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2021 WSEC Performance Proposals

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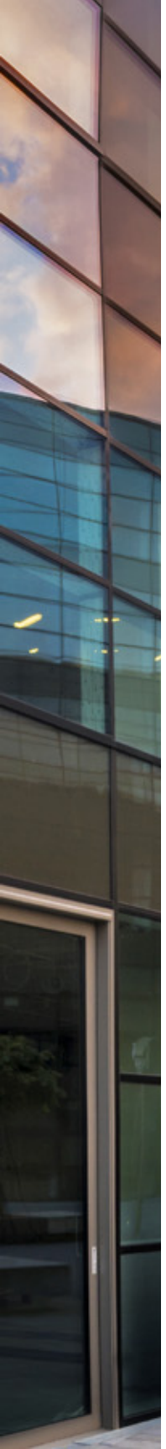


Refresher on Existing Section C407

Whole Building Performance Based Compliance

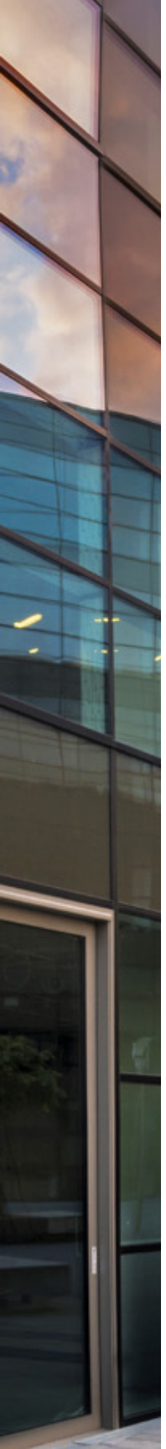
- Major overhaul in WSEC 2018
- References Appendix G from ASHRAE Standard 90.1
- Replaces ASHRAE's cost metric with carbon emissions metric
- Sets compliance targets customized for WSEC
- Compliance targets normalized for building "regulated loads" using Building Performance Factor Approach

TABLE C407.3(1)
CARBON EMISSIONS FACTORS

Type	CO2e (lb/unit)	Unit
Electricity	0.70	kWh
Natural Gas	11.7	Therm
Oil	19.2	Gallon
Propane	10.5	Gallon
Other[a]	195.00	mmBtu
On-site renewable energy	0.00	

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

Building Area Type	Building Performance Factor
Multifamily	0.58
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



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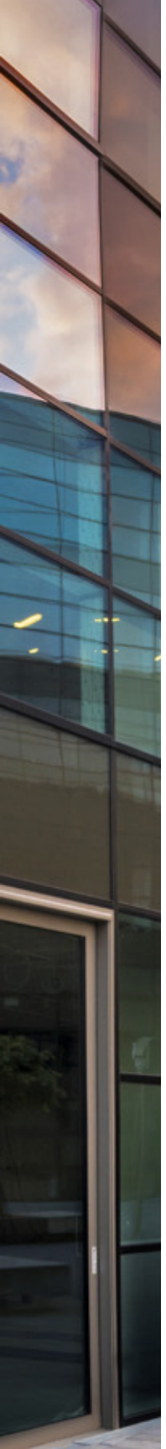
Summary of Proposed Changes

1. Clarifications and Fixes Resulting from User Questions
   - WSEC mandatory requirements must be met instead of ASHRAE 90.1
   - Documentation requirements reference WSEC
   - Simulation of yet-to-be designed components (typically tenant build-outs) assumed to meet WSEC and not 90.1
2. References a published addendum to 90.1 fixing some errors in the way lighting is modeled
3. Adds Modeler Credential Requirements for Lead modeler
   - Shall be either ASHRAE BEMP or AEE BESA
   - Successfully completed at least five Appendix G projects
4. Increases Stringency of by 10% Over 2018 Code (with no renewable credit)
5. Adds a Second Metric using Site Energy
   - Allows credit for improvement in unregulated loads
   - Allows credit for offsite renewable energy procurement



