

DOCKETED	
Docket Number:	19-BSTD-03
Project Title:	2022 Energy Code Pre-Rulemaking
TN #:	237120
Document Title:	Healthy Building Research Comments - Cost Effectiveness and Examples of Climate Ready Building Standards
Description:	N/A
Filer:	System
Organization:	Healthy Building Research
Submitter Role:	Public
Submission Date:	3/10/2021 2:17:41 PM
Docketed Date:	3/10/2021

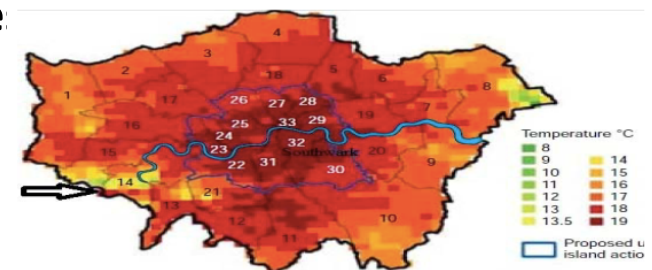
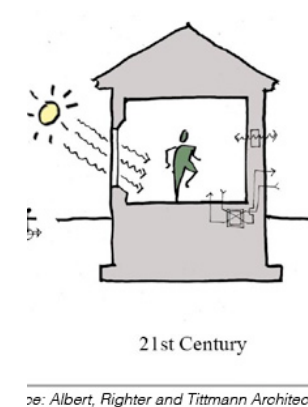
*Comment Received From: Healthy Building Research
Submitted On: 3/10/2021
Docket Number: 19-BSTD-03*

Cost Effectiveness and Examples of Climate Ready Building Standards

Additional submitted attachment is included below.

Overheating Guidelines: *International*

- **Passive House Program:** ¹
 $\leq 10\%$ (h/y) $> 25\text{ C}$, and moisture limit
- **CIBSE TM 59 Overheating Design Guide (UK):** ^{2,3}
 - Mechanical ventilation: **Operative Temperature** $\leq 26\text{ C}$ for $< 3\%$ of occupied hours
 - **Natural Ventilation:** temperature (summer occupied hours) and annual delta T limits for bedrooms
 - **Weather files for 50 %ile future climate**, high emissions. 2020's, mid & late century scenarios recommended
- **CIBSE TM 49 Urban Heat Island Design Guide (UK and London Plan):** ⁴
 - **Overheating risk assessment** for urban heat zone
 - **Design Summer Year** weather file
 - **Hierarchy of efficiency measures**, before mechanical cooling is allowed



Average outdoor air temperature in London during August 2013

1. Passive House Institute, 2016. [Criteria for the Passive House, EnerPHit and PHI Low Energy Building Standard.](#)
2. CIBSE, 2017: [TM 59, Design methodology for the assessment of overheating in homes.](#)
3. Diamond, S., May 22, 2017. TM 59 webinar. Inking Associates.
4. CIBSE, 2014. [TM49 Design Summer Years for London.](#) See also: ARCC Network, 2017. [Designing for Future Climate.](#)

Overheating and Adaptation/Resilience Guidelines : *N. America*

- ✓ **Build It Green (2019): GreenPoint Rated 7.0 (CA Homes) ¹**
- ✓ **Collaborative for High Performance Schools Criteria**
 - **National Climate Adaptation and Resilience credits (2019).**
 - **California update (2021) ²**
- ✓ **National Research Council Canada ³**
 - **Overheating assessment guide (April 2021)**
 - **Risk assessment framework, and health based evaluation method.**

1. Build It Green, 2017. [Version 7.0 Update, Executive Summary](#).

2. [CHPS 2019 update and webinar](#).

3. National Research Council Canada, 2019-2020.: [Preventing Overheating](#). [Risk analysis framework](#). [Health based evaluation method](#).

Overheating Standards

- ✓ **British Columbia Energy Step Code. Supplement 3 on **Overheating and Air Quality** (2019) ¹**
- ✓ **Draft UK Future Homes Standard and Building Regulations. **Overheating assessment**, low carbon, and ventilation requirements (2021) ²**

1. BC Housing, 2019. Overheating and AQ Design Guidelines Supplement. [BC Energy Step Code Design Guide & Supplemental Summary at Builder Insight 19: Modeling the Future Climate ... - BC Housing](#).

2. UK draft standards: <https://www.gov.uk/government/consultations/the-future-buildings-standard>. News: <https://www.architecture.com/knowledge-and-resources/knowledge-landing-page/the-future-homes-standard-explained>.