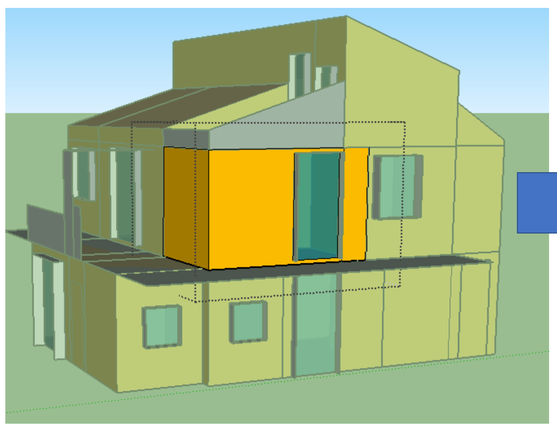
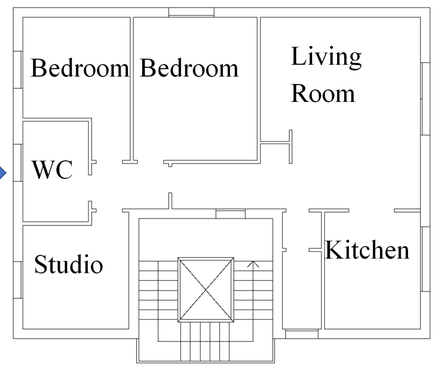
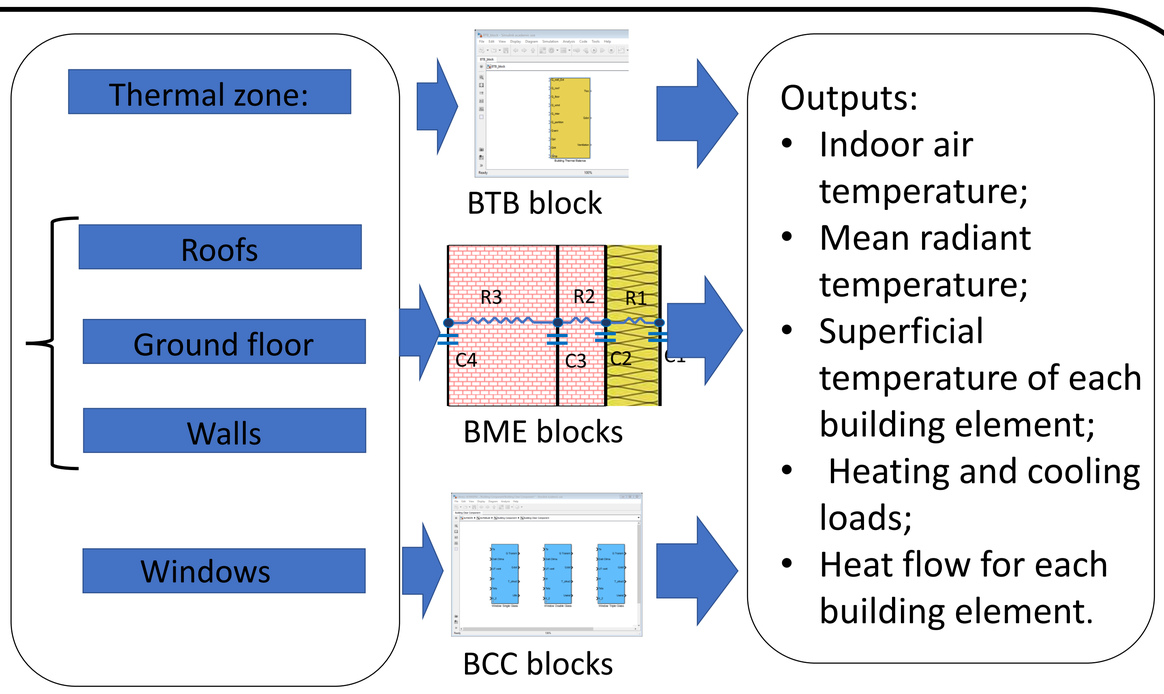
Candidate: *Jean Pierre Campana* **Supervisor:** *Gian Luca Morini*

ALMABuild: a new open source Simulink tool for dynamic modelling of buildings according to EN 52016

