated power during outages when the sun is shining. -OR- *Option 2* [6 points] Provide a PV system with battery storage and a system to switch to battery backup when the electric grid goes down. -OR- *Option 3* [4 points] Allow for the connection of an efficient portable generator to provide reliable power to critical systems in the case of an emergency power outage.	8

Figure 8: Energy Efficiency Practices

Other NGBS Energy Efficiency Practices (cont'd)

	ICC/ASHRAE 700-2015 NGBS		Points Possible
	705.3	**Induction Cooktop** An induction cooktop is installed.	1
	705.4	**Return Ducts/Transfer Grilles** Return ducts or transfer grilles installed in every room with a door (except bathrooms, kitchens, closets, pantries, and laundry rooms).	2
	705.5	**HVAC Design and Installation** *705.5.1:* HVAC Contractor and service technician are certified by nationally/regionally recognized program (e.g., Building Performance Institute). (1 Pt) *705.5.2:* Performance of system is verified by HVAC contractor, including start-up procedure refrigerant charge, air handler speed, and total airflow, among others. (3 Pts)	4
	705.6.1	**Installation and Performance Verification** Third-party onsite inspections are conducted pre-drywall and post-construction to verify proper duct installation and sealing, building envelope sealing, and all fenestration sealing, in addition to Green Verifier inspection.	3
	705.6.2.1	**Air Leakage Validation of Building or Dwelling Units** If not required by IECC 2015, blower door testing (3 Points) or third party verification (5 Point) is completed.	5
	705.6.2.2	**HVAC Airflow Testing** Balanced airflows are demonstrated by a third-party. Test results are in accordance with ACCA 5 QI-2010, Section 5.2.	5
	705.6.2.3	**HVAC Duct Leakage Testing** If not required by IECC 2015, duct leakage is tested in accordance with IECC R403.3.3 and R403.3.4 (3 Points). An additional 2 points can be earned if conducted by independent third party.	5
	705.6.3	**Insulating Hot Water Pipes** Piping involved in hot water is insulated with a minimum thermal resistance of R-3	1
	705.6.4	**Potable Hot Water Demand Re-circulation System** A Potable Hot Water Demand Re-circulation System is installed.	2
	706.1	**Energy Consumption Control** A whole-building or whole-dwelling unit device or system is installed that controls or monitors energy consumption. ● Programmable communicating thermostat with the capability to be controlled remotely (1 pt) ● Energy-monitoring device or system (1 pt) ●Energy management control system (3 pts) ● Programmable thermostat with control capability based on occupant presence or usage pattern (1 pt) ● Lighting control system (1 pt)	4
	706.2	**Renewable Energy Service Plan** A renewable energy service plan is provided: - Builder's local administrative office has renewable energy service and also selects renewable energy service plan for interim electric service for project until occupant occupied (1 Point) - The homeowner selects a renewable energy service provider with minimum two-year commitment for 1-49% (1 Point) or 50%+ (2 Points) of projected energy use.	3
	706.4	**Pumps** ● Electronically controlled variable-speed pumps are installed. ● Sump pumps with electrically commutated motors or permanent split capacitor motors are installed.	5
	706.6	**Parking Garage Efficiency** Structured Parking Garages are designed to require no mechanical ventilation for fresh air.	2
	706.7	**Grid-Interactive Thermal Storage System** A grid-interactive electric thermal storage system is installed for water and/or space heating and cooling.	2
	706.8	**Electrical Vehicle Charging Station** A Level 2 or 3 electric vehicle charging station is installed on the building site.	2
	706.9	**Automatic Demand Response** An automatic demand response system is installed that curtails energy usage upon a signal from the utility or energy service provider.	1

Water Efficiency

ICC/ASHRAE 700-2015 NGBS – Water Efficiency

The "Water Efficiency" practice category is focused on conserving and efficiently using one of the world's most important resources: water. From rainwater harvesting to wastewater treatment systems, this category provides a broad selection of water efficiency strategies specifically targeted towards residential design, construction and operation.

Mandatory Practices:

- If a project is seeking Gold or Emerald Certification, all water closets and urinals must have a maximum flow rate of 1.28gpm, regardless of dual-flush capabilities.
- If a landscaping system is installed, an irrigation plan must be executed by a qualified professional certified by a WaterSense labeled system (or equal).

Minimum Point Requirements:

Table 12: Water Efficiency Minimum Point Requirements

Green Building Categories	Minimum Points Required			
	BRONZE	SILVER	GOLD	EMERALD
Water Efficiency	25	39	69	97

Enterprise Green Communities – Water Conversation

The "Water Conservation" category is focused on reducing the use of water in the home through conservation measures, and encouraging the use of alternative water sources. Like other categories, Enterprise also encourages the project team to consider resiliency during design, and how the residents will have access to potable water during emergencies.

Mandatory Practices:

- Install water-conserving fixtures in all units and any common facilities:
  - Toilets: WaterSense-labeled and 1.28 gpf max
  - Urinals: WaterSense-labeled and 0.5 gpf max
  - Showerheads: WaterSense-labeled and 2.0 gpm max
  - Kitchen Faucets: 2.0 gpm max
  - Lavatory Faucets: WaterSense-labeled and 1.5 gpm max
- For all single-family homes and all dwelling units in buildings three stories or

fewer, the static service pressure must not exceed 60 psi

Minimum Point Requirements:

Enterprise does not require projects to obtain a minimum number of points per category.

Analysis

Both the NGBS and Enterprise focus on reducing water use of the home through increased efficiency and conservation, as well as encouraging the use of alternative water sources. Enterprise has a straight forward mandatory requirement of meeting the maximum flush and flow rates for indoor fixtures, as well as WaterSense labeling. Additional points can be earned for selecting fixtures with even more increased efficiencies.

The NGBS does not mandate fixture flush and flow rates, with the exception of water closets for projects seeking Gold or Emerald Certification. The one stand-alone mandatory requirement for water in the NGBS if that if irrigation is installed, it must be designed and executed by a qualified professional certified by a WaterSense labeled program.

For alternative water sources, the NGBS lists specific options for earning points, such as rainwater collection, engineering biological systems, and advanced wastewater treatment systems. Enterprise does not award specific practices, however does award points for projects that meet 10% or more of their water demand needs using rainwater and/or greywater.

Outdoors, Enterprise mandates efficient irrigation practices such as drip irrigation and controllers in the “Site Improvements” category, which correlate to the NGBS optional irrigation practices within this category (as well as the irrigation plan prepared by a qualified professional mentioned above).

Figure 9: Water Efficiency Practices

	ICC/ASHRAE 700-2015 NGBS		Points Possible
Water Efficiency	801.3	**Showerheads** ● Showerheads are less than 2.5 gpm. (4 pts for 1st shower, 1 pt for each added shower, 7 pts max) ● All showerheads are less than 2.5 gpm (6 added pts), less than 2.0 gpm (10 added pts), or less than 1.6 gpm (14 added pts). ● Showers can shut off flow without affecting temperature. (1 pt each, 3 pts max)	24
	801.4	**Lavatory Faucets** ● Bathroom faucets are 1.5 gpm or less. (1 pt each, 3 pts max) ● All bathroom faucets are 1.5 gpm or less. (6 added pts) ● Self-closing valve, motion sensor, metered, or petal-activated faucet installed. (1 pt each, 3 pts max)	12
	801.5	**Water Closets and Urinals** ● Water closet have a flush volume of 1.28 gal or less. (2 pts per fixture, 6 pts max) ● All water closets have a flush volume of 1.28 gal or less. (11 pts, and **Mandatory** for Gold or Emerald Certification) ● Water closets have flush volume of 1.2 gal or less. (1 added pt per toilet, 3 pts max) ● One or more urinals have flush volume of 0.5 gal or less. (1 added pt) ● One or more toilets and/or urinals are composting or waterless. (6 added pts)	19
	801.3	**Showerheads** See details above.	See above
	801.4	**Lavatory Faucets** See details above.	See above
	801.5	**Water Closets and Urinals** See details above.	See above
	801.1	**Indoor Hot Water Usage** Max volume from water heater to furthest fixture is 1 gallons [11 pts] , 0.5 gallons [17 pts], or 0.25 gallons [29 pts]	29
	801.7.1	**Rainwater Collection and Distribution (Irrigation)** ● Rainwater is diverted to landscape without storage. (5 pts) ● Storage of rainwater provided: 50-499 gal (5 pts), 500-2499 gal (10 pts), 2500 gal or larger designed by ARCSA professional. (15 pts) ● All irrigation met by rainwater capture, designed by ARCSA professional. (25 pts)	25
	801.7.2	**Rainwater Collection and Distribution (Domestic)** ● Rainwater is used to supply indoor appliance(s) or fixture(s). (5 pts each, 25 max) ● Rainwater used for total domestic demand. (25 pts)	25
	802.1.1	**Reclaimed , Gray , or Recycled Water (Domestic)** Water closet flushed by reclaimed, gray, or recycled water. (5 pts each, 20 max)	20
	802.1.2	**Reclaimed , Gray , or Recycled Water (Irrigation)** Irrigation demand is met by reclaimed, gray or recycled water on-site.	10
	802.4	**Engineered Biological System or Intensive Bioremediation System** One of these systems are installed and treated water is used on-site.	20
	802.6	**Advanced Wastewater Treatment System** Advanced wastewater (aerobic) treatment system installed and treated water used on-site. (20 pts)	20

