IBPSA Project 1

WP 3.2 Application

Alessandro Maccarini

Researcher
Department of the Built Environment – Aalborg University / Copenhagen
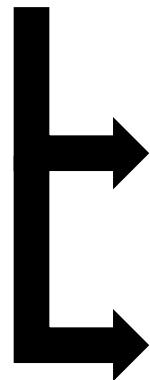amac@build.aau.dk

Objective of WP 3.2

To demonstrate capabilities enabled by the use of Modelica for building and district energy systems design and operation

Outcome

Collection of application case studies that aim at sharing best practices and document them for dissemination to the simulation community

Case studies will be described using a **case study template**

Information gathered through the template will be used to illustrate the case studies on **IBPSA Project 1 website**

Work done since meeting in Rome

- The case study template has been finalized and uploaded on GitHub

Template for description of application case studies – IBPSA Project 1 WP3.2

1. Title and authors

-Provide a title for the application case study

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-Name the authors that are responsible for the case study

Name/Institution/Country..
Name/Institution/Country..
....

2. General Description:

-Formulate a general outline of the case study by including: objective, description of HVAC/district system and main results (if already available)

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-What's the status of the case study?
- ☐ On going
- ☐ Completed

-Which is the scale of the simulation?
- ☐ Component

3. Diagram and picture

-Include at least two pictures for your case study:

1. One diagram showing the layout of the HVAC/district system
2. One picture of Modelica model

4. Thermal zone modeling

-How many buildings have you modelled?

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-How many thermal zones per building have you modelled? How many in total?

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-What's the complexity of the thermal zone model (Low order / High order)?

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-(only for district simulations) Are network and buildings coupled or decoupled?
- ☐ Coupled
- ☐ Decoupled

5. Modelica libraries and tools:

-Which Modelica library have you used? (Keep in mind that IBPSA library is for developers, not for users)
- ☐ AixLib
- ☐ Buildings
- ☐ BuildingSystems
- ☐ IDEAS
- ☐ Other ....

-Which simulation tools have you used?
- ☐ Dymola
- ☐ OpenModelica
- ☐ JModelica
- ☐ Other ....

the file is available at:
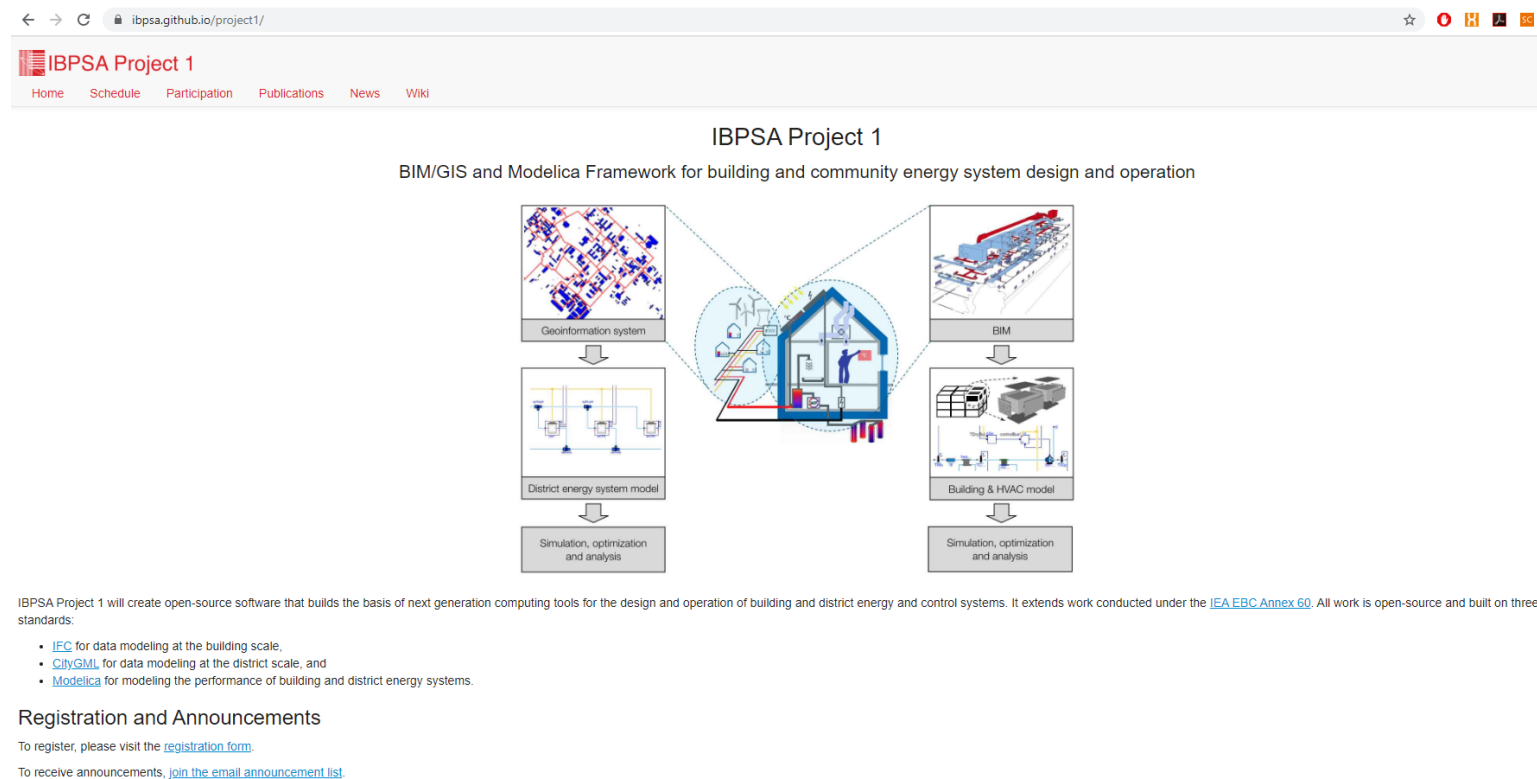
https://github.com/ibpsa/project1/tree/master/wp_3_2_app

A total of 11 case study templates have been collected so far

	Institute	Contact person	Scale
1	KU Leuven	Ina De Jaeger	District
2	University of Southern Denmark	Konstantin Filonenko	District
3	University of Southern Denmark	Esben Gammelgaard	District
4	University of Southern Denmark	Konstantin Filonenko	District
5	University of Southern Denmark	Tao Yang	Building
6	University of Colorado Boulder	Xu Han	Building
7	University of Colorado Boulder	Kathryn Hinkelman	District
8	University of Colorado Boulder	Jing Wang	District
9	University of Colorado Boulder	Yunyang Ye	Component
10	RWTH Aachen University	Michael Mans	District
11	Aalborg University	Alessandro Maccarini	District

Work done since meeting in Rome

- Initiated the work on the development of a new webpage for the IBPSA Project 1 website where the case studies will be illustrated

Planned work for the next period

- Improving the webpage ⟶ In particular about the layout of the page for single case studies

- Synergies with WP1.1 ⟶ Development of Aquifer Thermal Energy Storage (ATES) model – Aalborg University

- Collection of case studies continues…
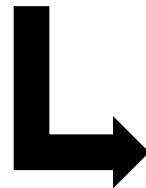
    ⟶ Interest from Ghent University (Belgium) to provide 2-3 case studies