

UK  
TRADE &  
INVESTMENT



# Low Energy & Zero Carbon Buildings

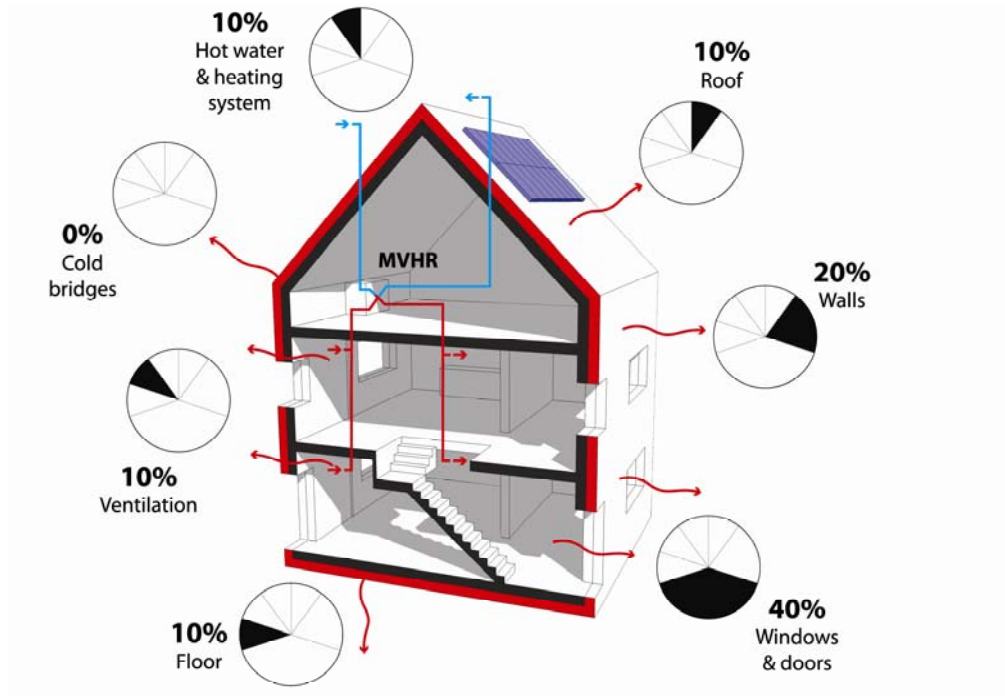
# Typical EU house

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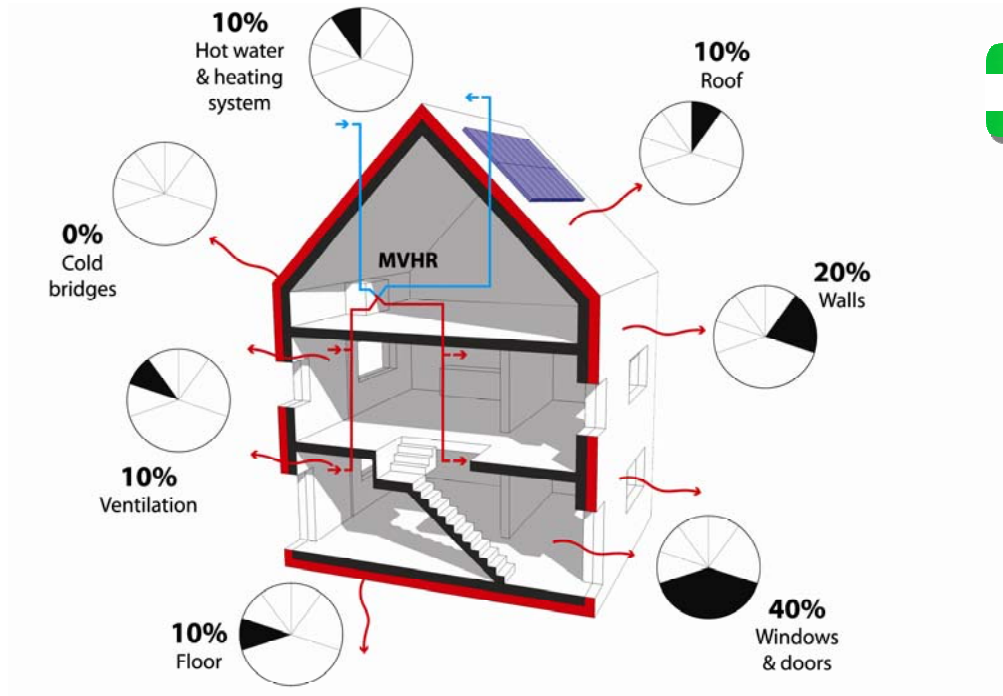


