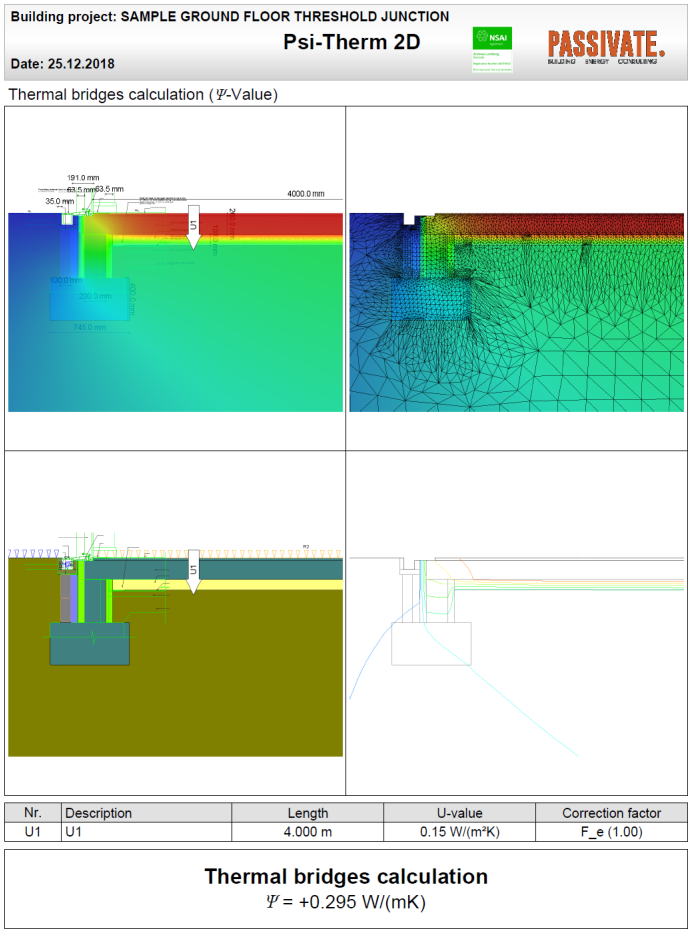
*All thermal models for use in the UK & Ireland are carried out in accordance with IS EN ISO 10211:2017 & BR497 2016. Your report is presented in accordance with the requirements of these standard, and contains some important information:*

**Temperature response diagram**: this shows the temperature field across the entire model from internal to external conditions, and is normally a smooth colour gradient indicating the heat flow pattern.
**Finite Element Mesh**: this shows the subdivision of the model required to carry out the calculation within the limits of accuracy required by IS EN ISO 10211:2017. The mesh is typically more refined at complex elements close to the junction, and simpler at larger elements further away from the junction.
**Drawing element**: This shows the detail on which the results are based. This must exactly match the construction detail for which a supporting drawing must be provided.
**Isotherms**: these are lines of constant temperature throughout the model and can be used to determine problematic areas of the construction as well as surface condensation risk.
**U-values**: these are calculated automatically by Psi Therm in accordance with IS EN ISO 6946. For ground floor U-values, these are calculated and entered by the assessor as per ISO 13370:2017. Window frames & curtain walling elements are not included in the models in accordance with the requirements of BR497:2016.

**Lengths**: the lengths assigned to the U-values in the model are taken at exactly the same locations as the equivalent element in the DEAP/NEAP/SAP assessment of the project.

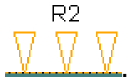
**Psi-value**: the psi-value is automatically calculated in accordance with IS EN ISO 10211 & BR497:2016.




| Nr. | Description | Length | U-value | Correction factor |
|---|---|---|---|---|
| U1 | U1 | 4.000 m | 0.15 W/(m²K) | F_e (1.00) |

**Thermal bridges calculation**
$\Psi$ = +0.295 W/(mK)

**Materials**: all materials used in your thermal model have been taken from valid sources. Where a unique material, e.g. insulation or thermal break, has been included, the thermal conductivity has been taken from a valid Agrement certificate, Declaration of Performance, European Technical Approval report or similar approved. Standard materials such as timbers & masonry/concrete materials, plastics etc. are taken from tables in IS EN ISO 10456:2017, Part L, CIBSE Guide A or other acceptable sources in accordance with BR497:2016, IS EN ISO 10211:2017 & Technical Guidance Document Part L.

**Boundary conditions**: the boundary conditions describe the environment to which the surfaces of the model are exposed. All boundary conditions are in accordance with BR497:2016. All boundary conditions which allow heat flow are illustrated by arrows pointing to the surface and are numbered. 


**Adiabatic boundary conditions**: any surfaces which do not have an arrow-set pointing to the surface are called 'abiabatic' boundary conditions. These are necessary to ensure uniform heat flow in the model. They are only found at the cut-off planes of the model as well as where any window/curtain-walling frame would be in place but which has otherwise been omitted in accordance with BR497:2016.

**Conductance**: this is a heat flow value which represents the heat flow through the entirety of the model.

**Building project: SAMPLE THERMAL MODEL**

**Psi-Therm 2D**

**Date: 25.12.2019**

Materials list:

| | Description | Lambda |
|---|---|---|
| | concrete 1.4 | 1.400 W/(mK) |
| | concrete 1.6 | 1.600 W/(mK) |
| | insulation 0.022 | 0.022 W/(mK) |
| | insulation 0.031 | 0.031 W/(mK) |
| | mortar | 0.880 W/(mK) |
| | Soil 2.0 | 2.000 W/(mK) |
| | Standard block | 1.330 W/(mK) |

Boundary conditions and Flow of heat:

| Nr | Temp | Rsi/Rse | Length | Flow of heat |
|---|---|---|---|---|
| R 1 | -- | -- | 64.41 m | -- |
| R 2 | 20.00 °C | 0.17 | 4.00 m | 17.578 W/m |
| R 3 | 0.00 °C | 0.04 | 19.90 m | -14.803 W/m |
| R 4 | 0.00 °C | 0.04 | 0.11 m | -0.618 W/m |
| R 5 | 0.00 °C | 0.04 | 0.10 m | -1.232 W/m |
| R 6 | 0.00 °C | 0.04 | 0.08 m | -0.924 W/m |

Calculation of the thermal conductivity L2D temperature for 2 conditions

| | |
|---|---|
| Conductance L2D | +0.87890 W/mK |
| Psi-value | +0.29490 W/mK |

**Psi-value**: the psi-value is the difference between the conductance through the planar elements as measured in the overall energy model for the building, and that which is measured in the 2D/3D energy model.