



Service Definition Document: Technical Spaces Designs

1. Introduction

Technical spaces in NHS healthcare facilities, such as plant rooms and engineering areas, are critical for housing and maintaining building services that support clinical operations. These spaces ensure the safe, efficient, and sustainable delivery of utilities like HVAC, electrical systems, and medical gases, aligning with patient care priorities.

2. Scope

This document defines the design service for technical spaces in NHS buildings, covering new builds, refurbishments, and maintenance. It applies to areas including mechanical plant rooms, electrical substations, boiler houses, and IT server rooms, ensuring compliance with health, safety, and environmental standards. Excludes clinical patient areas.

3. Description

Technical spaces are designed for resilience, accessibility, and integration with building fabric. Key considerations include adequate space for maintenance, confined space protocols, energy monitoring, and alignment with Net Zero Carbon goals. Designs incorporate risk assessments for infection control, fire safety, and system redundancy to minimize disruptions.

4. Key Service Features

The following are the most common features in technical spaces design:

1. HVAC systems for climate control.
2. Electrical power distribution panels.
3. Medical gas storage and piping.
4. Fire detection and alarm systems.
5. Emergency generators and UPS.
6. IT and communication networks.
7. Water supply and drainage infrastructure.
8. Hot water and steam boilers.
9. Nurse call and staff location systems.
10. Specialized lighting for theatres.

These features ensure operational efficiency, with provisions for future expansion (e.g., 20-30% over-capacity) and use of building information modelling (BIM) for precise planning.

5. Benefits

Technical spaces design enhances safety, efficiency, reliability, patient care, and sustainability by providing resilient systems that reduce risks, optimize energy use, and support uninterrupted healthcare delivery.

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6. Standards and Compliance

Designs must adhere to Health Technical Memoranda (HTMs) and Health Building Notes (HBNs), including:

- HTM 00: Policies and principles of healthcare engineering.
- HBN 00-01: General design guidance.
- Specific HTMs (e.g., 03-01 for ventilation, 06-01 for electrical, 04-01 for water safety).
- Legislation: Health and Safety at Work Act 1974, Building Regulations, and Climate Change Act.
- Sustainability: BREEAM assessments, low-carbon solutions like CHP and heat pumps.

Governance includes risk management, staff training, and regular audits for compliance.

7. Implementation Guidelines

- **Design Phase:** Conduct capacity assessments, incorporate passive design elements, and ensure secure access.
- **Installation:** Validate through commissioning tests and handover training.
- **Operation and Maintenance:** Use preventive maintenance schedules, BMS for monitoring, and emergency procedures for failures.
- **Review:** Annual evaluations to adapt to changes and maintain best practices.

This document serves as a foundational reference for NHS estates teams and designers.

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