Building Sciences Lab

- Radiant Cooling Chamber
- Day light studies
- Photometrics
- Air flow studies
- Acoustic studies

Radiant Cooling chamber

Working Principle

Radiant cooling technology cools buildings by circulating chilled water through pipes embedded in walls and slabs. A chamber in the building automation lab is used for experimenting with this technology.

Application

Radiant cooling has been shown to be more efficient than conventional air conditioning. This can hence be a sustainable solution to achieving thermal comfort.

Latent cooling room

Day light studies

Working Principle

The artificial sky dome simulate day light conditions and natural lighting inside a building. Solar path-finder simulate solar positions to determine best positions to place windows, shades or photovoltaics.

Artificial sky dome set-up

Application

Provision of ambient light conditions with natural lighting is key to promote green construction. These set ups can ensure sunlight is captured while ensuring ambient conditions.

Solar Path-finder set-up

Photometrics

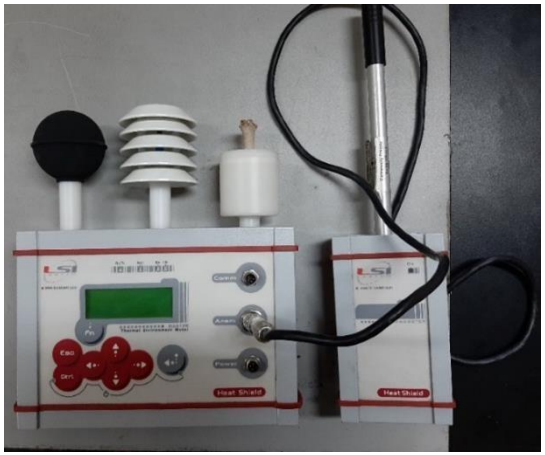
Working Principle

The lab features equipment such as photometric bench, lux meters, brightness testers and thermal comfort meters, the indoor lighting and thermal conditions can be monitored.

Photometric Bench

Application

The facilities can aid research in indoor design, material and lighting/heating equipment choice. This can contribute to research in energy efficiency and sustainability.



Thermal comfort meters

Air flow studies

Working principles

Wind tunnels simulate actual wind flow conditions in a controlled environment and can be used to test equipment that operate during winds. Anemometers are simple devices that measure wind speed and direction.

Wind Tunnel

Application

Devices are required to be placed externally on buildings to aid in automation or improve natural ventilation and lighting. Wind tunnels can test their stability. Anemometers can measure natural ventilation in indoor conditions.

Hand-held anemometer

Acoustic studies

Working principles

Kundt's tube is an apparatus that can measure speed of sound through various gaseous and solid materials. Sound level meters are handheld devices that can measure sound intensity at a point.

Kundt's tube

Application

Kundt's table can be used in material choice aiming at achieving required sound quality. Sound level meters can be used to assess various design solutions w.r.t their effect on sound.

Sound level meter