	Enterprise Green Communities	Points Possible
Water Conservation	4.1 **Water-Conserving Fixtures** Install water-conserving fixtures in all units and any common facilities with the following specifications. *Toilets:* WaterSense-labeled and 1.28 gpf *Urinals:* WaterSense-labeled and 0.5 gpf *Showerheads:* WaterSense-labeled and 2.0 gpm *Kitchen Faucets:* 2.0 gpm *Lavatory Faucets:* WaterSense-labeled and 1.5 gpm *Note:* All single-family homes and all dwelling units in buildings three stories or fewer, the static service pressure must not exceed 60 psi.	**Mandatory**
	4.2 **Advanced Water Conservation** Install water-conserving fixtures in all units and any common facilities with the following specifications. *Toilets:* WaterSense-labeled and 1.1 gpf [1 point] *Showerheads:* WaterSense-labeled and 1.5 gpm [1 point] *Kitchen Faucets:* 1.5 gpm AND *Lavatory Faucets:* WaterSense-labeled and 1.0 gpm [1 point] -OR- Reduce total indoor water consumption by at least 30% compared to the baseline indoor water consumption chart, through a combination of your choosing. [6 points maximum]	6
	4.4 **Efficient Plumbing Layout and Design** The hot water delivery system shall store no more than 0.5 gallons of water in any piping/manifold between the hot water source and any hot water fixture.	4
	4.5 **Water Reuse** Harvest, treat, and reuse rainwater and/or greywater to meet a portion of the project's total water needs: 10% reuse [3 points]; 20% reuse [4 points]; 30% reuse [5 points]; 40% reuse [6 points]	6

Figure 9: Water Efficiency Practices

Other NGBS Water Efficiency Practices

		ICC/ASHRAE 700-2015 NGBS	Points Possible
Water Efficiency	801.1	**Indoor Hot Water Usage** ● Demand controlled hot water priming pump installed on main supply pipe, and volume in circulation loop from heater to furthest fixture is 1 gal. (39 pts) ● Central hot water recirculation system implemented in multifamily. (9 pts) ● Tankless water heater w/ at least 0.5 gal storage or ramp up to 100F in 5 secs installed. (4 added pts)	43
	801.2	**Water-Conserving Appliances** ENERGY STAR or equivalent water-conserving dishwasher (2 pts) and/or washing machine (13 pts) or washing machine with a water factor of 4.0 or less (24 pts) are installed.	24
	801.6	**Irrigation Systems** ● Sprinkler nozzles have a max precipitation rate of 1.2 in/hr, tested by a third-party laboratory. (6 pts) ● Drip irrigation is installed in landscapes beds, turf, and zone specs show plant type and water need for each emitter. (13 pts max) ● **Mandatory:** Irrigation plans must be executed by a qualified professional certified by WaterSense labeled program. ● Either no irrigation (& corresponding landscape plan), irrigation. controller with rain sensor/soil moisture sensor installed, or irrigation. controller labeled by WaterSense installed. (15 pts max) ● Irrigation zones use pressure regulation. (3 pts)	**Mandatory** + 26 Points
	801.8	**Sediment Filters** Water filter installed to reduce sediment and protecting plumbing for entire building or dwelling unit(s).	1
	802.2	**Reclaimed Water, Graywater, or Rainwater Pre-Piping** These systems are rough-plumbed into building for future use. (3 pts per system, 9 max)	9
	802.3	**Automatic Shutoff Water Device** One of the following installed: excess water flow automatic shutoff or leak detection system with automatic shutoff.	2
	802.5	**Recirculating Humidifier** Where humidifier required, a recirculating humidifier is used in lieu of flow through type.	1

Other Enterprise Green Communities Water Efficiency Practices

		Enterprise Green Communities	Points Possible
Water Conservation	4.3	**Leaks and Water Metering** Conduct pressure-loss tests and visual inspections to determine if there are any leaks; fix any leaks found; and meter or submeter each dwelling unit with a technology capable of tracking water use. Separately meter outdoor water consumption.	4
	4.6	**Access to Potable Water During Emergencies** Provide residents with access to potable water in the event of an emergency that disrupts normal access to potable water, including disruptions related to power outages that prevent pumping water to upper floors of multifamily buildings or pumping of water from on-site wells. See available options in Enterprise Criteria.	8

Indoor Environmental Quality

ICC/ASHRAE 700-2015 NGBS – Indoor Environmental Quality

The "Indoor Environmental Quality" practice category is focused on providing clean air and a higher quality environment inside the home. This encompasses a multitude of interior components from floor to ceiling, including how fireplaces are installed and which types of paint are used. Ventilation is the primary focus, with a number of ventilation requirements and points being available for strategies such as cross-ventilation and MERV 14 filters.

Mandatory Practices:

- Bathrooms are vented to the outdoors
- Clothes dryers (except listed and labeled condensing ductless dryers) are vented to the outdoors
- Carbon monoxide alarms are provided in accordance with the IRC Section R315.
- Gas-fired fireplaces and direct heating equipment within dwelling units are installed in accordance with applicable code and vented to the outdoors
- Solid fuel-burning appliances must be code compliant and in accordance with the requirements listed in Figure 10
- Doors are installed in common walls between garage and conditioned space are sealed and gasketed
- A continuous air barrier is provided in the wall between the garage and conditioned space.
- Radon control measures are mandatory in Zone 1
- The living space is sealed in accordance with Section 701.4.3.1 (Building Thermal Envelope Air Sealing) to prevent unwanted contaminants
- Structural plywood is compliant DOC PS and/or DOC PS 2. OSB meets DOC PS 2
- Wall-to-wall carpeting is not installed near water closets and bathing fixtures

Minimum Point Requirements:

Table 13: Indoor Environmental Quality Minimum Point Requirements

Green Building Categories	Minimum Points Required			
	BRONZE	SILVER	GOLD	EMERALD
Indoor Environmental Quality	25	42	69	97

Enterprise Green Communities – Healthy Living Environment

The "Healthy Living Environment" practice category is focused on providing clean air

and reducing the occupants' exposure to possible indoor pollutants, including installing proper ventilation, venting any combustion appliances installed within the conditioned space, and ensuring radon mitigation. This category has the most mandatory practices within the Enterprise criterion, further emphasizing Enterprises focus on providing a healthy living space for residents.

Mandatory Practices:

- Install an exhaust system in each kitchen and bathroom, and a whole unit mechanical ventilation system
- All systems and associated ductwork must be installed per manufactures' recommendations.
- All individual bathroom fans must be ENERGY STAR labeled, wired to turn on with the light switch, and equipped with a humidistat sensor, timer or other control
- If using central ventilation systems with rooftop fans, each rooftop fan must be direct-drive and variable-speed with speed controller mounted near the fan. Fans with design CFM 300-2000 must also have an ECM motor
- Clothes dryers must be exhausted directly to the outdoors using rigid-type ductwork (except for condensing dryers)
- Combustion appliances installed within the conditioned space must be power-vented or direct-vented
- Install one hard-wired carbon monoxide (CO) alarm with battery backup function for each sleeping zone
- Install a vapor retarder per requirements in Figure 10
- Provide drainage for roof and wall systems per requirements in Figure 10
- If located in a EPA Zone 1 area for radon, install passive radon-resistant features
- Isolate any garage space from the conditioned space with continuous air barrier and sealed doors. Install a carbon monoxide alarm
- Seal all wall, floor, and joint penetrations with low-VOC caulking or other appropriate nontoxic sealing methods to prevent pest entry
- Provide adequate drainage for water heaters that includes drains or catch pans with drains piped to the exterior of the dwelling.
- Encourage physical activity through positioning of a staircase or another design strategy

Minimum Point Requirements:

Enterprise does not require projects to obtain a minimum number of points per category.

