



Virtual Training Series on Building HVAC Sizing and Optimisation

Organised by the Asia LEDS Partnership (ALP)

Date & Time	Session 1: 12 October 2026, 10:00 AM - 12:30 PM Bhutan Time Session 2: 12 October 2026, 2:30 PM - 5:00 PM Bhutan Time Session 3: 13 October 2026, 10:00 AM - 12:30 PM Bhutan Time
Duration	2 hours per session with 30 minutes Q&A
Language	English
Registration Link	https://forms.gle/cu5mYyibhqfxJ6rg9

Background

Bhutan reaffirmed its commitment to remain carbon neutral for all time to come once again with the submission of its third Nationally Determined Contribution. Yet recent economic growth and rapid urbanisation, together with rising global temperatures, are exposing Bhutan to extreme weather patterns and driving rapid construction to keep pace with population growth. As cities in Bhutan continue to expand, emissions and energy demand have increased rapidly, primarily due to modern construction technologies that have poor thermal performance and higher operational costs for heating and cooling. To combat rising energy demands and increasing GHG emissions from the built environment, it has become imperative for Bhutan to integrate low emission strategies and energy efficiency measures into building codes, regulations, and practice.

In this context, the 2-day virtual training series on Build HVAC Sizing and Optimisation is designed to enhance regulatory understanding and technical capacity of government officials, academia, and practitioners in Bhutan to review, question, and evaluate HVAC design submissions and building energy performance claims. The session will provide a balanced focus on regulatory/approval requirements and practical engineering application.

Objectives

- To help participants understand the fundamentals of building thermal performance including heat transfer, building envelope performance, cooling and heating loads, and their relationship to HVAC design/sizing requirements.
- Provide exposure to real world applications of HVAC design and sizing principles, commonly used building energy simulations and tools, their outputs and appropriate use cases.
- Gain understanding of Bhutan's regulatory context relative to ASHRAE and comparable regional codes, to inform future code development or amendment work.



Session Agenda

Session 1: Building Physics, Comfort & Psychrometry

12 October 2026, 10:00 AM - 12:30 PM Bhutan Time

Heat transfer & envelope performance, Thermal comfort (ASHRAE 55)
Air properties, psychrometry, ventilation & IAQ

Session 2: Load Assessment & HVAC Design Workflow

12 October 2026, 2:30 PM - 5:00 PM Bhutan Time

Cooling/heating load assessment methodology & key sizing parameters
HVAC design workflow (zoning, sizing, system selection)
Low-energy design principles

Session 3: Tools, Optimisation, Policy & Practice

13 October 2026, 10:00 AM - 12:30 PM Bhutan Time

Simulation/design tool overview
Live tool demonstration (eQuest)
Commissioning, optimisation & O&M
Policy, regulations & international best practice
Case studies & discussion

Pre-requisites

1. Basic familiarity with building drawings, construction terminology, and climatic zoning
2. Basic working familiarity with Excel, needed for the in-session load-calculation worked example.
3. Although preferred, no prior HVAC design, thermodynamics, or simulation software experience is required or assumed.
4. A laptop or desktop (not only a mobile device) with stable internet, camera, and microphone, to participate in polls and the software demonstration.

For any queries, please write to Anandhan Subramaniyam at alpsecretariat@iclei.org and Karma Euthra at keuthra@moit.gov.bt.