



## Energy Benchmarks to meet Built Green Requirements

Pertains to all projects permitted under 2018 WSEC/SEC or enrolled after February 1, 2021.

### Single-Family/ Townhomes – Version 2021

#### Project Energy Requirements

| Minimum Project Energy Requirements per Star Level |   |  |   |
|--|---|--|---|
| Performance Pathway                                | Performance   |  | Prescriptive                                  |
| Compliance Metric                                  | Energy Rating Index (ERI)                                       | Improvement above 2018 WSEC/SEC (use UDRH) | Earn Additional 2018 WSEC/SEC R406.3 Credits* |
| 3-Star   | 62  | 6%   | 1.0   |
| 4-Star   | 55  | 12%  | 2.0   |
| 5-Star   | 47 or less  | 18%  | 3.0   |
| <b>Emerald Star</b>                                | Independently verified to be net zero energy on an annual basis |  |   |

\* Additional credits Appendix RA/RB "Optional Energy Efficiency Measures" in the new WSEC for this (page 98 of the 2018 WSEC PDF).

#### Performance Path Requirements

- **Energy Rating Index (ERI)**
  - **Tool:** REM/Rate or REM/Design
  - **Protocol:** Follow RESNET/ANSI Standards as well as IECC ERI Guidance; see resource documents provided in 2021 Single Family/Townhome Handbook. The base ERI requirement of 62 or less must be met before any additional gains to ERI from solar PV are included. Cities or utilities may require a different protocol or performance requirement for an incentive basis. Please check to ensure you are using an approved protocol with them if the project is obtaining a green building incentive.
  - **Project:** Single-family and townhome projects of three stories or under may be modeled with REM/Rate or REM/Design. If a project does not meet this specification, consult with Built Green Program Manager.
- **Improvement above 2018 WSEC/SEC (use UDRH)**
  - **Tool:** REM/Rate or REM/Design
  - **Protocol:** Modeler must use the latest REM/Rate libraries to model required improvement above 2018 WSEC/SEC using current NEEA User-Defined Reference Homes, provided by BetterBuiltNW. Cities or utilities may require a different protocol or performance requirement for an incentive basis. Please check to ensure you are using an approved protocol with them if the project is obtaining a green building incentive.
    - User-Defined Reference Homes (UDRH): <https://betterbuiltinw.com/resources>



- **Project:** Single-family and townhome projects of three stories or under may be modeled with REM/Rate or REM/Design. If a project does not meet this specification, consult with Built Green Program Manager.

*Prescriptive Path Requirements*

- **Protocol:** Verifiers may verify the energy requirement under checklist credit 3-5 of the 2021 Single-Family/Townhome Handbook in lieu of the performance modeling path. Earn a minimum of 1.0 additional credits from the 2018 WSEC/SEC R406.3 table. Maximum of 1.0 additional credits may be earned for solar PV. See the handbook for details.

## Multifamily – Version 2021

*Project Energy Requirements*

The building should be a primarily residential building. Mixed-use buildings must comply with the following: of the building’s occupiable square footage up to 20% of leased square footage may be for non-residential use, and all leased non-residential tenant floor area is limited to the ground/street level. Occupiable square footage is considered all areas developed for tenant use whether it is for residential dwelling units or leased non-residential space (required space for parking and MEP systems is excluded). Residential tenant common/amenity areas, including halls, stairs and elevators, are considered a part of residential use.

| Minimum Project Energy Requirements per Star Level |   |                              |                                   |                              |
|--|---|------------------------------|-----------------------------------|------------------------------|
| Code   | Residential Code  |                              | Commercial Code                   |                              |
|  | Performance   | Prescriptive                 | Performance                       | Prescriptive                 |
| Performance Pathway                                | Performance   | Prescriptive                 | Performance                       | Prescriptive                 |
| Compliance Metric                                  | Energy Rating Index (ERI)                                       | 2018 WSEC/SEC R406.3 Credits | Building Performance Factor (BPF) | 2018 WSEC/SEC C406.1 Credits |
| 3-Star   | 62  | 5.5                          | 0.55                              | 11*                          |
| 4-Star   | 55  | 6                            | 0.52                              | 16*                          |
| 5-Star   | 47 or less  | 7                            | 0.48 or less                      | 23 or more*                  |
| <b>Emerald Star</b>                                | Independently verified to be net zero energy on an annual basis |                              |                                   |                              |

\* Initial construction of unimproved tenant space and their related accessory areas that will be completed and occupied under a separate permit (i.e. core-and-shell space) shall achieve at least 1 credit from Table C406.1.