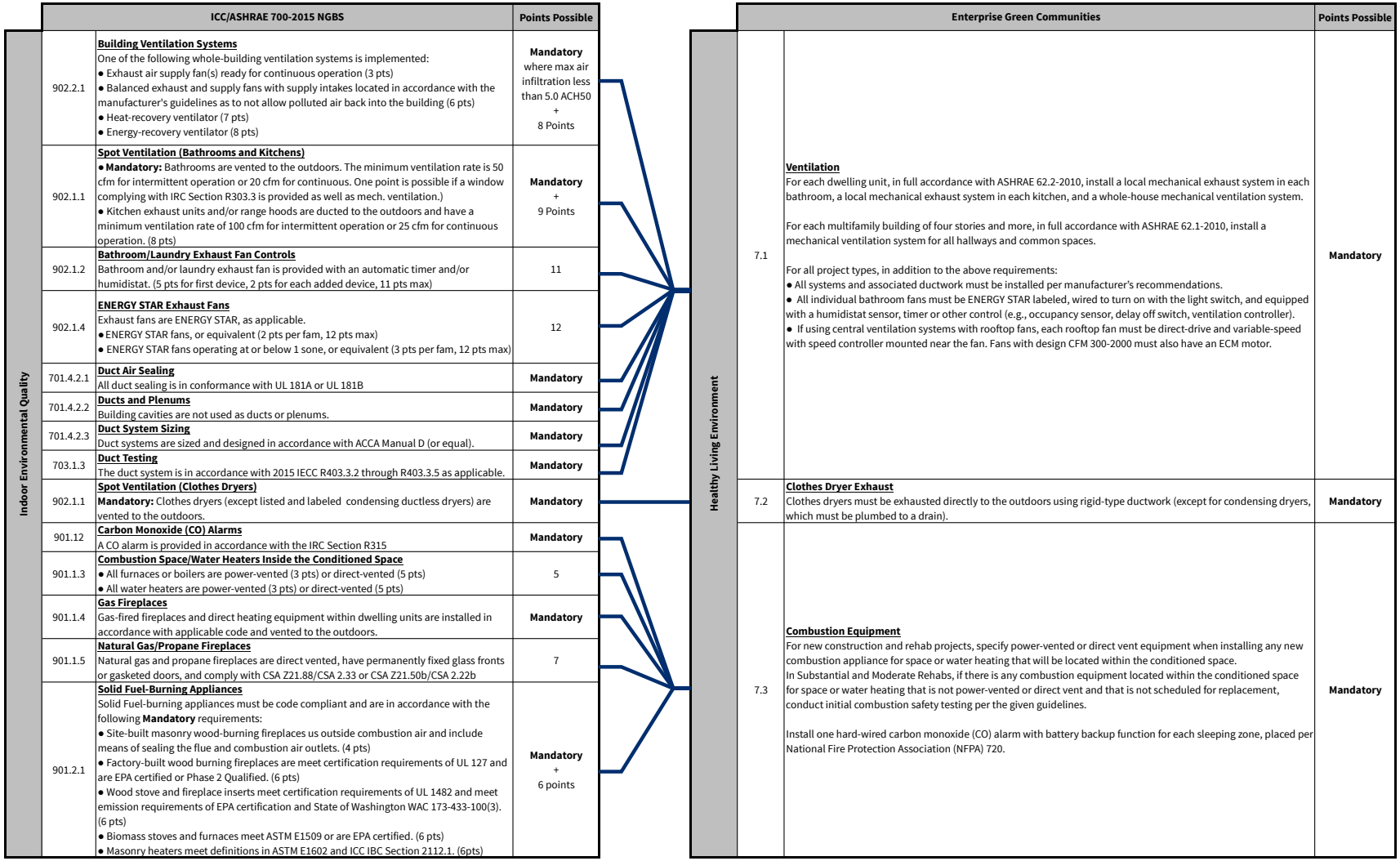
Analysis

As observed in Figure 10, both systems have multiple mandatory and optional practices related to whole-building, spot and combustion ventilation. When it comes to ventilation, the “Ventilation” practice in Enterprise contains multiple mandatory sub-practices which correlate with separate NGBS practices, most of which are also mandatory. This is also the case for combustion equipment located in the home.

As noted in the Materials and Resources section above, a number of Enterprise practices involving vapor retarder strategies and water drainage are located within the “Healthy Living Environment” category, while their corresponding NGBS practices are located within the “Resource Efficiency” category. Similarly, Universal Design Elements are listed in the “Resource Efficiency” category in the NGBS, but are listed here for Enterprise. This highlights the different views of the two programs when it comes to the same practice. Where Enterprise is more focused on the health and well-being of the occupants by ensuring mold-free and accessible housing, the NGBS is focused on reduced material waste in not having to repair and replace defective and moldy components, and not having too retrofit a home for a future resident requiring more accessibility features.

Both rating systems encourage non-smoking policies, as well as mandate radon mitigation strategies for EPA Zone 1 areas, proper sealing of the conditioned space from contaminants and pests, and isolation of any garage from the conditioned space.

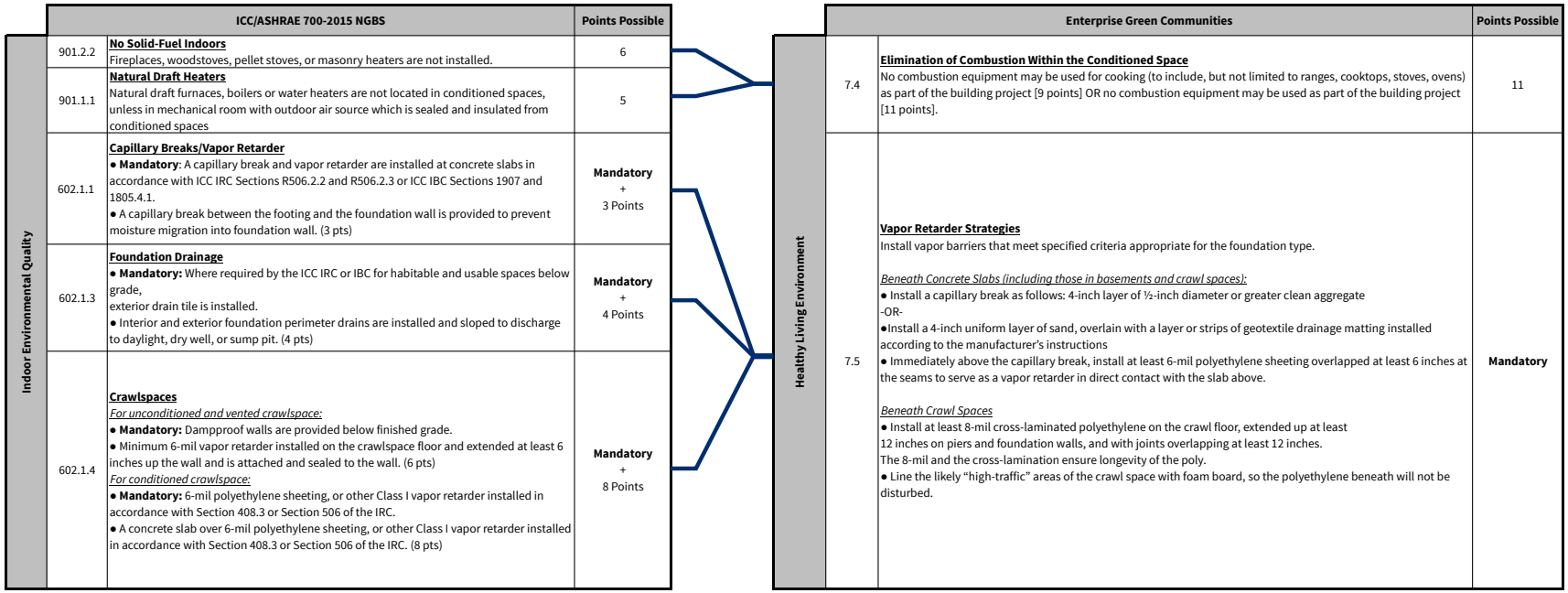
Figure 9: Indoor Environmental Quality Green Practices



Indoor Environmental Quality		ICC/ASHRAE 700-2015 NGBS	Points Possible
	902.2.1	**Building Ventilation Systems** One of the following whole-building ventilation systems is implemented: ● Exhaust air supply fan(s) ready for continuous operation (3 pts) ● Balanced exhaust and supply fans with supply intakes located in accordance with the manufacturer's guidelines as to not allow polluted air back into the building (6 pts) ● Heat-recovery ventilator (7 pts) ● Energy-recovery ventilator (8 pts)	**Mandatory** where max air infiltration less than 5.0 ACH50 + 8 Points
	902.1.1	**Spot Ventilation (Bathrooms and Kitchens)** ● **Mandatory:** Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm for intermittent operation or 20 cfm for continuous. One point is possible if a window complying with IRC Section R303.3 is provided as well as mech. ventilation.) ● Kitchen exhaust units and/or range hoods are ducted to the outdoors and have a minimum ventilation rate of 100 cfm for intermittent operation or 25 cfm for continuous operation. (8 pts)	**Mandatory** + 9 Points
	902.1.2	**Bathroom/Laundry Exhaust Fan Controls** Bathroom and/or laundry exhaust fan is provided with an automatic timer and/or humidistat. (5 pts for first device, 2 pts for each added device, 11 pts max)	11
	902.1.4	**ENERGY STAR Exhaust Fans** Exhaust fans are ENERGY STAR, as applicable. ● ENERGY STAR fans, or equivalent (2 pts per fam, 12 pts max) ● ENERGY STAR fans operating at or below 1 sone, or equivalent (3 pts per fam, 12 pts max)	12
	701.4.2.1	**Duct Air Sealing** All duct sealing is in conformance with UL 181A or UL 181B	**Mandatory**
	701.4.2.2	**Ducts and Plenums** Building cavities are not used as ducts or plenums.	**Mandatory**
	701.4.2.3	**Duct System Sizing** Duct systems are sized and designed in accordance with ACCA Manual D (or equal).	**Mandatory**
	703.1.3	**Duct Testing** The duct system is in accordance with 2015 IECC R403.3.2 through R403.3.5 as applicable.	**Mandatory**
	902.1.1	**Spot Ventilation (Clothes Dryers)** **Mandatory:** Clothes dryers (except listed and labeled condensing ductless dryers) are vented to the outdoors.	**Mandatory**
	901.12	**Carbon Monoxide (CO) Alarms** A CO alarm is provided in accordance with the IRC Section R315	**Mandatory**
	901.1.3	**Combustion Space/Water Heaters Inside the Conditioned Space** ● All furnaces or boilers are power-vented (3 pts) or direct-vented (5 pts) ● All water heaters are power-vented (3 pts) or direct-vented (5 pts)	5
	901.1.4	**Gas Fireplaces** Gas-fired fireplaces and direct heating equipment within dwelling units are installed in accordance with applicable code and vented to the outdoors.	**Mandatory**
	901.1.5	**Natural Gas/Propane Fireplaces** Natural gas and propane fireplaces are direct vented, have permanently fixed glass fronts or gasketed doors, and comply with CSA Z21.88/CSA 2.33 or CSA Z21.50b/CSA 2.22b	7
	901.2.1	**Solid Fuel-Burning Appliances** Solid Fuel-burning appliances must be code compliant and are in accordance with the following **Mandatory** requirements: ● Site-built masonry wood-burning fireplaces us outside combustion air and include means of sealing the flue and combustion air outlets. (4 pts) ● Factory-built wood burning fireplaces are meet certification requirements of UL 127 and are EPA certified or Phase 2 Qualified. (6 pts) ● Wood stove and fireplace inserts meet certification requirements of UL 1482 and meet emission requirements of EPA certification and State of Washington WAC 173-433-100(3). (6 pts) ● Biomass stoves and furnaces meet ASTM E1509 or are EPA certified. (6 pts) ● Masonry heaters meet definitions in ASTM E1602 and ICC IBC Section 2112.1. (6pts)	**Mandatory** + 6 points

