



## 2no. Bungalows for Disabled Council tenants in Feltham, London

### Data of building

Year of construction Baujahr	2024	<b>Space heating</b>	<b>18</b> <b>kWh/(m<sup>2</sup>a)</b>
U-value external wall U-Wert Außenwand	0,072 W/(m <sup>2</sup> K)		
U-value basement U-Wert Kellerdecke	0,070 W/(m <sup>2</sup> K)	Primary Energy Renewable (PER) Erneuerbare Primärenergie (PER)	54 kWh/(m <sup>2</sup> a)
U-value roof U-Wert Dach	0,092 W/(m <sup>2</sup> K)	Generation of renewable Energy Erzeugung erneuerb. Energie	24 kWh/(m <sup>2</sup> a)
U-value window U-Wert Fenster	0,95 W/(m <sup>2</sup> K)	Non-renewable Primary Energy (PE) Nicht erneuerbare Primärenergie (PE)	67 kWh/(m <sup>2</sup> a)
Heat recovery Wärmerückgewinnung	74.0 %	Pressurization test n <sub>50</sub> Drucktest n <sub>50</sub>	0,5 h <sup>-1</sup>
Special features Besonderheiten	Compact ventilation and heating unit air-to-air Nilan Compact P with optional active cooling, solar thermal and ASHP		

## **Brief Description**

The two proposed bungalows have been specially designed for wheelchair users, making them unique within the local housing provision.

Located on a compact suburban site in Hounslow, London, the development replaces a row of redundant garages with modern, accessible homes.

These new dwellings represent an exemplary model of affordable housing, commissioned by the local council to deliver low-energy, high-efficiency homes that prioritise comfort, usability, and dignity for some of the borough's most vulnerable tenants.

## Responsible project participants

Architect Entwurfsverfasser	Architectural Design Lab Ltd
Implementation planning Ausführungsplanung	Nephin Consulting
Building systems Haustechnik	-
Structural engineering Baustatik	-
Building physics Bauphysik	Maiia Williams
Passive House project planning Passivhaus-Projektierung	Maiia Williams
Construction management Bauleitung	Star Contractors

## Certifying body

Passivhaus Institut Darmstadt www.passiv.de	Kym Mead
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## Certification ID

**8027**

Project-ID ([www.passivehouse-database.org](http://www.passivehouse-database.org))  
Projekt-ID ([www.passivhausprojekte.de](http://www.passivhausprojekte.de))

## Author of project documentation

### Verfasser der Gebäude-Dokumentation

Passivhaus Institut Darmstadt www.passiv.de	Maiia Williams
Date Datum	Signature Unterschrift
26.05.2018	