*Performance Path Requirements*

- **Projects permitted under Residential Code (three or fewer stories above grade)**
  - **Tool:** Modeler may use eQuest or REM/Rate.
  - **Protocol:** Modeler must use the Built Green Multifamily Performance Rating Analysis Guidelines based on 2018 WSEC/SEC (eQuest) OR RESNET’s REM/Rate protocol for multifamily. Cities or utilities may require a different protocol or performance

requirement for an incentive basis. Please check to ensure you are using an approved protocol with them if the project is obtaining a green building incentive.

- **Projects permitted under Commercial code (four stories or more above grade)**
  - **Tool:** Modeler must use eQuest.
  - **Protocol:** Modeler must use the Built Green Multifamily Performance Rating Analysis Guidelines based on 2018 WSEC/SEC (eQuest) protocol for multifamily. For unimproved tenants' spaces (and their related accessory areas) that will be completed and occupied under a separate permit, follow the energy modeling guidance in *Appendix A*. These spaces are included the calculations documenting achievement of the target Building Performance Factor for Built Green certification. Cities or utilities may require a different protocol or performance requirement for an incentive basis. Please check to ensure you are using an approved protocol with them if the project is obtaining a green building incentive.

#### *Prescriptive Path Requirements*

- **Projects permitted under Residential Code (three or fewer stories above grade)**
  - **Protocol:** Verifiers may verify the energy requirement under checklist action item 3-2 of the multi-family checklist in lieu of the modeling path. Maximum of 1.0 additional credits may be earned for solar PV. See the Built Green Multifamily Handbook for details.
- **Projects permitted under Commercial code (four stories or more above grade)**
  - **Protocol:** Verifiers may verify the energy requirement under checklist credit 3-4 of the multi-family checklist in lieu of the modeling path. See *Appendix A* of this document.

## **Remodel – Version 2018**

#### *Project Energy Requirements*

- **3-Star:** Modeled to at least meet 2018 WSEC/SEC
- **4-Star:** Modeled to be at least 15% more efficient than 2018 WSEC/SEC
- **5-Star:** Modeled to be at least 30% more efficient than 2018 WSEC/SEC OR alternate requirements path as listed in checklist

#### *Modeling Path Requirements*

- **Tool:** REM/Rate or REM/Design
- **Protocol:** Modeler must use the latest REM/Rate libraries to model required improvement above 2018 WSEC/SEC using current NEEA User-Defined Reference Homes, provided by BetterBuiltNW. Cities or utilities may require a different protocol or performance requirement for an incentive basis. Please check to ensure you are using an approved protocol with them if the project is obtaining a green building incentive.
  - User-Defined Reference Homes (UDRH): <https://betterbuiltinw.com/resources>



## Appendix A: Built Green Energy Requirement for Commercial Projects Governed by the 2018 WSEC/SEC

### Prescriptive path:

Comply with the following revised text of 2018 WSEC C406.1 (any section not referenced below is unmodified from 2018 WSEC text):

**C406.1 Additional energy efficiency credit requirements.** New buildings and changes in space conditioning, change of occupancy and building additions in accordance with Chapter 5 shall comply with sufficient packages from Table C406.1 so as to achieve a minimum number of ~~six~~ credits shown in table BG C406 for the target Built Green Star rating. Each area shall be permitted to apply for different packages provided all areas in the building comply with the requirement for ~~six~~ the necessary credits. Areas included in the same permit within mixed use buildings shall be permitted to demonstrate compliance by an area weighted average number of credits by building occupancy achieving a ~~minimum number of six credits~~ a minimum number of credits from Table BG C406.

**TABLE BG C406: EFFICIENCY PACKAGE ENERGY CREDITS REQUIRED FOR BUILT GREEN PRESCRIPTIVE CERTIFICATION**

| v2021 Built Green Star Rating | 2018 WSEC C406.1 Credits Required |
|-------------------------------|-----------------------------------|
| <u>3-Star</u>                 | <u>11</u>                         |
| <u>4-star</u>                 | <u>16</u>                         |
| <u>5-Star</u>                 | <u>23</u>                         |

### Exceptions:

1. Low energy spaces in accordance with Section C402.1.1.1 and equipment buildings in accordance with Section C402.1.2 shall comply with sufficient packages from Table C406.1 to achieve a minimum number of three credits for 3-Star certification, four credits for 4-Star certification, and five credits for 5-star certification in the Built Green program.
2. Building additions that have less than 1,000 square feet of conditioned floor area shall comply with sufficient packages from Table C406.1 to achieve a minimum number of three credits.

