# PREDICTED ENERGY ASSESSMENT

Aeratech Ltd
Air leakage testing and energy services

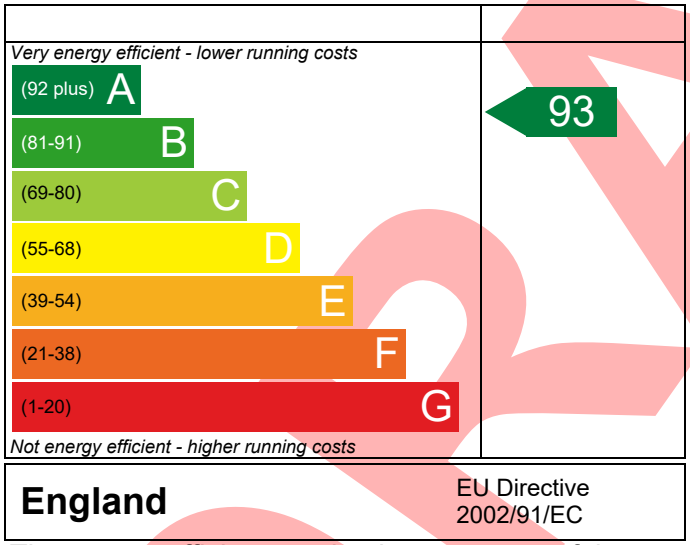
Plot 40, Millfield Nurseries, Spalding Common,
Spalding,
Lincs,
PE11 3AU

| | |
|---|---|
| Dwelling type: | House, Semi-Detached |
| Date of assessment: | 24/01/2023 |
| Produced by: | Jake Eaton |
| Total floor area: | 113.2 m² |

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

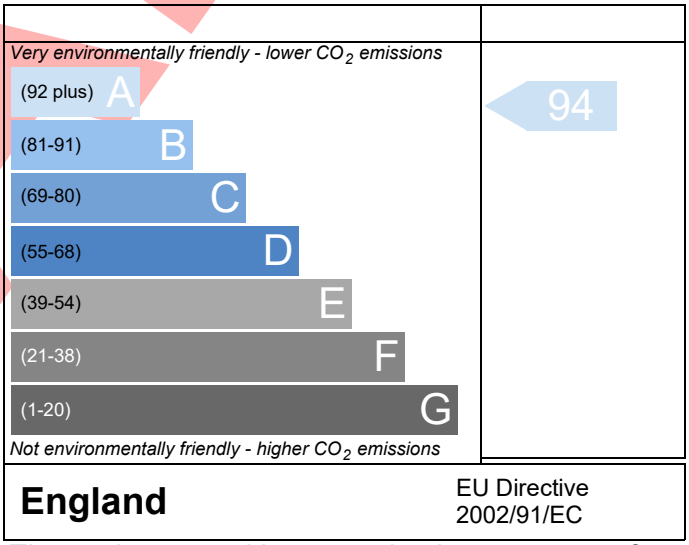
The energy performance has been assessed using the Government approved SAP2012 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide ($CO_2$) emissions.

## Energy Efficiency Rating




The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

## Environmental Impact ($CO_2$) Rating




The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide ($CO_2$) emissions. The higher the rating the less impact it has on the environment.



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# BUILDING REGULATION COMPLIANCE
# Calculation Type: New Build (As Designed)

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| | | | |
|---|---|---|---|
| **Property Reference** | PE11 3AU Plot 40 | **Issued on Date** | 24/01/2023 |
| **Assessment Reference** | 001 | **Prop Type Ref** | Type H |
| **Property** | Plot 40, Millfield Nurseries, Spalding Common, Spalding, Lincs, PE11 3AU | | |

| | | | | | |
|---|---|---|---|---|---|
| **SAP Rating** | 93 A | **DER** | 7.71 | **TER** | 15.34 |
| **Environmental** | 94 A | **% DER<TER** | 49.74 | | |
| **$CO_2$ Emissions (t/year)** | 0.63 | **DFEE** | 37.50 | **TFEE** | 47.46 |
| **General Requirements Compliance** | Pass | **% DFEE<TFEE** | 20.98 | | |

| | | | |
|---|---|---|---|
| **Assessor Details** | Mr. Jake Eaton, Jake Eaton, Tel: 01400283471, jake@aeratech.co.uk | **Assessor ID** | P711-0001 |
| **Client** | | | |

