Meeting Summary Report: Second meeting of the Building Energy Codes Working Group Advisory Committee

IEA-EBC Working Group on Building Energy Codes

February 24, 2026

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1   Summary

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- **Jurisdictional Code Right-Sizing and Implementation:** Ryan Colker, Meli Stylianou, and other participants discussed the challenges of adapting building codes to fit the specific needs and infrastructure of different jurisdictions, especially emerging economies, and the importance of deliberate engagement to ensure effective implementation.

  - **Emerging Economy Challenges:** Ryan explained that emerging economies often attempt to adopt codes from developed countries, but these codes may not be suitable due to differences in infrastructure, materials, and local practices, highlighting the need for tailored approaches.

  - **Global Code Support Efforts:** Meli referenced an IEA publication noting that around 100 countries lack building codes, emphasizing the group's potential role in supporting these countries through outreach and assistance.

  - **Compliance Gap Analysis:** Meli and Jens Lautsen discussed the gap between expected and actual building performance, noting that newer buildings sometimes consume more energy than calculated, underscoring the importance of compliance and monitoring.

- **Code Compliance and Enforcement Strategies:** Jens, Meli, Simon Jones, and others examined the persistent issue of code compliance, the increasing complexity of codes, and the need for robust enforcement mechanisms, including independent inspections and varied approaches across jurisdictions.

  - **Compliance Gap in New Buildings:** Jens described findings from Denmark where new buildings often show a greater gap between calculated and actual energy consumption compared to older buildings, attributing this to compliance issues and user behavior.

  - **Enforcement Mechanisms:** Simon highlighted the growing importance of independent inspection of ventilation systems in Europe, paralleling previous efforts with air tightness, and stressed the need for effective policing of technical codes.

  - **Jurisdictional Variations:** Simon noted that different jurisdictions employ varied methods for code enforcement and compliance, suggesting that sharing these approaches could provide valuable insights for improving code effectiveness.

- **Resilience and Overheating in Building Codes:** Sally Semple, Meli, Richard London, Rajan Rawal, Stanford Harrison, and others discussed the integration of resilience and overheating considerations into building codes, including the impact of climate change, political pressures, and the development of metrics for heat stress.

  - **Overheating Code Introduction:** Sally described the UK's introduction of an overheating code in 2021, its monitoring, and the resulting shift towards mechanical ventilation in multi-dwelling units, noting compliance aligned with industry practices.

  - **Political and Industry Pressures:** Sally and Meli discussed how the overheating code has become a focal point for political debate and industry lobbying, with the construction sector using it as an example of over-regulation.

  - **Metrics and Definitions:** Richard, Rajan, Stanford, Tristan Grant, and Sally explored various metrics for overheating and heat stress, including TM59, TM52, standard effective temperature (SET), and adaptive models, and the challenges of standardizing these across climates.

  - **International Approaches:** Louis Bourru and others noted that France uses degree hours for new buildings but lacks policies for existing ones, while India and Brazil focus on optimizing building envelopes and minimum energy performance standards for cooling.

- **Electrification and Grid Capacity Challenges:** Michael Dodd, Sarah Petersson, Roberto Lambert, Rajan, and others discussed the transition to electrified buildings, grid capacity issues, peak demand management, and the implications for building codes in Australia, Sweden, Brazil, and India.

  - **Australian Electrification Policies:** Michael explained Australia's transition from coal-based electricity to renewables, the push for electrification in new buildings, and the requirement for expanded electrical capacity in buildings that still connect to gas.

  - **Grid and Peak Demand Management:** Sarah described Sweden's focus on managing peak demand and installed capacity in building regulations, especially given the country's cold climate and increasing electrification.

  - **Cooling and Grid Impact:** Roberto and Rajan discussed the rise in air conditioning use in Brazil and India, the potential strain on the grid, and efforts to optimize building envelopes and implement minimum energy performance standards.

- **Embodied and Operational Carbon in Codes:** Jörg Dietrich, Rajan, Roberto, and others addressed the inclusion of embodied and operational carbon in building codes, the challenges of enforcement, and the gradual adoption of standards and labeling systems across jurisdictions.

  - **Swiss and European Implementation:** Jörg noted that Switzerland and other European countries are moving to implement embodied carbon requirements in building codes, aligning with continental standards.

  - **Indian Reporting vs. Compliance:** Rajan explained that India has recently included embodied energy in codes for reporting purposes, but not yet for compliance, highlighting enforcement challenges.

  - **Brazilian Standards and Market Adoption:** Roberto described Brazil's new minimum energy efficiency standards for buildings, the timeline for implementation, and the low market adoption of labeling systems, with ongoing efforts to build an implementation plan.

- **Digitalization, Tools, and AI for Code Support:** Meli, Tristan, Takao Sawachi, and others discussed planned activities related to digitalization, the development and improvement of energy simulation tools, and the potential for an AI-based hub to facilitate access to code-related information and resources.

  - **Simplified Energy Simulation Tools:** Tristan described the upcoming open-source performance rating method for energy simulation, intended to support code compliance and evaluation, and noted both interest and pushback from stakeholders.

  - **Heat Pump Modelling Challenges:** Takao explained Japan's ongoing investment in improving energy calculation tools, particularly for accurately estimating heat pump energy consumption, and the gap between building and manufacturing industry metrics.

  - **AI-Based Information Hub Proposal:** Meli proposed creating a centralized hub, potentially with an AI chatbot, to store and retrieve code-related information, making it more accessible and proactive for engineers and stakeholders.

- **Work Plan and Webinar Development:** Meli, Simon, Richard, Michael, and others discussed the creation of a work plan, the organization of quarterly webinars on key topics, and strategies for reaching a broad audience through networks and mailing lists.

  - **Quarterly Webinar Proposal:** Meli suggested organizing quarterly webinars focused on topics identified during the meeting, such as overheating, and proposed creating a table for participants to indicate their interests and priorities.

  - **Audience and Outreach Strategies:** Richard and Simon emphasized the importance of defining the webinar audience, leveraging personal networks, and using mailing lists to maximize reach and impact.

  - **Standardized Presentation Formats:** Simon recommended considering standardized formats for webinars and information papers to facilitate comparison across jurisdictions and themes, enhancing accessibility and relativity.

2 Action items

- **International Code Support:** Reach out to representatives of countries without building codes to explore how the group can assist with code implementation. (Meli)

- **Knowledge Sharing Platform:** Develop a proposal for creating a centralized information hub, potentially with an AI chatbot, to facilitate access to building code resources across jurisdictions. (Meli)

- **Webinar Planning:** Prepare a table for members to indicate interest and prioritize topics for quarterly webinars and create a work plan based on the results. (Meli)

- **Audience Identification for Webinars:** Consult with Simon about leveraging the EBC mailing list to maximize outreach for upcoming webinars. (Meli, Simon)

- **Next Meeting Coordination:** Reach out to participants for feedback on webinar and work plan ideas and schedule a follow-up meeting in approximately one month. (Meli, Brodie)