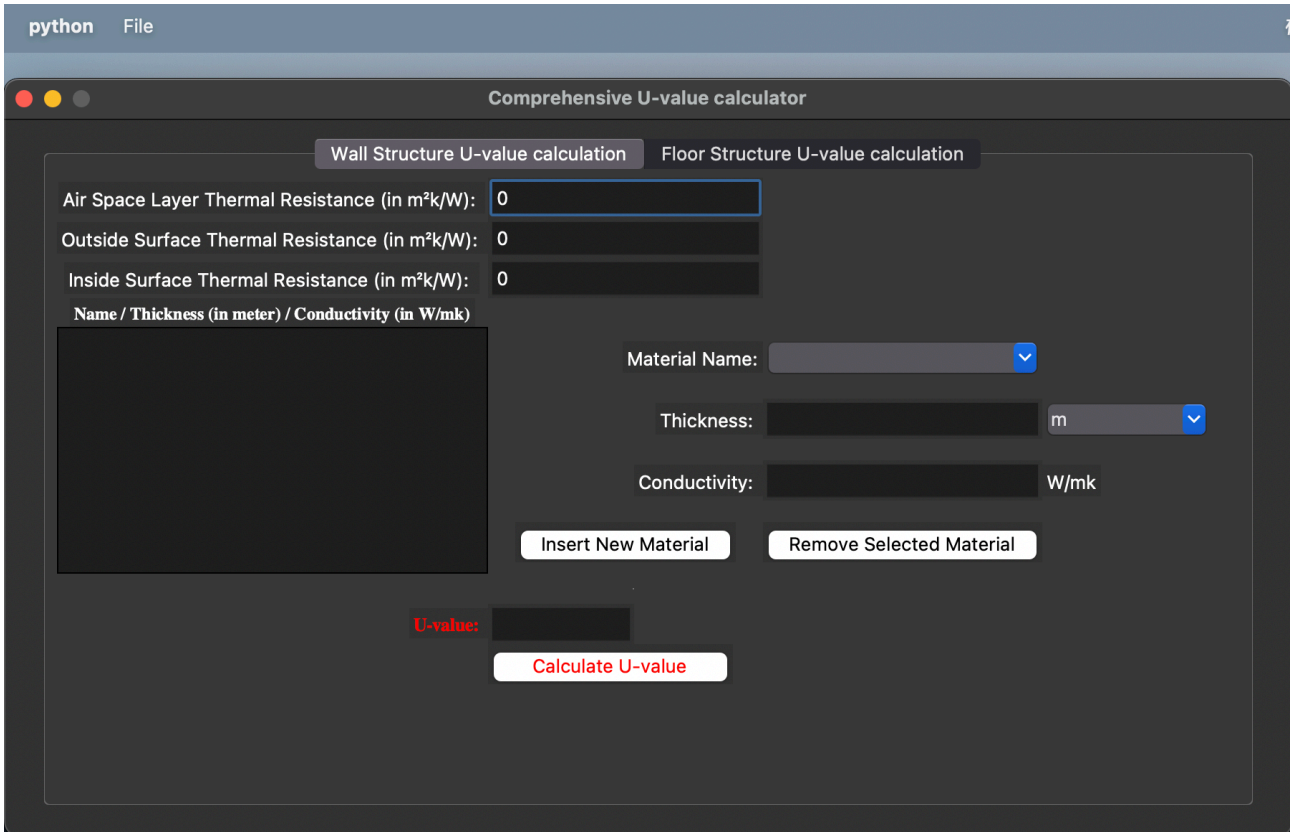
