ASK4

STUDENT ACCOMMODATION ENABLING SPECIFICATION

Fibre to the Building (FTTB) Infrastructure

Revision V11-FTTB-PBSA_ie

Project ID	[project id]
Site Name	[site name]
Client	[client]

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INTRODUCTION

ABOUT ASK4

Internet connectivity and technology solutions at the heart of multi-tenant buildings internationally

Our team delivers connectivity and technology solutions to hundreds of thousands of users in multi-tenant buildings across three sectors including build-to-rent, student housing and later living, to help them live life and work productively.

Where do we operate?

ASK4 operates in 12 countries across the UK and Europe. We provide 24/7/365 multilingual support to the locations we serve to give our clients and customers the service they need, when they need it.

Headquartered in the UK, with offices in Spain and Germany, we are proud to support some of the world's leading providers of multi-tenant living and working spaces.

PURPOSE

This document outlines the Developer's physical infrastructure responsibilities to support ASK4 service delivery. It should be used in consultation with ASK4's Technical Pre-Sales team, and is subject to a site survey.

MANAGED INTERNET SERVICES

Internet connectivity and technology services to be provided by ASK4 will be detailed in the Managed Internet Service Contract between ASK4 and the Client. These typically encompass full-site pervasive Wi-Fi, internet access for residents, guests, and staff, as well as connectivity for additional building services such as CCTV, access control, and building management systems. Any services not detailed in the Managed Internet Service Contract are excluded.

LEGAL STATEMENT

PRIVATE AND CONFIDENTIAL

The information contained within this document relates to a Commercial Interest in accordance with the definition of Section 43 of the Freedom of Information Act (2000) and must not be disclosed to third parties without the express written consent of ASK4 Limited as doing so may unfairly prejudice the Company's fair commercial position.

DISCLAIMER

References to the Developer are generic, as multiple parties may carry out the Enabling Works described. The Client remains solely responsible for ensuring all works are completed. ASK4 accepts no liability for costs incurred by the Developer, Client or third parties relying on this document, which is provided for general guidance only.

DOCUMENT CONTROL

SITE DETAILS

Project ID	[project id]
Site Name	[site name]
Client	[client]
Site Type	Student Accommodation
Infrastructure	Fibre to the Building (FTTB)

ISSUE REGISTER

Issue Version	Date	Issued To	Issued By
[issue version]	[issue date]	[issued to]	[issued by]

KEY CONTACTS

Commercial & Sales	[Choose an item]
Technical Pre-Sales	[Choose an item]
Project Delivery	Project delivery and installation enquiries, please contact projects@ask4.com