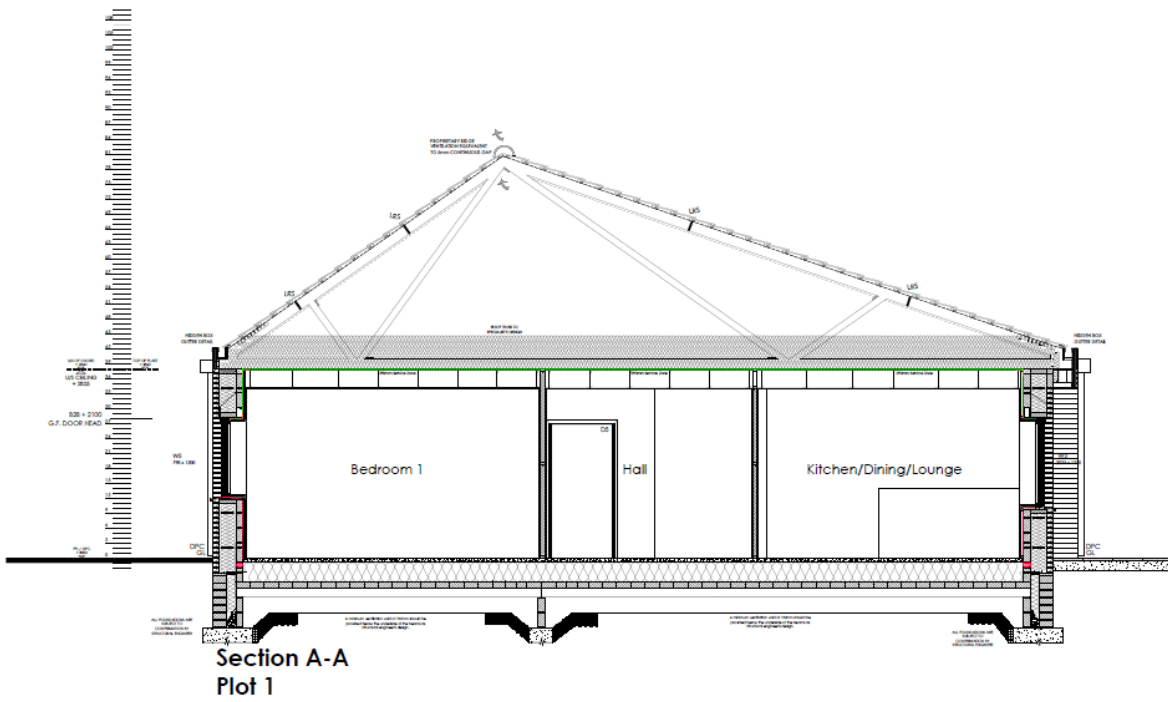
## 1. Ansichtsfotos



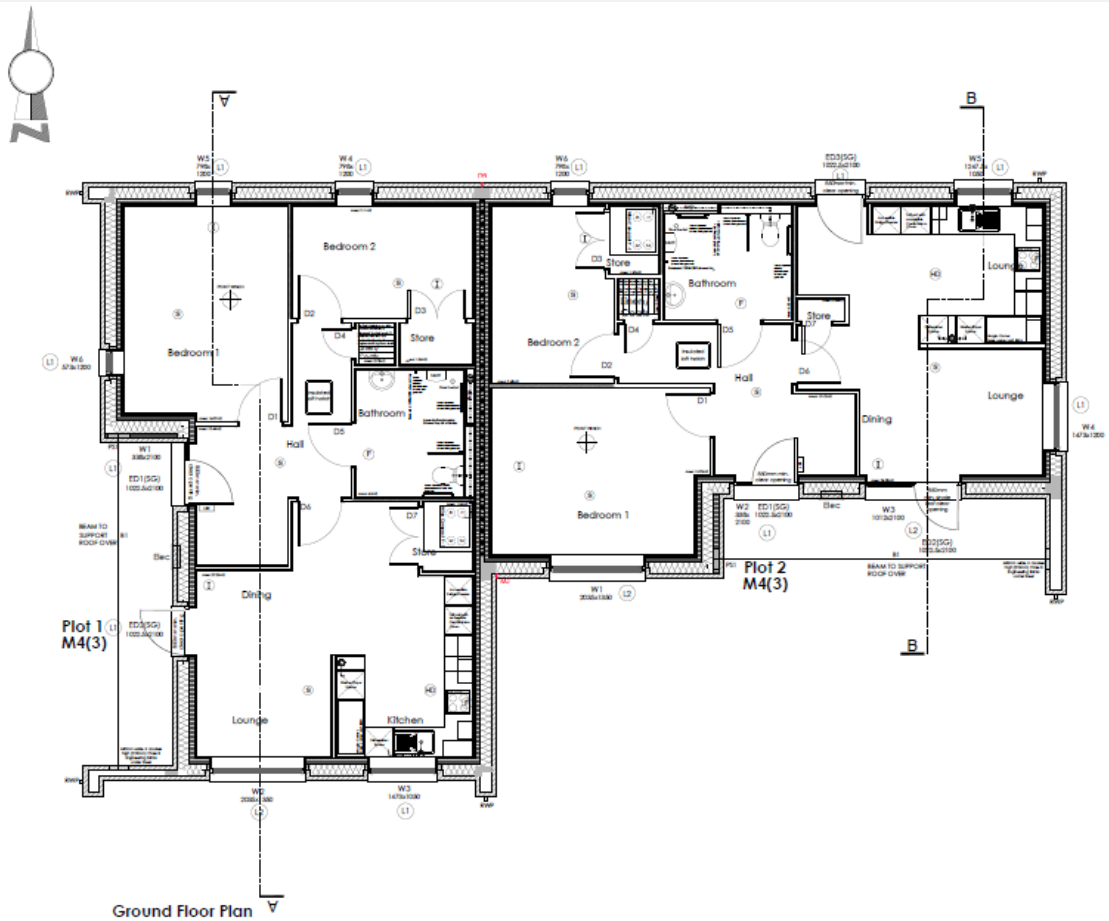
## 2. Innenfoto exemplarisch



### 3. Schnittzeichnung

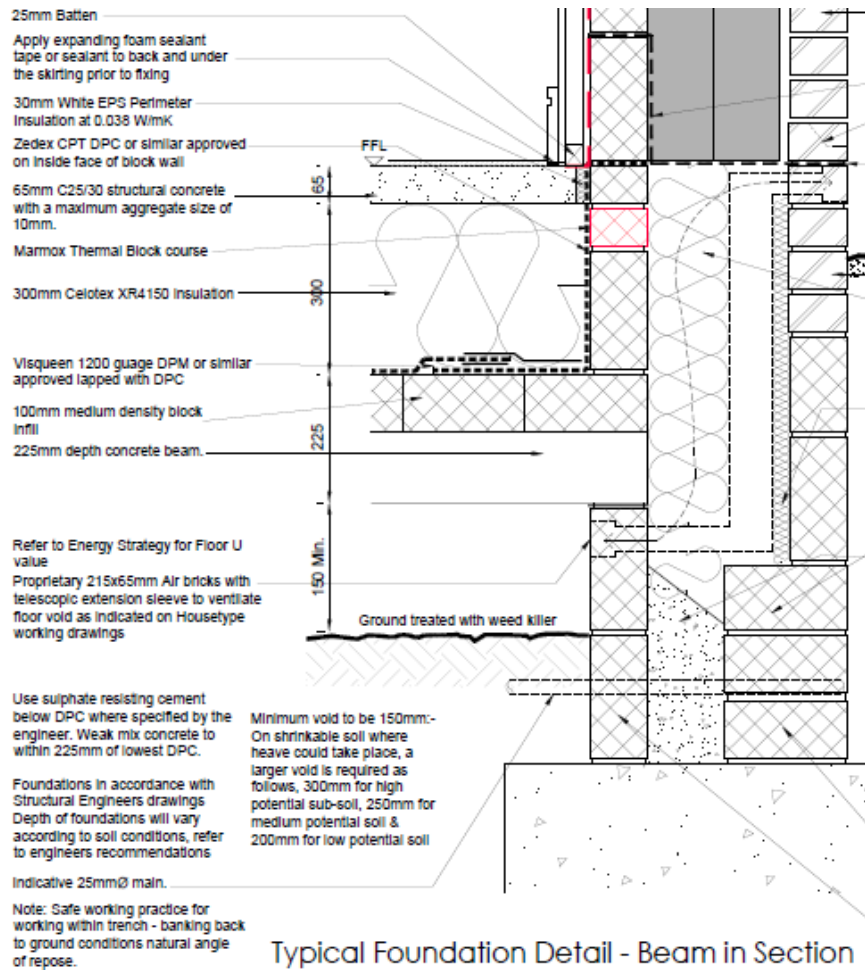


### 4. Grundrisse





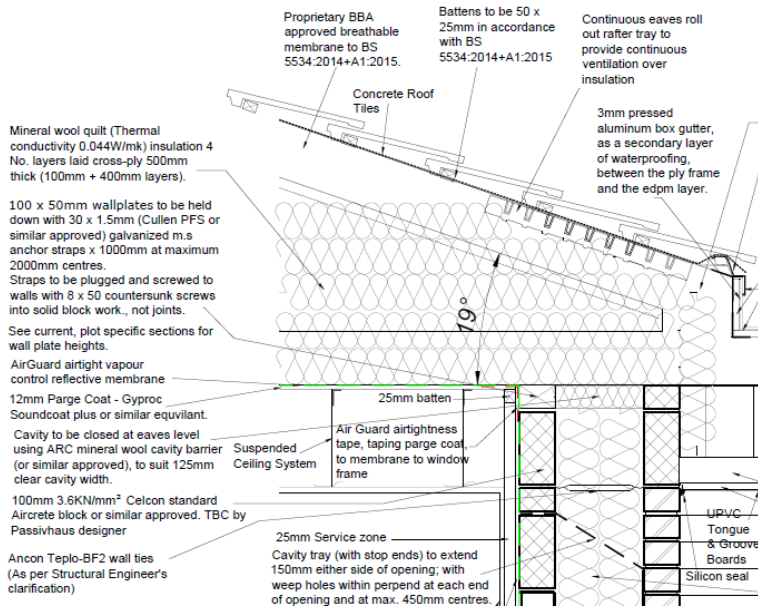
## 6. Floor construction



Floor constructed in beam and block with a ventilated void under (not ideal but economic), PU insulation over with screed.

Description of building assembly		Assembly no.			
Ground		02ud			
Orientation of building assembly (or R <sub>si</sub> )	3-Floor	Interior insulation:			
Adjacent to (or R <sub>se</sub> )	3-Ventilated	U-value supplement [W/(m <sup>2</sup> K)]			
Area section 1	λ [W/(mK)]	Area section 2 (optional)	λ [W/(mK)]	Area section 3 (optional)	λ [W/(mK)]; Thickness [mm]
Beam and block	2.000				150
Insul - Celotex XR4150	0.022				300
