

Heating & Hot Water Strategy

154 Abbs Cross Lane, Hornchurch, RM12 4XR

1. Overview

The proposed outbuilding, measuring approximately 6.7m x 6.7m, is designed to be a high-quality ancillary space. To satisfy Environmental Health requirements, the heating and hot water systems have been selected to minimize carbon emissions, prevent noise nuisance to neighboring properties, and ensure high thermal efficiency.

2. Heating Strategy: Electric Underfloor Heating (UFH)

Given the mixed use of the space—specifically the gymnasium and kids' play area—Electric Underfloor Heating is the preferred solution for the following reasons:

- **Space Efficiency:** It eliminates the need for wall-mounted radiators, maximizing the internal footprint for gym equipment and play zones.
- **Zonal Control:** The system will be fitted with smart, programmable thermostats. This allows the heating to be active only when the building is in use, significantly reducing energy waste.
- **Acoustics:** Unlike air-source heat pumps or traditional boiler flues, electric UFH is completely silent, ensuring no noise impact on the adjacent residential properties at 150 or 162 Abbs Cross Lane.

3. Hot Water Strategy: Instantaneous Electric Water Heater

To serve the shower room and sink, we propose a high-efficiency Instantaneous Electric Water Heater.

- **On-Demand Supply:** This system only heats water when the tap or shower is turned on. It avoids the energy losses associated with storing hot water in a tank.
- **Point-of-Use Installation:** By installing the unit directly within the

shower room partition, we minimize pipe runs and prevent heat loss through long distribution lines.

4. Thermal Performance & Insulation

To complement the heating strategy, the outbuilding will be constructed to meet or exceed Part L of the Building Regulations:

- **High-Performance Insulation:** Rigorous floor, wall, and roof insulation will be installed to ensure high thermal retention, reducing the "load" required from the electric heating system.
- **Glazing:** All windows and doors will be double-glazed with low-emissivity (Low-E) glass to prevent heat loss.

5. Sustainability & Safety

- **Zero Local Emissions:** The use of purely electric systems ensures there are no flue gases or local pollutants emitted on-site.
- **Fire Safety:** In accordance with the project legend, the outbuilding will be equipped with smoke and heat detectors (linked to the main dwelling if required) and 30-minute fire-resisting doors where specified to ensure user safety