

# A primeira Passive House em Portugal

Ílhavo

Construção Nova

Concluída em 2012



As primeiras Passive Houses certificadas em Portugal foram concluídas em 2012 e correspondem a duas habitações unifamiliares. Uma delas é simultaneamente o primeiro protótipo **wefi BUILDING** integrando também as componentes da eficiência hídrica e da produção local de alimentos. Este empreendimento obteve também a certificação **AV** no âmbito do sistema LiderA de avaliação da construção sustentável.

The first certified Passive Houses were completed in 2012. One of them is the first **wefi BUILDING** integrating also the water efficiency and local food production. Both Passive Houses obtained the certification **AV** within the LiderA system for assessment of sustainable construction.

Specific building characteristics with reference to the treated floor area			Criteria	Alternative criteria	Fulfilled? <sup>2</sup>
Space heating	Treated floor area m <sup>2</sup>	223,7			
	Heating demand kWh/(m <sup>2</sup> a)	7	≤ 15	-	
	Heating load W/m <sup>2</sup>	9	≤ -	10	yes
Space cooling	Cooling & dehum. demand kWh/(m <sup>2</sup> a)	-	≤ -	-	-
	Cooling load W/m <sup>2</sup>	-	≤ -	-	-
	Frequency of overheating (> 25 °C) %	0	≤ 10	-	yes
	Frequency excessively high humidity (> 12 g/kg) %	0	≤ 20	-	yes
Airtightness	Pressurization test result n <sub>50</sub> 1/h	0,5	≤ 0,6	-	yes
Non-renewable Primary Energy (PE)	PE demand kWh/(m <sup>2</sup> a)	43	≤ -	-	-
	PER demand kWh/(m <sup>2</sup> a)	20	≤ 60	60	-
Primary Energy Renewable (PER)	Generation of renewable energy kWh/(m <sup>2</sup> a)	27	≥ -	-	yes

Resultados do balanço energético da moradia B através do PHPP (© Homegrid)



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# Certificate

The Passive House Institute awards the seal "Certified Passive House"  
to the following building

House B, Rua Dom Manuel Trindade Salgueiro, Lote 2, 3830-055 Ílhavo, Portugal



Client: **João José de Jesus Marcelino**  
Rua Dom Manuel Trindade Salgueiro,  
Lote 2, 3830-055 Ílhavo,  
Portugal

Architect: **Homegrid**  
Av<sup>a</sup> 25 de Abril, 27, 3<sup>o</sup> ACX,  
3830-044 Ílhavo, Portugal

Building Services: **Climacom**  
Rua da Junqueira, Armazém n<sup>o</sup>4  
3800-034 Cacia - Aveiro, Portugal

Passive House Consultant: **João José de Jesus Marcelino**  
**Homegrid**  
Av<sup>a</sup> 25 de Abril, 27, 3<sup>o</sup> ACX,  
3830-044 Ílhavo, Portugal

This building was designed to meet Passive House criteria as defined by the Passive House Institute. With appropriate on-site implementation, this building will have the following characteristics:

- Excellent thermal insulation and optimised connection details with respect to building physics. The heating demand or heating load will be limited to  
**15 kWh per m<sup>2</sup> of living area and year or a heating load of 10 W/m<sup>2</sup>, respectively**
- When outdoor temperatures are high, thermal comfort can be ensured with passive solutions or with minimal energy demand for cooling and dehumidification according to the location-specific Passive House requirements.
- A highly airtight building envelope, which eliminates draughts and reduces the heating energy demand: The air change rate through the envelope at a 50 Pascal pressure difference, as verified in accordance with ISO 9972, is less than  
**0.6 air changes per hour with respect to the building's volume**
- A controlled ventilation system with high quality filters, highly efficient heat recovery and low electricity consumption, ensuring excellent indoor air quality with low energy consumption
- A total primary energy demand for heating, domestic hot water, ventilation and all other electric appliances during normal use of less than  
**120 kWh per m<sup>2</sup> of living area and year**

This certificate is to be used only in combination with the associated certification documents, which describe the exact characteristics of the building.

Passive Houses offer high comfort throughout the year and can be heated or cooled with little effort, for example, by heating/cooling the supply air. Even in times of cold outdoor temperatures the building envelope of a Passive House is evenly warm on the inside and the internal surface temperatures hardly differ from indoor air temperatures. Due to the highly airtight envelope, draughts are eliminated during normal use. The ventilation system constantly provides fresh air of excellent quality. Energy costs for ensuring excellent thermal comfort in a Passive House are very low. Thanks to this, Passive Houses offer security against energy scarcity and future rises in energy prices. Moreover, the climate impact of Passive Houses is low as they reduce energy use, thereby resulting in the emission of comparatively low levels of carbon dioxide (CO<sub>2</sub>) and air pollutants.

issued:  
Darmstadt, 08.05.2013



Dr. Wolfgang Feist

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