CHANGE CONTROL

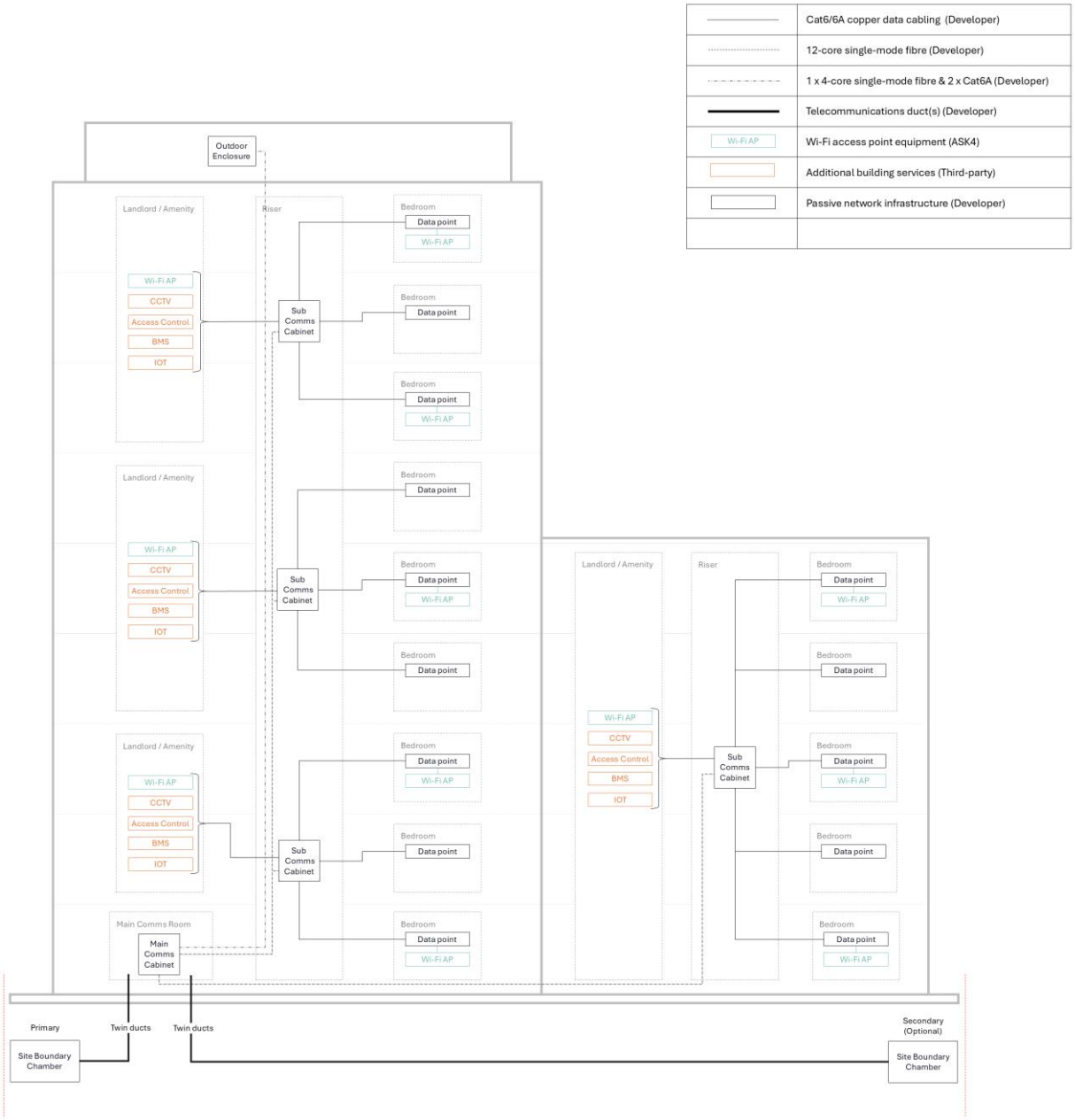
Revision	Date	Author	Change
9.0	27/10/2020	Matthew Prince	
10.0	31/01/2023	Matthew Prince	Enabling Specification renamed for FTTB Added 7m or greater separation for incoming fibre ducts Added backbone fibre connection to the roof for FWA connectivity Updated main comms room size Updated copper data cabling specification, for compatibility with 10Gb (10GBASE-T) standards Added copper data cabling for elevator Wi-Fi coverage Added main comms room 32 amp power supply Updated BTU/Hr figures for main comms and sub comms Updated branding and layout
10.1	04/03/2024	Matthew Prince	Updated 'Documentation issued to ASK4' list
10.2	30/09/2024	Matthew Prince	Updated Responsibilities Matrix and Pre-Installation Dates sections with Third Party Services
11.0	20/10/2025	Matthew Prince	General updates to layout and formatting Responsibilities and key dates updated, additional key date at 7 months prior

SOLUTION OVERVIEW

INFRASTRUCTURE OVERVIEW

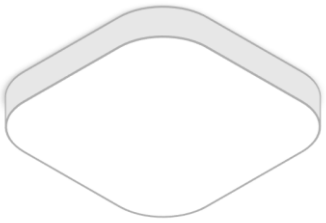
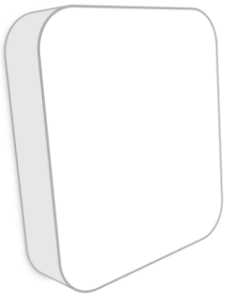
This diagram provides a high-level overview of the infrastructure needed to support the delivery of ASK4 services. It should be reviewed alongside the full specification within this document and in consultation with ASK4's ASK4 Technical Pre-Sales representative. It is intended solely as a reference guide.

