


EuroPHit


D3.4_PHPP Result Sheets

DRAFT

CS06

Social mid-terraced houses SIA Habitat Auby

INTELLIGENT ENERGY – EUROPE II

Energy efficiency and renewable energy in buildings

IEE/12/070

EuroPHit

[Improving the energy performance of step-by-step refurbishment and integration of renewable energies]

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Abstract

This document provides a short overview of the efficiency improvement of a step-by-step refurbishment to EnerPHit standard to be undertaken for the project ###.

First, the result sheet of the project's current status will present the calculated energy consumption of the existing building.

The PHPP result sheet of the completed EnerPHit retrofit will present the energy demand estimated for the completion of the project according to the overall refurbishment plan



Existing building: PHPP Result Sheet

1.1 PHPP Result sheet of the existing building

Specific building demands with reference to the treated floor area		
	Surface de référence énergétique:	255,4 m ²
Chauffer	Besoin de chaleur de chauffage	186 kWh/(m ² a)
	Puissance de chauffage	72 W/m ²
Refroidir	Demande totale de refroidissement	kWh/(m ² a)
	Puissance de refroidissement	W/m ²
	Fréquence de surchauffe (> 25 °C)	0,0 %
Energie prima	Chauffer, refroidir, ECS, éclairage, électricité domestique, Déshumidification, ECS, ECS, chauffage et électricité auxiliaire	322 kWh/(m ² a)
	Réduction énergie prim. par la prod. d'élec. solaire	253 kWh/(m ² a)
		kWh/(m ² a)
Etanchéité à l'air	Test d'infiltrométrie n ₅₀	5,0 1/h
EnerPHit (Rénovation): caractéristiques des éléments de construction		
Enveloppe bât. valeur U moy.	Isol. ext. paroi contact avec ext.	0,81 W/(m ² K)
	Isol. ext. paroi contact avec sol	1,44 W/(m ² K)
	Isol. int. paroi contact avec ext.	W/(m ² K)
	Isol. Int. paroi contact avec sol	W/(m ² K)
	Ponts thermiques ΔU	0,11 W/(m ² K)
	Fenêtres	2,62 W/(m ² K)
	Portes extérieures	3,00 W/(m ² K)
Unité de ventilation	Taux eff. de dispo. therm.	0 %

Figure 1: Specific energy efficiency values of the existing building modelled with PHPP 9 Beta

2 Retrofit steps

2.1 Overall refurbishment Plan

2.1.1 Retrofit steps:

Step 1: pH A new windows in the insulation layer.

Step 2: Insulation on existing rafters and existings ceilings with maximum thickness (20 to 25 cm) + Installation of a MVHR with 94% heat recovery ratio

Step 3: External insulation and airtightness of walls plus + interior insulation of garage slabs with thin insulation material to be determined

Step 4: Solar Thermal panels 2 m²/person could be mounted on south facing roofs and connected to the gas boiler

Step	Year	Measure	Specific Heating Demand	Specific Primary Energy Demand	Additional Specific Renewable Energy Gains
0	2013	Existing Building	186	322	0
1	2015	Windows+Doors	140	267	0
2	2016	Roofs+Ventilation	99	222	0
3	2019	Slabs+Walls	25	137	0
4	2020	Solar Thermal	25	114	16

Figure 2: Overview refurbishment steps

2.1.2 Efficiency Improvements

Still improvements to be found to reduce the heating demand:

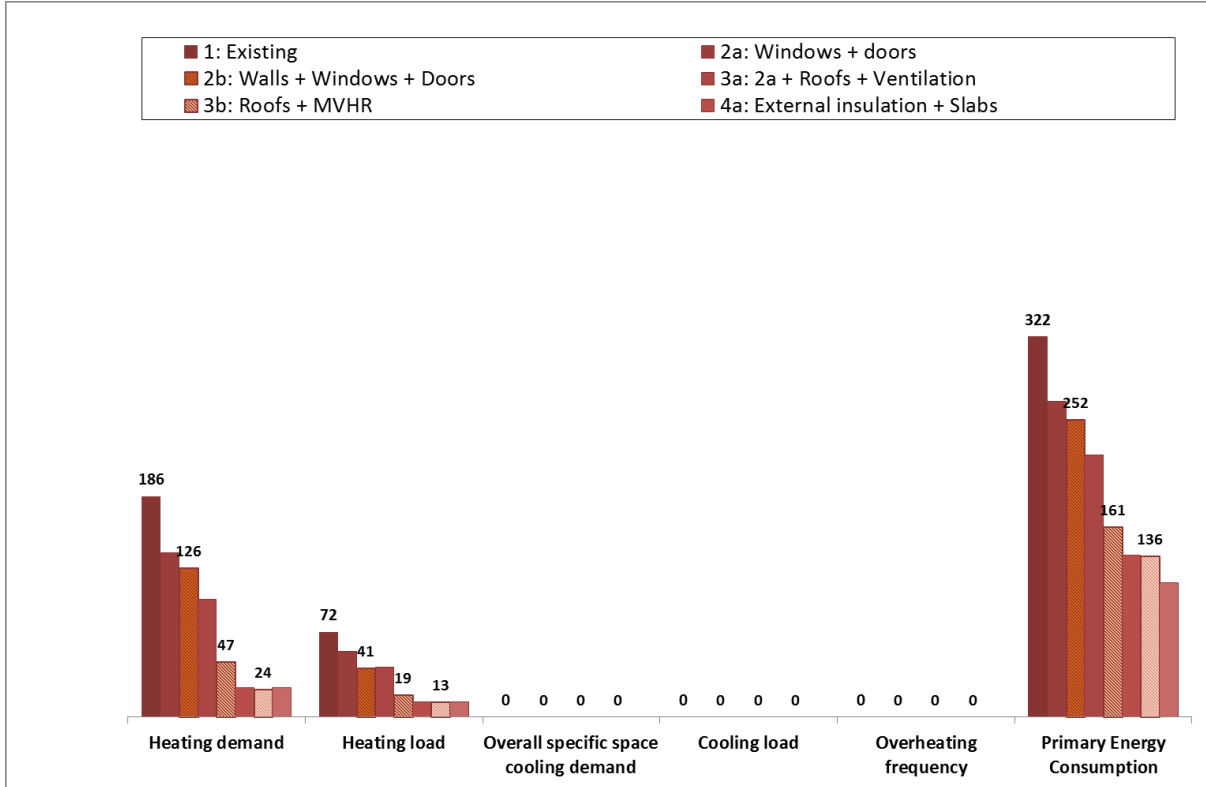


Figure 3: Overview energy efficiency improvement according to the overall refurbishment plan

3 Completion of step-by-step refurbishment to EnerPHit

3.1 PHPP Result Sheet of the completed EnerPHit standard


EnerPHit verification			
	Building:	Auby (24 Houses)	
	Street:	Rue Thorez	
	Postcode/City:	Auby	
	Country:	France	
	Building type:	Semi detached Houses	
	Climate:	Lille	
	Altitude of building site (in [m] above sea level):	25	
	Home owner/client:	SIA Habitat	
	Street:	60 rue des Potiers	
	Postcode/City:	Douai	
Architecture:			
Street:			
Postcode/City:			
Energy consulting:			
Street:			
Postcode/City:			
Year of Construction:	2015	Interior temperature winter [C°]	20,0
Number of dwelling units:	2	Internal heat gains winter [W/m²]	2,1
Number of Occupants:	8,0	Interior temp. summer [C°]	25,0
Exterior vol. V _e :	995,4 m³	IHG summer [W/m²]	4,9
		Spec. capacity [Wh/K per m² TFA]	180
		Mechanical cooling:	
	Mechanical System:		
	Street:		
	Postcode/City:		
	Certification:		
	Street:		
	Postcode/City:		
Specific building demands with reference to the treated floor area			
	Surface de référence énergétique:	255,4 m²	
Chauffer	Besoin de chaleur de chauffage	25 kWh/(m²a)	25 kWh/(m²a)
	Puissance de chauffage	13 W/m²	-
Refroidir	Demande totale de refroidissement	kWh/(m²a)	-
	Puissance de refroidissement	W/m²	-
	Fréquence de surchauffe (> 25 °C)	0,0 %	-
Energie primaire	Chauffer, Déshumidification, ECS, refroidir, éclairage, électricité domestique	114 kWh/(m²a)	132 kWh/(m²a)
	ECS, chauffage et électricité auxiliaire	45 kWh/(m²a)	-
	Réduction énergie prim. par la prod. d'élec. solaire	35 kWh/(m²a)	-
Etanchéité à l'air	Test d'infiltrométrie n ₅₀	1,0 1/h	1 1/h
EnerPHit (Rénovation): caractéristiques des éléments de construction			
Enveloppe bât. valeur U moy.	Isol. ext. paroi contact avec ext.	0,10 W/(m²K)	-
	Isol. ext. paroi contact avec sol	0,27 W/(m²K)	-
	Isol. int. paroi contact avec ext.	W/(m²K)	-
	Isol. int. paroi contact avec sol	W/(m²K)	-
	Ponts thermiques ΔU	0,01 W/(m²K)	-
	Fenêtres	0,86 W/(m²K)	-
	Portes extérieures	0,80 W/(m²K)	-
Unité de ventilation	Taux eff. de dispo. therm.	93 %	-
* cellule vide: données manquantes; '-': aucune exigence			

Figure 4: Specific energy efficiency values of the completed project modelled with PHPP 9 Beta