ENERGY STAR Multifamily New Construction
Caribbean Rater Design Review Checklist [1], Version 1 (Rev. 04)

Building Name: _____ Number of Units: _____ Permit Date: _____

Building Address: _____ City: _____ State: _____

1. Partnership Status	Must Correct	Rater [3] Verified	N/A[4]
1.1 Rater has verified and documented that builder or developer has an ENERGY STAR partnership agreement using www.energystar.gov/ResPartnerDirectory. Builder name: _____ Developer name: _____	☐	☐	--
1.2 Rater has verified and documented that their company has an ENERGY STAR partnership agreement using www.energystar.gov/ResPartnerDirectory. [5]	☐	☐	--
1.3 Rater(s) signing checklists attest that they have completed EPA-recognized training and are credentialed by a Home Certification Organization (HCO) or meet the credential requirements of a Multifamily Review Organization (MRO).	☐	☐	--
1.4 Certification is being pursued for the whole building; all units and common spaces in the building are designed to meet the requirements below. [6]	☐	☐	☐
2. Review of ENERGY STAR MFNC National HVAC Design Report (National HVAC Design Report Item # indicated in parenthesis) [7]			
2.1 National HVAC Design Report collected for records, with no applicable Items left blank.	☐	☐	--
3. Solar Water Heating System			
3.1 If system is specified, system is Solar Rating & Certification Corporation (SRCC) OG-300 certified. [8]	☐	☐	☐
This sub-section only required when Measure A of the Caribbean Program Req.'s is selected, otherwise check "N/A".			☐
3.2 Specified system has a Solar Fraction ≥ 87%. [9]	☐	☐	☐
4. Review of Thermal Comfort System Design			
4.1 Operable apertures (e.g., windows, skylights, window air inlets) specified in dwelling units that meet the following requirements:			
4.1.1 For all primary living areas, [10] operable aperture areas totaling a minimum of 12% of the floor area of the room specified in that room. [11] Components contributing to the operable aperture area specified to be able to be opened without the use of ladders or special tools.	☐	☐	--
4.1.2 The total operable aperture area specified in each room shall be provided by a minimum of two components. [12] No single component shall contribute ≥ 70% of the total operable aperture in each room.	☐	☐	--
4.1.3 The specified components contributing to the operable aperture area in each room shall be located on two or more exterior walls except when placed on a single exterior wall with wing walls. [13, 14] If placed on adjacent walls, components shall be placed at a minimum of one third of the wall width from the adjoining corner.	☐	☐	--
4.1.4 Insect screens specified for all components that contribute to the operable aperture area.	☐	☐	--
4.1.5 All components that contribute to the operable aperture area specified to include an integral device that is capable of holding the component in an open position. [15]	☐	☐	--
4.1.6 All interior doors in primary living areas [10] specified to include a mechanically-attached door stop or similar device capable of holding the door in an open position.	☐	☐	--
4.2 Solar gain through windows, including for common spaces, shall be reduced through one of the following options: ☐ Option A ☐ Option B			
This sub-section only required when Option A is selected, otherwise check "N/A".			☐
4.2.1a Windows shall have ≤ 0.85 U-Value; ≤ 0.25 SHGC, **AND**;	☐	☐	--
4.2.2a Skylights shall have ≤ 0.70 U-Value; ≤ 0.30 SHGC, **AND**;	☐	☐	☐
4.2.3a If total window-to-floor area ratio > 15%, then SHGCs adjusted as outlined in Footnote 16, OR	☐	☐	☐
This sub-section only required when Option B is selected, otherwise check "N/A".			☐
4.2.1b North-facing windows shall have an overhang with a projection factor ≥ 0.30 [17], **AND;**	☐	☐	
4.2.2b All windows not North-facing shall have an overhang ≥3 ft. deep and with a projection factor ≥ 0.40 [17], **AND**;	☐	☐	☐
4.2.3b Windows in all bedrooms and any mechanically cooled rooms shall have: ≤ 1.2 U-Value; ≤ 0.35 SHGC, **AND**;	☐	☐	--
4.2.4b Skylights shall have ≤ 0.70 U-Value; ≤ 0.30 SHGC, **AND**;	☐	☐	☐
4.2.5b Window-to-floor area ratio ≤ 18%.	☐	☐	--
4.3 One ceiling fan (i.e., not just a junction box) specified in every primary living area and designated common space [10, 18] greater than 75 ft^2.	☐	☐	--
This sub-section only required when Measure A, B, or C of the Caribbean Program Req.'s is selected, otherwise check "N/A".			☐
4.4a Specified wall insulation meets or exceeds R-5.	☐	☐	--
This sub-section only required when Measure D of the Caribbean Program Req.'s is selected, otherwise check "N/A".			☐
4.4b Specified wall insulation meets or exceeds R-7.5 ci.	☐	☐	--
4.5b Specified windows in all dwelling units and common spaces shall have ≤ 0.85 U-Value, and ≤ 0.25 SHGC.	☐	☐	--
4.6b Specified attic or roof deck insulation meets or exceeds R-38 ci.	☐	☐	--