Healthy Living Environment		Enterprise Green Communities	Points Possible
	7.1	**Ventilation** For each dwelling unit, in full accordance with ASHRAE 62.2-2010, install a local mechanical exhaust system in each bathroom, a local mechanical exhaust system in each kitchen, and a whole-house mechanical ventilation system. For each multifamily building of four stories and more, in full accordance with ASHRAE 62.1-2010, install a mechanical ventilation system for all hallways and common spaces. For all project types, in addition to the above requirements: ● All systems and associated ductwork must be installed per manufacturer's recommendations. ● All individual bathroom fans must be ENERGY STAR labeled, wired to turn on with the light switch, and equipped with a humidistat sensor, timer or other control (e.g., occupancy sensor, delay off switch, ventilation controller). ● If using central ventilation systems with rooftop fans, each rooftop fan must be direct-drive and variable-speed with speed controller mounted near the fan. Fans with design CFM 300-2000 must also have an ECM motor.	**Mandatory**
	7.2	**Clothes Dryer Exhaust** Clothes dryers must be exhausted directly to the outdoors using rigid-type ductwork (except for condensing dryers, which must be plumbed to a drain).	**Mandatory**
	7.3	**Combustion Equipment** For new construction and rehab projects, specify power-vented or direct vent equipment when installing any new combustion appliance for space or water heating that will be located within the conditioned space. In Substantial and Moderate Rehabs, if there is any combustion equipment located within the conditioned space for space or water heating that is not power-vented or direct vent and that is not scheduled for replacement, conduct initial combustion safety testing per the given guidelines. Install one hard-wired carbon monoxide (CO) alarm with battery backup function for each sleeping zone, placed per National Fire Protection Association (NFPA) 720.	**Mandatory**

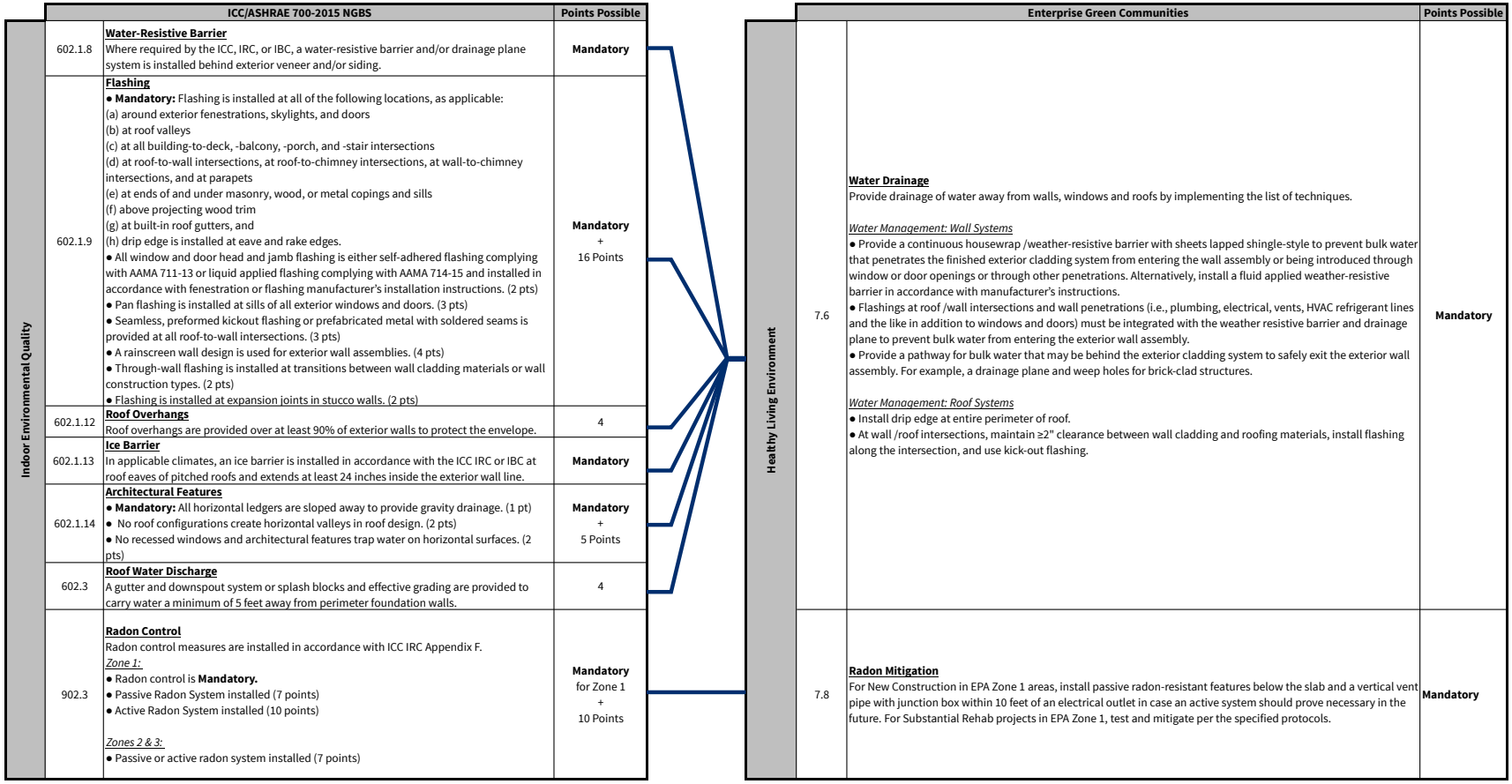
Figure 9: Indoor Environmental Quality Green Practices



	ICC/ASHRAE 700-2015 NGBS		Points Possible
Indoor Environmental Quality	901.2.2	**No Solid-Fuel Indoors** Fireplaces, woodstoves, pellet stoves, or masonry heaters are not installed.	6
	901.1.1	**Natural Draft Heaters** Natural draft furnaces, boilers or water heaters are not located in conditioned spaces, unless in mechanical room with outdoor air source which is sealed and insulated from conditioned spaces	5
	602.1.1	**Capillary Breaks/Vapor Retarder** ● **Mandatory**: 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. ● A capillary break between the footing and the foundation wall is provided to prevent moisture migration into foundation wall. (3 pts)	**Mandatory** + 3 Points
	602.1.3	**Foundation Drainage** ● **Mandatory:** Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed. ● Interior and exterior foundation perimeter drains are installed and sloped to discharge to daylight, dry well, or sump pit. (4 pts)	**Mandatory** + 4 Points
	602.1.4	**Crawlspaces** *For unconditioned and vented crawlspace:* ● **Mandatory:** Dampproof walls are provided below finished grade. ● Minimum 6-mil vapor retarder installed on the crawlspace floor and extended at least 6 inches up the wall and is attached and sealed to the wall. (6 pts) *For conditioned crawlspace:* ● **Mandatory:** 6-mil polyethylene sheeting, or other Class I vapor retarder installed in accordance with Section 408.3 or Section 506 of the IRC. ● A concrete slab over 6-mil polyethylene sheeting, or other Class I vapor retarder installed in accordance with Section 408.3 or Section 506 of the IRC. (8 pts)	**Mandatory** + 8 Points

	Enterprise Green Communities		Points Possible
Healthy Living Environment	7.4	**Elimination of Combustion Within the Conditioned Space** No combustion equipment may be used for cooking (to include, but not limited to ranges, cooktops, stoves, ovens) as part of the building project [9 points] OR no combustion equipment may be used as part of the building project [11 points].	11
	7.5	**Vapor Retarder Strategies** Install vapor barriers that meet specified criteria appropriate for the foundation type. *Beneath Concrete Slabs (including those in basements and crawl spaces):* ● Install a capillary break as follows: 4-inch layer of ½-inch diameter or greater clean aggregate -OR- ●Install a 4-inch uniform layer of sand, overlain with a layer or strips of geotextile drainage matting installed according to the manufacturer's instructions ● Immediately above the capillary break, install at least 6-mil polyethylene sheeting overlapped at least 6 inches at the seams to serve as a vapor retarder in direct contact with the slab above. *Beneath Crawl Spaces* ● Install at least 8-mil cross-laminated polyethylene on the crawl floor, extended up at least 12 inches on piers and foundation walls, and with joints overlapping at least 12 inches. The 8-mil and the cross-lamination ensure longevity of the poly. ● Line the likely "high-traffic" areas of the crawl space with foam board, so the polyethylene beneath will not be disturbed.	**Mandatory**

