APPLECORE

PLAN. DESIGN. MANAGE.

SUSTAINABILITY & ENERGY STATEMENT

Proposed Conversion and Part New Build Development

270 London Road

1. **Existing Building Performance**
    - **a.** The existing building has an Energy Performance Certificate (EPC) rating of D, indicating moderate energy efficiency with clear opportunity for improvement.
    - **b.** The proposed development comprises:
    - **c.** Conversion of the Front Block to form 4 studio flats and a ground floor gym.
    - **d.** Part new build and conversion of the Rear Block to form 10 co-living studio bedrooms with gym training space.
    - **e.** The scheme adopts a fabric-first approach, combined with low-carbon heating systems and renewable energy generation, to significantly enhance thermal and acoustic performance while reducing operational carbon emissions.

2. **Energy & Sustainability Strategy**
    - **a.** The strategy prioritises:
    - **b.** Reduction in energy demand through enhanced insulation and airtightness.
    - **c.** Upgrading the thermal envelope beyond existing standards.
    - **d.** Use of efficient electric Infrared heating systems.
    - **e.** On-site renewable energy generation.
    - **f.** Integrated energy storage solutions.

3. **FRONT BLOCK – Conversion to 4 Studio Flats & Gym**
    - **a.** Fabric Improvements
    - **b.** Internally to external Walls & Windows
    - **c.** New insulated cavity wall construction to the gym frontage.
    - **d.** New double-glazed gym frontage windows.
    - **e.** Secure by Design entrance door.

f. 1st floor front-facing glazing to be checked and upgraded where required to 4-20-6 acoustic glazing units.

g. 2nd floor front-facing and rear-facing existing windows to be replaced with new 4-20-6 acoustic glazing units.

h. All upgraded glazing improves both thermal efficiency and acoustic attenuation given the London Road location.

4. Internal Insulation & Finishes

a. All internal cavity walls to 1st and 2nd floors to be internally clad with additional insulation to reduce heat loss and improve airtightness.

b. Finished with acoustic plasterboard, tape and jointed, improving both thermal retention and sound separation.

c. Ceilings beneath 1st and 2nd floors upgraded in accordance with the submitted Acoustic Specification and finished with acoustic plasterboard.

d. Loft above 2nd floor to receive 2 x 200mm insulation quilt (400mm total) to significantly reduce heat loss through the roof.

e. These measures will substantially improve U-values compared to the existing EPC D baseline.

5. Heating & Hot Water

a. Heating via high-efficiency ceiling-mounted infrared heating panels, providing radiant heat rather than convected heat.

b. Zoned temperature controls to prevent excessive sustained heating.

c. Each studio to be provided with an efficient Air Source Hot Water Cylinder, significantly reducing carbon emissions compared to conventional direct electric systems.

6. Renewable Energy

a. Subject to SAP calculations, PV panels will be installed to the rear pitched roof to offset electrical demand.

7. REAR BLOCK – Part New Build & Conversion (10 Co-Living Studios)

a. Fabric-First Construction

i. Ground Floor

ii. New concrete floors overlaid with 100mm insulation and 75mm screed.

iii. Existing ground floor walls internally insulated and finished with acoustic plasterboard, tape and jointed to improve thermal and acoustic performance.

iv. Upper Floors (Timber Frame)

v. 140mm timber studs with 120mm PIR insulation installed between studs.
vi. Overlaid with additional 25mm PIR insulation.

b. Finished internally with acoustic plasterboard, tape and jointed, enhancing sound separation between units.
c. Roof Construction
    i. Warm roof comprising:
    ii. 150mm PIR insulation
    iii. 100mm vertical perimeter PIR insulation to minimise thermal bridging
    iv. 60-minute fire-resistant single-ply roof covering

8. Renewable Energy & Storage

a. Approximately 10–11 kW Solar PV array to flat roof.
b. Correctly sized inverters.
c. Battery storage sized to:
    i. Store excess PV generation.
    ii. Supply evening demand.
    iii. Enable off-peak tariff charging.
d. 4 x 250 litre Air Source Hot Water Cylinders (2 per upper floor service cupboard).
e. Cylinders act as thermal storage where PV output exceeds battery capacity.
f. This integrated system maximises on-site renewable energy use and reduces grid demand.

9. Heating & Ventilation

a. Heating via ceiling-mounted high-efficiency infrared heating panels throughout bedrooms and communal areas.
b. Intelligent controls limiting extended high temperature operation.
c. All bedrooms provided with single-room MVHR units, reducing ventilation heat loss while maintaining indoor air quality.
d. Carbon Reduction & EPC Improvement
e. The scheme transforms an existing EPC D rated building through:
    i. Significant insulation upgrades.
    ii. Improved airtightness.
    iii. Acoustic and thermal glazing upgrades.
    iv. Electrification of heating and hot water.
    v. On-site renewable energy generation.
    vi. Battery and thermal storage integration.
    vii. MVHR heat recovery systems.
f. A substantially improved EPC rating is anticipated (subject to SAP confirmation).

10. Ecology Enhancements

a. Integrated swift boxes will be installed
b. Integrated bat boxes will be installed
c. Rear courtyard to be redeveloped incorporating
    i. Installation of planters with pollinator friendly species
    ii. Climbing planters to improve verticel habitat
    iii. Use of permeable finishes where appropriate to support sustainable drainage
    iv. Water butt for rainwater harvest and to support ease of watering planters for tenants.

11. Conclusion

a. The proposed development delivers a comprehensive sustainability-led retrofit and new-build approach. The combination of enhanced thermal envelope performance, acoustic plasterboard finishes, renewable energy generation, battery storage, and low-carbon heating systems ensures:
    i. Reduced operational carbon emissions
    ii. Improved thermal and acoustic comfort
    iii. Lower long-term energy costs
    iv. Future-proofed low-carbon infrastructure

b. The development accords with national and local planning policies promoting sustainable construction and energy efficiency.