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5. Mini-Split HVAC System			
5.1a For all dwelling units, if a mini-split HVAC system will not be installed in the bedrooms at the time of certification, then the following details shall be included so that a mini-split HVAC system may be installed more easily after certification. If a mini-split HVAC system will be installed at the time of certification, then check "N/A".			☐
5.1.1a An outdoor location has been designated on the plans for the future installation of a mini-split condensing unit and indoor locations have been designated on the plans for future installation of wall-mounted mini-split fan-coil units to serve the bedrooms.	☐	☐	--
5.1.2a A wall-mounted junction box has been specified at code height within the designated area for the condensing unit along with electrical conduit from the junction box to the main electric panel board for the dwelling, to be installed at the time of certification.	☐	☐	--
5.1.3a A 3" pipe sleeve through the exterior wall has been specified, to be installed at the time of certification, for future power, communication, and refrigerant line connections between the area designated for the condensing unit and fan-coil units.	☐	☐	--
5.1.4a If the designated location of the wall-mounted mini-split fan-coil units is on an interior wall, then a 1" condensate drain line insulated with 1/2" thick elastomeric or equivalent insulation has been specified with a point of connection at the fan-coil units and that terminates in storm water lines or outdoors, to be installed at the time of certification.	☐	☐	--
This sub-section only required when Measure A, or B, of the Caribbean Program Req.'s is selected, otherwise check "N/A".			☐
5.1b No space cooling is required, but if any space cooling is specified for dwelling units or common spaces, it must be provided using mini/multi-split AC's or HP's ≥ 15 SEER or SEER2, each with ≤ 10 ft. of ductwork, OR PTACs with ≥ 11.6 EER or EER2.	☐	☐	--
This sub-section only required when Measure C of the Caribbean Program Req.'s is selected, otherwise check "N/A".			☐
5.1c Mini/multi-split AC's or HP's ≥ 15 SEER or SEER2, each with ≤ 10 ft. of ductwork, specified to serve all bedrooms.[19]	☐	☐	--
5.2c No space cooling is required outside of bedrooms, but if any space cooling is specified outside bedrooms, it must be provided using mini/multi-split AC's or HP's ≥ 15 SEER or SEER2, each with ≤ 10 ft. of ductwork.	☐	☐	--
This sub-section only required when Measure D of the Caribbean Program Req.'s is selected, otherwise check "N/A".			☐
5.1d Mini/multi-split AC's or HP's ≥ 15 SEER or SEER2, each with ≤ 10 ft. of ductwork, OR PTACS with ≥ 11.6 EER or EER2 specified to serve all bedrooms.[19]	☐	☐	--
5.2d No space cooling is required outside of bedrooms, but if any space cooling is specified outside bedrooms, it must be provided using mini/multi-split AC's or HP's ≥ 15 SEER or SEER2, each with ≤ 10 ft. of ductwork, OR PTACS with ≥ 11.6 EER or EER2.	☐	☐	--
6. Heat Pump Water Heater (HPWH) System			
This sub-section only required when Measure B of the Caribbean Program Req.'s is selected, otherwise check "N/A".			☐
6.1 HPWH specified to be installed within the dwelling units in a space with a volume of at least 1,000 ft^3.	☐	☐	--
6.2 HPWHs specified to be installed has decibel rating less than or equal to 48 dba.	☐	☐	--
7. Additional Construction Document Review – Recommended, not required			**Rater[3] Verified**
7.1 Verify that HVAC details are in compliance with checklist items in Sections 1-5 of the Caribbean Rater Field Checklist.			☐
7.1.1 Verify that HVAC design includes access and means to measure the dwelling-unit mechanical ventilation airflow rate.			☐
7.2 Air Sealing: Review construction documents to verify that air-sealing details at assemblies adjacent to exterior and unconditioned spaces are represented which, at a minimum, demonstrate compliance with checklist items in Section 7 of the Caribbean Rater Field Checklist.			
7.2.1 Ducts, flues, shafts, plumbing, piping, wiring, exhaust fans, & other penetrations to unconditioned space sealed, with blocking / flashing as needed.			☐
7.2.2 Rough opening around windows & exterior doors sealed. [20]			☐
7.2.3 Assemblies that separate attached garages from occupiable space sealed and, also, an air barrier installed, sealed, and aligned with these assemblies. [21]			☐
7.2.4 Doors adjacent to unconditioned space (e.g., attics, garages, basements), ambient conditions, or a unit entrance to a corridor / stairwell, made substantially air-tight with doorsweep and weatherstripping or equivalent gasket.			☐
7.2.5 The gap between the common wall (e.g., the drywall shaft wall) and the structural framing between units sealed at all exterior boundaries.			☐
7.3 Verify that Lighting, Appliances, Plumbing Fixtures, and Whole Building Utility Data Acquisition Strategy details are in compliance with checklist items in Sections 11 – 12 of the Caribbean Rater Field Checklist.			☐
7.4 Verify that building design meets the requirements of Exhibit 1: ENERGY STAR Multifamily Reference Design in the Caribbean Program Requirements.			☐