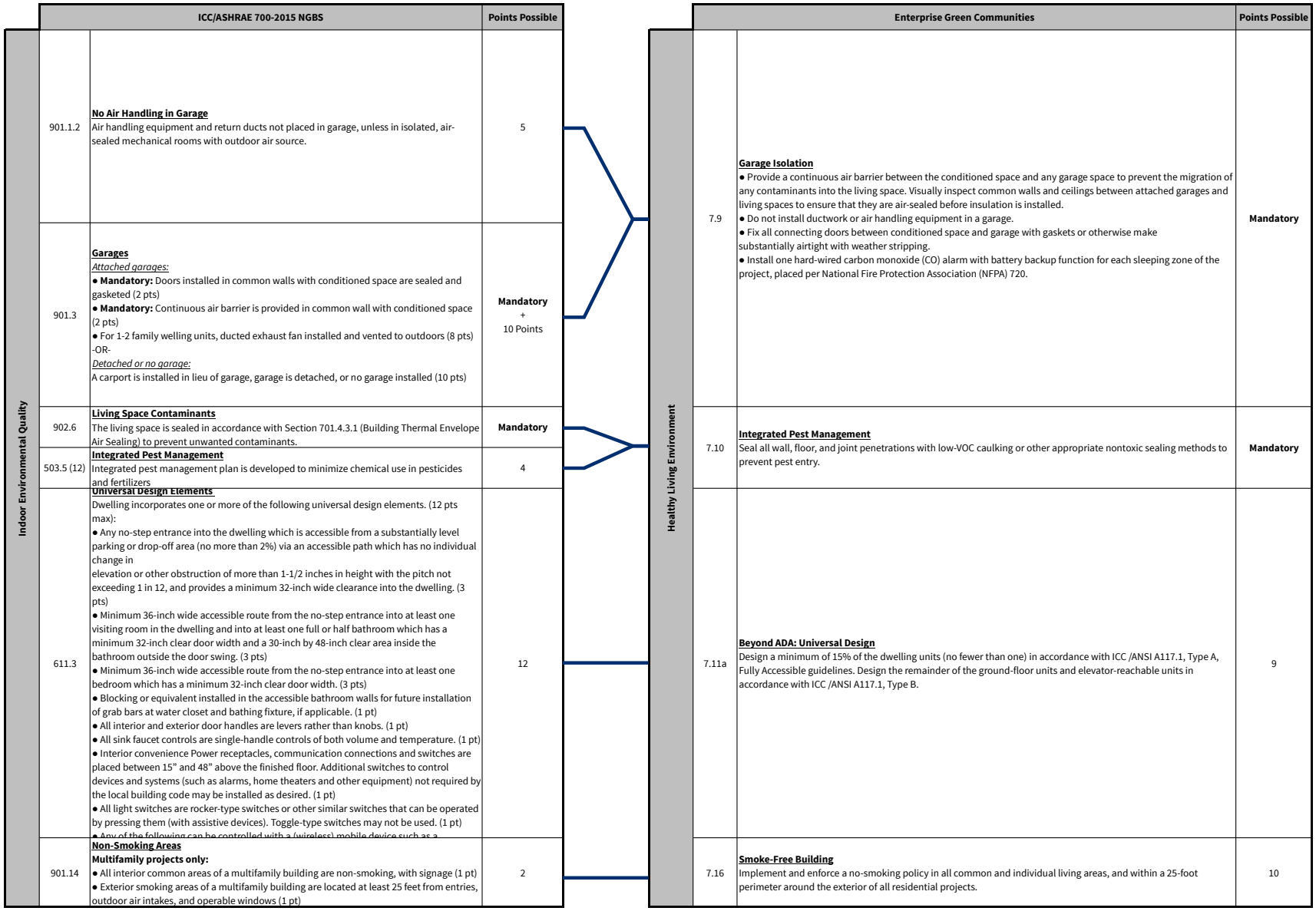
Figure 9: Indoor Environmental Quality Green Practices



Indoor Environmental Quality		ICC/ASHRAE 700-2015 NGBS	Points Possible
	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.	**Mandatory**
	602.1.9	**Flashing** ● **Mandatory:** 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. ● All window and door head and jamb flashing is either self-adhered flashing complying with AAMA 711-13 or liquid applied flashing complying with AAMA 714-15 and installed in accordance with fenestration or flashing manufacturer's installation instructions. (2 pts) ● Pan flashing is installed at sills of all exterior windows and doors. (3 pts) ● Seamless, preformed kickout flashing or prefabricated metal with soldered seams is provided at all roof-to-wall intersections. (3 pts) ● A rainscreen wall design is used for exterior wall assemblies. (4 pts) ● Through-wall flashing is installed at transitions between wall cladding materials or wall construction types. (2 pts) ● Flashing is installed at expansion joints in stucco walls. (2 pts)	**Mandatory** + 16 Points
	602.1.12	**Roof Overhangs** Roof overhangs are provided over at least 90% of exterior walls to protect the envelope.	4
	602.1.13	**Ice Barrier** In applicable climates, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves of pitched roofs and extends at least 24 inches inside the exterior wall line.	**Mandatory**
	602.1.14	**Architectural Features** ● **Mandatory:** All horizontal ledgers are sloped away to provide gravity drainage. (1 pt) ● No roof configurations create horizontal valleys in roof design. (2 pts) ● No recessed windows and architectural features trap water on horizontal surfaces. (2 pts)	**Mandatory** + 5 Points
	602.3	**Roof Water Discharge** A gutter and downspout system or splash blocks and effective grading are provided to carry water a minimum of 5 feet away from perimeter foundation walls.	4
	902.3	**Radon Control** Radon control measures are installed in accordance with ICC IRC Appendix F. *Zone 1:* ● Radon control is **Mandatory.** ● Passive Radon System installed (7 points) ● Active Radon System installed (10 points) *Zones 2 & 3:* ● Passive or active radon system installed (7 points)	**Mandatory** for Zone 1 + 10 Points

Healthy Living Environment		Enterprise Green Communities	Points Possible
	7.6	**Water Drainage** Provide drainage of water away from walls, windows and roofs by implementing the list of techniques. *Water Management: Wall Systems* ● Provide a continuous housewrap /weather-resistive barrier with sheets lapped shingle-style to prevent bulk water that penetrates the finished exterior cladding system from entering the wall assembly or being introduced through window or door openings or through other penetrations. Alternatively, install a fluid applied weather-resistive barrier in accordance with manufacturer's instructions. ● Flashings at roof /wall intersections and wall penetrations (i.e., plumbing, electrical, vents, HVAC refrigerant lines and the like in addition to windows and doors) must be integrated with the weather resistive barrier and drainage plane to prevent bulk water from entering the exterior wall assembly. ● Provide a pathway for bulk water that may be behind the exterior cladding system to safely exit the exterior wall assembly. For example, a drainage plane and weep holes for brick-clad structures. *Water Management: Roof Systems* ● Install drip edge at entire perimeter of roof. ● At wall /roof intersections, maintain ≥2" clearance between wall cladding and roofing materials, install flashing along the intersection, and use kick-out flashing.	**Mandatory**
	7.8	**Radon Mitigation** For New Construction in EPA Zone 1 areas, install passive radon-resistant features below the slab and a vertical vent pipe with junction box within 10 feet of an electrical outlet in case an active system should prove necessary in the future. For Substantial Rehab projects in EPA Zone 1, test and mitigate per the specified protocols.	**Mandatory**

Figure 9: Indoor Environmental Quality Green Practices



Indoor Environmental Quality			
	ICC/ASHRAE 700-2015 NGBS		**Points Possible**
	901.1.2	**No Air Handling in Garage** Air handling equipment and return ducts not placed in garage, unless in isolated, air-sealed mechanical rooms with outdoor air source.	5
	901.3	**Garages** *Attached garages:* ● **Mandatory:** Doors installed in common walls with conditioned space are sealed and gasketed (2 pts) ● **Mandatory:** Continuous air barrier is provided in common wall with conditioned space (2 pts) ● For 1-2 family welling units, ducted exhaust fan installed and vented to outdoors (8 pts) -OR- *Detached or no garage:* A carport is installed in lieu of garage, garage is detached, or no garage installed (10 pts)	**Mandatory** + 10 Points
	902.6	**Living Space Contaminants** The living space is sealed in accordance with Section 701.4.3.1 (Building Thermal Envelope Air Sealing) to prevent unwanted contaminants.	**Mandatory**
	503.5 (12)	**Integrated Pest Management** Integrated pest management plan is developed to minimize chemical use in pesticides and fertilizers	4
	611.3	**Universal Design Elements** Dwelling incorporates one or more of the following universal design elements. (12 pts max): ● Any no-step entrance into the dwelling which is accessible from a substantially level parking or drop-off area (no more than 2%) via an accessible path which has no individual change in elevation or other obstruction of more than 1-1/2 inches in height with the pitch not exceeding 1 in 12, and provides a minimum 32-inch wide clearance into the dwelling. (3 pts) ● Minimum 36-inch wide accessible route from the no-step entrance into at least one visiting room in the dwelling and into at least one full or half bathroom which has a minimum 32-inch clear door width and a 30-inch by 48-inch clear area inside the bathroom outside the door swing. (3 pts) ● Minimum 36-inch wide accessible route from the no-step entrance into at least one bedroom which has a minimum 32-inch clear door width. (3 pts) ● Blocking or equivalent installed in the accessible bathroom walls for future installation of grab bars at water closet and bathing fixture, if applicable. (1 pt) ● All interior and exterior door handles are levers rather than knobs. (1 pt) ● All sink faucet controls are single-handle controls of both volume and temperature. (1 pt) ● Interior convenience Power receptacles, communication connections and switches are placed between 15" and 48" above the finished floor. Additional switches to control devices and systems (such as alarms, home theaters and other equipment) not required by the local building code may be installed as desired. (1 pt) ● All light switches are rocker-type switches or other similar switches that can be operated by pressing them (with assistive devices). Toggle-type switches may not be used. (1 pt) ● Any of the following can be controlled with a (wireless) mobile device such as a	12
	901.14	**Non-Smoking Areas** **Multifamily projects only:** ● All interior common areas of a multifamily building are non-smoking, with signage (1 pt) ● Exterior smoking areas of a multifamily building are located at least 25 feet from entries, outdoor air intakes, and operable windows (1 pt)	2