- Zero Carbon – Energy Loss

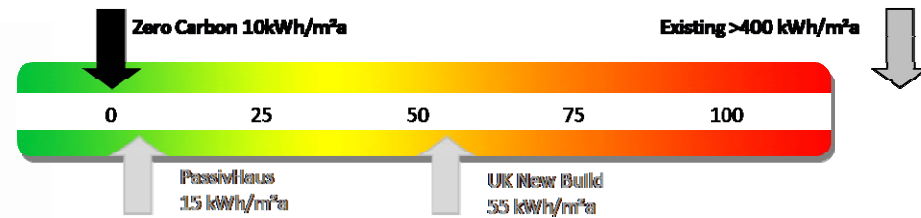
## ■ Zero Carbon – Energy Loss



# ■ Zero Carbon – Energy Loss

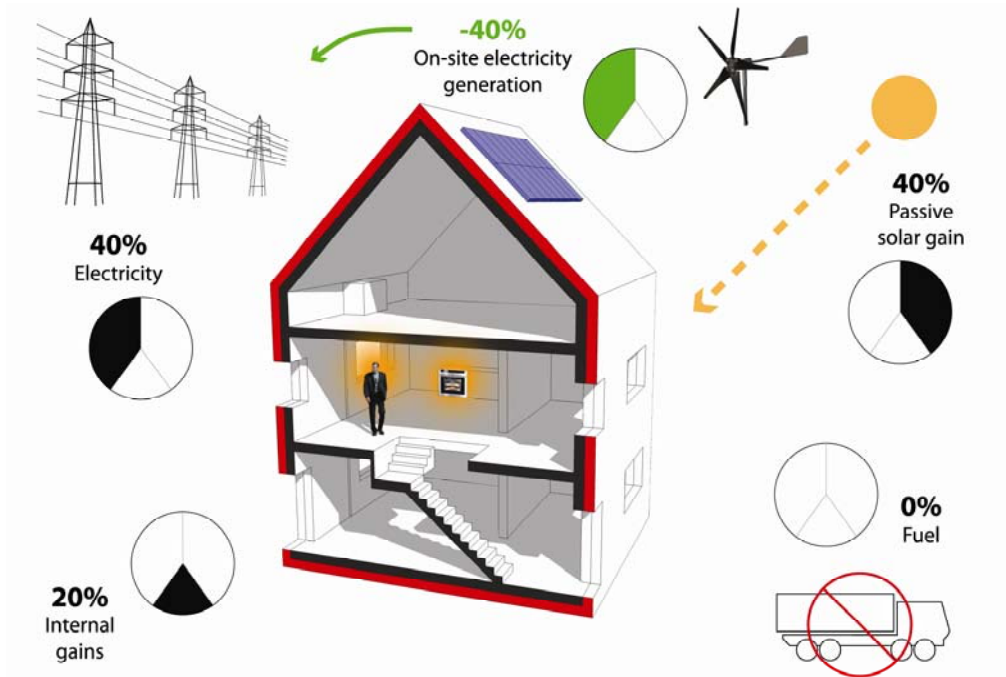


Energy Performance Rating:

