

Meeting Summary Report: Third meeting of the Building Energy Codes Working Group Advisory Committee – Focus on Overheating

IEA-EBC Working Group on Building Energy Codes

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Meli Stylianou, Natural Resources Canada, Canada

Brodie Hobson, Natural Resources Canada, Canada

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1 Summary

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- **Overview of the Adapt Bâti Confort Program in France:** Karine Jan presented the *Adapt Bâti Confort* program, a large-scale French initiative focused on deploying and evaluating passive cooling solutions in existing buildings, with support from public operators and regional partners, and fielded questions from participants.
 - **Program Objectives and Structure:** Karine explained that the *Adapt Bâti Confort* program aims to deploy effective, reproducible, and proven passive cooling solutions in existing buildings, with a focus on technical and sociological evaluation, skill-building for stakeholders, and dissemination of results. The program is funded by public operators and regional partners, with a budget exceeding 11 million euros, and targets 50 adaptation projects across southern France.
 - **Project Selection and Building Types:** The program targets existing buildings that have experienced significant overheating, prioritizing educational, health, collective housing, and office buildings, while excluding individual housing due to its diversity and lack of engineering innovation. Projects are selected to be representative of their categories, and three main configurations are considered: buildings at the start of energy renovation, recently renovated but insufficient buildings, and buildings undergoing comprehensive renovation.
 - **Evaluation and Monitoring Methods:** Karine described a multi-criteria evaluation approach, including technical diagnostics, feasibility studies, user involvement, dynamic simulations, and instrumented monitoring before and after interventions. The evaluation covers carbon, cost, energy, and summer comfort, with a centralized data warehouse managed by Cerema to ensure comparability and capitalization of results.
 - **Types of Solutions and Methodological Framing:** The program will assess a wide range of solutions such as external shading, innovative glazing, smart windows, efficient fans, thermal mass reinforcement, improved insulation, managed natural ventilation, and adiabatic cooling. Methodological guidance is provided by Cerema and CSTB, with specific instrumentation protocols for about 15 solution types.
 - **Role of Resource Centres and Dissemination:** Territorial resource centres are responsible for communication, project follow-up, training, and benchmarking existing resources, ensuring that knowledge and tools developed are accessible to stakeholders and contribute to broader skill-building in the sector.
- **Discussion and Q&A on the Adapt Bâti Confort Program:** Participants including Vincenzo Corrado, Sally Semple, Tristan Grant, and Richard London asked Karine detailed questions about the program's focus on non-cooled buildings, regional applicability, building typologies, and the definition of vulnerable households, with Karine providing clarifications on each point.
 - **Focus on Non-Cooled Buildings:** In response to Vincenzo, Karine clarified that the program primarily targets non-air-conditioned buildings, such as collective housing and schools, to improve resilience through passive solutions, as evaluating passive measures in air-conditioned buildings is challenging.
 - **Regional Applicability and Building Forms:** Sally inquired about the replicability of solutions across different French regions. Karine explained that many buildings in the south were constructed using the same models as those in the north, making the solutions broadly applicable, and noted that urban context (e.g., city center vs. outskirts) is a more significant factor for ventilation strategies.
 - **Building Typologies and Selection Criteria:** Tristan asked about the range of building typologies included. Karine responded that the program accepts buildings representative of their category, without strict selection based on construction period or materials, aiming for a diverse but representative sample.
 - **Definition of Vulnerable Households:** Richard London sought clarification on the term 'vulnerable households.' Karine explained that in France, this refers to social housing built by public stakeholders for lower-income residents, who are typically not owners of their flats, and that these buildings can take various forms.

