



Introduction to WG2: Functionality and performance

Sabrina Palanti and Miha Humar

National Research Council of Italy
The Trees and Timber Institute



University of Ljubljana, Biotechnical Faculty



COST FP1303: FCBA Paris
27-28 January, 2014

Aims

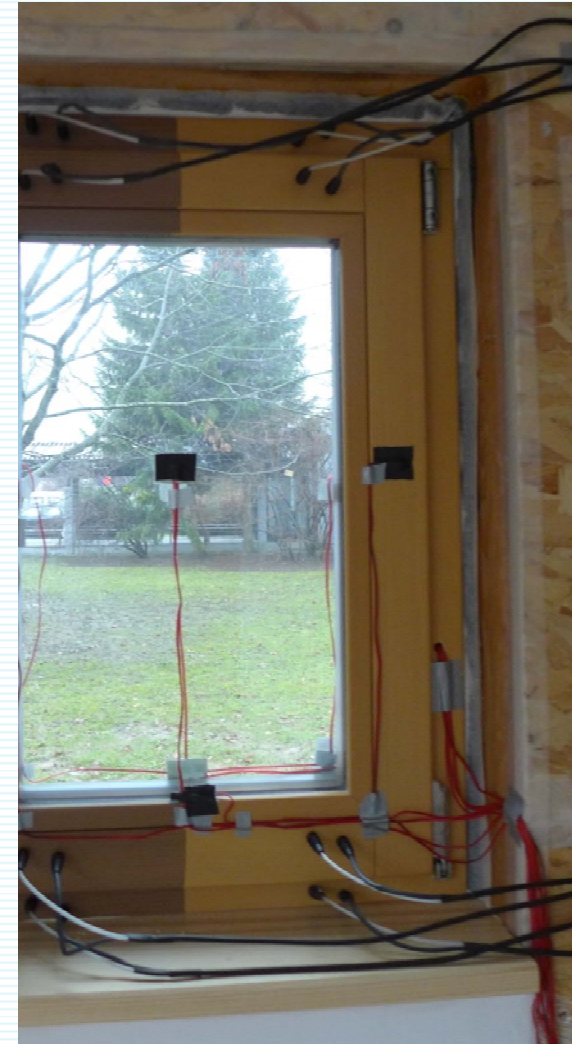
Performance evaluation of BBM through the issues affecting their service life:

- building physics (moisture, heating, material-material interactions).
- fiber-moisture relationships.

An improvement of the knowledge on the these issues will allow assessing and developing service life models to predict the reliability of performance.

Functionality of BBM

- Functionality → physical surroundings
- Building physics
 - Temperature (temperature, thermal gradients ...)
 - Moisture (condensation, flow of moisture, material MC, ...)
 - Material – material interactions (physical and chemical compatibility between materials, corrosion ...)
 - VOC, HCHO emissions
 - ...



Performance of BBM

- ❑ Durability/ Functional performance (protective methods, project details)
- ❑ Moisture performance
- ❑ Aesthetics



Problems – constraints

- ❑ Increasing building standards are constantly altering conditions in which a material operates
- ❑ Existing materials needs to be modified in order to make them suitable for given application



Goal: Development of performance-based service life

Data collection for reference service lives and individual factors are needed:

- To quantify in statistical terms relationships between product performance during testing and in service.
- To calibrate predictive models to ensure that they provide a realistic measure of service life, with reasonable degree of certainty.



How?

- Workshops
- Cooperation with other WG and other actions
- Training schools
- Round robin test
- IRGWP
 - Section 2: Test Methodology and Assessment
 - Durability database
- ECWM



Workshop plan - content

- ❑ Methods for assessment of functional performance. Laboratory and in particular field studies. Comparison of the results.
- ❑ Methods for the moisture measurements in service and laboratory. Limitations, experiences, case studies, comparison of laboratory and field test results ...
- ❑ Properties of the insulation materials. performance of insulation materials against moisture, fungi, fire...

Workshop plan - content

- Monitoring of the existing buildings, (moisture, decay, color...). Presentation of the design, results, experiences with model houses ...
- Service life models. How to obtain data. IRGWP durability database. Interpretation of the data. Comparison of the models.
- Emissions of chemicals from BBM (outdoor and indoor). Indoor air quality. Comparison of laboratory and actual observations.
- Biocide/extractives leaching from wood and its influence on the performance. Comparison of the field studies with laboratory data.

Comments, recommendations...

- palanti@ivalsa.cnr.it
- Miha.Humar@bf.uni-lj.si