AIRGEN IT — TECHNICAL GUIDANCE

WiFi Enabling Specification for New-Build Student Accommodation

What to provision during design and construction so your building delivers reliable, high-density WiFi from the day residents move in.

AirGen IT Limited · 6 Edison Village, Nottingham Science & Technology Park, Nottingham NG7 2RF · airgenit.co.uk ·
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1. Purpose of this document

This specification is written for developers, architects and M&E consultants working on purpose-built student accommodation (PBSA), build-to-rent (BTR) and other multi-dwelling developments. It sets out the physical infrastructure a building should include — decided at design stage, installed during construction — so that a managed WiFi network can be deployed efficiently and perform reliably at full occupancy.

Connectivity is consistently one of the highest-impact amenities in resident satisfaction and rebooking decisions, and it is far cheaper to provision for it during construction than to retrofit afterwards. Surface-mounted containment, congested risers and undersized comms rooms are the most common — and most avoidable — causes of poor WiFi in otherwise excellent buildings.

> **Real-world example:** Graduation House, a newly built student accommodation in Nottingham, engaged AirGen before completion. Site surveys informed access point placement during fit-out, and residents had high-performance WiFi 6 connectivity from day one of occupation — with no post-completion remedial work.

2. Engage a connectivity partner early

The single most valuable step is appointing (or at minimum consulting) your managed WiFi provider during design, not after practical completion. A design-stage site survey determines access point positions, cabinet locations and containment routes while changes still cost nothing.

- **RIBA Stages 2–3:** agree comms room locations, riser allocations and containment strategy.
- **RIBA Stage 4:** incorporate cabling specification and access point positions into the M&E drawings.
- **Construction:** first-fix containment and cabling installed alongside other services.
- **Pre-completion:** equipment installation, commissioning and testing before residents arrive.

> **Order the internet connection early.** Dedicated leased-line circuits commonly have lead times of several months, and new sites may also need duct work from the public highway. This is the most frequent cause of buildings opening without full connectivity — the order should be placed as early in the programme as possible.

3. Comms room requirements

- A dedicated, lockable main comms room — not shared with plant that produces heat, dust or vibration, and not used as general storage.
- Located with sensible cable-route access to risers, and to the external duct entry for the incoming circuit.
- Dedicated power supply with sufficient capacity for network equipment, ideally on a separate circuit; consider provision for a UPS.
- Ventilation or cooling appropriate to the equipment load — network cabinets in unventilated cupboards fail in summer.
- In larger or taller buildings, allow for secondary distribution cabinets per riser or per floor group to keep cable runs within specification.

4. Containment and structured cabling

- Dedicated containment (basket or tray) for data cabling, installed at first fix, with vertical risers connecting all floors to the comms room(s).
- Category 6 as a minimum for horizontal cabling to access point positions — Category 6A where budget allows, for headroom on future WiFi standards.
- Copper runs must respect the 90-metre channel limit — this drives the number and placement of distribution cabinets.
- Fibre backbone between the main comms room and any secondary cabinets.
- Avoid routing data cabling tight alongside high-voltage power runs; maintain separation per standard practice.
- Label and test every outlet at handover; require test results from the installing contractor.

5. Access point provisioning

Exact access point quantities and positions must come from a design survey — building materials, layout and density change the answer for every project. The construction-stage requirement is simpler: provide cabled positions where the design will need them.

- Ceiling-mounted positions in circulation spaces and cluster/communal areas, with a data outlet at each position.
- Provision within or serving each bedroom zone — in high-density PBSA the design goal is strong, consistent signal in every room, eliminating dead zones rather than relying on corridor coverage alone.
- All access points powered over Ethernet (PoE) — no local power sockets needed at AP positions, but the switching in the cabinets must be specified for the total PoE load.

- Consider heritage or concrete-heavy structures early: dense materials attenuate signal and typically require more positions. (AirGen's Commercial Point project integrated a full WiFi solution into a historic building without compromising its character — feasible, but only with design-stage planning.)
- Communal external areas (courtyards, roof terraces) benefit from provisioned positions too — decide at design stage.

6. Summary checklist

ITEM	REQUIREMENT	STAGE
Connectivity partner consulted	Design survey informing M&E drawings	RIBA 2–4
Leased line / incoming circuit	Ordered early; duct to site boundary confirmed	As early as possible
Main comms room	Dedicated, lockable, powered, ventilated	Design
Secondary cabinets	Per riser/floor group where runs exceed limits	Design
Containment & risers	Dedicated data containment, all floors	First fix
Horizontal cabling	Cat6 minimum (Cat6A preferred) to all AP positions	First/second fix
Fibre backbone	Main room to all secondary cabinets	First fix
AP positions	Per design survey; PoE throughout	Second fix
Testing & certification	All outlets tested and labelled at handover	Handover

7. What AirGen IT provides

AirGen IT designs, installs and operates fully managed WiFi and internet for larger multi-tenant buildings — student accommodation, build-to-rent, co-living and assisted living. With over 10 years managing networks like these, our service covers the full lifecycle:

- **Design:** comprehensive site surveys and network design, including design-stage input on new builds.
- **Installation:** full installation of WiFi access points and network infrastructure, using proven hardware.
- **Operation:** 24/7 proactive monitoring, bandwidth management and secure network management.
- **Support:** dedicated tenant support — residents come to us, not to your site team.

Talk to us at design stage

A short conversation during design costs nothing and prevents expensive surprises at completion.

AirGen IT Limited — 6 Edison Village, Nottingham Science & Technology Park, Nottingham NG7 2RF

t: 0115 772 0501 · e: enquiries@airgenit.co.uk · w: airgenit.co.uk

This document provides general guidance for early-stage planning and does not replace a project-specific design survey. Cabling and electrical work must be carried out by suitably qualified contractors to current standards and regulations.