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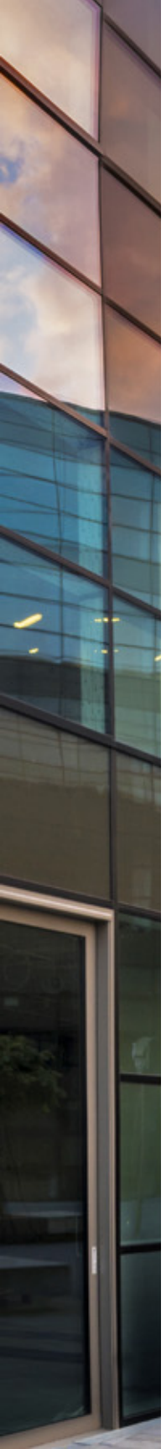
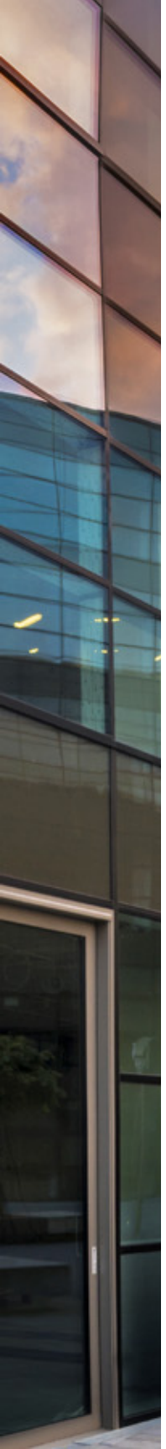


Why the Second Metric – Site Energy

- As the grid gets cleaner, the carbon metric is less meaningful.
  - When the grid is 100% emission free there would be no requirements
- No progress ensured toward WS mandate of 70% site energy reduction compared to 2006
- A second metric can encourage improvements in unregulated loads and unlimited on and off-site renewable energy while the first metric preserves

*"The site energy performance target shall be met including the **contributions of on-site and off-site renewable energy** as described in Section C407.3.2 as well as the **contribution of improvements in unregulated loads** as allowed by Section C407.3.3."*



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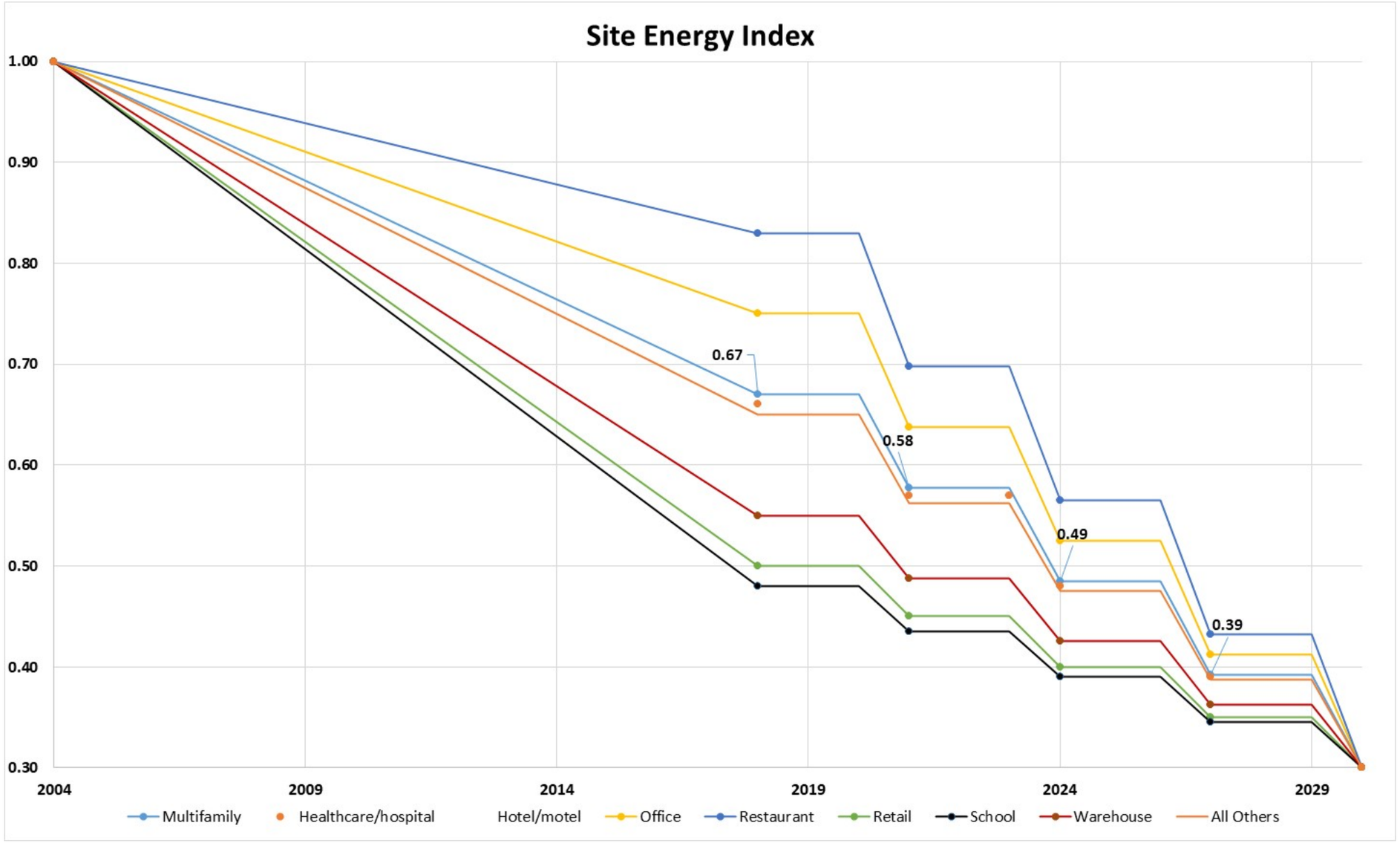
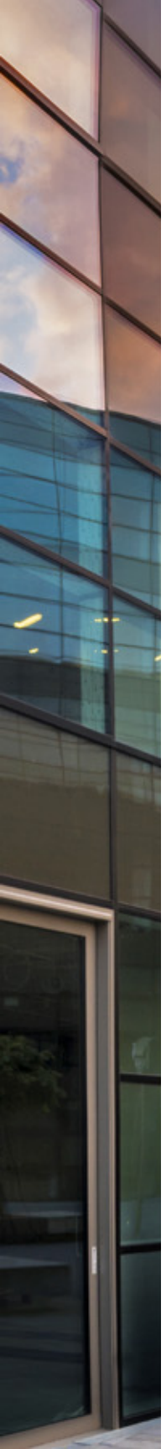
Site Energy Reduction Toward 2030 Goals