**C406.1.1 Tenant spaces.** Initial tenant improvement shall comply with sufficient packages from Table C406.1 to achieve a minimum number of six credits. In buildings with multiple tenant spaces, each tenant space is permitted to apply for different packages provided all areas in the building comply with the requirement for six credits. For Built Green projects following the prescriptive compliance path, the initial construction of unimproved tenant space and their related accessory areas that will be completed and occupied under a separate permit (i.e. core-and-shell space) shall achieve at least 1 credit from Table C406.1. This is the only Built Green requirement for unimproved future tenant space and their accessory areas, and these areas shall be EXCLUDED from the area weighted C406 calculations for the rest of the project.



**TABLE C406.1:  
 EFFICIENCY PACKAGE CREDITS**

| Code Section  | Commercial Building Occupancy |            |            |            |            |                         |
|---|-------------------------------|------------|------------|------------|------------|-------------------------|
|   | Group R-1                     | Group R-2  | Group B    | Group E    | Group M    | All Other               |
|   | Additional Efficiency Credits |            |            |            |            |                         |
| 1. More efficient HVAC performance in accordance with Section C406.2                                  | 2.0                           | 3.0        | 3.0        | 2.0        | 1.0        | 2.0                     |
| 2. Reduced lighting power: Option 1 in accordance with Section C406.3.1                               | 1.0                           | 1.0        | 2.0        | 2.0        | 3.0        | 2.0                     |
| 3. Reduced lighting power: Option 2 in accordance with Section C406.3.2 <sup>a</sup>                  | 2.0                           | 3.0        | 4.0        | 4.0        | 6.0        | 4.0                     |
| 4. Enhanced lighting controls in accordance with Section C406.4                                       | NA                            | NA         | 1.0        | 1.0        | 1.0        | 1.0                     |
| 5. On-site supply of renewable energy in accordance with C406.5                                       | See options below.            |            |            |            |            |                         |
| 5.1 33% of renewable energy required by C406.5  | <u>1.0</u>                    | <u>1.0</u> | <u>1.0</u> | <u>1.0</u> | <u>1.0</u> | <u>1.0</u>              |
| 5.2 66% of renewable energy required by C406.5  | <u>2.0</u>                    | <u>2.0</u> | <u>2.0</u> | <u>2.0</u> | <u>2.0</u> | <u>2.0</u>              |
| 5.3 100% of renewable energy required by C406.5   | <u>3.0</u>                    | <u>3.0</u> | <u>3.0</u> | <u>3.0</u> | <u>3.0</u> | <u>3.0</u>              |
| 5.4 133% of renewable energy required by C406.5   | <u>4.0</u>                    | <u>4.0</u> | <u>4.0</u> | <u>4.0</u> | <u>4.0</u> | <u>4.0</u>              |
| 5.4 166% of renewable energy required by C406.5   | <u>5.0</u>                    | <u>5.0</u> | <u>5.0</u> | <u>5.0</u> | <u>5.0</u> | <u>5.0</u>              |
| 6. Dedicated outdoor air system in accordance with Section C406.6 <sup>b</sup>                        | 4.0                           | 4.0        | 4.0        | NA         | NA         | 4.0                     |
| 7. High performance dedicated outdoor air system in accordance with Section C406.7                    | 4.0                           | 4.0        | 4.0        | 4.0        | 4.0        | 4.0                     |
| 8. High-efficiency service water heating in accordance with Sections C406.8.1 and C406.8.2            | 4.0                           | 5.0        | NA         | NA         | NA         | 8.0                     |
| 9. High performance service water heating in multi-family buildings in accordance with Section C406.9 | 7.0                           | 8.0        | NA         | NA         | NA         | NA                      |
| 10. Enhanced envelope performance in accordance with Section C406.10 <sup>c</sup>                     | 3.0                           | 6.0        | 3.0        | 3.0        | 3.0        | 4.0                     |
| 11. Reduced air infiltration in accordance with Section C406.11 <sup>c</sup>                          | 1.0                           | 2.0        | 1.0        | 1.0        | 1.0        | 1.0                     |
| 12. Enhanced commercial kitchen equipment in accordance with Section C406.12                          | 5.0                           | NA         | NA         | NA         | 5.0        | 5.0<br>(Group A-2 only) |

- a. Projects using this option may not use Item 2.
- b. This option is not available to buildings subject to the prescriptive requirements of Section C403.3.5
- c. Buildings or building areas that are exempt from thermal envelope requirements in accordance with Sections C402.1.1 and C402.1.2 do not qualify for this package.