Site Type	Student Accommodation
Infrastructure	Fibre to the Building (FTTB)



WIRELESS OVERVIEW

ASK4's services encompass full-site pervasive Wi-Fi utilizing managed access points enabling secure resident, staff, guest and third-party system to connect securely throughout the building. Specific Wi-Fi coverage areas will be outlined in the Managed Internet Service Contract between ASK4 and the Client. Access point placement will be designed by ASK4 to meet the required service levels and coverage, incorporating a variety of unit types including wall-mounted, ceiling-mounted, and external access points.

Access Point Type	Typical Installation
Wall-plate 	Typically installed into bedrooms, studios, apartment living room kitchens utilising the data sockets in these locations already installed by the Developer. Wall plate access points provide a pass-through port for wired connectivity. Fixing directly over the recessed back box/mounting box, 100mm clearance is required all around the single RJ45 socket in these locations to accommodate wall plate access points - see Appendix 3.
Ceiling 	Typically installed on the ceiling in apartment living room / kitchens, and throughout landlord amenity and common areas, to ASK4 specified locations. ASK4 will issue marked up plans showing ceiling mounted access point locations for cabling installation by the Developer. Data cables must be installed within 500mm of the ASK4 specified locations.
Outdoor 	Typically installed in outdoor amenity areas, and resident accessible roof terraces, to ASK4 specified locations. ASK4 will issue marked up plans showing external access point locations for cabling installation by the Developer. Data cables should be installed at a heigh of 3.5m to ASK4 specified locations.

RESPONSIBILITIES AND KEY DATES

Responsibilities and key dates are outlined to ensure the successful delivery of ASK4 services. Developer enabling works must be completed by the agreed Pre-installation date to maintain the scheduled Installation Date. Any delay in these works may impact the overall service delivery timeline.

Task	Description	Responsible	Pre-Installation Date
Project kick off	Meeting between ASK4, Client and Developer stakeholders	ASK4	Project Initiation
Wireless AP design	Wireless network design and access point locations planned.	ASK4	Project Initiation
Eircom Site Registration	Register new site with Eircom HEU	Developer	12 months prior to Installation Date
Order in-coming fibre connectivity	Place order for in-coming fibre connectivity, for the delivery of services by ASK4.	ASK4	9 months prior to Installation Date
Site boundary chamber(s)	Site boundary chamber(s) built and accessible for Telco Services Provider survey. *Requirements: Site Boundary Chamber Position(s), Site Boundary Chamber Specification*	Developer	7 months prior to Installation Date
Site telecommunication duct(s)	Continuous duct(s) from site boundary chamber(s) to the main comms room or building point of entry built. *Requirements: Site Telecommunication Ducts*	Developer	7 months prior to Installation Date
Main comms room	Main comms room built and capable of being secured. Accessible for Telco Services Provider survey. *Requirements: Main Comms Room*	Developer	7 months prior to Installation Date
Survey	Survey to verify that enabling works meet specified requirements and are completed in line with pre-installation timelines.	ASK4	7 months prior to Installation Date
Comms cabinets	Main comms cabinet(s) is installed within the main comms room in its final position. Sub comms cabinets installed. *Requirements: Main Communications Cabinet, Sub Communications Cabinet(s)*	Developer	4 months prior to Installation Date
Survey	Survey to verify that enabling works meet specified requirements and are completed in line with pre-installation timelines.	ASK4	4 months prior to Installation Date
Fibre-optic data cabling	Fibre-optic backbone data cabling installed, terminated, tested and labelled. *Requirements: Fibre-optic backbone Cabling*	Developer	2 months prior to Installation Date
Copper data cabling	Copper data cabling installed, terminated, tested and labelled. *Requirements: Resident Copper Data Cabling, Landlord/Amenity Copper Data Cabling, Copper Data Cabling Specification*	Developer	2 months prior to Installation Date
Infrastructure for fixed wireless access	Data cabling and containment to the roof for Fixed Wireless Access connectivity. *Requirements: Infrastructure for Fixed Wireless Access*	Developer	2 months prior to Installation Date
Air conditioning	Active cooling or air conditioning installed and operational within the main comms room. *Requirements: Main Communications Room*	Developer	2 months prior to Installation Date
Power	Permanent power live to the main comms room, sub comms cabinets and power-distribution units (PDU) installed. *Requirements: Power*	Developer	2 months prior to Installation Date
Survey	Survey to verify that enabling works meet specified requirements and are completed in line with pre-installation timelines.	ASK4	2 months prior to Installation Date
Network equipment	Supply, installation and commissioning of network equipment (gateway, access points, switches), for the delivery of services by ASK4.	ASK4	Installation Date