Screed	1.400				65
Floor Finish TBC	0.180				20
Percentage of sec. 1:	100%	Percentage of sec. 2:		Percentage of sec. 3:	
Heat transmission resistance coefficients		Total thickness [cm]: <b>53.5</b>			
Interior R <sub>si</sub> :	0.17 m <sup>2</sup> K/W	U-value [W/(m <sup>2</sup> K)]: <b>0.070</b>			
Exterior R <sub>se</sub> :	0.17 m <sup>2</sup> K/W				

# 7. Roof construction



Roof is insulated at ceiling level with 50mm mineral wool insulaion laid directly overt joists.No hatches or other penetrations installed to keep airtightness layer simple



Description of building assembly				Assembly no.	
Roof				03ud	
Orientation of building assembly (or R <sub>si</sub> ):		1-Roof		Interior insulation?	
Adjacent to (or R <sub>se</sub> ):		3-Ventilated		U-value supplement [W/(m²K)]	
Area/section 1	λ [W/(mK)]	Area/section 2 (optional)	λ [W/(mK)]	Area/section 3 (optional)	λ [W/(mK)]; Thickness [mm]
Insul - Isover min wool	0.044				350
Insul - Isover min wool	0.044	Timber (softwood)	0.130		150
Percentage of rec. 1:	82%	Percentage of rec. 2:	18.0%	Percentage of rec. 3:	
Heat transmission resistance coefficients			Total thickness [cm]:		
Interior R <sub>si</sub> :	0.10	m²K/W	50.0		
Exterior R <sub>se</sub> :	0.10	m²K/W	U-value [W/(m²K)]:		
			0.092		

## 8. Fenster und Fenster-Einbau



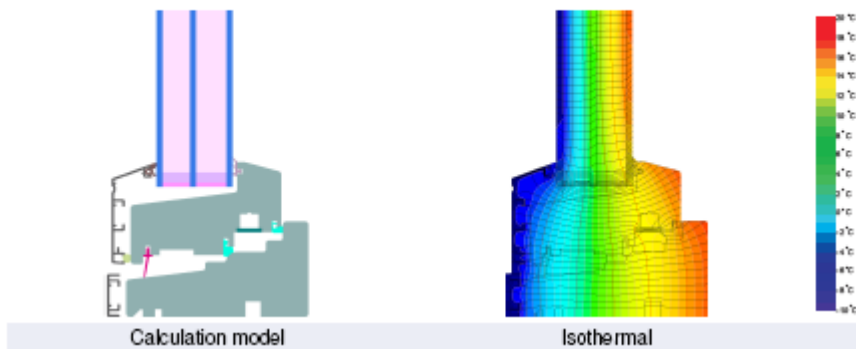
Calumen III 1.26  
Monday, September 18, 2023



### Viking Window AS

Mäo, 72751 Järvamaa, Estonia

+378 48 900 | [viking@viking.ee](mailto:viking@viking.ee) | <http://www.vikingwindow.eu>



### Description

Timberframe (0.11 W/(mK)) with aluminium facing shell. Pane thickness: 50 mm (4/18/4/20/4), Rebate depth: 16 mm.