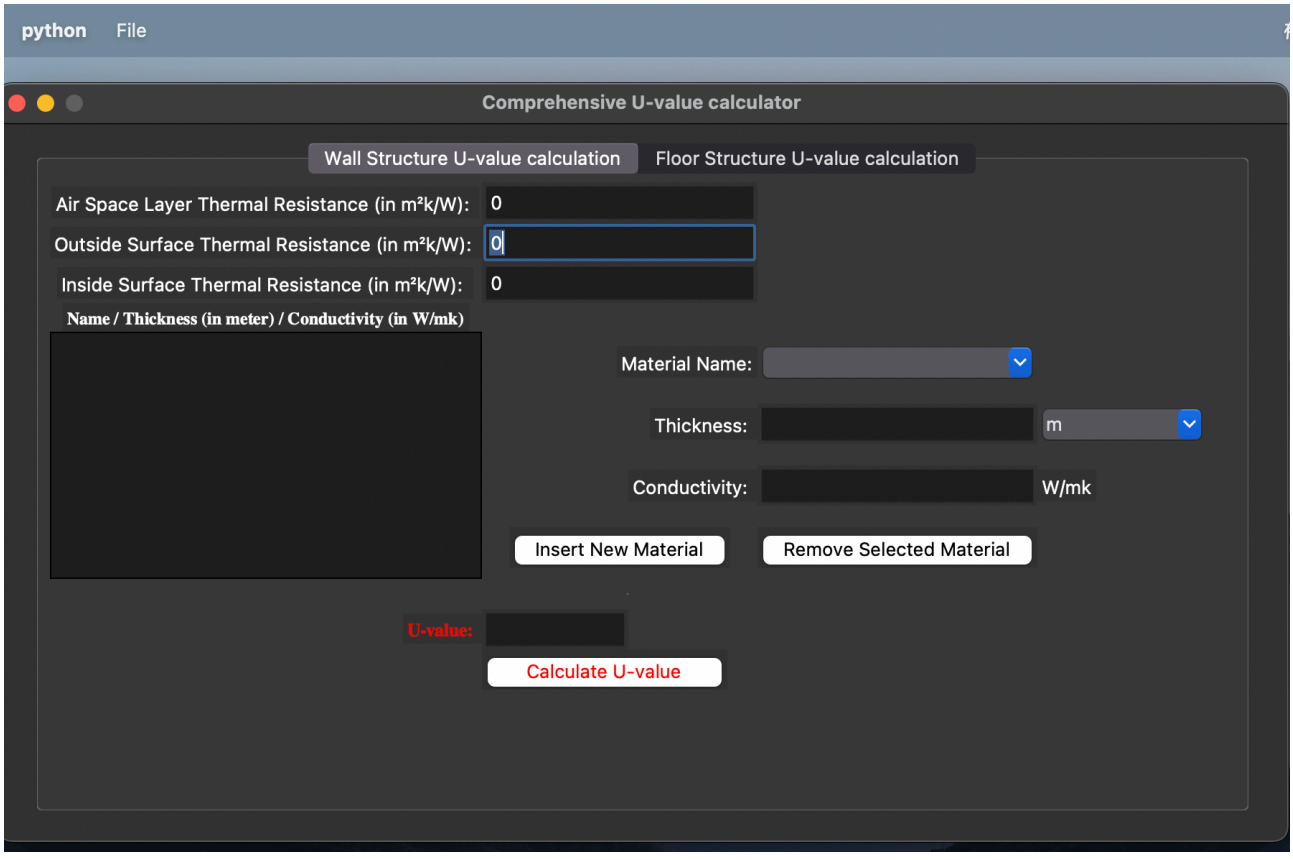
User Guide

