PREPARING CLIMATE DATA FOR GLASTA AND TRISCO CONDENSATION MODULE ACCORDING TO EN ISO 13788

1. Introduction

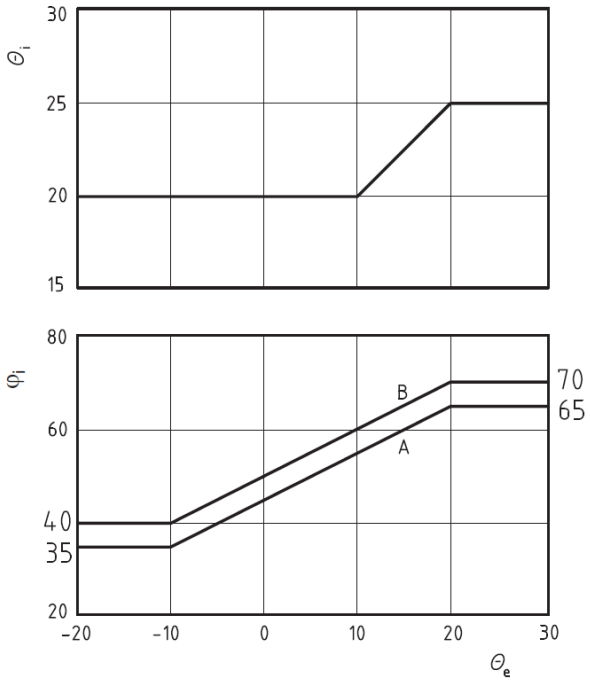
To evaluate the interstitial condensation risk in construction elements, outdoor and indoor temperature and relative humidity or vapour pressure need to be known. Typically monthly mean values are used. Monthly mean values for the outdoor climate can be found easily in databases. During the design stage, the use of indoor boundary conditions as defined in **EN ISO 13788:2012**[1] is recommended. A procedure to prepare these climate data is given.

2. Indoor boundary conditions

Annex A outlines two calculation methods to obtain indoor climate conditions, depending on the climate type: **Continental and tropical climates**, and **Maritime climates**.

2.1. Continental and tropical climates

In this method, the interior climate is derived from the exterior air temperature, with a distinction made between two occupancy levels: normal (A) and high (B). The standard specifies that this method is applicable only to dwellings and offices.



[1] Hygrothermal performance of building components and building elements - Internal surface temperature to avoid critical surface humidity and interstitial condensation – Calculation methods.

2.2. Maritime climates

5 classes of internal humidity load are defined according to the building types (Figure 1 and Table 1). For the interstitial condensation risk evaluation, it is recommended to use the upper borders (for example, the red line for class 4).

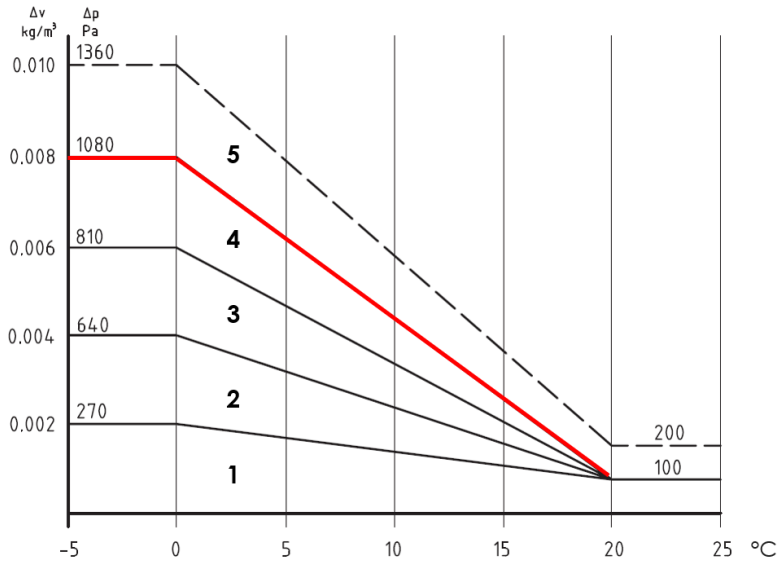


Figure 1. Variation of the internal humidity classes according to EN ISO 13788:2012.

Humidity class	Building
1	Unoccupied buildings, storage of dry goods
2	Offices, dwellings with normal occupancy and ventilation
3	Buildings with unknown occupancy
4	Sports halls, kitchens, canteens
5	Special buildings, e.g. laundry, brewery, swimming pool

Table 1. Relation between humidity classes and building type

3. Procedure to create climate data in GLASTA format

The Physibel online tool, available at https://apps.physibel.be/, provides a straightforward way to generate climate data file for import in GLASTA and TRISCO condensation module. In the section "*Boundary conditions for interstitial condensation calculation*", the following options are available:

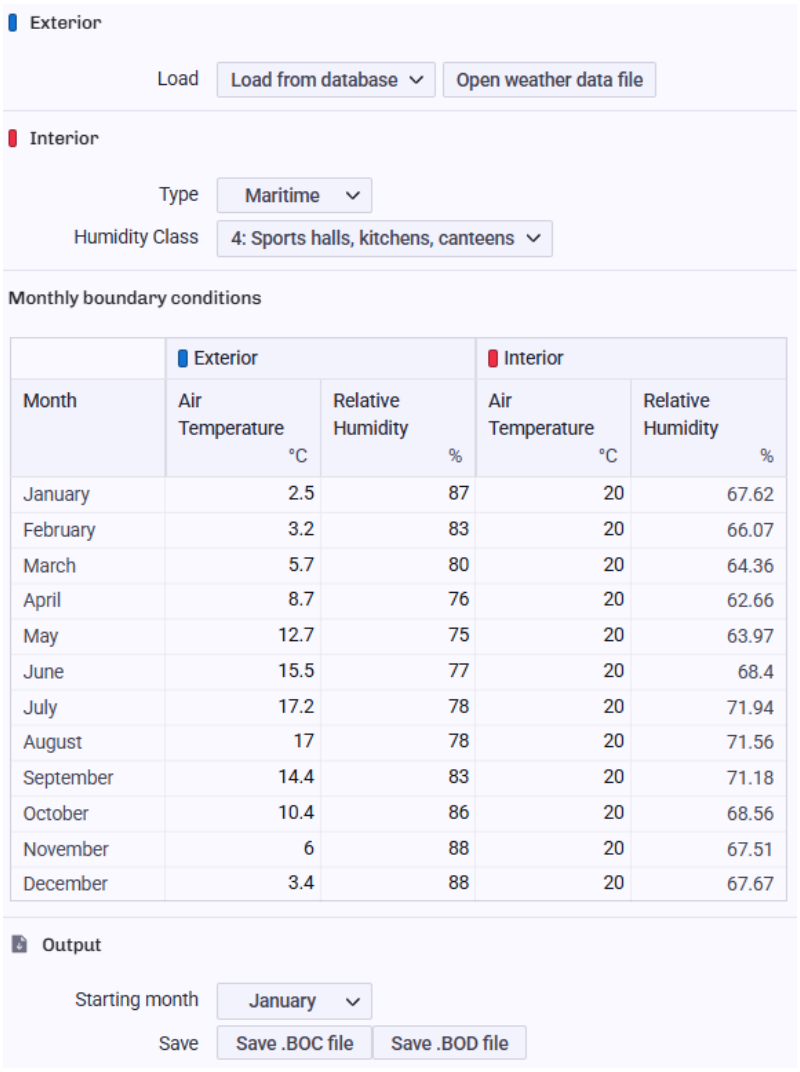


Figure 2. Interface of the Physibel tool

Exterior climate:

Select an outdoor climate file from the available database or load a weather data file in EPW or TMY3 format.

Interior climate: based on the 2 methods discussed in section 2 above.

- Type Continental: select the occupancy type: *Normal* or *High*.
- Type Maritime: select the Humidity class as per the building type: *Class 1/2/3/4/5*
- Type Custom: manually enter user-defined data.

  → Monthly boundary conditions are updated automatically based on the selections.

Output:

- Specify the starting month for the calculation.

- Choose the output format: .BOC or .BOD.

.BOC: monthly boundary conditions for both exterior and interior.

.BOD: monthly boundary conditions for only one side, either exterior or interior.

→ The file will be generated automatically, using the name of the selected climate station (e.g., *Uccle.boc* for the data shown in Figure 2).

Importing Climate Data into GLASTA

Copy the generated file to your personal folder (…*Documents**Physibel**GLASTA5**Climates)* to have the climate data available in GLASTA (Figure 3).

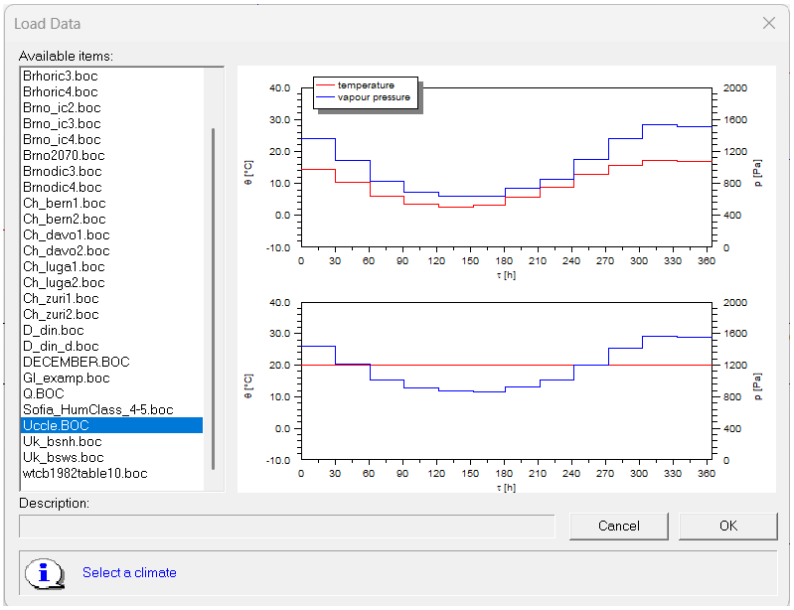


Figure 3. Climate database available in GLASTA

In GLASTA, for .BOC file, go to **Climate** → **Select**. The *Uccle.BOC* file will now appear in the climate database and can be used for further analysis.

For .BOD file, go to Climate → Edit. Click on ***Load climate side 1 or 2*** to load the .BOD file.