- **Country Reports on Overheating Regulations and Practices:** Participants from Canada, the UK, New Zealand, Italy, Brazil, Sweden, and Japan provided brief reports on their national approaches to overheating in building codes, highlighting recent developments, challenges, and ongoing research.
 - **Canada's Overheating Measures:** Sébastien Brideau and Iain Macdonald described Canada's gradual introduction of overheating measures in the National Building Code, currently focused on small residential buildings, with a proposed indoor temperature limit of 26°C (dry bulb) based on health data, and ongoing research to refine these requirements.
 - **UK's Overheating Code and Review:** Sally outlined the UK's Part O overheating code, introduced in 2021 for new buildings, with a focus on nighttime overheating and passive solutions. The code is under review to address new temperature data, acclimatization, and practical challenges such as window security and design constraints.
 - **New Zealand's Health-Based Approach:** Richard reported that New Zealand is collaborating with medical researchers to use health data and the standard effective temperature (SET) metric, aiming to establish upper temperature thresholds in building codes, though regulatory changes are challenging due to the legislative process.
 - **Italy's Dual Regulatory Approach:** Vincenzo presented Italy's two-pronged approach: general energy performance requirements for all new and renovated buildings, and specific overheating and adaptive comfort criteria for public buildings, including mandatory calculations and consideration of future climate scenarios.
 - **Brazil's Natural Ventilation Focus:** Roberto Lamberts explained that Brazil's new regulations prioritize natural ventilation and set operative temperature limits (26–30°C depending on region) for residential buildings, with compliance driven by market forces and recent adoption of minimum performance standards.
 - **Sweden's Functional Regulation:** Sarah Petersson shared that Sweden's regulations have shifted to a functional approach, requiring good thermal comfort without specifying temperature limits or detailed methods, leaving implementation to the sector, with future adjustments possible as cooling demand increases.
 - **Japan's Cooling and Environmental Impact:** Takao Sawachi described Japan's reliance on air conditioning due to extreme summer heat and humidity, the effectiveness of passive measures in milder periods, and ongoing research into balancing energy efficiency with the global warming potential of refrigerants.
- **Plans for Future Meetings and Collaborative Activities:** Meli Stylianou proposed, and participants agreed, to organize a series of 10-minute country presentations on overheating code implementation for the next meeting, with Vincenzo suggesting a cross-country comparison table to synthesize approaches and key performance indicators.
 - **Future Presentation Series:** Meli announced plans to contact participants to arrange a series of 10-minute presentations, each followed by discussion, on the implementation of overheating codes in different countries, aiming to facilitate knowledge exchange and mutual learning.
 - **Cross-Country Comparison Table:** Vincenzo proposed creating a comparative table summarizing each country's approach, key performance indicators, and methodologies, which Meli agreed to coordinate by collecting and circulating information for review and input.
 - **Feedback and Additional Topics:** Louis Bourru and Karine suggested including feedback on code effectiveness and future directions, with Karine noting the value of discussing ongoing work and emerging ideas, even if not yet finalized, to inform the group's understanding.

2 Action items

- **Country Code Presentations for Next Meeting:** Confirm willingness and prepare a 10-minute presentation (with 5-10 minutes discussion) on national code implementation and overheating for the next meeting. (All interested participants to be contacted by Meli)
- **Cross-Country Comparison Table:** Collect information from country presentations and draft a cross-country comparison table of approaches, KPIs, and procedures for overheating and code implementation. (All interested participants)

3 Attendees

Name	Affiliation	Country
Louis Bourru	Cerema	France
Sébastien Brideau	Natural Resources Canada	Canada
Ryan Colker	International Code Council	USA
Vincenzo Corrado	Polytechnic University of Turin	Italy
Meredydd Evans	Unaffiliated	USA
Ellen Franconi	Unaffiliated	USA
Tristan Grant	New Buildings Institute	USA
Brodie Hobson	Natural Resources Canada	Canada
Karine Jan	Cerema	France
Danielle Krauel	Natural Resources Canada	Canada
Roberto Lamberts	Federal University of Santa Catarina	Brazil
Richard London	Ministry of Business, Innovation & Employment	New Zealand
Iain Macdonald	National Research Council Canada	Canada
Alexandra Maciel	Ministry of Mines and Energy	Brazil
Sarah Petersson	Swedish Energy Agency	Sweden
Ben Rabe	New Buildings Institute	USA
Rajan Rawal	CEPT University	India
Takao Sawachi	Building Research Institute	Japan
Sally Semple	Health and Safety Executive	UK
Meli Stylianou	Natural Resources Canada	Canada