Healthy Living Environment			
	Enterprise Green Communities		**Points Possible**
	7.9	**Garage Isolation** ● Provide a continuous air barrier between the conditioned space and any garage space to prevent the migration of any contaminants into the living space. Visually inspect common walls and ceilings between attached garages and living spaces to ensure that they are air-sealed before insulation is installed. ● Do not install ductwork or air handling equipment in a garage. ● Fix all connecting doors between conditioned space and garage with gaskets or otherwise make substantially airtight with weather stripping. ● Install one hard-wired carbon monoxide (CO) alarm with battery backup function for each sleeping zone of the project, placed per National Fire Protection Association (NFPA) 720.	**Mandatory**
	7.10	**Integrated Pest Management** Seal all wall, floor, and joint penetrations with low-VOC caulking or other appropriate nontoxic sealing methods to prevent pest entry.	**Mandatory**
	7.11a	**Beyond ADA: Universal Design** Design a minimum of 15% of the dwelling units (no fewer than one) in accordance with ICC /ANSI A117.1, Type A, Fully Accessible guidelines. Design the remainder of the ground-floor units and elevator-reachable units in accordance with ICC /ANSI A117.1, Type B.	9
	7.16	**Smoke-Free Building** Implement and enforce a no-smoking policy in all common and individual living areas, and within a 25-foot perimeter around the exterior of all residential projects.	10

Figure 9: Indoor Environmental Quality Green Practices

Other NGBS Indoor Environmental Quality Practices

		ICC/ASHRAE 700-2015 NGBS	Points Possible
Indoor Environmental Quality	901.1.6	**Electric heat pump air handler** *Path 1:* Install the heat pump in an unconditioned space (2 pts) *Path 2:* Install the heat pump in a conditioned space (5 pts)	5
	901.4	**Wood Materials** 85% or more of material in a wood product group (wood structural panels, composite trim and doors, custom woodwork, etc.) meets the following: ● **Mandatory:** Structural plywood (floors, walls, roof sheathing) is compliant DOC PS and/or DOC PS 2. OSB meets DOC PS 2. ● Particleboard and MDF is labeled CPA A208.1 and CPA A208.2. (2 pts) ● Hardwood plywood meets HPVA HP-1. (2 pts) ● Particleboard, MDF, or hardwood plywood meets CPA 4. (3 pts) ● Composite wood or agrifiber contains no urea-formaldehyde or meets CARB Composite Wood Air Toxic Contaminant Measure Standard. (4 pts) ● No emitting products used. (4 pts)	**Mandatory** + 10 Points
	901.5	**Cabinets** 85% or more installed cabinets are: ● Made of solid wood or non-formaldehyde emitting materials (5 pts) ● Composite wood meeting CARB Composite Wood Air Toxic Contaminant Measure Standard (3 pts)	5
	901.6	**Bathroom Carpets** Wall-to-wall carpeting is not installed near water closets and bathing fixtures	**Mandatory**
	901.7	**Floor Materials** Materials have emission levels in accordance with California Department of Public Health Standard Method v1.1. The following prefinished hard surfacing comply if no coatings or surface applications are applied: Ceramic tile, mineral-based flooring, clay masonry flooring, concrete masonry flooring, concrete flooring, metal flooring.	8
	901.8	**Wall Coverings** 85% of more wall coverings are in accordance with California Department of Public Health Standard Method v1.1.	4
	901.9	**Interior Architectural Coatings** 85% or more of architectural coatings meet one of the following: ● Low VOC, no VOC, or GreenSeal GS-11. (6 pts) -OR- ●Emission levels in accordance with California Department of Public Health Standard Method v1.1 (8pts)	8
	901.10	**Interior Adhesives and Sealants** 85% or more of interior adhesives and sealants meet one of the following: ● Emission are in accordance with California Department of Public Health Standard Method v1.1 (8pts) ● GreenSeal GS-36 (5 pts) ● SCAQMD Rule 1168 (5 pts)	8
	901.11	**Insulation** 85% or more of wall, ceiling, and floor insulation materials are in accordance with emission levels of California Department of Public Health Standard Method v1.1	4
	901.13	**Building Entrance Pollutants Control** ● Exterior grilles or mats installed in fixed manner, removable for cleaning (1 pt) ● Interior grilles or mats installed in fixed manner, removable for cleaning (1 pt)	2

Other Enterprise Healthy Living Environment Practices

		Enterprise Green Communities	Points Possible
Healthy Living Environment	7.7	**Mold Prevention: Water Heaters** Provide adequate drainage for water heaters that includes drains or catch pans with drains piped to the exterior of the dwelling.	**Mandatory**
	7.12	**Active Design: Promoting Physical Activity Within the Building** ● Provide at least one building stairway for everyday travel between floors, whether in the form of a grand staircase or fire stairs. Provide access to and from all floors via the staircase. ● For buildings without stairs, or in an instance when using stairs may be hazardous, incorporate at least one strategy inside the building designed to increase frequency and duration of physical activity.	**Mandatory**
	7.13	**Active Design: Staircases and Building Circulation** A staircase must be accessible and visible from the main lobby as well as visible within a 25-foot walking distance from any edge of lobby. Ensure that no turns or obstacles prevent visibility of or accessibility to the qualifying staircase from the lobby, and that the staircase is encountered before or at the same time as the elevators. From the corridor, accessible staircases should be made visible by: Providing transparent glazing of at least 10 square feet (1 square meter) at all stair doors or at a side light OR providing magnetic door holds on all doors leading to the stairs OR removing door enclosures / vestibules.	10
	7.14	**Interior and Outdoor Activity Spaces for Children and Adults** Provide an on-site dedicated recreation space with exercise or play opportunities for adults and /or children that is open and accessible to all residents. The space must be at least 400 square feet, include adult exercise and/or children's play equipment for a minimum of 5–10% of building occupants, and ensure minimum operational hours for use of 10 hours/day at least 3 days / week.	9
	7.15	**Reduce Lead Hazards in Pre-1978 Buildings (Rehabs Only)** Conduct lead risk assessment or inspection to identify lead hazards, then control for these per EPA or state / local laws and requirements.	**Mandatory**

Figure 9: Indoor Environmental Quality Green Practices

Other NGBS Indoor Environmental Quality Practices (cont'd)

	ICC/ASHRAE 700-2015 NGBS		Points Possible
Indoor Environmental Quality	902.1.3	**Exhaust Verification** Kitchen range, bathroom, and laundry exhaust are verified to air flow specification. Ventilation airflow at the point of exhaust is tested to a minimum of 100 cfm intermittent or 25 cfm continuous for kitchens, and 50 cfm intermittent or 20 cfm continuous for bathrooms and/or laundry.	8
	902.1.5	**Stack-Effect and Cross-Ventilation** Fenestration in spaces (except bathrooms, laundry rooms, and kitchens) are designed for stack effect or cross-ventilation in accordance with all of the following: ● Operable windows, skylights, or sliding glass doors with a total area of at least 15% of the conditioned floor area are provided. ● Insect screens are provided for all operable windows, skylights, and sliding glass doors. ● A minimum of two operable windows or sliding glass doors are placed in adjacent or opposite walls. If there is only one wall surface in that space exposed to the exterior, the minimum windows or sliding glass doors may be on the same wall.	3
	902.2.2	**Ventilation Testing** Ventilation airflow is tested to achieve design fan airflow at point of exhaust.	4
	902.2.3	**MERV 8-13 Filters** MERV filters 8 to 13 are installed on central forced air systems and are accessible	2
	902.2.4	**MERV 14 Filters** MERV filters 8 to 13 are installed on central forced air systems and are accessible	3
	902.4	**HVAC System Protection** Perform one the following: ● HVAC supply registers, return grilles, and rough-ins are covered during construction. ● Prior to occupancy, HVAC supply registers, return grilles, and duct terminations are inspected and vacuumed. Coils are inspected and cleaned.	3
	902.5	***Central Vacuum Systems*** Central vacuum system is installed and vented outside	3
	903.1	**Plumbing** *Path 1:* Cold water pipes in unconditioned spaces are insulated, R-4 or higher (2 pts) *Path 2:* Plumbing is not installed in unconditioned spaces. (5 pts)	5
	903.2	**Duct Installation** ● All HVAC ducts, plenums, & trunks located in conditioned space (1 pt) ● Option 1, as well as all HVAC ducts insulated to R4 or higher (3 pts)	3
	903.3	**Relative Humidity** In climate zones 1A, 2A, 3A, 4A, and 5A defined by the 2015 IECC, install equipment to maintain relative humidity at or below 60% using either additional dehumidification systems or a central HVAC system equipped with controls to operate in dehumidification mode	7
	904.1	**Indoor Air Quality During Construction** Wood is kept dry, sources of water infiltration of condensation is eliminated, accessible interior surfaces are dry a free of water damage	2
	904.2	**Indoor Air Quality Post Completion** Verification is performed that no mold, moisture, or dust issues per ASTM D7338 Sections 6.3 and 7.4.3	3
	905.1	**Humidity Monitoring System** A humidity monitoring system is installed that measures temperature and relative humidity. The system shall have two remote sensor units, minimum, with one inside the conditioned space and the other outside.	2
	905.2	**Kitchen Exhaust** The kitchen exhaust unit equals or exceeds 400 cfm, with make-up air provided	2

Operation, Maintenance, and Building Owner Education

ICC/ASHRAE 700-2015 NGBS – Operation, Maintenance, and Building Owner Education

The "Operation, Maintenance, and Building Owner Education" practice category is focused on providing information on the building's use, maintenance, and green components to all necessary parties. This includes mandatory operation and maintenance manual(s) and first-hand training of building owners or operators. Additional points can be earn for increasing public awareness of the building's green aspects as well as performing a post-occupancy performance assessment.

