

## Input-session

PHIUS+ 2018: What's New?

Graham S. Wright  
Lisa White





Outline:

# Heating & Cooling Getting to Zero Quality Assurance

---

## What stays the same?

- Building energy performance standard,
  - with prescriptive quality assurance requirements,
  - pass/fail.
- Limits on heating & cooling loads,
  - peak and annual.

# Pillars & principles

## Details also matter

### Heating & Cooling

- Limits are derived from economic analysis.
- Comfort-related constraints on windows.
- Climate-dependent.

### Source Energy - Getting to Zero

- Overall energy use limited on fair-share principles.
- Per person for residential, per square foot nonresidential.
- Not climate-dependent.
- Net of on-site renewables.

Image credit

### Quality Assurance

- Air-tightness testing
- Ventilation commissioning.
- DOE checklists for residential bldgs.
  - Energy Star
  - EPA Indoor airPLUS
  - Zero Energy Ready



# Pillars & principles

## Details also matter

### Heating & Cooling

- Update economic optimization.
- Adjustments for occupant density and building size
  - Categorical?
  - Continuous?
- Lower humidity setpoint?
- Longer analysis period?

### Source Energy - Getting to Zero

- Allow off-site renewables as well.
- Taper the limit to zero by 20??.
- Off-site procurement:
  - PPAs – ok
  - Community RE?
  - RE Certificates w/limitations

### Quality Assurance

- Commissioning for Nonresidential buildings
- Reviewing AABA/AGC, ASHRAE, BCxA, NEBB ...
- Priority to things that pertain to the energy performance requirements.



Questions?



# THANK YOU



[www.PHIUS.org](http://www.PHIUS.org)/[www.PHAUS.org](http://www.PHAUS.org)