The calculator owns two view separately are the Wall U–value calculator and the Floor structure U–value calculator.

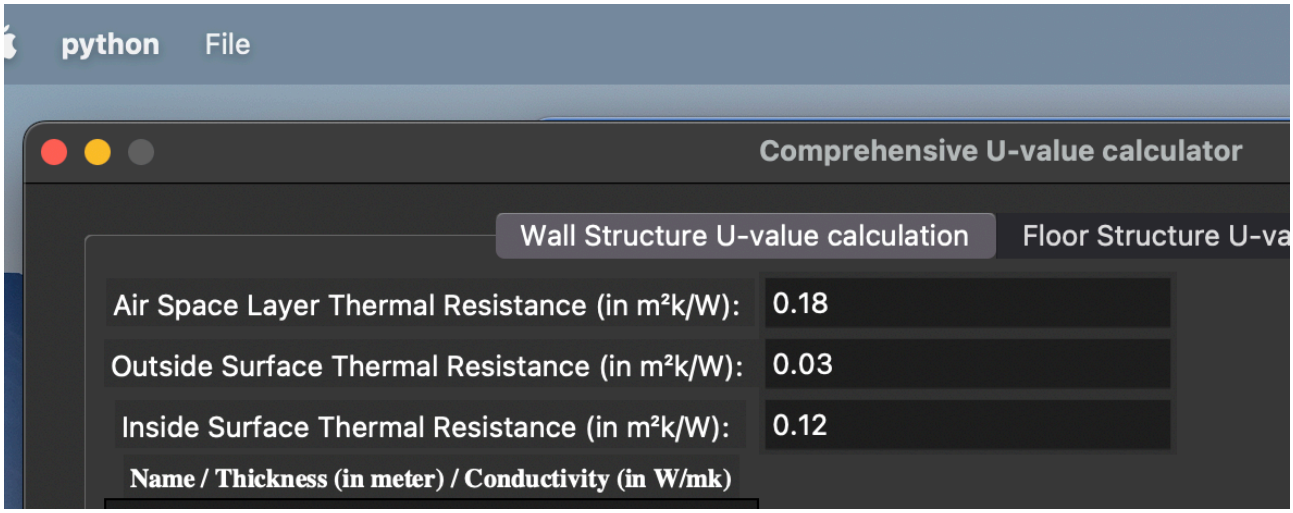




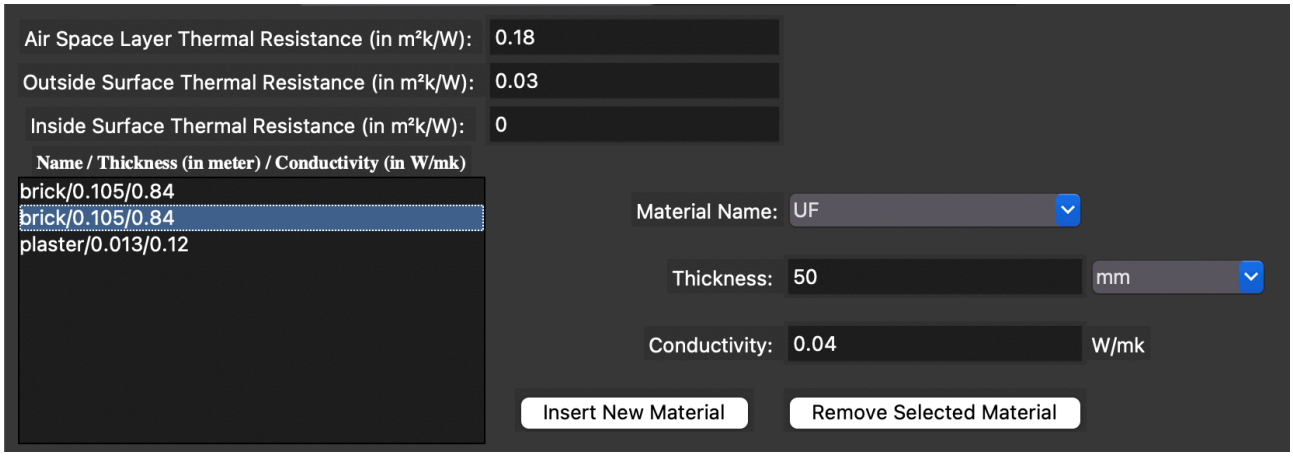
Firstly introduce how to use the Wall Structure U-value calculator

If the structure consider the Outside Surface / Inside Surface Thermal Resistance, then enter the values instead of the zeros.