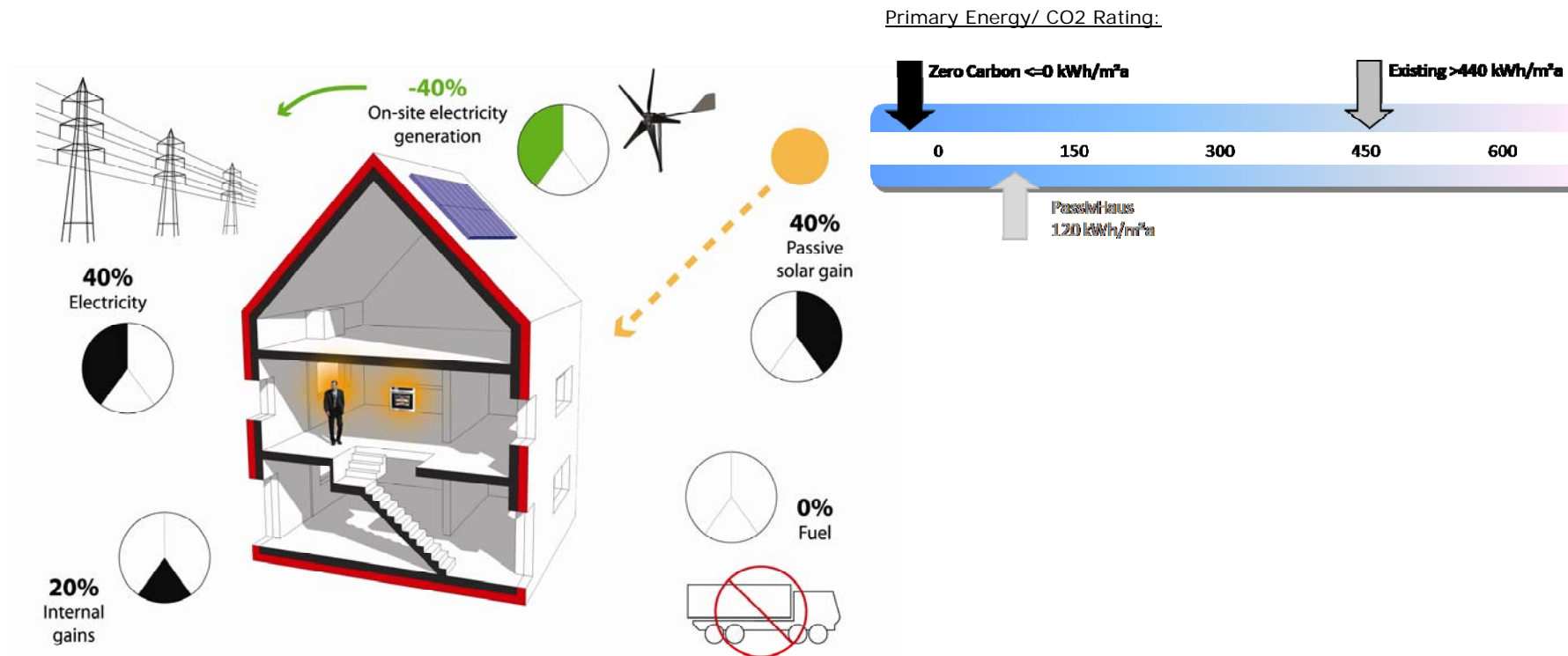


- Zero Carbon – Energy Gain

## ■ Zero Carbon – Energy Gain

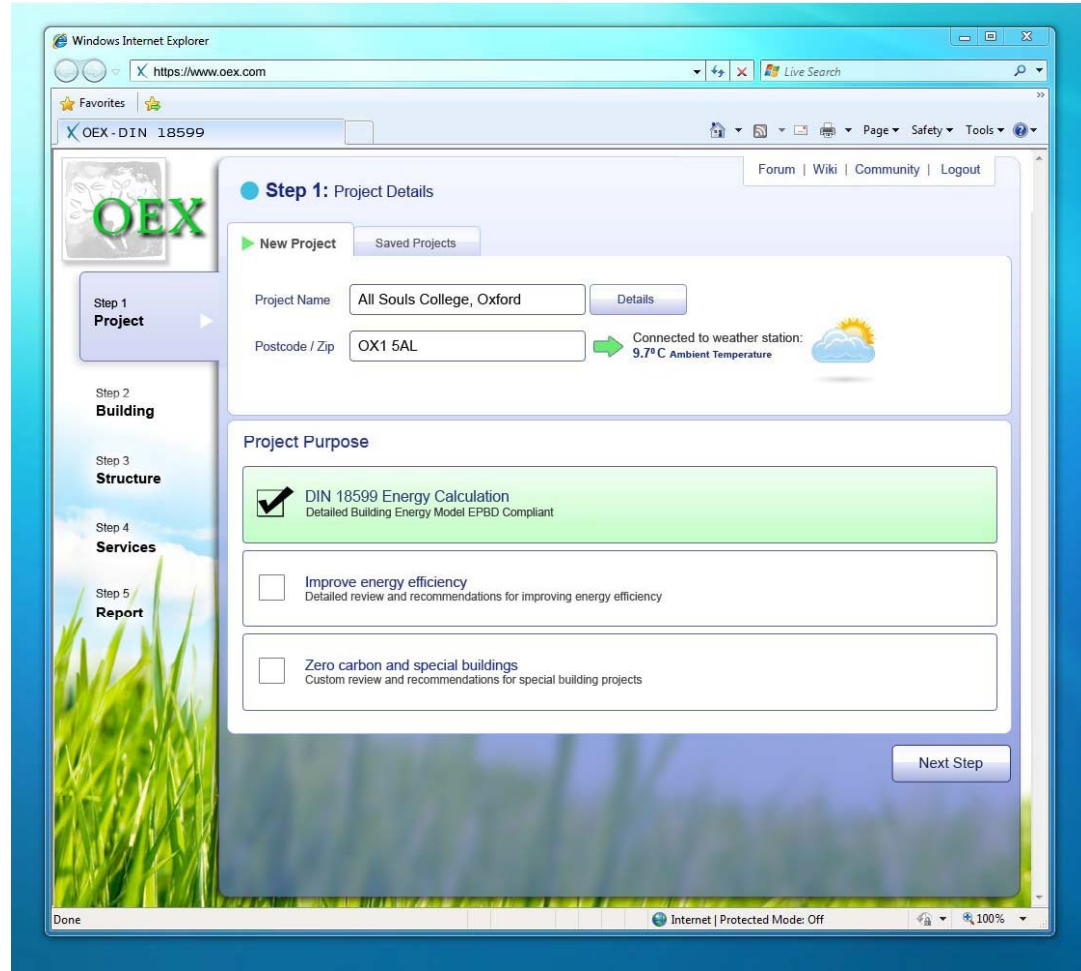


# ■ Zero Carbon – Energy Gain



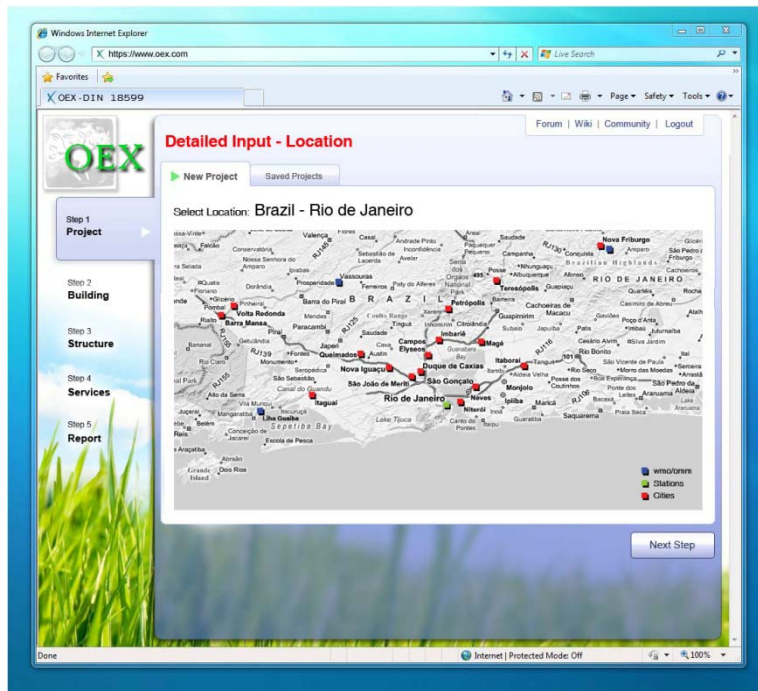
# HOW

# HOW

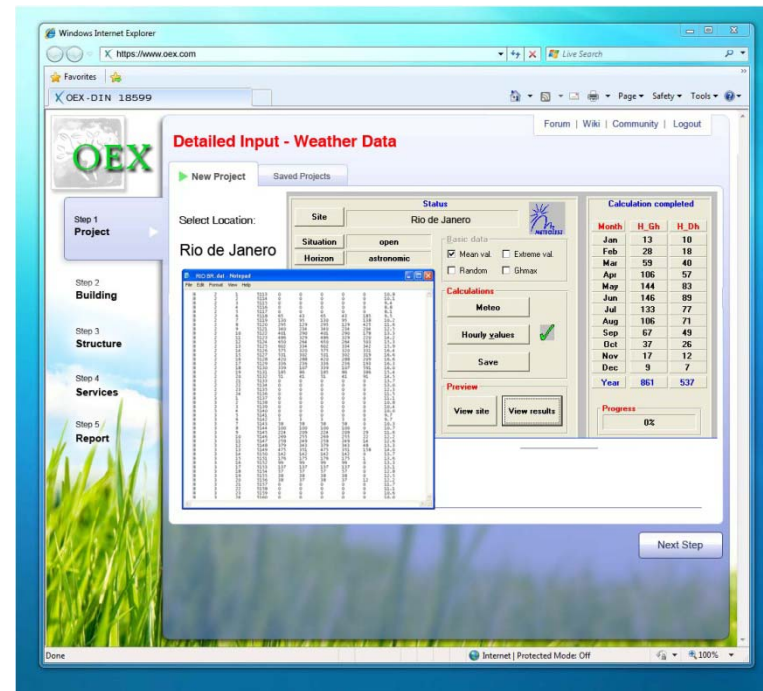
