



Specialists in the technology and design of energy efficient and environmentally friendly buildings.

- Designing exclusively low energy and environmentally friendly buildings incorporating renewable energy technology
- National and international projects
- Assessment of energy consumption and greenhouse gas emissions
- Advanced energy calculation methodology
- Specialisation began 23 years ago – Observer Ethical Award, First UK registered Passivhaus Planner Architects, and other milestones along the way.





International Application – Local Site Weather Data

Windows Internet Explorer

File Edit View Favorites Tools Help

http://www.oex.com

OEX.DIN 18550

Forum | Wiki | Community | Logout

OEX

Step 1 **Project**

Step 2 Building

Step 3 Structure

Step 4 Services

Step 5 Report

Detailed Input - Location

New Project Speed Tracker

Select Location:

Colonsay

Legend:

- WMO/AMM
- Stations
- Cities

Map locations: Kimony, Dunstaffnage, Oban, Machharish BAI, Ballypatrick Forest, Main Head, Tree.

Next Step

Home | Project: 18550 | 100%



Simple Inputs – Construction Database

The screenshot displays the OEX software interface in a Windows Internet Explorer browser window. The address bar shows the URL <http://www.oex.com>. The page title is "CEX - DIN 18550".

Step 3: Building Structure

Wall

Filter roof types (by manufacturer) Search by: Manufacturer Type Materials

Manufacturer	Product Name	Product Code
Fischhaus	Timbre Cavity	057224
Hock	Brick Cavity	057175
HOMATHERM	Solid Cavity Wall Timbre Frame Construction	414111
Rigips		
ROCKWOOL		

Navigation sidebar:

- Step 1 Project
- Step 2 Building
- Step 3 Structure**
- Step 4 Services
- Step 5 Report

Performance Rating: 278 kWh J (m²a)

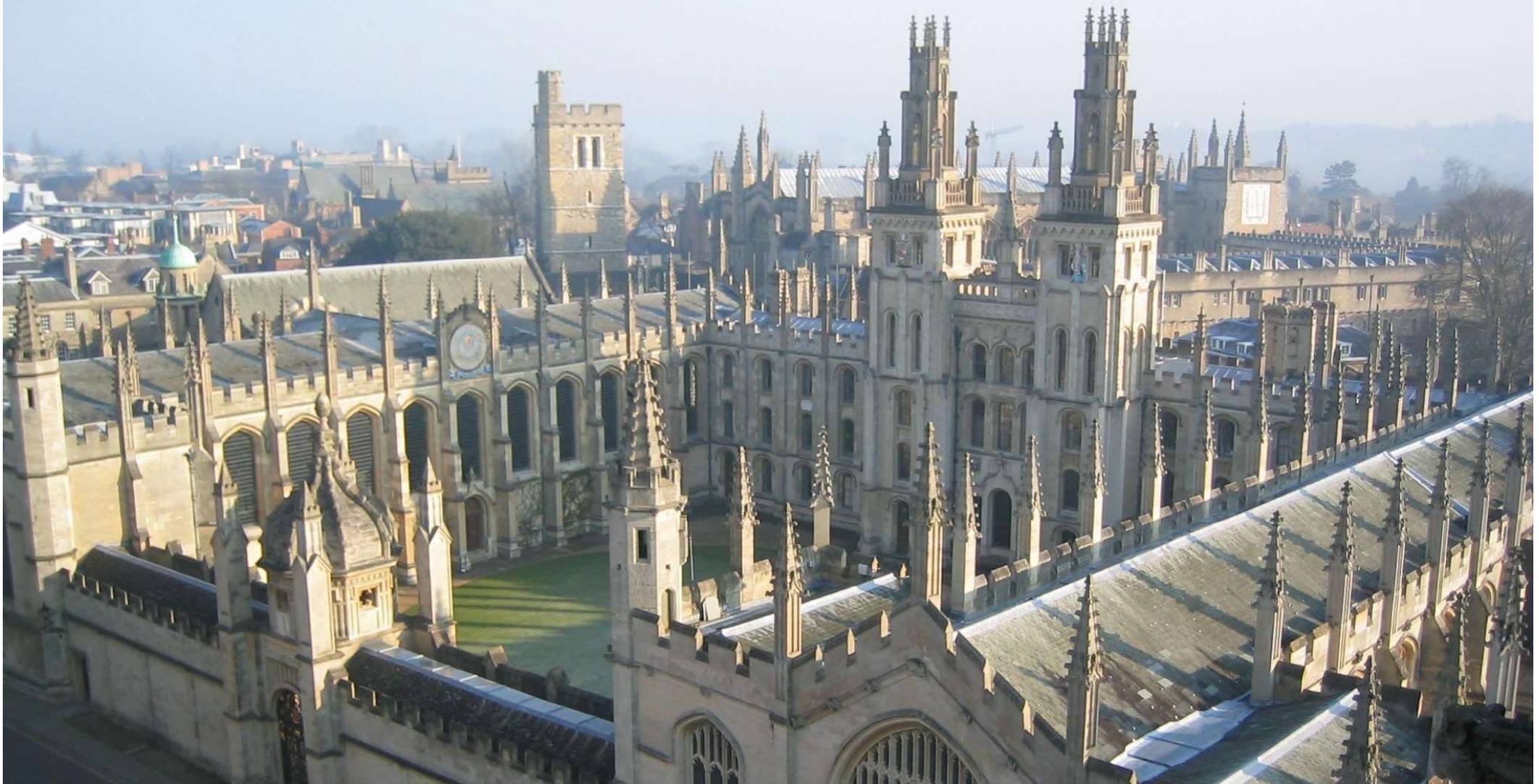
Performance scale: 0 to 550 kWh J (m²a)