In the same way, enter the unventilated cavity layer thermal resistant value if the air space layer exists.



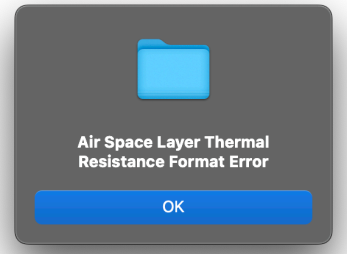
Then add each insulation layer materials, there are the optional materials with preset conductivity are choosable. Select by click the arrow right side of the material name enter box.
The thickness support different length unit, finally transferred to the units in meters.



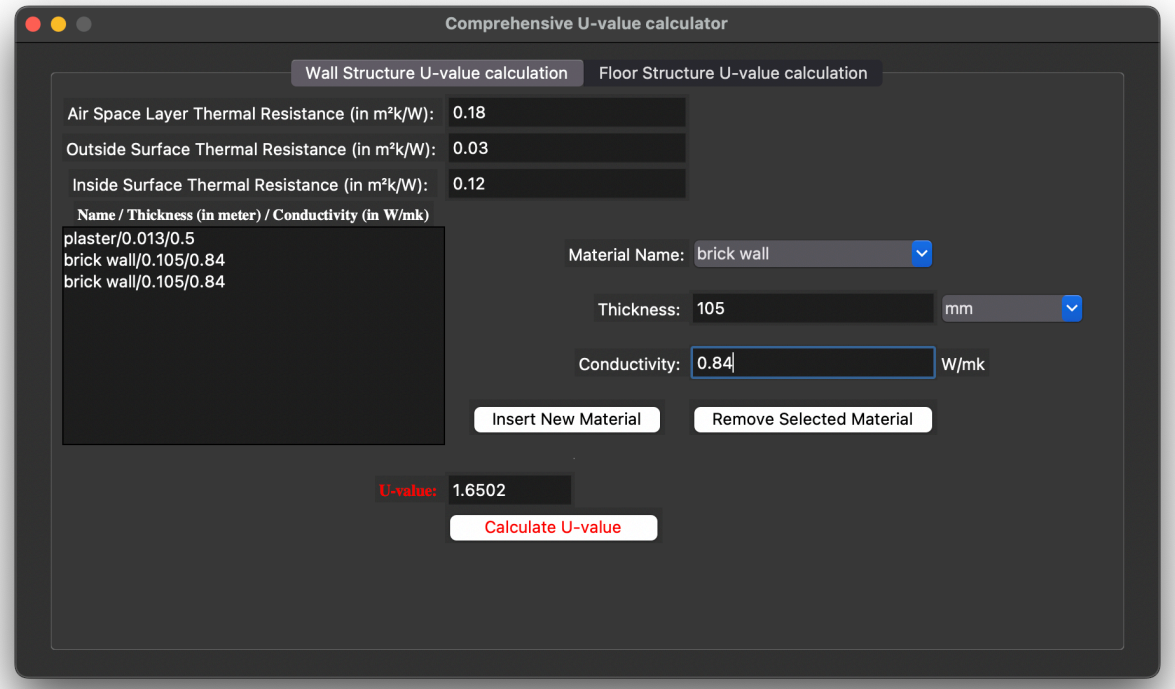
After fill up the material parameters and add the ‘Insert New Material’, If one material was selected , new material will be insert in front of the selected materials, else it will be add to the tail of the list.

If the material was wrongly added, just selected the material and click ‘Remove Selected Material’

Notice that all the values should be numeric and enter box are filled with the valid datas, else after click the calculate button the error will be pop up.