Mandatory Practices:

- Single-family: Provide a home owner's manual to responsible parties that complies with Figure 11
- Multifamily: Provide a building construction, operations and maintenance manual to responsible parties that complies with Figure 11
- Provide on-site training to responsible parties regarding operations and maintenance, control systems, and actions that will improve the environmental performance of the building.

Minimum Point Requirements:

Table 14: Operation, Maintenance, and Building Owner Education Minimum Point Requirements

Green Building Categories	Minimum Points Required			
	BRONZE	SILVER	GOLD	EMERALD
Operation, Maintenance, and Building Owner Education	8	10	11	12

Enterprise Green Communities – Operations, Maintenance and Resident Engagement

This category within the Enterprise Green Communities Criteria focuses on providing relevant information to all applicable parties regarding the green features of the home, including residents and possible maintenance staff. In addition to O&M and Resident Manuals, a walk-through orientation of the home with the occupants and staff is mandatory.

Mandatory Practices (in "Energy Efficiency" Category):

- For multifamily, develop a manual with thorough building operations and maintenance guidance and a complementary plan.
- Conduct a comprehensive walk-through and orientation for all residents, property manager(s) and buildings operations staff, reviewing features and

operations and maintenance procedures

- Provide a guide for homeowners and renters that explains the intent, benefits, use and maintenance of their home's green features and practices
- Provide a manual on emergency operations targeted toward operations and maintenance staff and other building-level personnel.
- For rental properties: Collect and monitor project energy and water performance data for 100% of owner-paid utilities and 15% of tenant-paid utilities for at least 5 years. Provide to Enterprise.
- For owner-occupied units: Collect and monitor energy and water performance data for easy access and review. Provide to Enterprise.

Minimum Point Requirements:

Enterprise does not require projects to obtain a minimum number of points per category.

Analysis

As observed in Figure 10, both systems have similar requirements for building owner education and providing appropriate information to responsible parties.

Enterprise requires that the project team provide an operations and maintenance manual to responsible parties, such as a building operator, as well as a residential manual for homeowners. See Figure 11 for more details. It also requires that the team conduct a walk-through of the home with the occupants, identifying all installed equipment and instructing how to use, operate, and maintain the equipment. It also requires an Emergency Management Manual be prepared, focusing on key information important to residents during natural disasters.

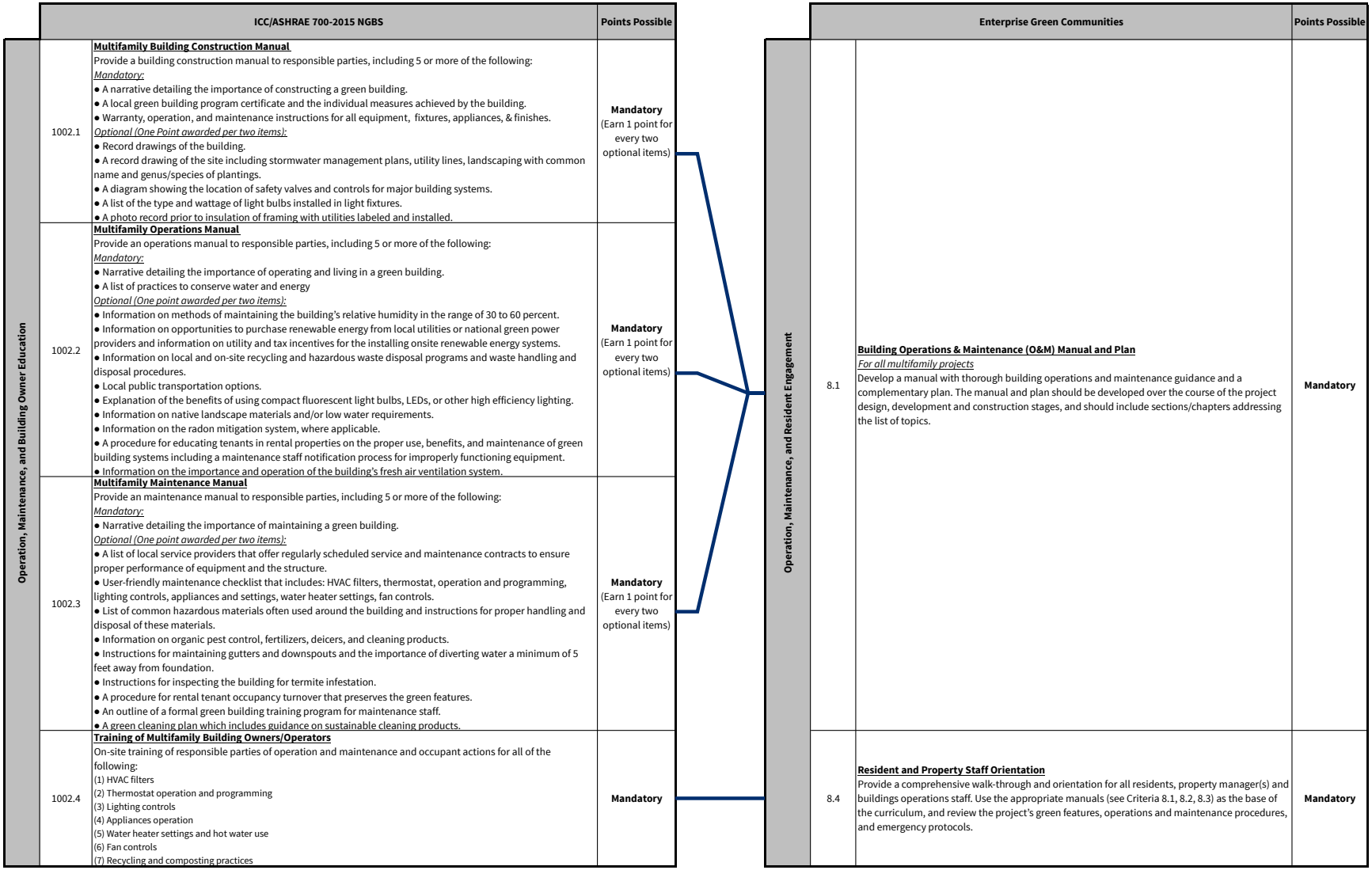
NGBS requires a home owner manual for single-family homes, or a series of operation and maintenance manuals for multifamily homes, to be provided to responsible parties. These manuals must include information such as appliance data sheets and lists of green features, but are also required to select a few additional practices to include from a provided list. Examples of these include information on opportunities to purchase renewable energy from local utilities, local and on-site recycling and hazardous waste disposal programs and waste handling and disposal procedures, organic pest control, fertilizers, deicers, and cleaning products.

Similar to Enterprise, on-site training of responsible parties is also mandatory in NGBS, and must include at minimum the operation and maintenance and occupant actions HVAC filters, thermostat operation and programming, lighting controls, appliances operation, water heater settings and hot water use, fan controls, recycling and composting practices.

NGBS also awards points for providing public education about the green features of the project, such as construction signs demonstrating how the project is designed and built in accordance with the National Green Building Standard.

Enterprise also mandates that projects collect and monitor energy and water performance for at least 5 years, and provides this information to Enterprise. With the NGBS, no such reporting is requires, however providing a verification system plan can earn a project additional points. The verification system provides methods for demonstrating continued energy and water savings that are determined from the building's initial year of occupancy of water and energy consumption, and comparing it to annualized consumption at least every four years.

Figure 11: Operation, Maintenance, and Building Owner Education Green Practices



	ICC/ASHRAE 700-2015 NGBS		Points Possible
Operation, Maintenance, and Building Owner Education	1002.1	**Multifamily Building Construction Manual** Provide a building construction manual to responsible parties, including 5 or more of the following: *Mandatory:* ● A narrative detailing the importance of constructing a green building. ● A local green building program certificate and the individual measures achieved by the building. ● Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, & finishes. *Optional (One Point awarded per two items):* ● Record drawings of the building. ● A record drawing of the site including stormwater management plans, utility lines, landscaping with common name and genus/species of plantings. ● A diagram showing the location of safety valves and controls for major building systems. ● A list of the type and wattage of light bulbs installed in light fixtures. ● A photo record prior to insulation of framing with utilities labeled and installed.	**Mandatory** (Earn 1 point for every two optional items)
	1002.2	**Multifamily Operations Manual** Provide an operations manual to responsible parties, including 5 or more of the following: *Mandatory:* ● Narrative detailing the importance of operating and living in a green building. ● A list of practices to conserve water and energy *Optional (One point awarded per two items):* ● Information on methods of maintaining the building's relative humidity in the range of 30 to 60 percent. ● Information on opportunities to purchase renewable energy from local utilities or national green power providers and information on utility and tax incentives for the installing onsite renewable energy systems. ● Information on local and on-site recycling and hazardous waste disposal programs and waste handling and disposal procedures. ● Local public transportation options. ● Explanation of the benefits of using compact fluorescent light bulbs, LEDs, or other high efficiency lighting. ● Information on native landscape materials and/or low water requirements. ● Information on the radon mitigation system, where applicable. ● A procedure for educating tenants in rental properties on the proper use, benefits, and maintenance of green building systems including a maintenance staff notification process for improperly functioning equipment. ● Information on the importance and operation of the building's fresh air ventilation system.	**Mandatory** (Earn 1 point for every two optional items)
	1002.3	**Multifamily Maintenance Manual** Provide an maintenance manual to responsible parties, including 5 or more of the following: *Mandatory:* ● Narrative detailing the importance of maintaining a green building. *Optional (One point awarded per two items):* ● A list of local service providers that offer regularly scheduled service and maintenance contracts to ensure proper performance of equipment and the structure. ● User-friendly maintenance checklist that includes: HVAC filters, thermostat, operation and programming, lighting controls, appliances and settings, water heater settings, fan controls. ● List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials. ● Information on organic pest control, fertilizers, deicers, and cleaning products. ● Instructions for maintaining gutters and downspouts and the importance of diverting water a minimum of 5 feet away from foundation. ● Instructions for inspecting the building for termite infestation. ● A procedure for rental tenant occupancy turnover that preserves the green features. ● An outline of a formal green building training program for maintenance staff. ● A green cleaning plan which includes guidance on sustainable cleaning products.	**Mandatory** (Earn 1 point for every two optional items)
	1002.4	**Training of Multifamily Building Owners/Operators** On-site training of responsible parties of operation and maintenance and occupant actions for all of the following: (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	**Mandatory**

