

Net-Zero: Passive House Institute US

| | | | | |
|--|---|--|---|---|
| <p>PHIUS+ Source Zero</p> <p>To meet PHIUS+ Source Zero, the building must generate or procure as much renewable energy as it uses, on an annual, source-energy basis. Because total energy is addressed with a source energy criterion, when it comes to adding an extra badge for “zero”, it was logical to base that on “source net zero”.</p> <p>On-site renewable electricity generation counts toward source net zero with the same source energy multiplier for electricity, i.e. 2.8. In other words, with the source energy factor for grid electricity at 2.8, every kWh electric generated on site is considered to neutralize 2.8 kWh at the source.</p> <p>The following arrangements for procuring off-site renewable energy are also regarded as offsetting the source energy use:</p> <ul style="list-style-type: none"> • Directly-owned off-site renewables. • Community renewable energy. • Virtual Power Purchase Agreements. • Green-E Certified Renewable Energy Certificates (RECs) <p>Off-site renewable energy procurement works in the same way as on-site, with a discount factor applied for Renewable Energy Certificates (RECs).</p> <p>The building owner must present an actual contract for procurement of renewable energy sufficient to meet the source energy target (at time of certification) for 20 years:</p> | <p>PHIUS+ Core</p> <p>What’s the same</p> <ul style="list-style-type: none"> • Source energy used for overall energy budget • Source Zero available as add-on certification <p>Different for PHIUS Core</p> <ul style="list-style-type: none"> • On-site renewable energy offset is calculated based on coincident production and use (utilization fraction) • Source Energy limit is applied to the calculated net of the estimated utilization fraction of on-site PV or other renewable electricity generation • Off-site renewable energy generation is not counted. <p>The PHIUS Core Source energy targets are:</p> <ul style="list-style-type: none"> • Residential: 5500 kWh/person/yr • Non-Residential: 38 kBtu/ft².yr (120 kWh/ m² yr) | <p>PHIUS+ 2018: Getting to Zero</p> <p>Space Conditioning What’s the same</p> <ul style="list-style-type: none"> • Pass/fail, “performance-based” passive building standard with prescriptive quality assurance requirements • Three pillars: limits on heating/cooling loads, limits on source energy use, required air-tightness & other prescriptive requirements • Climate-specificity, on a location-by-location basis <p>New in PHIUS+ 2018</p> <ul style="list-style-type: none"> • Occupant density and building size (envelope to floor area ratio) influence heating/cooling load limits • Calculate Space Conditioning targets using the ‘PHIUS+ 2018 Final Calculator’ | <p>PHIUS+ 2018</p> <p>PHIUS+ 2018 remains a pass/fail passive building standard, serving as an update to replace PHIUS+ 2015. It remains a “performance-based” energy standard that includes prescriptive quality assurance requirements.</p> <p>The performance standard relies on three pillars:</p> <ul style="list-style-type: none"> • Limits on heating/cooling loads (both peak and annual) • Limit on overall source energy use • Air-tightness and other prescriptive quality assurance requirements <p>PHIUS+ 2015 recognized that there are diminishing returns on investment in energy-conserving measures, and an optimum level in a life-cycle cost sense.. Climate plays a large role in determining where that point is. For PHIUS+ 2015, researchers studied optimization in 110 cities, and developed interpolation formulas to set heating and cooling (space-conditioning) energy targets for 1000+ cities across the US and Canada. The same criteria applied to buildings of all sizes.</p> | <p>PHIUS+ 2015</p> <p>The air-tightness requirement was reconsidered using dynamic hygrothermal simulations with the aim of avoiding moisture and mold risk in wall assemblies. The airtightness requirements have been adjusted from a limit of 0.6 ACH50 to 0.05 CFM50 and 0.08 CFM75 per square foot of gross envelope area. This allows the airtightness requirement to scale appropriately based on building size.</p> <p>The source energy limit was reconsidered on the basis of the global CO2 emission budget. The following changes have been implemented to make the scoring more fair and the calculation more accurate</p> <p>The space conditioning criteria were reconsidered on the basis of economic feasibility. The following changes were implemented:</p> |
| <p>https://www.phius.org/phius-certification-for-buildings-products/project-certification/phius-source-zero</p> | <p>https://www.phius.org/phius-certification-for-buildings-products/project-certification/phius-core</p> | <p>https://www.phius.org/phius-certification-for-buildings-products/project-certification/phius-2018-getting-to-zero</p> | <p>https://www.phius.org/phius-certification-for-buildings-products/project-certification/phius-2018-pilot</p> | <p>https://www.phius.org/phius-2015-new-passive-building-standard-summary</p> |