INFORMATION REQUIRED SCHEDULE

This schedule outlines the specific information required from the Developer to support the successful delivery of services by ASK4. The information must be provided at project initiation, and prior to the contractually agreed Installation Date as indicated.

Ref	Information Required	Pre-Installation Date
ASK4-IR-01	Site contacts: Main contractor / project manager MEP design consultant MEP contractor	Project Initiation
ASK4-IR-02	Site location plan	Project Initiation
ASK4-IR-03	Site services/utility plan	Project Initiation
ASK4-IR-04	General arrangement (GA) drawings	Project Initiation
ASK4-IR-05	Wall construction detail drawings	Project Initiation
ASK4-IR-06	MEP small power & data drawings	Project Initiation
ASK4-IR-07	MEP data containment routes	Project Initiation
ASK4-IR-08	Data cabinet locations	Project Initiation
ASK4-IR-09	Data cabling schematic	Project Initiation
ASK4-IR-10	Accommodation schedule (Plot numbers)	Project Initiation
ASK4-IR-11	Accommodation schedule (Addresses)	Project Initiation
ASK4-IR-12	Additional building services connectivity requirements (e.g. CCTV, access control, BMS)	Project Initiation
ASK4-IR-13	Developers programme of works and key milestones	Project Initiation
ASK4-IR-14	Fibre-optic cabling test certificates	2 months prior to Installation Date
ASK4-IR-15	Fibre-optic cabling patch schedule	2 months prior to Installation Date
ASK4-IR-16	Copper data cabling test certificates	2 months prior to Installation Date
ASK4-IR-17	Copper data cabling patch schedule	2 months prior to Installation Date
ASK4-IR-18	Additional building services Information Capture Form (e.g. CCTV, access control, BMS)	2 months prior to Installation Date

Notes

- Plans and drawings must be provided in PDF format
- Accommodation schedules must be provided in Excel format
- This information required schedule is subject to change following survey, finalised scope and design
- Any delays providing the specific information required may delay the successful delivery of ASK4 services

ADDITIONAL BUILDING SERVICES

In addition to providing internet connectivity for residents, guests, and staff, ASK4's services typically extend to supporting building systems such as CCTV, access control, and building management platforms. Requirements for connectivity to these additional services must be communicated to ASK4 at the project initiation stage to ensure their inclusion in the Managed Internet Service Contract and overall project delivery scope. Any services not specified will be excluded unless formally agreed through a variation.

For each additional building service, the Developer - or their nominated technical subcontractor - must supply all technical information requested by ASK4 to enable the configuration and integration of the network infrastructure. Copper data cabling required for these services must be specified and installed by the Developer, as this falls outside the scope of ASK4's Enabling Specification.

The Developer is responsible for patching service area outlets and terminal equipment associated additional building services. ASK4 will handle patching within main and sub-communications cabinets, connecting patch panels to ASK4-supplied active network equipment in accordance with the 'patch panel schedule' provided by the Developer.

ENABLING WORKS SPECIFICATION

1. PHYSICAL INFRASTRUCTURE FOR INCOMING FIBRE

The site requires physical infrastructure - including telecommunications ducts, chambers, and containment systems - to support incoming fibre connections to the ASK4 network. These enabling works must be completed by the Developer in accordance with the schedule outlined in the Responsibilities and Key Dates table. Any delay in completing these works may affect the overall timeline for service delivery.

1.1. SITE BOUNDARY CHAMBER POSITION(S)

Based on the Client's connectivity requirements - whether they opt for a single connection or dual (resilient) connections - one or more site boundary footway chambers will need to be installed. These chambers serve as entry points for incoming fibre connections and must be located and positioned for the desired level of network resilience and redundancy.