### Explanation

The window U-values were calculated for the test window size of 1.23 m × 1.48 m with  $U_g = 0.70$  W/(m<sup>2</sup> K). If a higher quality glazing is used, the window U-values will improve as follows:

Glazing	$U_g =$	0.70	0.64	0.58	0.54	W/(m <sup>2</sup> K)
		↓	↓	↓	↓	
Window	$U_w =$	0.80	0.76	0.71	0.68	W/(m <sup>2</sup> K)

We used non certified version of this product to save money which achieved the requirement.

<b>Comany name</b>	<b>Norrskan</b>
<b>Product name</b>	Viking windows
<b>Uf</b>	0,95 W/(m <sup>2</sup> K) average
<b>Glazing</b>	Argon 4   8   4   8   4
<b>Ug</b>	0,53W/(m <sup>2</sup> K)
<b>g-value</b>	0,53

## 9. Airtightness

Airtightness membrane on walls and floors. We used Dupont Airguard as a the cheapets product on teh market at the time but it was not a good decision in the end. It was out of stock and was upgraded to a foil faced alternative that was easily scratched which resulted in multiple holes discovered during the airtest.

Tescon Vana tape was contractor's preferred choice, they tried few. The tape provided by manufacturer was not good enough.



## 10. Ventilation

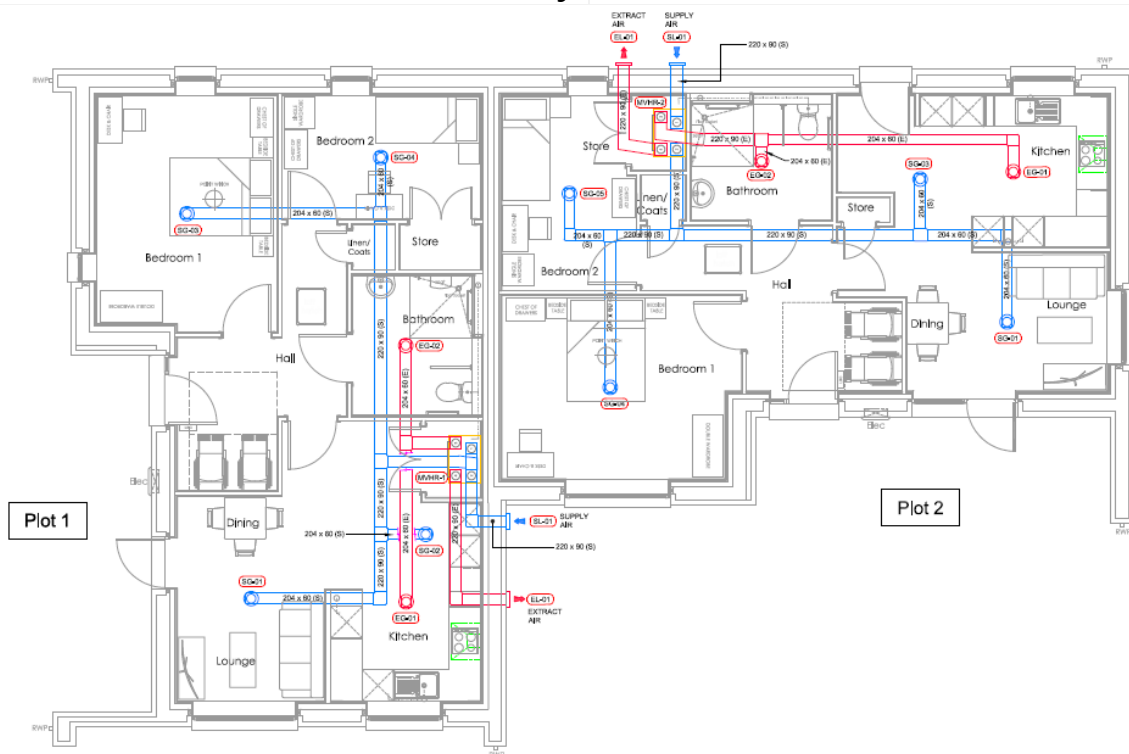
Nilan Comact P connected to an ASHP was a smart choice for this small dwelling providing air-to-air heating and hot water.