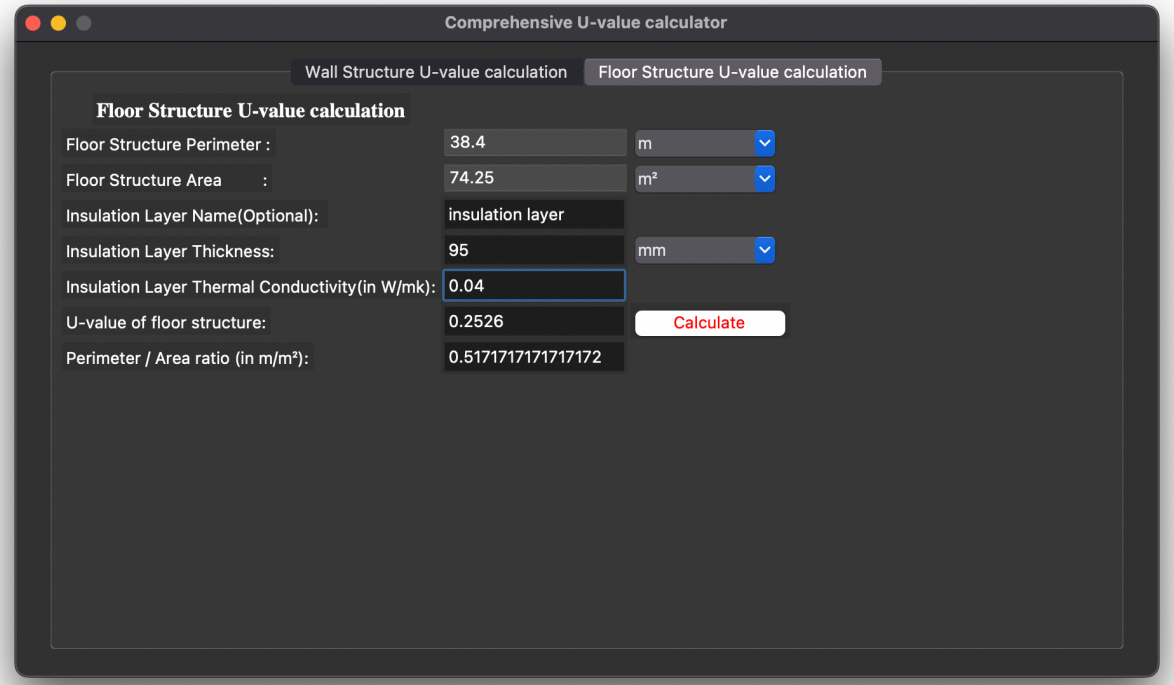


Example:
An external wall consisting of 105mm brick, 50mm unventilated cavity, 105mm brick and 13mm dense plaster has a severe exposure. Find its U value.
The brick has a thermal conductivity 0.84 W/mK.
Plaster has a thermal conductivity 0.50 W/mK
Resistance of unventilated cavity is 0.18 m^2k/W



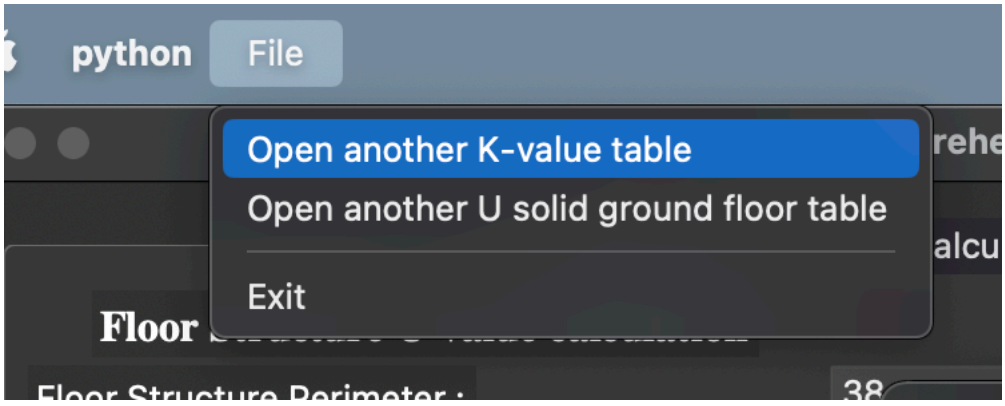
Easily fill in the datas, and click Calculate button.

