



Shaping Tomorrow's
Built Environment Today

Center of Excellence for Building Decarbonization (CEBD) ASHRAE Building Code Assessment Tool (BCAT)

FACILITATION GUIDE

Background

The ASHRAE Building Codes Assessment Tool (BCAT) was developed by the ASHRAE Center of Excellence for Building Decarbonization (CEBD) as part of the Flexible Building Codes Framework project.

The tool is designed to support collaborative, multi-stakeholder needs and capabilities assessment workshops as an initial step in developing and implementing new or enhanced building energy codes and policies aligned with achieving long-term building sector decarbonization. While the tool was primarily developed for use in emerging economies without mandatory building energy codes, it is flexible enough to be used in all national and local jurisdictions to help update existing building codes and improve building code development and implementation practices.

The BCAT project team included Clay Nesler, Ghina Annan and Amr Suliman with support from the ASHRAE Global Technology Integration Council and Global Government Affairs Committee. International collaboration partners included the World Bank/IFC, World Resources Institute, C40 Cities, and the Pacific Northwest National Laboratory.

Overview

Slide 2 - The presentation starts with the agenda for the workshop which includes sections describing the background, framework, assessment tool and process, and recommended next steps. References, glossary and an appendix on building code design elements are also included in the presentation.

Slide 3 - The ASHRAE Building Codes Assessment Tool (BCAT) presentation starts by providing background on the importance of international building energy codes, including their role in addressing building decarbonization challenges.

Slide 4 - The presentation summarizes the global challenge in meeting building decarbonization goals, especially in emerging economies where there is a lack of mandatory building codes and most of the population growth is occurring.

Slide 5 - ASHRAE's commitment to transition from energy codes to address operational and embodied carbon and helping Global South countries develop and improve consensus-based building codes.

Slide 6 - The ASHRAE Flexible Building Code Development Framework is introduced which provides the technical basis for the building code assessment tool. The framework includes six major elements: building code needs, building code measures, building code development, building code implementation, building code training and education, and building code stakeholder engagement.

Slide 7 - The building code assessment process consists of four sections:

- **Building Code Needs** assesses and prioritizes building code objectives, answering the “why” national, state and local governments need updated, modern building energy codes.
- **Building Code Measures** assesses and prioritizes the technical building construction and operational measures required to meet building code stakeholder needs and objectives.
- **Building Policies and Code Capabilities** assesses and prioritizes government building policies and evaluates government capabilities and capacity for developing, implementing and improving building codes over time.
- **Stakeholder Engagement** assesses and prioritizes which individuals and entities should be involved in building code development, implementation, training and education.

These four sections are organized into 20 categories (listed on the slide) and include 100 individual needs, measures, policies, capabilities and stakeholders for workshop participant assessment based on relative importance and priority.

Slide 8 - The assessment process includes an introduction to each of the four sections and an assessment of the relative priority for each need, measure, policy, capability and stakeholder. Each section has a participant worksheet that lists the assessment items as well as space for participants to “make notes” on the relative importance or priority (e.g., low, medium, high) for each item.

At the end of each section’s content review, each participant then selects the specified number of “top priorities) on their worksheet and joins the group in placing that number of colored “sticky” dots on their top priority items (one dot per item) on a large wall-mounted copy of the table. The dots can be a single color, however, assigning different colors to different stakeholder segments (i.e., Government, Industry, Academia, Non-profits) can yield additional insight into stakeholder similarities and differences based on priority. After the workshop, the prioritization data is analyzed and charted (colored tables, bar charts, etc.) for the workshop summary report.

Slides 9 to 12 – Building Code Needs Assessment Section Content

Slides 13 to 19 - Building Code Measures Assessment Section Content

Slides 20 to 26 - Building Policies and Code Capability Assessment Section Content

Slides 27 to 31 - Stakeholder Engagement Assessment Section Content

Slide 32 – Time should be reserved to review the key insights from the workshop using questions such as the following:

- What were the consensus priorities for each section?

- Where did today’s workshop participants disagree on priorities?
- Were there significant differences in priorities based on participant roles?
- What additional training and education is needed?
- Were any important stakeholders missing from the workshop? How can they be involved in future activities?

Given sufficient time in the workshop agenda, the participants could start to create a plan for developing, implementing and improving their building codes based on information, findings and guidance from the workshop. This plan should leverage and further develop the code capabilities and best practices identified during the workshop as well as the presentation technical references. The action plan should describe who will do what, when and where and how development and implementation should be managed. A summary and analysis of participant data should be provided in the summary report.

Slide 33 - This slide includes links to international model building codes and standards that provide useful global references for building energy code development for both commercial and residential buildings.

Slides 34 to 35 – These slides include key technical references used in developing the flexible building code framework and the BCAT assessment tool. They are useful references to support on-going code development, implementation, improvement, training and education activities.

Slide 36 – This is a glossary of building industry acronyms used in the presentation.

After the section is completed, collect the scoring sheets so that the participant importance ratings and priority selections can be analyzed after the workshop and included in the summary report. Participants do not need to put their name on the scoring sheets, only their building industry role.

Slides 37 to 41 - The presentation includes an Appendix which includes a list of common building code design elements. The design elements include building code types, building code metrics, building code applicability and build type coverage. The next four slides can be used to prompt discussion of next steps in building code development, can be evaluated based on coverage in current building codes, and/or assessed as a group based on the magnitude of impact, and difficulty of implementation. They also provide a useful reference for stakeholder education after the BCAT assessments either during or after the workshop.

Slide 48 – Thank the workshop organizers and participants for a successful event. Commit to providing a summary report which includes key workshop insights, findings and an analysis of participant data.

PLEASE provide the ASHRAE CEBD project team with photos of all of the scoring sheets from the workshop and any other data collected, such as participants, organizations, worksheets as well as the final report. Also provide photos of the workshop participants, especially when gathered around the large wall-size tables for the dot prioritization exercise. The data will be used to track global consensus priority results and guide future ASHRAE training, education and standardization activities for international building code development.