Active cooling was also an option with this system. Ideal for disabled tenants who stay in a lot!



**Effective heat recovery efficiency** 71.7 %

**Electrical efficiency** 0,43 Wh/m<sup>3</sup>



# 15. PHPP

## Passive House-Verification

15.4.23

PHPP



**Building:** Plot 1 (no.12) & 2 (no. 13)  
 Street: Share Close  
 Postcode/City: TW14 9QE | Feltham  
 Province/Country: Greater London | UK  
 Building type: 3-Dwelling house  
 Climate dataset: GB0001a-London (Central), Altitude corrected  
 Climate zone: 4: Warm-temperate | Altitude of location: 20 m

**Home owner / Client:** Star Contractor  
 Street: Unit 3, The Metro Centre, St John's Road  
 Postcode/City: TW7 6NJ | Uxbridge  
 Province/Country: Middlesex | UK

**Project settings**  
 Please select  
**Energy standard / Criteria**  
 New building / Retrofit  
 1-New building  
 Planned energy standard  
 10-Passive House  
 Class / Primary energy method  
 11-Classical PE (non-renewable)  
 Primary energy demand criterion  
 1-Standard

**Architecture:** Architectural Design Lab Ltd  
 Street: Lombard House, 12 - 17 Upper Bridge Street  
 Postcode/City: CT12NF | Canterbury  
 Province/Country: Kent | UK

**Mechanical engineer:** N/A  
 Street:  
 Postcode/City:  
 Province/Country:

**Design consultancy:** Malia Williams Architects Ltd  
 Street: 2 King's Chase  
 Postcode/City: KT8 9DG | Eart Malorey  
 Province/Country: Surrey | UK

**Certification:** Meed Consulting  
 Street: 3 Harvey Road  
 Postcode/City: N8 9PD | London  
 Province/Country: Greater London | UK

Year of construction: 2023  
 No. of dwelling units: 2  
 No. of occupants: 3.7

Interior temperature winter [°C]: 20.0  
 Internal heat gain (IHG) winter [W/m²]: 2.8  
 Specific heat capacity [Wh/K per m² FFA]: 6.0

Interior temp. summer [°C]: 25.0  
 IHG summer [W/m²]: 3.9  
 Mechanical cooling:

**Building use**  
 10-Residential building: Residential  
 Internal heat gain (IHG)  
 2-Standard

**No. of occupants**  
 3.7 Standard (only for residential building)  
 User-defined

Specific building characteristics with reference to the treated floor area						
				Criteria	Alternative criteria	Fulfilled? <sup>2</sup>
<b>Space heating</b>	Treated floor area m²	142.3				
	Heating demand kWh/(m²a)	15	≤	15	-	Yes
	Heating load W/m²	9	≤	-	10	Yes
<b>Space cooling</b>	Cooling & dehum. demand kWh/(m²a)	-	≤	-	-	-
	Frequency of overheating (> 25 °C) %	0	≤	10	-	Yes
	Frequency of excessively high humidity (> 12 g/kg) %	0	≤	20	-	Yes
<b>Airtightness</b>	Pressurisation test result n50 1/h	0.4	≤	0.6	-	Yes
<b>Non-renewable Primary Energy (PE)</b>	PE demand kWh/(m²a)	107	≤	120	-	Yes
<b>Primary Energy</b>	PER demand kWh/(m²a)	49	≤	-	-	-
<b>Renewable (PER)</b>	Renew. energy generation (in rel. to projected building footprint) kWh/(m²a)	24	≥	-	-	-

I confirm that the values given here have been determined following the PHPP methodology and based on the characteristic values of the building. The PHPP calculations are attached to this verification.

**Passive House Classic?** Yes

Tark: \_\_\_\_\_ First name: \_\_\_\_\_ Surname: \_\_\_\_\_ Signature: \_\_\_\_\_  
 Certificate-ID: \_\_\_\_\_ Issued on: \_\_\_\_\_ City: \_\_\_\_\_