Site Energy Reduction Toward 2030 Goals

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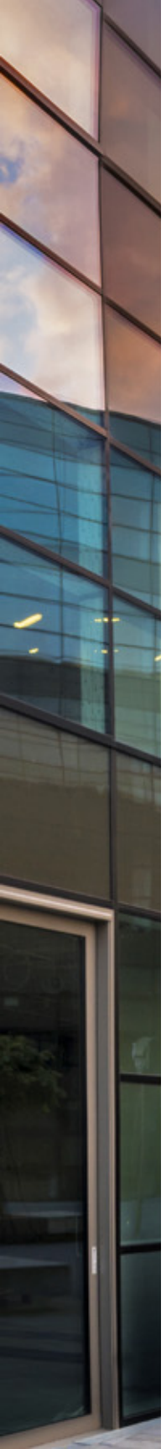
Office	0.56
Restaurant	0.70
Retail	0.47
School	0.36
Warehouse	0.48
All Others	0.54

TABLE C407.3(3)
SITE ENERGY PERFORMANCE TARGETS TO BE USED FOR COMPLIANCE WITH SECTION C407.3

Building Area Type	Site Energy Performance Targets
Multifamily	0.58
Healthcare/hospital	0.57
Hotel/motel	0.62
Office	0.56
Restaurant	0.70
Retail	0.45
School	0.44
Warehouse	0.49
All Others	0.55



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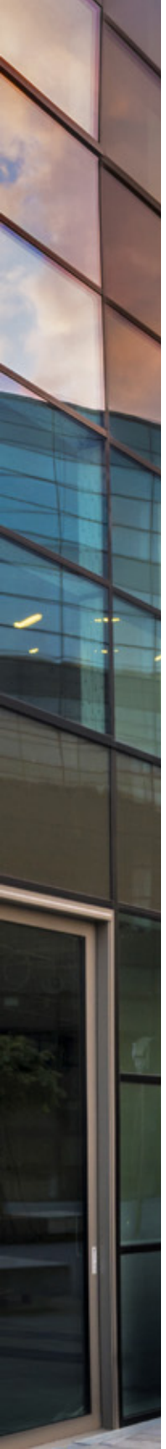
Site Energy Credit for Unregulated Load Improvement