## Performance Path:

*Comply with the revised text of 2018 WSEC C407 indicated below:*

**C407.3 Performance-based compliance.** Compliance with this section requires compliance with ASHRAE Standard 90.1 Appendix G, Performance Rating Method, in accordance with Standard 90.1 Section 4.2.1 with the following modifications:

1. The mandatory requirements of Section G1.2.1a of Standard 90.1 are not required to be met.
2. The reduction in annual carbon emissions of the proposed building design associated with on-site renewable energy shall not be more than 3 percent of the total carbon emissions of the baseline building design.
3. References to energy cost in Section 4.2.1.1 and Appendix G shall be replaced by carbon emissions calculated by multiplying site energy consumption by the carbon emission factor from Table C407.3(1).
4. The building performance factors in Table C4.2.1.1 shall be replaced with those in Table C407.3(2).
5. Schedules and plug and process loads shall be modeled using the default values listed in Appendix B or in the ASHRAE 90.1 User's Manual and shall be assumed to be identical in the proposed design and baseline building design.

**Exception to item 5:** Alternative schedules and plug and process loads shall be permitted where approved by the code official.

6. Documentation requirements in Section G1.3.2.d shall be replaced by a list showing compliance with the mandatory provisions of Table C407.2.
7. Documentation requirements in Section G1.3.2.e shall be replaced by a list of aspects of the proposed design that are less stringent than the prescriptive requirements of the Washington State Energy Code.
8. References to yet-to-be-designed future building components in the Proposed Building Performance column of Table G3.1 shall be modified to reference the corresponding sections of the Washington State or Seattle Energy Code (as is applicable to the project) in lieu of the requirements of Standard 90.1, in the following sections of the table:
  1. Design Model, subclause c.
  6. Lighting, subclause c.
  11. Service Water-Heating Systems, subclause c.
  12. Receptacle and Other Loads, subclause b.
9. HVAC Systems, subclauses c and d of Table G3.1, shall meet the following requirements:
  - a. For yet-to-be-designed systems in office, retail, library, education, and multifamily buildings and occupancies subject to the TSPR requirements of Section C403.1.1, the system type and efficiency parameters shall meet but not exceed those shown in Table D602.11 Standard Reference Design HVAC Systems.
  - b. For all other buildings and occupancies, the system type shall be the same as the system modeled in the baseline design, and shall comply with but not exceed the requirements of Section C403 in lieu of Standard 90.1.
  - c. For HVAC systems serving future tenant spaces, where the current building permit applies to only a portion of an HVAC system, and future components will receive HVAC services from systems included in the current building permit, those future components shall be modeled as the type required to complete the HVAC system portions under the current permit and shall meet but not exceed the requirements found in Section C403.



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**TABLE C407.3(2)  
BUILDING PERFORMANCE FACTORS (BPF) TO BE USED  
FOR COMPLIANCE WITH SECTION C407.3**

| <b>Building Area Type</b> | <b>Building Performance Factor</b> |
|---------------------------|------------------------------------|
| Multifamily               | 0.58 <u>See Footnote a</u>         |
| Healthcare/hospital       | 0.54                               |
| Hotel/motel               | 0.64                               |
| Office                    | 0.56                               |
| Restaurant                | 0.70                               |
| Retail                    | 0.47                               |
| School                    | 0.36                               |
| Warehouse                 | 0.48                               |
| All Others                | 0.54                               |

- a. For projects pursuing 2018 Built Green certification utilizing the 2018 WSEC C407 Total Building Performance path, the following Building Performance Factors shall be used for multi-family occupancies:
- i. 2018 Built Green 3-Star: 0.55
  - ii. 2018 Built Green 4-Star: 0.52
  - iii. 2018 Built Green 5-Star: 0.48