

CHARACTERIZATION AND DEVELOPMENT OF INNOVATIVE MATERIALS IN BUILDINGS

Innovations and Benefits - Evaluation of chemical, physical and mechanical properties of innovative and environmentally friendly building materials targeted to:

- improving the insulation;
- increasing safety and home comfort (e.g. fire resistant systems, anti-noise and anti-seismic systems);
- studying their durability;
- evaluating the behavior under operating conditions depending on Climatic Area, through non-destructive diagnostics applied in situ.

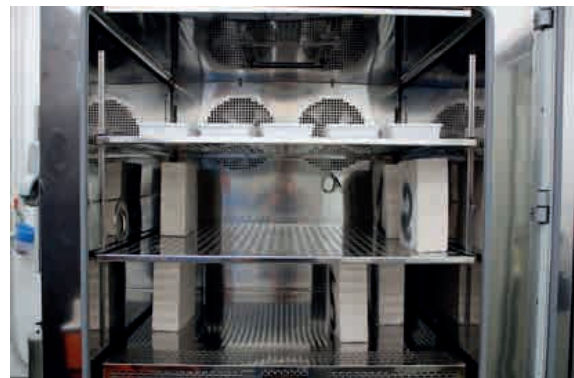
Indoor monitoring to face and provide answers to issues related to air quality breathed in closed rooms, especially in new buildings built with stricter energy efficiency criteria and with secondary raw materials and by-products, where sometimes an increase of respiratory and allergic diseases occurred.

Use -

- Accelerated weathering test on building materials (UNI EN 12091:2013 "Thermal Insulating Products for building applications – Determination of freeze-thaw resistance");
- Mechanical characterization of masonry units (UNI EN 772-1:2011 "Methods of test for masonry units. Determination of compressive strength");
- Reaction to fire test with a cone calorimeter (ISO 5660);
- Acoustics. Determination of sound absorption coefficient and impedance in impedance tubes. Part 2: Transfer-function method (UNI EN ISO 10534-2:2001);
- Determination of thermal conductivity;
- X-ray scattering techniques for phase analytical studies and crystallinity degree of samples;
- Thermography;
- Heat flow measurement;
- Indoor monitoring.

Applications and ongoing Activities -

- REEHUB Project – ‘Regional Energy Efficiency HUB’
- SOS – ‘Advanced and eco-sustainable materials for multi-functional, intelligent, reconfigurable applications for Smart Operating Shelter’
- EFFEDIL Project – “Innovative solutions for energetic efficiency in Buildings”;
- BAITAH Project– “Methodology and Instruments of Building Automation and Information Technology for pervasive models of treatment and Aids for domestic Healthcare”.



Thermography laboratory; 2) Climate-testing chamber: bench-aging test on hemp and clays;

Characteristics:

STANDARD - The service is provided in the standard mode