	Enterprise Green Communities		Points Possible
Operation, Maintenance, and Resident Engagement	8.1	**Building Operations & Maintenance (O&M) Manual and Plan** *For all multifamily projects* Develop a manual with thorough building operations and maintenance guidance and a complementary plan. The manual and plan should be developed over the course of the project design, development and construction stages, and should include sections/chapters addressing the list of topics.	**Mandatory**
	8.4	**Resident and Property Staff Orientation** Provide a comprehensive walk-through and orientation for all residents, property manager(s) and buildings operations staff. Use the appropriate manuals (see Criteria 8.1, 8.2, 8.3) as the base of the curriculum, and review the project's green features, operations and maintenance procedures, and emergency protocols.	**Mandatory**

Figure 11: Operation, Maintenance, and Building Owner Education Green Practices

	ICC/ASHRAE 700-2015 NGBS		Points Possible
Operation, Maintenance, and Building Owner Education	1001.1	**Single-Family Homeowner's Manual** Provide a homeowner's manual to responsible parties, including the following: *Mandatory:* ● A National Green Building Standard certificate with a web link and completion document. ● List of green building features (can include the national green building checklist). ● 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. *Optional (One Point awarded per two items):* ● Maintenance checklist ● Information on local recycling and composting programs. ● Information on available local utility programs that purchase a portion of energy from renewable energy providers. ● Explanation of the benefits of using energy-efficient lighting systems in high-usage areas. ● A list of practices to conserve water and energy. ● Information on the importance and operation of the home's fresh air ventilation system. ● Local public transportation options. ● A diagram showing the location of safety valves and controls for major building systems. ● Where frost-protected shallow foundations are used, owner is informed of precautions including: - Instructions to not remove or damage insulation when modifying landscaping. - Providing heat to the building as required by the ICC IRC or IBC. - Keeping base materials beneath and around the building free from moisture caused by broken water pipes or other water sources. ● A list of local service providers that offer regularly scheduled service and maintenance contracts to ensure proper performance of equipment and the structure. ● A photo record of framing with utilities installed. Photos are taken prior to installing insulation, clearly labeled, and included as part of the building owners' manual. ● List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials. ● Information on organic pest control, fertilizers, deicers, and cleaning products. ● Information on native landscape materials and/or those that have low water requirements. ● Information on maintaining the building's relative humidity in the range of 30-60%. ● Instructions for inspecting the building for termite infestation. ● Instructions for maintaining gutters and downspouts and importance of diverting water a minimum of 5 feet away from foundation. ● A narrative detailing the importance of maintenance and operation in retaining the attributes of a green-built building. ● Where stormwater management measures are installed on the lot, information on the location, purpose, and upkeep of these measures. ● Explanation of and benefits from green cleaning in the home. ● Retrofit energy calculator that provides baseline for future energy retrofits.	**Mandatory** (Earn 1 point for every two optional items)
	1001.2	**Training of Single-Family Homeowners** On-site training of initial homeowners of operation and maintenance and occupant actions for all of the following: (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	**Mandatory**

	Enterprise Green Communities		Points Possible
Operation, Maintenance, and Resident Engagement	8.2	**Resident Manual** *For single and multifamily project:* Provide a guide for homeowners and renters that explains the intent, benefits, use and maintenance of their home's green features and practices. The Resident Manual should encourage green and healthy activities per the list of topics.	**Mandatory**
	8.4	**Resident and Property Staff Orientation** See above	**Mandatory**

Figure 11: Operation, Maintenance, and Building Owner Education Green Practices

Other NGBS Operation and Maintenance Practices

		ICC/ASHRAE 700-2015 NGBS	Points Possible
Operation, Maintenance, and Building Owner Education	1003.1	**Public Education** One or more of the following is implemented. (2 pts max): ● Signs showing the project is designed and built in accordance with the National Green Building Standard are posted on the construction site. (1 pt) ● National Green Building Standard certification plaques with rating level attained are placed in a conspicuous location near the utility area of the home or, in a conspicuous location near the main entrance of a multifamily building. (1 pt) ● A URL for the National Green Building Standard is included on site signage, builder website (or property website for multifamily buildings), and marketing materials for homes certified under the National Green Building Standard. (1 pt)	2
	1004.1	**Verification System** A verification system plan is provided in the building owner's manual. The verification system provides methods for demonstrating continued energy and water savings that are determined from the building's initial year of occupancy of water and energy consumption as compared to annualized consumption at least every four years. ● Verification plan is developed top monitor post-occupancy energy and water use and is provided in the building owner's manual. (1 pt) ● Verification system is installed in the building to monitor post-occupancy energy and water use. (3 pt)	4

Other Enterprise Operations and Maintenance Practices

		Enterprise Green Communities	Points Possible
Operation, Maintenance, and Resident Engagement	8.2	**Emergency Management Manual** Provide a manual on emergency operations targeted toward operations and maintenance staff and other building-level personnel. The manual should address responses to various types of emergencies, leading with those that have the greatest probability of negatively affecting the project. The manual should provide guidance as to how to sustain the delivery of adequate housing throughout an emergency and cover a range of topics, including but not limited to: ● Communication plans for staff and residents ● Useful contact information for public utility and other service providers ● Infrastructure and building "shutdown" procedures	**Mandatory**
	8.5	**Project Data Collection and Monitoring System: 100% Owner-Paid Utility Accounts; 15% Tenant-Paid Utility Accounts** *For rental properties:* Collect and monitor project energy and water performance data for 100% of owner-paid utilities and 15% of tenant-paid utilities for at least 5 years. This data must be maintained in a manner that allows staff to easily access and monitor it, enabling them to make informed operations and capital planning decisions. Also allow Enterprise access to this data. *For owner-occupied units:* Collect and monitor energy and water performance data in a manner that allows for easy access and review and provides the ability to influence home operations. Also allow Enterprise access to this data.	**Mandatory**
	8.6	**Project Data Collection and Monitoring System: Greater than 15% Tenant-Paid Utility Accounts** Collect and monitor project energy and water performance data for at least 5 years. This data must be maintained in a manner that allows staff to easily access and monitor it, enabling them to make informed operations and capital planning decisions. Also allow Enterprise access to this data. 16–60% of units [7 points]; 60–100% of units [11 points]	11

Conclusion

Both Enterprise Green Communities and the National Green Building Standard are effective systems for the integration of green building strategies into single-family and multifamily homes. NGBS is designed to accommodate all residential buildings, while Enterprise is specifically designed for affordable housing.

Both Enterprise and NGBS require certain mandatory practices to be completed, and then offer a catalog of optional practices for a project to earn points. Both systems require a project to meet a minimum number of total points to earn certification. NGBS has increasing levels of certification based on the number of points earned, while Enterprise projects are either certified or not certified.

NGBS requires projects to earn a minimum number of points within each green building practice category, providing a wide variety of practices a project team can select based on site-specific conditions while still helping ensure a balanced approach to sustainable design and construction. Enterprise has a more a specific set of mandatory requirements, helping ensuring every project meets a certain sustainability baseline no matter where they may be located.

Both Enterprise and NGBS focus on the six main subject areas of sustainability in the residential industry: Water Efficiency, Energy Efficiency, Location and Site Development, Material and Resource Efficiency, Indoor Environmental Quality, as well as Operation, Maintenance, and Building Owner and Resident Education.

Within each green practice category, the rating systems contain a number of similar or identical design and construction practices. In total, NGBS has more individual mandates than Enterprise, mostly within the construction phase of the project timeline. However, Enterprise mandatory practices often include a number of similar NGBS mandated or optional practices wrapped into one “practice”, and the mandatory baseline tends to be more stringent across several categories.

The NGBS is differs from Enterprise in that it requires a project to have third-party on-site verification of proper installation of green building features both pre-drywall and post-construction, beyond a HERS rater. This ensures items have not been value-engineered out of the project during the construction phase, and that green building practices are completed correctly.

Both Enterprise and the NGBS are included as a means of demonstrating energy efficiency and sustainability compliance in a number of regulations and incentive programs across the country, including state Low-Income Housing Tax Credits Qualified Allocation Plans and numerous federal agencies.

As of the time of this report, there are over 100,000 homes certified NGBS Green, and over 38,000 certified Enterprise homes.