



*Development and utilisation of an open-source tool for developing energy performance certificates - the Moldovan case*

21<sup>st</sup> Energy Efficiency Coordination Group Meeting and Workshop

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# Structure of updated calculation tool for EPB calculation

The calculation tool is based on three interconnected types of calculation sheets:

## I. Calculation sheets for required energy

*these are calculation sheets for calculation of energy requirement for several energy consumption types*

## II. Auxiliary calculation sheets

- *sheets for calculation of thermo-technical characteristics of building structures (U-value, thermal coupling coefficient)*
- *database of constructions materials with thermal-technical parameters*
- *conversion factors for primary energy and CO<sub>2</sub> emissions*

## III. Pages of certificate

- *summarization of results from calculation sheets into form of certificate*
- *short description of actual building state of building and proposed energy saving measures*

# Calculation sheets for required energy – Actual and Proposed

- 1-En – *calculation of energy needed for heating – seasonal method for actual state of building & state after proposed EE measures*
- 2-Monthly – *calculation of energy needed for heating – monthly method for actual state of building & state after proposed EE measures*
- 3-Heating & DHW - *calculation of heating & DHW system losses for actual state of building & state after proposed EE measures*
- 4-Mech. Ventilation - *calculation of energy required for mechanical ventilation for actual state of building and state after proposed EE measures*
- 5-Lighting - *calculation of energy required for lighting for actual state of building and state after proposed EE measures*
- 6-Cooling - *calculation of energy required for cooling for actual state of building and state after proposed EE measures*
- 7-Delivered Energy - *calculation of total delivered energy for actual state of building and state after proposed EE measures – including space for renewable energy production*
- 8-Primary energy & GHG - *calculation of primary energy and CO<sub>2</sub> emissions for actual state of building and state after proposed energy efficiency measures*

# Auxiliary calculation sheets

Add 1 – Windows – *calculation of U-value of opening structures*

Add 2 – Heated basement – *calculation of thermal coupling coefficient for floor and walls in heated basement*

Add 3 – Ground floor – *calculation of U-value of floor on the ground*

Add 4 – U-value – *calculation of U-value of walls and roofs*

Database of materials – *database of construction materials with thermal – technical parameters*

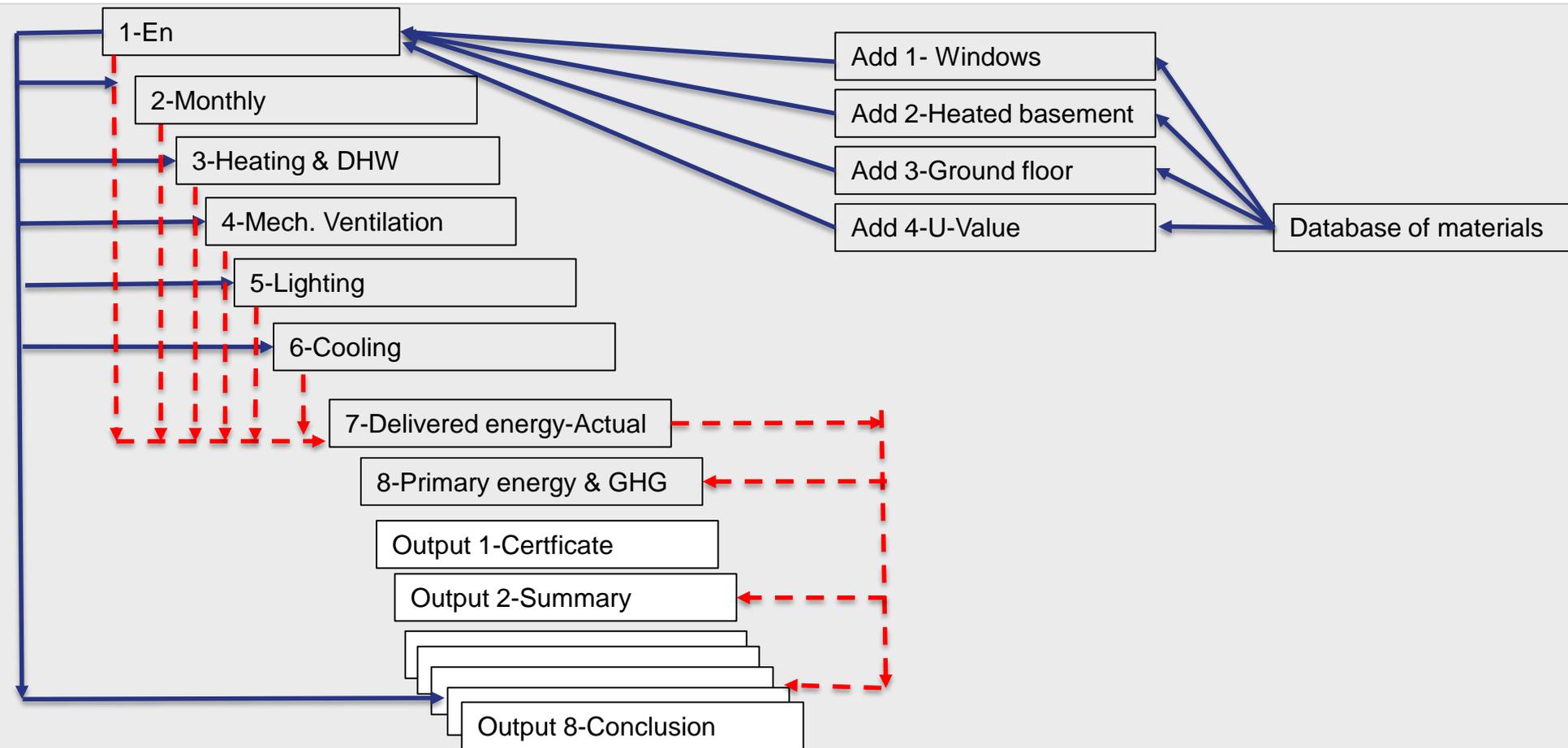
Conversions – *conversion factors for primary energy and Co<sub>2</sub> emissions*

# Energy classes definitions

These have been developed according to the following principles:

- ***Energy classes based on Slovakian classes adjusted for Moldova using the ratios from heating requirements for each specific element***
- ***Energy classes of buildings were elaborated for each component:***
  - space heating
  - domestic hot water
  - ventilation / cooling
  - Lighting
  - total energy use
  - primary energy consumption
- Total energy use = sum of other energy consumption

# Interconnection of sheets



# *Walk through an example of an apartment block...*

*Questions / comments?*



*Thank you for your  
attention!*

[www.energy-community.org/regionalinitiatives/EU4Energy.html](http://www.energy-community.org/regionalinitiatives/EU4Energy.html)

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