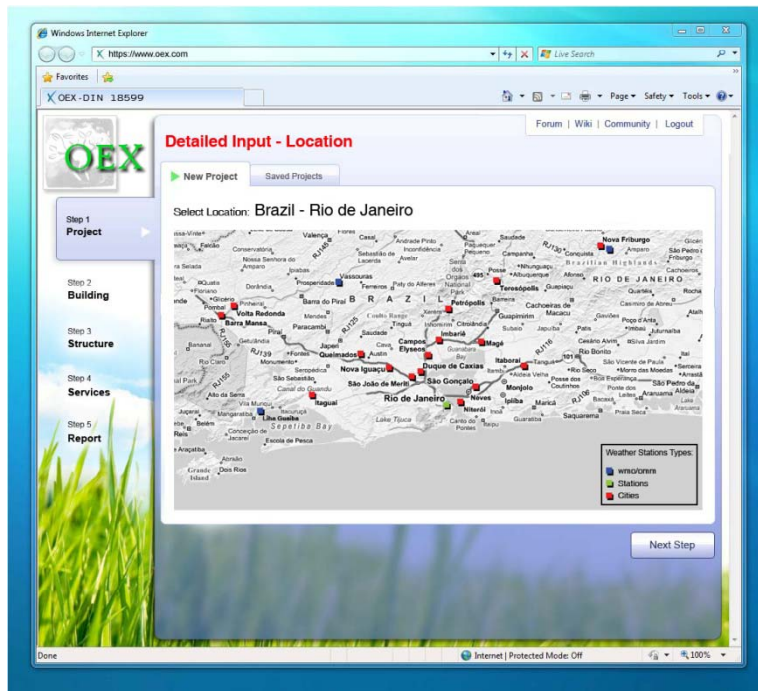


- Weather

# Weather



# Weather



- Structure



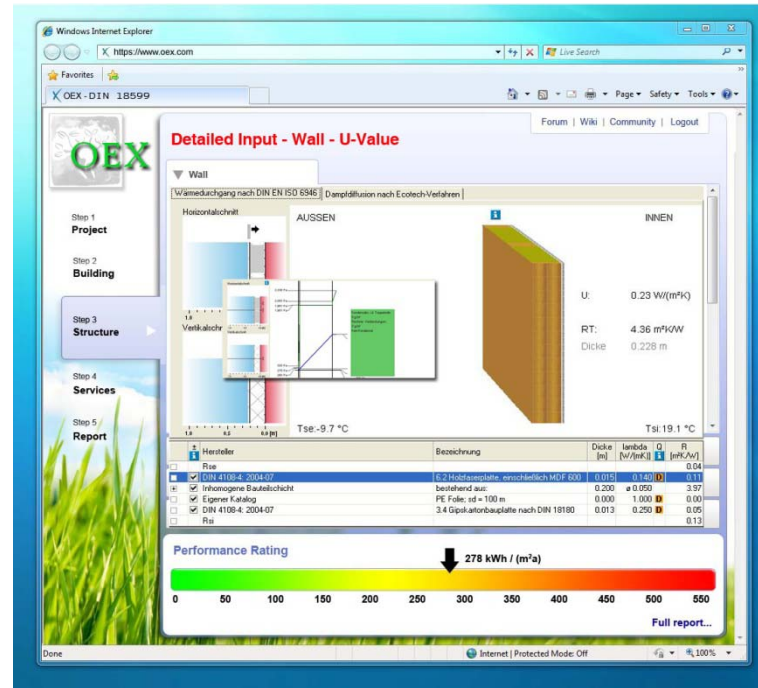
# ■ Structure



The screenshot shows the 'Detailed Input - Building Data' screen in the OEX software. The interface includes a sidebar with navigation steps: Step 1 Project, Step 2 Building, Step 3 Structure (selected), Step 4 Services, and Step 5 Report. The main area displays a 3D cross-section of a building with a gabled roof. Key parameters are listed on the right:

- Gebäudedaten:**
  - Dachform: [Icon]
  - Neigung: 45°
  - Dachstuhlhöhe (Innenhöhe): 1.00 m
  - Dachstuhl:  komplett
  - Dachstuhl: 1
  - Gaßbreite: 0.00 m
  - Korpus: Geschosse: 2
  - lichte Raumhöhe\*: 2.50 m
  - Keller:  besteht  ohne
  - Wohnfläche:
    - befehlbare Wohnfläche: 145.6 m<sup>2</sup>
    - Nutzfläche A<sub>n</sub> (= 0.32 V<sub>n</sub>): 174.7 m<sup>2</sup>
    - befehlbare Volumen V<sub>n</sub>: 346.0 m<sup>3</sup>

At the bottom, a 'Performance Rating' scale from 0 to 550 kWh / (m<sup>2</sup>a) shows a value of 278 kWh / (m<sup>2</sup>a).



The screenshot shows the 'Detailed Input - Wall - U-Value' screen in the OEX software. The interface includes the same sidebar as the previous screenshot. The main area displays a 3D cross-section of a wall. Key parameters are listed on the right:

- Wand:**
  - U: 0.23 W/(m<sup>2</sup>K)
  - RT: 4.36 m<sup>2</sup>/KW
  - Dicke: 0.228 m
  - T<sub>se</sub>: -9.7 °C
  - T<sub>si</sub>: 19.1 °C

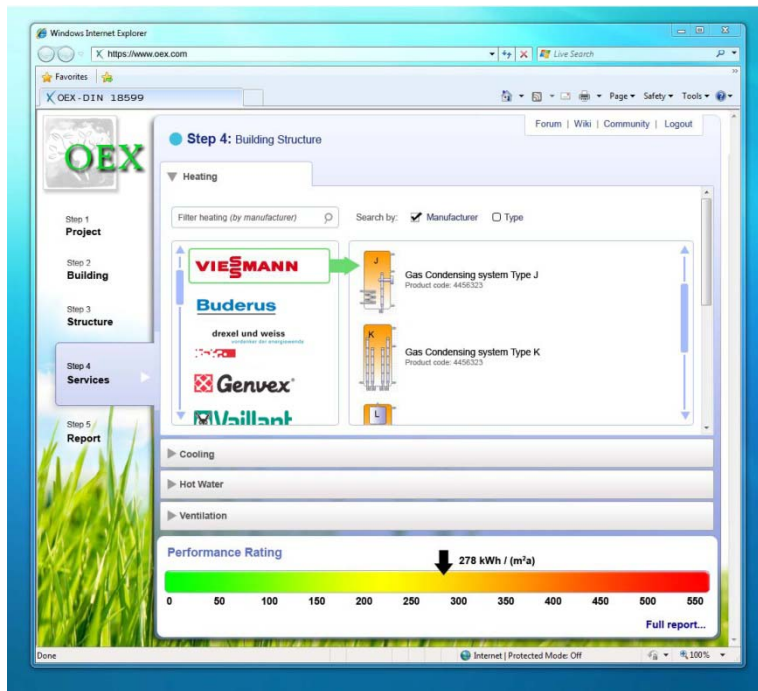
A table below the wall diagram lists the construction layers:

Hersteller	Bezeichnung	Dicke [m]	lambda [W/(mK)]	U	R
Rsi					0.04
DIN 4109-4: 2004-07	6.2 Hobelspanplatte, essigretzlich MDF 600	0.015	0.140	0.11	
inhomogene Bauteilschicht	bestehend aus:	0.200	0.050	3.97	
Eigener Katalog	PE-Folie, sd = 100 m	0.000	1.000	0.00	
DIN 4109-4: 2004-07	3.4 Gipskartonbauplatte nach DIN 18180	0.013	0.250	0.05	
Rsi					0.13


At the bottom, a 'Performance Rating' scale from 0 to 550 kWh / (m<sup>2</sup>a) shows a value of 278 kWh / (m<sup>2</sup>a).