## SUMARY FOR INPUT DATA FOR New Build (As Designed)

### Criterion 1 – Achieving the TER and TFEE rate

**1a TER and DER**

| | | | |
|---|---|---|---|
| Fuel for main heating | Mains gas | | |
| Fuel factor | 1.00 (mains gas) | | |
| Target Carbon Dioxide Emission Rate (TER) | 15.34 | $kgCO_2/m^2$ | |
| Dwelling Carbon Dioxide Emission Rate (DER) | 7.71 | $kgCO_2/m^2$ | Pass |
| | -7.63 (-49.7%) | $kgCO_2/m^2$ | |

**1b TFEE and DFEE**

| | | | |
|---|---|---|---|
| Target Fabric Energy Efficiency (TFEE) | 47.46 | $kWh/m^2/yr$ | |
| Dwelling Fabric Energy Efficiency (DFEE) | 37.50 | $kWh/m^2/yr$ | |
| | -10.0 (-21.1%) | $kWh/m^2/yr$ | Pass |

### Criterion 2 – Limits on design flexibility

#### Limiting Fabric Standards

**2 Fabric U-values**

| Element | Average | Highest | |
|---|---|---|---|
| External wall | 0.21 (max. 0.30) | 0.23 (max. 0.70) | Pass |
| Party wall | 0.00 (max. 0.20) | - | Pass |
| Floor | 0.12 (max. 0.25) | 0.12 (max. 0.70) | Pass |
| Roof | 0.12 (max. 0.20) | 0.13 (max. 0.35) | Pass |
| Openings | 1.38 (max. 2.00) | 1.40 (max. 3.30) | Pass |

**2a Thermal bridging**

Thermal bridging calculated from linear thermal transmittances for each junction

**3 Air permeability**

| | | | |
|---|---|---|---|
| Air permeability at 50 pascals | 5.01 (design value) | $m^3/(h.m^2)$ @ 50 Pa | |
| Maximum | 10.0 | $m^3/(h.m^2)$ @ 50 Pa | Pass |

#### Limiting System Efficiencies

**4 Heating efficiency**



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| | | | |
|---|---|---|---|
| Main heating system | Boiler system with radiators or underfloor - Mains gas<br>Data from database<br>Ideal LOGIC MAX SYSTEM S18<br><br>Efficiency: 89.7% SEDBUK2009<br>Minimum: 88.0% | | Pass |
| Secondary heating system | None | | |

**5 Cylinder insulation**

| | | | |
|---|---|---|---|
| Hot water storage | Nominal cylinder loss: 1.79 kWh/day<br>Permitted by DBSCG 2.30 | | Pass |
| Primary pipework insulated | Yes | | Pass |

**6 Controls**

| | | | |
|---|---|---|---|
| Space heating controls | Programmer, room thermostat and TRVs | | Pass |
| Hot water controls | Cylinderstat | | Pass |
| | Independent timer for DHW | | Pass |
| Boiler interlock | Yes | | Pass |

**7 Low energy lights**

| | | | |
|---|---|---|---|
| Percentage of fixed lights with low-energy fittings | 100 | % | |
| Minimum | 75 | % | Pass |

**8 Mechanical ventilation**

| | | | |
|---|---|---|---|
| Continuous extract system (decentralised) | | | |
| Specific fan power | 0.1100 0.1400 | | |
| Maximum | 0.7 | | Pass |

## Criterion 3 – Limiting the effects of heat gains in summer

**9 Summertime temperature**

| | | | |
|---|---|---|---|
| Overheating risk (East Pennines) | Slight | | Pass |

Based on:

| | | | |
|---|---|---|---|
| Overshading | Average | | |
| Windows facing North<br>Windows facing South<br>Windows facing West | 4.76 m², No overhang<br>10.70 m², No overhang<br>1.20 m², No overhang | | |
| Air change rate | 4.00 ach | | |
| Blinds/curtains | Light-coloured curtain or roller blind, closed 50% of daylight hours | | |

## Criterion 4 – Building performance consistent with DER and DFEE rate

### Party Walls

| Type | U-value | | |
|---|---|---|---|
| Filled Cavity with Edge Sealing | 0.00 | W/m²K | Pass |

### Air permeability and pressure testing

**3 Air permeability**

| | | | |
|---|---|---|---|
| Air permeability at 50 pascals | 5.01 (design value) | m³/(h.m²) @ 50 Pa | |
| Maximum | 10.0 | m³/(h.m²) @ 50 Pa | Pass |

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**10 Key features**

| | | |
|---|---|---|
| External wall U-value | 0.09 | W/m²K |
| Party wall U-value | 0.00 | W/m²K |
| Roof U-value | 0.09 | W/m²K |
| Floor U-value | 0.12 | W/m²K |
| Photovoltaic array | 1.64 | kW |



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