Requirements	Description	No. of Chambers	Chamber Position(s)
Standard connectivity	Single fibre circuit between the site and ASK4's network.	1	Site boundary
Dual connectivity Supplier Diversity	Two fibre circuits between the site and ASK4's network, utilising two independent telco service providers.	2	Site boundary with 7m separation between chambers
Dual connectivity Route Diversity	Two diversly routed fibre circuits between the site and ASK4's network	2	Early engagement with ASK4 necessary to plan chamber positions

Site boundary chamber locations must be accessible for survey, installation and commissioning of the incoming fibre connectivity throughout the period between the Pre-Installation date - as outlines in the Responsibilities and Key Dates table – and final handover.

1.2. SITE BOUNDARY CHAMBER SPECIFICATION

Site boundary chamber(s) must be constructed to Eircom Builders Specification which can be obtained by contacting Eircom HEU.

Please contact eircom HEU 1850-438-438 or heu@eircom.ie

The chamber and route to chamber from boundary must remain free of obstruction (such as scaffolding) during all phases of construction in order that the Telco can dig to this location and access the chamber.

The chamber must be constructed from Eircom materials and must not be shared with any other services than Eircom.

1.3. SITE TELECOMMUNICATION DUCTS

Site telecommunication ducts must be installed between each site boundary chamber and the main comms room or building point(s) of entry. Duct installation and construction must be to Eircom Builders Specification which can be obtained by contacting Eircom HEU.

Please contact eircom HEU 1850-438-438 or heu@eircom.ie

1.4. EIRCOM SITE REGISTRATION

The Developer responsible for registering the site with Eircom. Details for registering the site can be obtained by contacting Eircom HEU.

Please contact eircom HEU 1850-438-438 or heu@eircom.ie

2. INFRASTRUCTURE FOR FIXED WIRELESS ACCESS

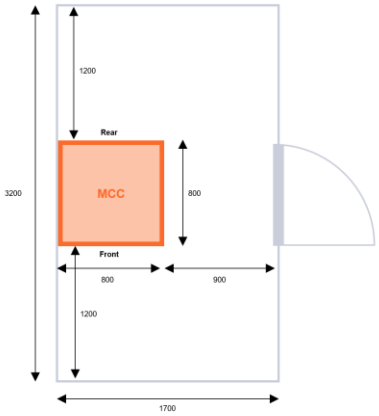
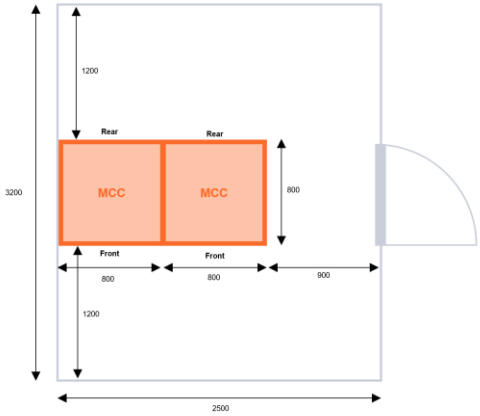
The site requires infrastructure - including cabling, containment and roof penetration - to support incoming fixed wireless access. These enabling works must be completed by the Developer in accordance with the schedule outlined in the Responsibilities and Key Dates table. Any delay in completing these works may affect the overall timeline for service delivery.

Requirements	
Outdoor enclosure	Outdoor weatherproof enclosure located on the highest accessible roof. The enclosure must be installed no higher than 1m from roof deck. The enclosure must include entry/exit weatherproof cable glands.
Roof penetration	Swan neck roof penetration for fibre and copper telecommunications cables to access the roof
Containment	Outdoor containment between the roof penetration and the outdoor enclosure must be provided. Containment must be 100mm in size.
Fibre-optic cabling	1 x 4-core single-mode OS2 (9/125) fibre-optic cable between the roof outdoor enclosure and the main comms cabinet. The fibre-optic cabling must be terminated by fusion splicing upon fibre-optic patch box at the enclosure, and fibre-optic patch panel in the main comms cabinet. The fibre-optic cabling must be terminated with LC/UPC connectors. Outdoor-grade cabling must be used for any sections of the fibre-optic cable route exposed to external conditions.
Cat6A cabling	2 x Catogery6A (CAT6A) between the roof outdoor enclosure and the main comms cabinet. The CAT6A cables must be terminated upon an RJ45 outlet at the enclosure, and RJ45 patch panel in the main comms cabinet If the cables distance is greater than 90m to the main comms cabinet, the CAT6A cables should be taken back to the nearest sub comms cabinet. Outdoor-grade cabling must be used for any sections of the Catogery6A (CAT6A) route exposed to external conditions.