Full report...



Simple Inputs – Building Services Database

The screenshot displays the OEX website interface for 'Step 4: Building Structure'. The browser window shows the URL 'http://www.oex.com'. The page title is 'OEX - DIN 18550'. The navigation sidebar on the left includes: Step 1 Project, Step 2 Building, Step 3 Structure, Step 4 Services (highlighted), and Step 5 Report. The main content area is titled 'Step 4: Building Structure' and features a 'Heating' section. A search filter 'Filter heating (by manufacturer)' is present, with search criteria set to 'Manufacturer'. The search results list several manufacturers: Viessmann, Buderus, drexel und weiss, Genvex, and Vaillant. Two specific heating systems are highlighted: 'Gas-Condensing system Type J' (Product code: 445000) and 'Gas-Condensing system Type K' (Product code: 445000). Below the search results, there are expandable sections for 'Cooling', 'Hot Water', and 'Ventilation'. At the bottom, a 'Performance Rating' bar shows a value of 278 kWh / (m²a) on a scale from 0 to 500. A 'Full report...' link is located at the bottom right of the performance bar.



Refurbished Staircase 10
78 kWh/m²/yr



Existing Staircase 10
pre-improvements
Off the Scale!
860 kWh/m²/yr





• 8 Optimal measures for cost effective emissions reductions

- 1 - Roof Insulation
- 2 - External Wall Insulation
- 3 - Cellar Ceiling Insulation
- 4 - New Windows
- 5 - MVHR System
- 6 - Heatpump System
- 7 - Solar Thermal System
- 8 - Low Energy Lighting

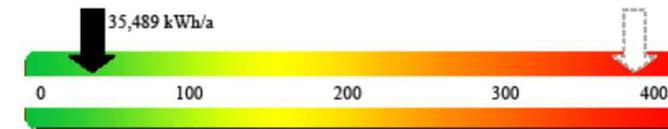
•Output – All Greenhouse Gasses

•Highly accurate, and with the ability to link monitoring data back to the model.

•HOLISTIC All Building Elements, Services, Users & Climate interact

073 All Souls College – Staircase X - Energy Modelling Results
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Building Energy Performance – Combined Measures 1 - 8:



Measure:

Please see the details of the proposed complete measures 1 – 8 below.