For the floor structure U–value calculation, follow the steps:
Firstly enter the total perimeter of the layer and the structure area.
Next, enter the insulation layer thickness and the material thermal conductivity.
Finally click the calculate button to get the U–value (and the P/A ratio)

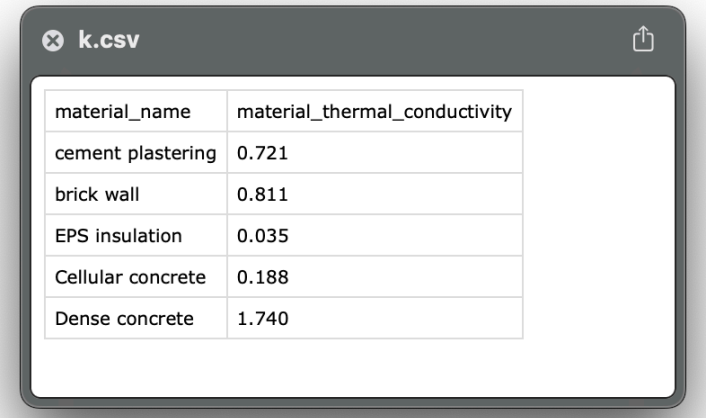


What's the interesting, this software could support you load your own material–thermal conductivity and Floor U–value table files.

Click the 'File' Menu and select 'Open another K–value file'