Rater Name: _____ Date of Review: _____

Rater Signature: _____ Rater Company Name: _____

ENERGY STAR Multifamily New Construction
Caribbean Rater Design Checklist Footnotes, Version 1 (Rev. 04)

Footnotes:

1. This Checklist applies to all dwelling units, sleeping units, common spaces [2], and garages (open or enclosed) in the building being certified, and where specified, parking lots. These requirements do not apply to parking garages or lots where the cost of the energy use of the parking garage or lot is not the responsibility of the Builder/Developer, Building Owner or Property Manager. This Checklist does not apply to commercial or retail spaces. This Checklist does not apply to common spaces that are located in buildings on the property without any dwelling or sleeping units. A 'sleeping unit', as defined by ANSI / RESNET / ICC 301, refers to a room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Where the term 'dwelling unit' is used in this Checklist, the requirement is also required of 'sleeping' units. The term 'building' refers to a structure that encompasses dwelling/sleeping units and (if present) common spaces, sharing one or more of the following attributes: a common street address, a common entrance or exit, central/shared mechanical systems, or structurally interdependent wall or roof systems. Attached structures such as townhouses and 4-story two-unit structures (commonly referred to as "2-over-2s") may be considered separate buildings if they are divided by a vertical fire separation wall from the foundation to the roof sheathing and share none of the other attributes listed above. A skyway or a breezeway that connects two structures is not considered a common entrance or exit.
2. The term 'common space' refers to any spaces in the building being certified that serve a function in support of the residential part of the building that is not part of a dwelling or sleeping unit. This includes spaces used by residents, such as corridors, stairs, lobbies, laundry rooms, exercise rooms, residential recreation rooms, and dining halls, as well as offices and other spaces used by building management, administration or maintenance in support of the residents.
3. The term 'Rater' refers to the person(s) completing the third-party verification required for certification. The person(s) shall: a) be a Certified Rater, Approved Inspector, as defined by ANSI / RESNET / IECC 301, or an equivalent designation as determined by a Home Certification Organization (HCO) or Multifamily Review Organization (MRO); and, b) have attended and successfully completed an EPA-recognized training class. See www.energystar.gov/mftraining.

