

Reference load profile, low energy single-family house, Denmark INFO Sheet D1-Denmark-SFH-heatdemand-7.1MWh

Description:	Definition of the reference load profile of a new low energy single family house, Denmark
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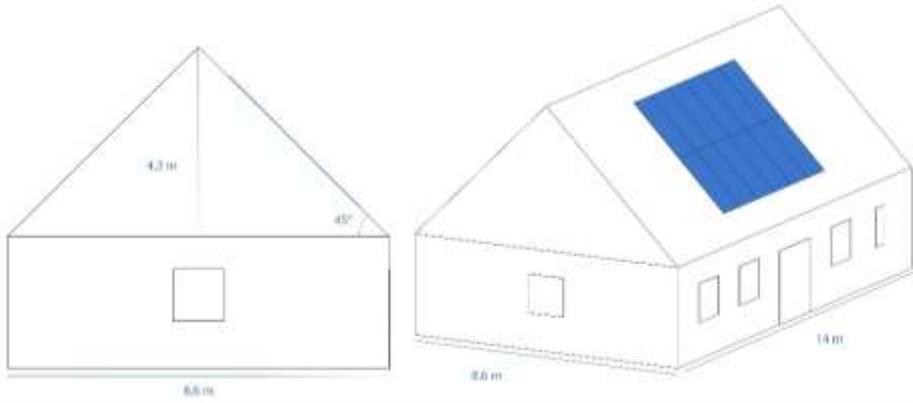
Introduction

This document describes the reference load profile of a low energy single family house in Denmark. It is provided as information and is used as a basis in other work packages of IEA-SHC Task 71 for levelized cost of heat and life cycle assessment calculations.

General information

Location	Copenhagen, Denmark
Application	Low energy single family house
Weather data at location	
- source	DRY, Sjaelsmark, Denmark
- hemispherical irradiance on horizontal surface	$\Sigma G_{\text{hem,hor}} = 1038.1 \text{ kWh}/(\text{m}^2 \cdot \text{a})$
- beam irradiance on horizontal surface	$\Sigma G_{\text{beam,hor}} = 514.5 \text{ kWh}/(\text{m}^2 \cdot \text{a})$
- diffuse irradiance on horizontal surface	$\Sigma G_{\text{diff,hor}} = 523.6 \text{ kWh}/(\text{m}^2 \cdot \text{a})$
- yearly average ambient temperature	$T_{\text{amb,av}} = 8.1 \text{ }^\circ\text{C}$
- hourly profiles	see Appendix

Description new single-family house

	
Orientation	South-West
Roof pitch	45°
Living space	120.4 m ²
Inhabitants	4
Heat transfer system	Floor heating system
Heating temperatures	See Appendix D DK

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Load profile: heat demand

- Yearly heat demand (total)	4955 kWh/a /1/
- Yearly heat demand (SH)	3387 kWh/a respectively 28.1 kWh/(m ² a) /1/
- Yearly heat demand (DHW)	1568 kWh/a /1/
- daily hot water volume per inhabitant	25 l
- Yearly heat demand for circulation:	0 kWh/a

Load profile: temperature levels

- max. flow temperature SH	31.1 °C
- max. return temperature SH	26.4 °C
- max. flow temperature DHW	55.5 °C
- return temperature DHW	10 °C seasonal ± 2 K, see Appendix

Acronyms

DHW	domestic hot water
MFH	multi-family house
SFH	single-family house
SH	space heating

Appendix

- hourly weather data
- flow and return temperature profiles
- load profile characteristics

References

/1/ Polysun