- System

# ■ System



# System



Windows Internet Explorer  
https://www.oex.com

OXE - DIN 18599

Step 4: Building Structure

Heating

Filter heating (by manufacturer) Search by:  Manufacturer  Type

VIESSMANN Gas Condensing system Type J Product code: 4456323

Buderus Gas Condensing system Type K Product code: 4456323

drexel und weiss

Genvex

Vaillant

Step 1 Project

Step 2 Building

Step 3 Structure

Step 4 Services

Step 5 Report

Cooling

Hot Water

Ventilation

Performance Rating 278 kWh / (m<sup>2</sup>a)

0 50 100 150 200 250 300 350 400 450 500 550

Full report...



Windows Internet Explorer  
https://www.oex.com

OXE - DIN 18599

Detailed Input - Heating Proposed

Heating

074 Project

ErEV-Nachweis - Monatsbilanz

Klima: Deutschland

Projekt Geometrie Gebäude Anlagentechnik Ergebnisse

DIN 4701 jst-Datend Heizung Warmwasser

mit Lüftungsanlage 174.72 m<sup>2</sup>

ausschließlich Lüftungsanlage

mit Zirkulation

SOHICO Kombispeicher PW 100

Luft-Wasser-Wärmepumpe

Stromertrag

VIESSMANN

Vielstuf 300 KSD 20m

Sonnen-Energie

Berechnungsverfahren

genaue Berechnung

Standardwerte (aufhang C)

Aufwandszahl  $\eta_p$  1.05

Endenergie 1,175 kWh

Hilfsenergie 1,141 kWh

Primärenergie 35,70 kWh/m<sup>2</sup>

Endenergie 0.00

Hilfsenergie 0.38

Primärenergie 1.02

Bereich 1

Endenergie 3.60

Hilfsenergie 1.16

Primärenergie 12.84

Bereich 1

Performance Rating 278 kWh / (m<sup>2</sup>a)

0 50 100 150 200 250 300 350 400 450 500 550

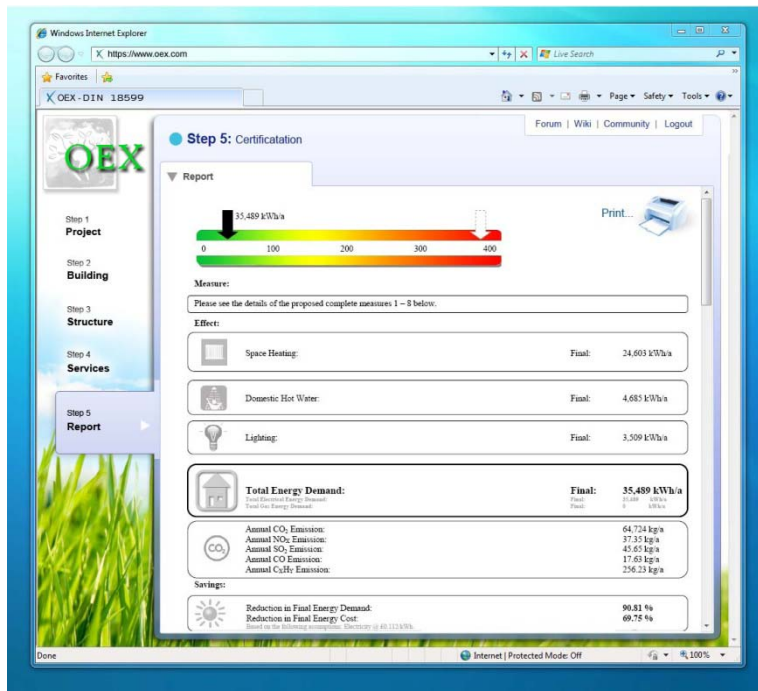
Full report...

- Zoning & User Profile



- Report

# ■ Report





# WHO

## Alastair Binnie Architecture and Environment Ltd



- Established 1992
- designing exclusively low energy and environmentally friendly buildings
- high profile national and international projects
- assessment and management of energy consumption and greenhouse gas
- most advanced building calculation method currently available (OEx)
- greenhouse gas emissions
- first UK registered Passivhaus Planner Architect
- LEED AP

Thank you