ENERGY STAR NextGen Certified Homes & Apartment National V1.0 vs. 2020 NGBS

Home Innovation
NGBS GREEN CERTIFIED™

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Introduction

In November 2023, the U.S. Environmental Protection Agency (EPA) launched a new certification option – ENERGY STAR NextGen, which offers an additional level of recognition for buildings equipped with higher energy-efficient electric technology and electric vehicle (EV) charging capabilities. The program claims to improve energy efficiency of certified homes by 20 percent and reduce greenhouse gas emission by up to 80 percent compared to code-minimum homes through use of higher efficient electric technologies that also provide higher performance, premium experiences, and improved indoor air quality.

The **ICC 700-2020 National Green Building Standard® (NGBS)** is a nationally recognized comprehensive green building rating system approved by the American National Standards Institute (ANSI) that focuses on overall sustainability of residential buildings. Most of the practices required by the ENERGY STAR NextGen certification are also included in the NGBS and can qualify for points toward NGBS Green certification. This report provides an overview of ENERGY STAR NextGen requirements as compared to 2020 NGBS practices.

Overview and Analysis

The ENERGY STAR NextGen program requirements include ENERGY STAR Single Family New Home Version 3.2 certification, installation of heat pumps for space and water heating, electric cooktops, and provisions for electric vehicle (EV) charging capability. Most of these requirements contribute toward points in Energy Efficiency and Indoor Environmental Quality sections of the NGBS that are covered by Chapter 7 and Chapter 9 respectively.

Summary

Table 1 shows a comparison of ENERGY STAR NextGen and NGBS requirements for single-family homes.

Conclusion

A single-family home pursuing ENERGY STAR NextGen certification could earn up to 107 points towards NGBS Green based on Climate Zone and design choices. The ENERGY STAR NextGen, like most of the ENERGY STAR certification programs, is an example of superior above-code certifications that primarily focuses on energy efficiency, whereas NGBS Green is a comprehensive green building program that has a broad scope including site design and development, lot design, resource efficiency, energy efficiency, water efficiency, indoor air quality, and operation and maintenance. Most of the ENERGY STAR program requirements are mandatory practices, all of which must be met to achieve the certification unless they're not applicable to the building. NGBS Green certification, on the other hand, employs a points-based system with a minimum points threshold in each chapter and overall, required for each level of certification – Bronze, Silver, Gold, and Emerald levels. NGBS Green Certified homes are designed and constructed to be healthier, more comfortable, have lower operating costs, be more durable, require less maintenance, and be part of a sustainable lifestyle.

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Table 1 Comparison of ENERGY STAR NextGen National V1.0 and 2020 NGBS

COMPONENTS	ENERGY STAR NEXTGEN NATIONAL V1.0	ICC 700-2020 NGBS
ENERGY STAR Certification Baseline	Home or building certified to ENERGY STAR New Construction programs: Single Family New Homes (SFNH) National Version 3.2. SFNH California Version 3.4 for California.	Attains Silver level (45 points) for Chapter 7 through Alternative Bronze or Silver Compliance pathway (701.1.4).
Dwelling Unit Space Heating	ENERGY STAR certified heat pump(s) installed and sized in accordance with the HVAC Design Report.	Up to 46 points available depending on energy source, heating and cooling efficiency, and Climate Zone (703.3.3, 703.3.4, 703.3.6).
	For each air-source heat pumps, blower fan volumetric airflow, blower fan watt draw, and refrigerant charge are Grade I per ANSI / RESNET / ACCA Std. 310.	2-5 points available for heat pump air handlers installed in conditioned or unconditioned space (901.1.6).
	In CZ 5-8, installed air-source heat pumps are ENERGY STAR certified for Cold Climate.	No points available.
	Each heat pump is controlled by a Wi-Fi thermostat or ENERGY STAR certified smart thermostat or meets EPA's 'connected' criteria.	1 point available for programmable communicating thermostat that can be controlled remotely (706.1).
	Each air-source heat pump has two-speed or variable-speed blower fan & two-speed or variable-speed compressor.	No points available.
Dwelling Unit Water Heating	ENERGY STAR certified heat pump water heater that is 208/240 volts is installed.	No direct points available but 3-5 points may be claimed for power vent or direct vent water heaters in conditioned space (901.1.3).
	Each heat pump water heater has minimum rated storage volume as follows: Bedrooms: 0-1 2 3 4+ Minimum Tank Capacity: 36 45 59 72	No points available.
	Each heat pump water heater located within occupiable space has a manufacturer-rated sound level ≤ 55 dBA.	No points available.
	Each heat pump water heater meets EPA's 'connected' criteria or has an ANSI / CTA-2045 port (EcoPort).	No points available.
Cooking	Cooktops and ovens are electric. Induction ranges are recommended, but not required.	1 point available for induction cooktops (705.3).
Electric Vehicle Charging Infrastructure	EV-Ready: One parking space is provided per dwelling unit that includes all of the items below: 1. A powered 208/240 receptacle installed in garage or within 3 feet of driveway or dedicated parking space. 2. The electric service panel includes a 40-amp breaker (or greater), and panel directory identifies the branch circuit as "Electric vehicle charging."	2 points available for level 2 or level 3 electric vehicle charging station (706.8).