ALMABuild RATIONALE

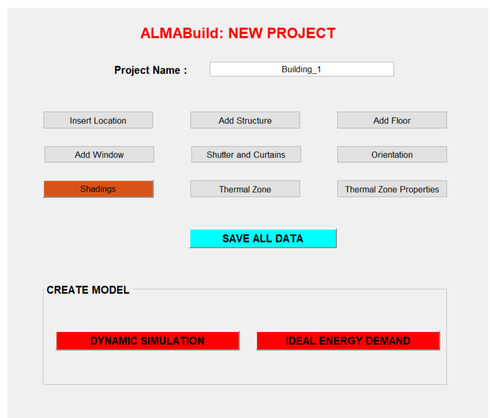


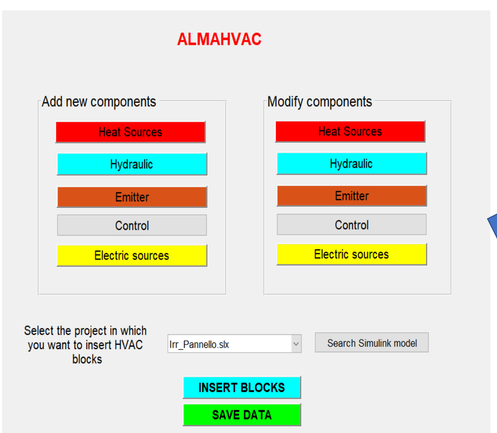


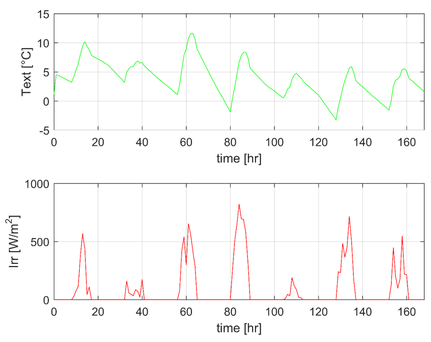


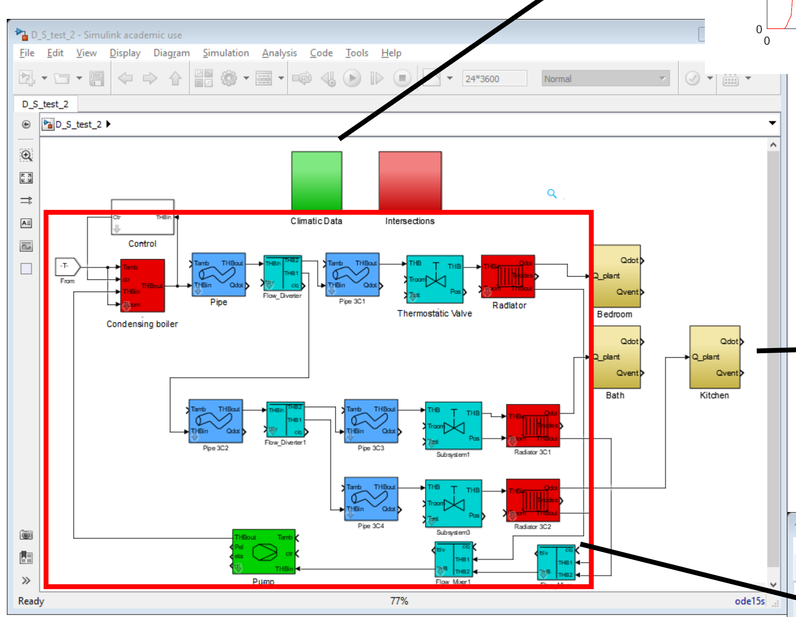
The rationale of ALMABuild, in agreement with EN 52016, consists in the description of each building element with RC models (Building Clear Component and Building Massive Elements blocks) and, by means of a Building Thermal Balance block for each thermal zone, convective and radiant indoor temperature, or heating and cooling loads can be evaluated.