   As stated in the Caribbean Program Requirements, for Townhouses, all items shall be verified for each certified home and sampling protocols shall not be used. For other multifamily building types, Raters who operate under an MRO or an HCO Sampling Protocol are permitted to verify any Checklist Item designated "Rater Verified" using an MRO or HCO-approved sampling protocol. No parties other than Raters are permitted to use sampling to complete this Checklist.
4. The column titled "N/A," which denotes items that are "not applicable," should be used when the checklist Item is not present in the building or conflicts with local requirements.
5. Raters are only required to document the partnership status of their company once, for the first home that the Rater certifies for them.
6. The whole building must be submitted to the HCO or MRO for certification after required verification is complete for all units and common spaces, unless using the conditional certification process described in the ENERGY STAR Certification Process in the applicable Program Requirements.
7. The Rater shall collect one National HVAC Design Report per building. See Footnote 1 of the National HVAC Design Report for alternatives. The Rater is only responsible for verifying that the designer has not left any applicable items blank on the National HVAC Design Report, not for verifying the accuracy of every input on the National HVAC Design Report. Buildings certified under Rev. 04 of the program requirements are permitted to use any Revision of the MFNC National HVAC Design Report.
8. For the current OG-300 directory, visit https://solar-rating.org/directories/certified-companies/.
9. Solar fraction shall be determined using the ICC-SRCC OG-300 Solar Water Heating System Certification Program's annual solar fraction rating (SF_A) for the rating location closest to the building. For Dwelling Units or Sleeping Units with ≤ 3 bedrooms, determine SF_A using the Low U.S. DOE Draw Pattern; otherwise, use Medium. A solar water heater system with a Solar Fraction ≥ 87% that has no backup water heater is permitted to be used. For the current OG-300 directory, visit https://solar-rating.org/directories/certified-companies/.
10. Primary living areas within dwelling units include dining rooms, living rooms, family rooms, dens, bedrooms and offices. Primary living areas do not include other spaces within dwelling units, such as kitchens, bathrooms, hallways, stairways, entrances, and utility rooms.
11. Aperture area used to meet the requirements for one primary living area shall not also be used to meet the requirements for a second primary living area. Operable area shall be based on the free unobstructed area through the aperture. Obstructions that can be removed from the aperture by the occupant without tools or special knowledge, such as blinds, shades, or operable shutters shall not be included when calculating the unobstructed area. For the purposes of this checklist Item, 90% of the nominal window or door area of jalousie window and door products shall be permitted to be used as the free unobstructed area.
12. For example, components could consist of two windows or one window and one door.
13. Apertures are recommended, but not required, to be on walls that directly bound the primary living area. Apertures outside the primary living area shall be "effectively aligned" with at least one aperture inside the primary living area. An aperture is "effectively aligned" if a straight line can be drawn from one aperture to within 5 ft. of the other aperture. If the apertures are on walls that don't directly bound the primary living area, then there shall be an unobstructed path between the primary living area and those apertures that is at least as large as the square footage of those apertures. See energystar.gov/apertures for additional guidance.
14. Where wing walls are included in the building design for ventilation purposes, they shall be placed between windows to create a high-pressure and a low-pressure zone on each window. Wing walls shall extend from the bottom to the top of the window and extend outward from the building a distance at least equal to one-half the width of the window. Additionally, it is recommended but not required that the wing wall be located on the windward side of the building.
15. For example, an integral device could consist of a mechanically-attached door stop or operable louvers for exterior doors.
16. All decorative glass and skylight window areas count toward the total window area to above-grade conditioned floor area (WFA) ratio. For homes that have a WFA ratio > 15%, the following improved window SHGC shall be used:

    Improved SHGC = [0.15 / WFA] x 0.27

17. South-facing windows are those within 22.5 degrees of true south. North-facing windows are those within 22.5 degrees of true north. The window projection factor shall be determined in accordance with Equation 5-1 of the 2009 IECC:

    PF = A / B

    Where PF is the projection factor, A is the distance measured horizontally from the furthest continuous extremity of any overhang, eave, or permanently attached shading device to the vertical surface of the glazing and B is the distance measured vertically from the bottom of the glazing to the underside of the overhang, eave, or permanently attached shading device.
18. Designated common spaces include exercise rooms, residential recreation rooms, dining halls and offices.
19. A single mini-split head is permitted to serve one or more bedrooms using up to 10 ft. of ductwork per head.
20. A continuous stucco cladding system sealed to windows and doors is permitted to be used in lieu of sealing rough openings with caulk or foam.
21. For dwelling or sleeping units adjacent to garages, EPA recommends, but does not require, carbon monoxide (CO) alarms installed in a central location in the immediate vicinity of each separate sleeping zone and according to NFPA 720.