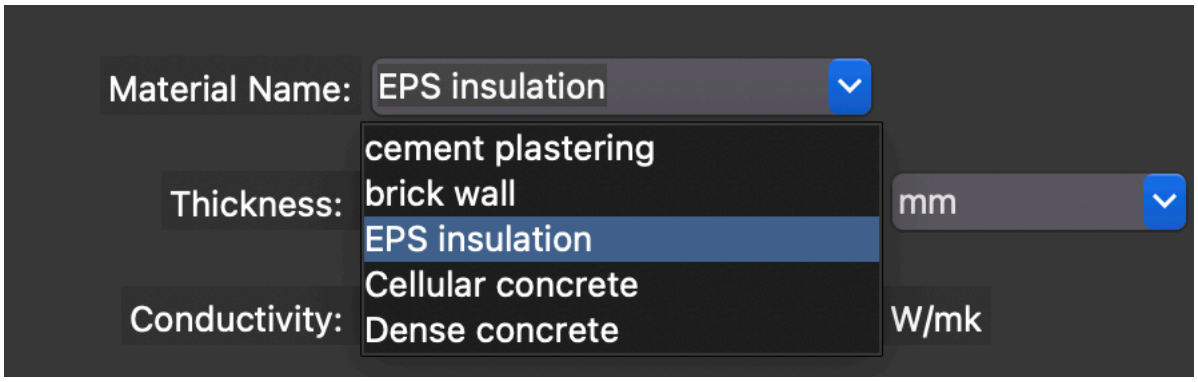


Where the K-value table files should be a ‘.csv’ file look like

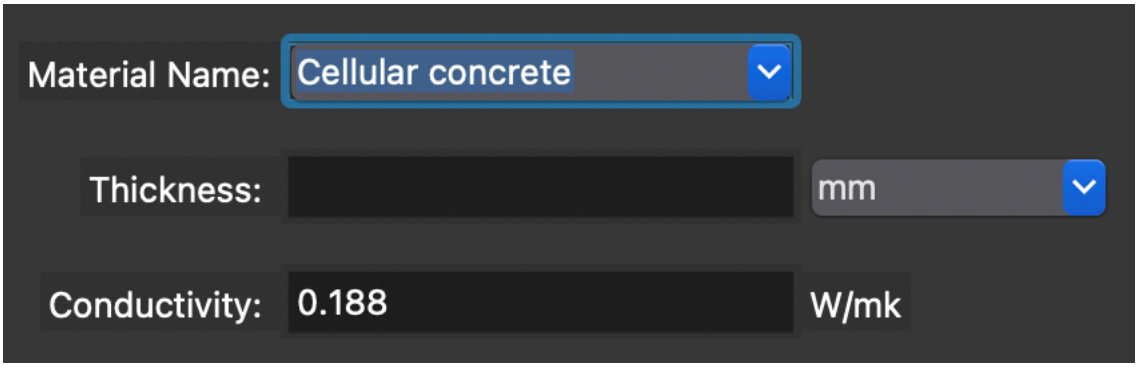


material_name	material_thermal_conductivity
cement plastering	0.721
brick wall	0.811
EPS insulation	0.035
Cellular concrete	0.188
Dense concrete	1.740

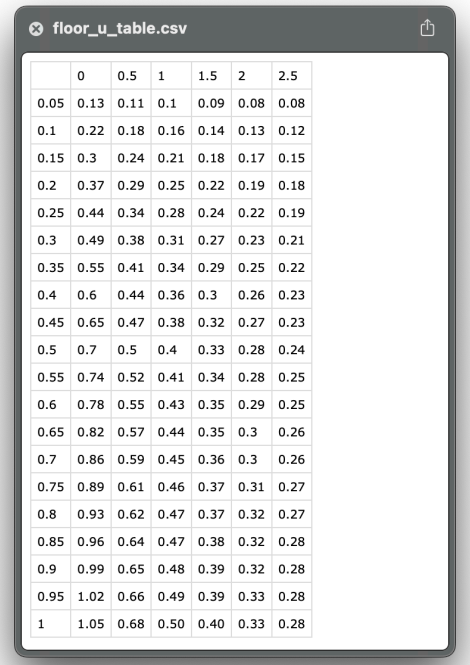
Selected the preset file and it will be loaded into the software.(The old material presets will not be covered)



All the materials will be loaded into the Combobox when click the material, the conductivity values will be changed automatically.



In the same way to load the new U–value database for the floor structure calculation.
U–value file is also a ‘.csv’ file which looks like


floor_u_table.csv

	0	0.5	1	1.5	2	2.5
0.05	0.13	0.11	0.1	0.09	0.08	0.08
0.1	0.22	0.18	0.16	0.14	0.13	0.12
0.15	0.3	0.24	0.21	0.18	0.17	0.15
0.2	0.37	0.29	0.25	0.22	0.19	0.18
0.25	0.44	0.34	0.28	0.24	0.22	0.19
0.3	0.49	0.38	0.31	0.27	0.23	0.21
0.35	0.55	0.41	0.34	0.29	0.25	0.22
0.4	0.6	0.44	0.36	0.3	0.26	0.23
0.45	0.65	0.47	0.38	0.32	0.27	0.23
0.5	0.7	0.5	0.4	0.33	0.28	0.24
0.55	0.74	0.52	0.41	0.34	0.28	0.25
0.6	0.78	0.55	0.43	0.35	0.29	0.25
0.65	0.82	0.57	0.44	0.35	0.3	0.26
0.7	0.86	0.59	0.45	0.36	0.3	0.26
0.75	0.89	0.61	0.46	0.37	0.31	0.27
0.8	0.93	0.62	0.47	0.37	0.32	0.27
0.85	0.96	0.64	0.47	0.38	0.32	0.28
0.9	0.99	0.65	0.48	0.39	0.32	0.28
0.95	1.02	0.66	0.49	0.39	0.33	0.28
1	1.05	0.68	0.50	0.40	0.33	0.28

You could extend the value range add more points to this function curve to make the values more precision if it is necessary.