Effect:

	Space Heating:	Final:	24,603 kWh/a
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	Domestic Hot Water:	Final:	4,685 kWh/a
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	Lighting:	Final:	3,509 kWh/a
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	Total Energy Demand:	Final:	35,489 kWh/a
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	Annual CO ₂ Emission:	64,724 kg/a
	Annual NO _x Emission:	37.35 kg/a
	Annual SO ₂ Emission:	45.65 kg/a
	Annual CO Emission:	17.63 kg/a
	Annual C _x H _y Emission:	256.23 kg/a

Savings:

	Reduction in Final Energy Demand:	90.81 %
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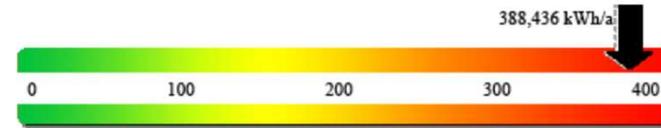


•Crazy But True

•Increase in Energy Demand Through
The Single Measure of Low Energy
Lighting

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Building Energy Performance – 8 Low Energy Lighting:



Measure:

The existing lighting system to be replaced entirely by a new low energy lighting system.

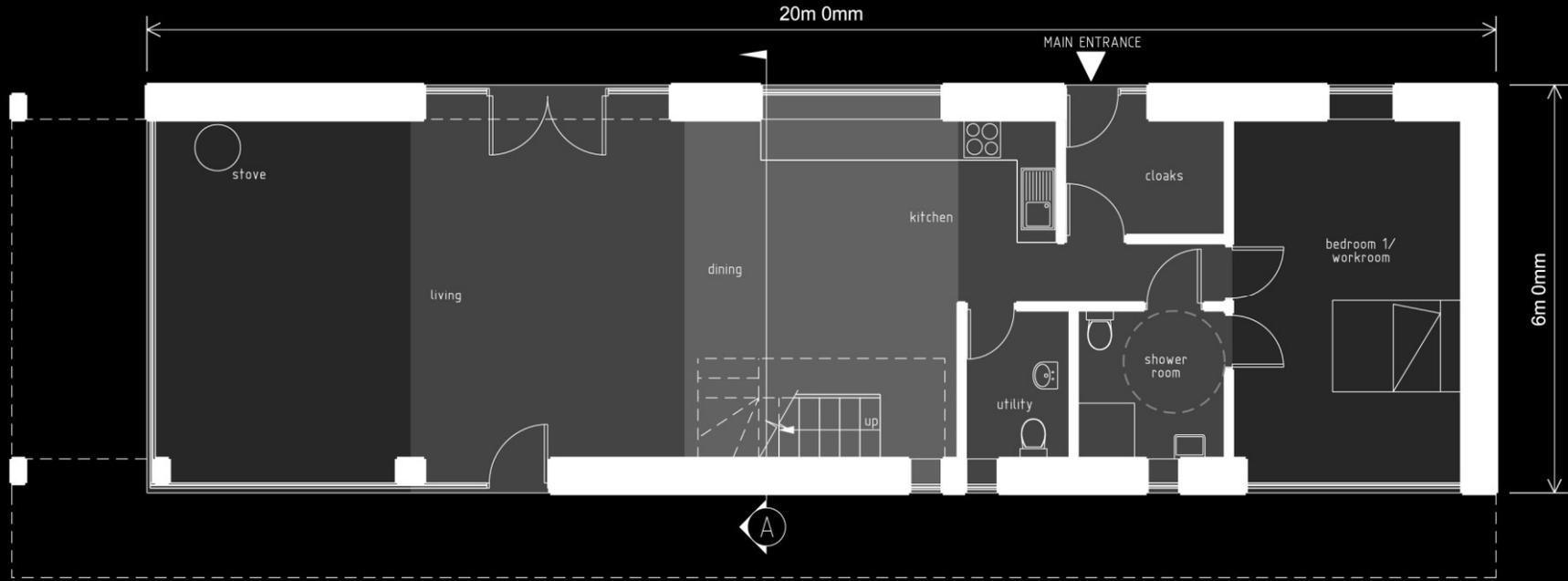
Effect:

	Space Heating:	Final:	356,414 kWh/a
	Domestic Hot Water:	Final:	28,512 kWh/a
	Lighting:	Final:	3,509 kWh/a
	Total Energy Demand:	Final:	388,436 kWh/a
	Annual CO ₂ Emission:		99,478 kg/a
	Annual NO _x Emission:		7.90 kg/a
	Annual SO ₂ Emission:		3.54 kg/a
	Annual CO Emission:		1.37 kg/a
	Annual C _x H _y Emission:		19.88 kg/a

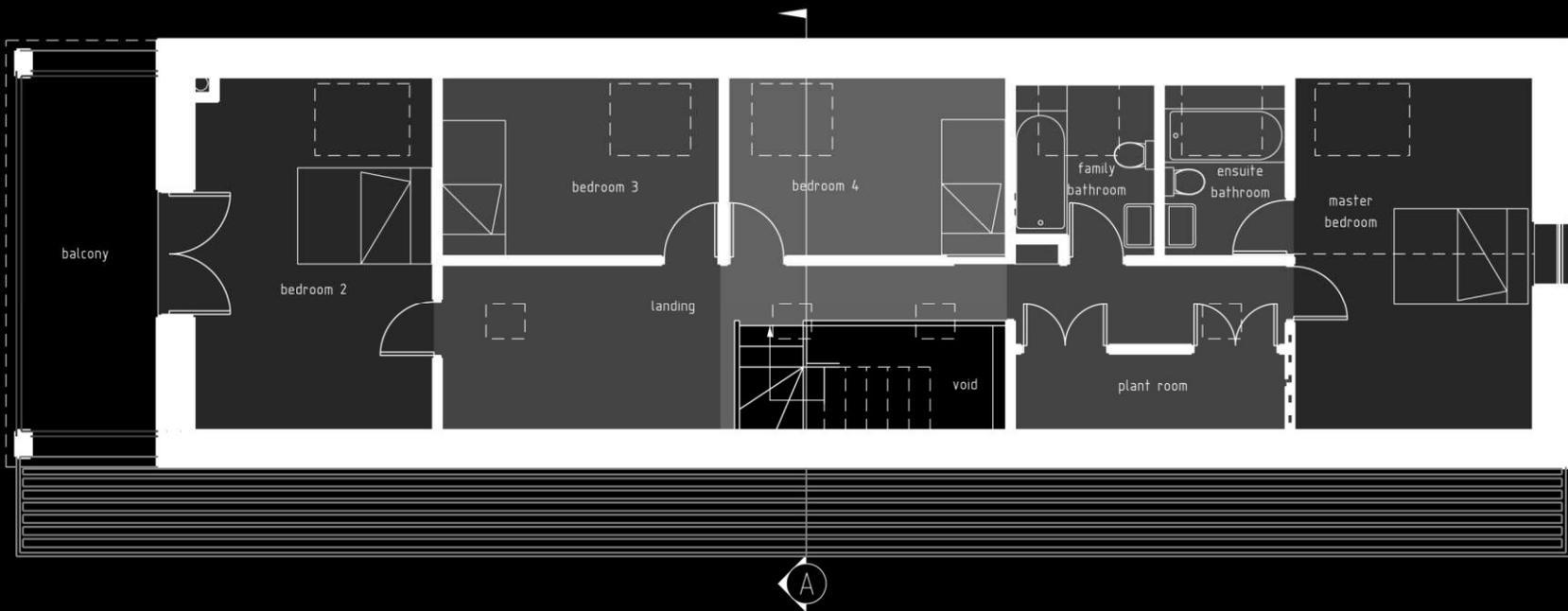
Savings:

Reduction in Final Energy Demand: -0.61%
The loss of internal heat gain through the new lighting system is increasing the energy demand of the heating system. The lighting is currently contributing to space heating! The reduction in electrical energy used for lighting however would be from 13,159 kWh/a to 3,509 kWh/a, a reduction of 73.33%.





GF Plan



FF Plan



Proposed extension
15 kWh/m²/yr



Refurbished Existing house
45 kWh/m²/yr



Existing house
pre-improvements
329 kWh/m²/yr