When calculating savings for site energy targets in accordance with Section C407.3.2b, but not when calculating savings for emissions targets *in accordance with Section C407.3.2a,* ***differences in the simulation of unregulated loads and equipment*** *modeled in the baseline building design from those in the proposed design* ***shall be approved by the building official based on documentation that the equipment installed in the proposed design represents a significant verifiable departure from documented current conventional practice.*** *All unregulated equipment for which savings is claimed* ***must be installed by the time of final inspection****. The burden of this documentation is to demonstrate that accepted conventional practice would result in baseline building equipment different from that installed in the proposed design. Occupancy and occupancy schedules shall not be changed.*



Site Energy Credit for Off-Site Renewable Energy

- **Provides reduced credit for off-site**
  - **Approach based on ASHRAE Standards 189.1, 229, and AIA Zero Code.**
  - **Requires legal contract of not less than 15 years**
  - **Documentation delivered to AHJ**
  - **RECs assigned to the building owner for at least 15 years and "retired"**
  - **Rules for systems that serve multiple buildings**
  - **Tracking of RECs if assigned to tenants**

Table 407.3.2.1: Multipliers for Renewable Energy Procurement Methods

Location	Renewable Energy Source	Renewable Energy Factor
On-Site	On-site renewable energy system	1
Off-Site	*Directly owned off-site renewable energy system that begins operation after* January 1st, 2022	0.95
Off-Site	*Community renewable energy facility that begins operation after* January 1st, 2022	0.95
Off-Site	*Directly owned off-site renewable energy system that begins operation before* January 1st, 2022	0.75
Off-Site	*Community renewable energy facility that begins operation before* January 1st, 2022	0.75
	Virtual Power Purchase Agreement (PPA)	0.75

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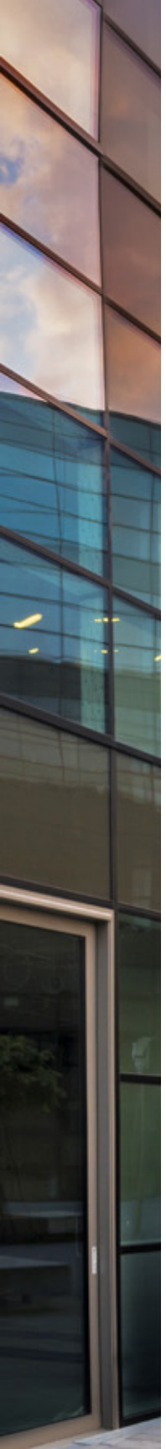

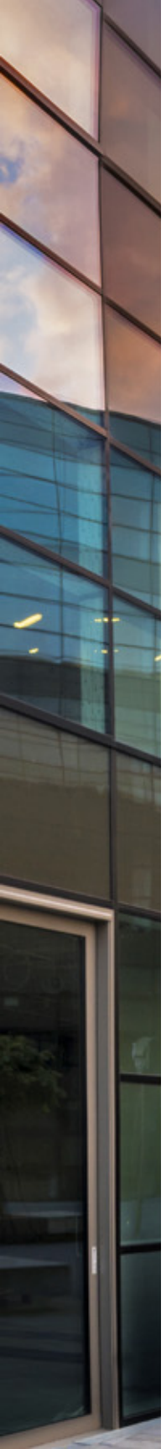

Total System Performance Ratio

- Adds multifamily use type to TSPR – already implemented in Seattle
- Clarifies the medical office buildings are included (with some exceptions for specific areas)
- Adds additional exceptions to Section C403.1.1 to clarify system types and space types that are exempt
  - Laboratories
  - Surgical suites, etc in MOBs
  - Shower rooms
  - Commercial kitchens and cafeterias
  - Natatoriums
  - Areas with high density commercial refrigeration
  - Data centers, computer rooms, mechanical rooms
- Provided additional guidance on how to use Appendix G for core & shell and initial build-out construction
- Added additional system parameters to Table D601.11.2 for credit
- Provides credit for systems that use enhanced filtration
- Miscellaneous clarifications based on user feedback

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Thank you