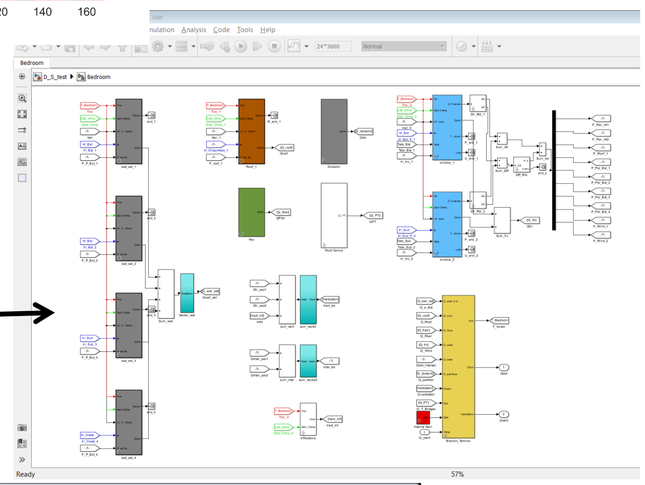
BUILDING AND HVAC MODEL

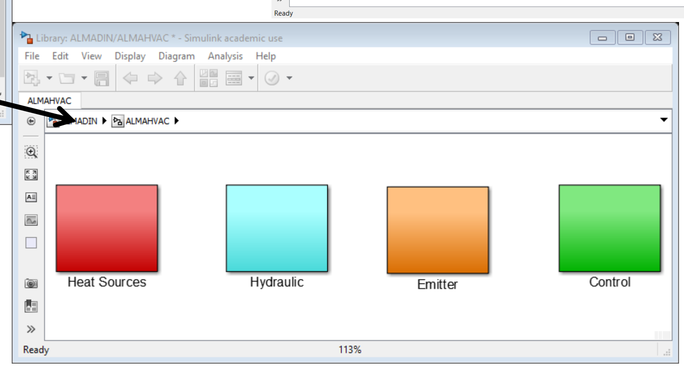








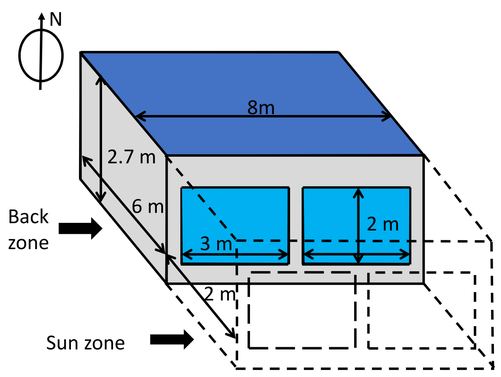


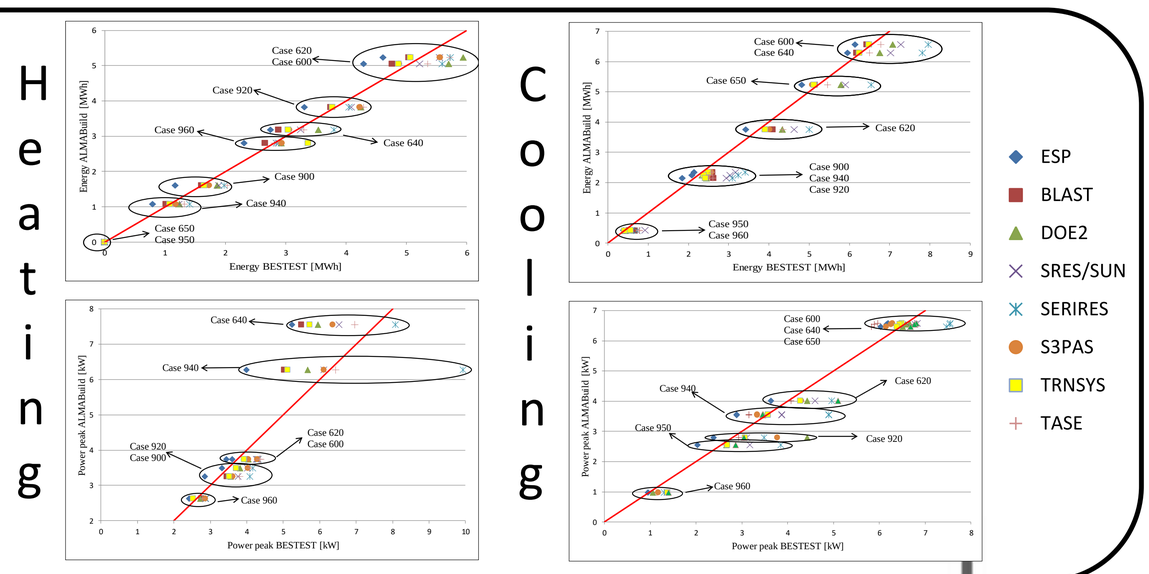


By means of Graphical User Interface (GUI) the user is driven in creation of the building model, which is automatically created after the insertion of all the building data, and in the development of the HVAC system.

BENCHMARK

The benchmark of the ALMABuild library has been performed following the BESTEST procedure. In the following figure, the comparison of results obtained with the 8 most popular software for building energy simulation and those obtained using ALMABuild are represented. Also analytical validation and empirical validation has been performed





IL PRESENTE MATERIALE È RISERVATO AL PERSONALE DELL'UNIVERSITÀ DI BOLOGNA E NON PUÒ ESSERE UTILIZZATO AI TERMINI DI LEGGE DA ALTRE PERSONE O PER FINI NON ISTITUZIONALI