



TEACH Passiv

FACT SHEET

Passivhaus U-values

This Fact sheet covers the u values required for Passivhaus projects

U- value

measures the ease that heat passes through a material or combination of materials in a building assembly. Units are $W/(m^2K)$

Interestingly (contrary to the sei publication 'Passive Homes' of 2008) there is no specific standard to ensure Passivhaus certification regarding back-stop U-values. The specific requirements to meet Passivhaus are covered in [THIS FACT SHEET](#)

However in order to meet the Space Heating, Primary Energy Demands and thermal comfort requirements; you are generally looking at U-values for building assemblies in the region

0.08-0.15 $W/(m^2K)$.

The types of construction and material that will meet Passivhaus are varied and are covered in [THIS FACT SHEET](#)

The critical factor therefore regarding U-values in Passivhaus is Thermal Comfort:

Thermal Comfort:

Passivhaus requires internal surface temperatures to be $> 17^{\circ}C$ for comfort (eliminating room temperature differences and temperature stratification)

This is why triple glazed windows are used in northern climates, [THIS FACT SHEET](#) covers why we use triple glazed windows and also includes further information regarding Thermal Comfort.

PHPP (the Passivhaus software) includes worksheets for entering materials, thicknesses and conductivities and the resulting u-values are used to verify that the building meets the Passivhaus criteria:

Assembly no.	Building assembly description	Interior insulation?				
2	Roof	No				
Heat transfer resistance [m ² K/W]		Interior R _{si}		0.10		
		exterior R _{se}		0.04		
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]	Thickness [mm]
1. Chipboard	0.130					50
2. Mineral Wool	0.040	I-Beam	0.374			355
3. Gypsum Plasterboard	0.700					13
4.						
5.						
6.						
7.						
8.						
Percentage of sec. 1		Percentage of sec. 2		Percentage of sec. 3		Total
98%		2.0%				41.8 cm
U-value supplement		W(m ² K)		U-Value:		0.120 W(m ² K)

REGISTERED
PRACTICE

2015

RIAI



CERTIFIED
PASSIVE HOUSE
DESIGNER

TEACHPASSIV.COM IS AN
INITIATIVE OF:

MARK STEPHENS ARCHITECTS

OFFICE

Rooskey
Foxford
Co. Mayo
Ireland

MOBILE

085 159 4084

TEL

094 92 57621

EMAIL

mdstephens@gmail.com

WEB

MarkStephensArchitects.com