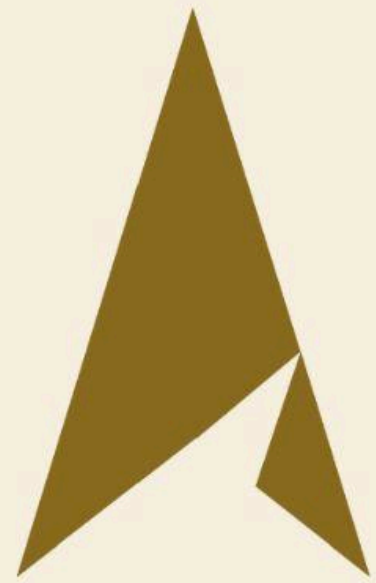




GOLDEN TRIANGLE ARCHITECTS

24III - 167 and 169 Rochdale Road, Bury, BL9 7BB

Carbon And Energy Statement

17/03/2026



01 - Executive Summary

01.1 Executive Summary

This Carbon and Energy Statement accompanies the planning application for the conversion of 167 and 169 Rochdale Road into two family dwellinghouses.

The development adopts a strict energy hierarchy approach. By prioritising a "Fabric First" retrofit strategy, utilising low-carbon Air Source Heat Pumps, and incorporating on-site renewable energy via Solar PV, the scheme meets the climate change mitigation requirements of Places for Everyone Policy JP-S2 and Bury UDP Policy EN1/2.

02 - Building Fabric and Ventilation

02.1 Fabric First Strategy

The proposal prioritises the sustainable reuse of the existing building stock. By retaining the core structure, we preserve the embodied carbon locked within the fabric while significantly upgrading the thermal envelope to exceed standard retrofit levels.

02.2 Thermal Envelope Specifications

The following U-values have been targeted to minimise heat loss, significantly improving upon the existing commercial building performance:

Existing External Walls: 0.30 W/m²K (Upgraded with internal insulation lining)

New Dormer Walls: 0.18 W/m²K (High-performance insulation to match the primary roof specification)

Roofs (Flat & Sloped): 0.15 W/m²K (High-performance insulation at rafter/joist level)

Ground Floor: 0.25 W/m²K (Upgraded floor structure with insulation)

Windows: 1.40 W/m²K (High-specification acoustic glazing with double-glazed, Hard Low-E coating)

Doors: 1.40 W/m²K (Insulated external doors)

02.3 Ventilation Strategy

To maintain a healthy indoor environment alongside improved airtightness, the dwellings will utilise a compliant System 1 Intermittent Extract ventilation strategy to ensure adequate background ventilation while minimising unnecessary heat loss.

03 - Maximise Energy Efficiency

03.1 Energy Use Intensity (EUI)

Through the combination of high-performance fabric and efficient systems, the predicted Energy Use Intensity (EUI) for the dwellings has been minimised.

Plot 1 EUI: 123.36 kWh/m²/yr

Plot 2 EUI: 128.45 kWh/m²/yr

03.2 Water Efficiency

To reduce the energy associated with water treatment and heating, consumption is designed to be limited to 125 litres per person per day. This will be achieved through flow-restricted tap fittings and low-flow showerheads with a maximum flow rate of 7.0 l/min.

04 - Renewable Energy Generation

04.1 Solar Photovoltaics (PV)

To satisfy the "Be Green" tier of the energy hierarchy, the development incorporates on-site renewable energy generation. A roof-mounted Solar PV array is proposed.

Proposed System: South-facing Solar PV array. To maintain a low profile, below the ridge line, a mini-rail system supported by structural solar posts will be employed.

Total Capacity: 3.20 kWp (Combined total: 1.60 kWp for Plot 1 + 1.60 kWp for Plot 2)

Approximate Output: Plot 1: 1270.47 kWh/yr
Plot 2: 1271.13 kWh/yr

04.2 PV Roof Layout

The system has been designed to maximise the available roof space while respecting the constraints of the existing dormers and orientation. The layout ensures optimal generation potential for the site. The layout strictly adheres to the '1m edge rule', requiring panels to be set back from the dormer edges. While this prevents meeting the standard 40% coverage target, it ensures the highest efficiency possible within the site's technical and heritage constraints

05 - Low Carbon Heating

05.1 Heating Strategy (Fossil Fuel Free)

The development is 100% fossil fuel free. The primary heating and hot water demand for both dwellings will be met by Air Source Heat Pumps (ASHP).

05.2 System Efficiency & Appraisal Exemption

The proposed Air Source Heat Pumps are specified to achieve a Seasonal Coefficient of Performance (SCOP) of 3.5 or higher. In accordance with the GMCA Submission Guidance for minor developments, because the proposed heating system is a heat pump with a SCOP exceeding the minimum requirement, a separate Low Carbon Heat Appraisal is not required.

Heat Source: Air Source Heat Pump (ASHP)

System SCOP: > 3.5

Flow Temperature: 45°C

Emitter Type: Radiators

Hot Water Storage: 250L Cylinder

Fossil Fuel Free: Yes

06 - Overheating Risk

06.1 Overheating Assessment

A risk assessment has been carried out to ensure the risk of summer overheating is minimised without reliance on active cooling.

Assessment Method: SAP 10.2

Resulting Score: Both Plot 1 and Plot 2 achieved a high Environmental Impact (CO₂) Rating of 96 (Grade A).

Mitigation Strategy: Compliance is achieved through optimized window U-values (1.40W/m²K) and natural purge ventilation via openable windows.

07 - Materials & Embodied Carbon

07.1 Embodied Carbon Strategy

The proposal adopts a 'Fabric First' and 'Traditional Match' approach, prioritising the sustainable repurposing of the existing structure to 'heal' the fragmented streetscape while retaining embodied carbon.

Structural Lean Design: Existing masonry walls and foundations are retained, avoiding the carbon-intensive production of new cement and steel.

Material Selection: New insulation and timber framing materials have been selected to balance thermal performance with low environmental impact.

08 - Conclusion

This Carbon and Energy Statement demonstrates that the proposed conversion at 167 and 169 Rochdale Road is fully compliant with the GMCA Minor Development energy requirements.

The development achieves high performance across all key metrics:

- Compliance Standard: The dwellings meet the requirements of Approved Document L 2021 (SAP 10.2).
- Energy Ratings: The scheme delivers highly efficient homes with SAP Ratings of 82 B (Plot 1) and 81 B (Plot 2).
- Environmental Impact: Both plots achieved an Environmental Impact (CO₂) Rating of 96 (Grade A).
- Carbon Reduction: By combining a Fabric First retrofit with Electric Air Source Heat Pumps and 3.20 kWp of Solar PV, the scheme supports Bury's transition to Net Zero.

The project successfully balances the preservation of embodied carbon through the reuse of existing masonry with the integration of high-performance renewable technologies.



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