3. MAIN COMMUNICATIONS ROOM

The site requires a main communications room, the purpose of the main communications room is to act at the demarcation between external in-coming connectivity, and the in-building (internal) infrastructure. The main communications room will also facilitate ASK4 core active equipment. The main communications room must be completed by the Developer in accordance with the schedule outlined in the Responsibilities and Key Dates table. Any delay in completing these works may affect the overall timeline for service delivery.

Requirements

Tenure	The main communications room must be dedicated for telecommunications and ASK4 equipment
Location	The main communications room should be located on the ground floor and within a landlord accessible area of the building
Dimensions	The room dimensions and layout must allow for working space around the main comms cabinet(s) of 1200mm (front), 1200mm (rear), and 900mm (one side) Recommended room dimensions of 3200mm x 2500mm for up to 2 floor standing cabinets, and WiredScore certification Minimum room dimensions of 3200mm x 1700mm for up to 1 floor standing cabinet Minimum room ceiling height of 2200mm  
Finish	Walls and ceilings must be sealed or painted. The room must have anti-static floor covering or painted with a hardwearing anti-static floor paint.
Environmental	The room must be debris, dust/particle free, and there must be not water services within the room
Temperature Control	Active cooling or air conditioning is required to maintain the room temperature between 18°C and 24°C with a heat dissipation from ASK4 equipment of 3000 BTU/Hr + 500BTU/Hr for every patch panel (fibre and copper) terminated within the main comms room.
Security	The room must have a permanent door with integral lock and should always be secure. Access to be restricted to authorised personnel for maintenance purposes only.

Notes

- ASK4 reserves the right to power down equipment or postpone installation until active cooling or air conditioning has been fully commissioned and is operational. Any equipment installed by ASK4 in the main communications room will not be covered under warranty unless adequate cooling or air conditioning is both installed and consistently maintained.

4. IN-BUILDING DATA CABLING INFRASTRUCTURE

The site requires landlord owned in-building (internal) data cabling infrastructure - including main and sub communications cabinets, fibre-optic backbone data cabling and copper data cabling – to support ASK4 services. The in-building data cabling infrastructure must be completed by the Developer in accordance with the schedule outlined in the Responsibilities and Key Dates table. Any delay in completing these works may affect the overall timeline for service delivery.

4.1. MAIN COMMUNICATIONS CABINET

The main communications cabinet is necessary to accommodate both passive and active network components, such as fibre-optic backbone patch panels, power distribution units, and core switching and routing hardware. The cabinet will serve as the termination point for external connectivity, providing the interface between incoming connections and ASK4's network equipment.

Requirements	
Size	Height: 42U Width: 800mm Depth: 800mm
Cabinet type	Floor standing
Cabinet rails	19-inch rack rails, with front and rear mounting
Location and positioning	The main communications cabinet must be located within the main communication room. Working space around the cabinet of 1200mm (front), 1200mm (rear), and 900mm (one side) must be provided. If there are more than two cabinets, they can be located side-by-side.
Passive components	No more than 12U for fibre-optic backbone, copper cabling patch panels and associated cable management bars
Active components	Minimum of 30U for incoming fibre connections and ASK4 network equipment
Adoption	The main communication cabinet shall not be used for other services, unless with prior consultation and agreement with ASK4.
Installation	The cabinet must be earthed in accordance with the relevant standards and regulations, and the manufacturers specification.
Power distribution units	1 x PDU per cabinet, with 12 x 13-amp BS 1363 sockets
Additional information	If more than 12U of fibre-optic backbone, copper cabling patch panels and associated cable management bars are terminating within the main communication room then additional cabinet(s) must be provided. Subsequent cabinet(s) must follow the requirements detailed in the Sub Communication Cabinet requirements.

4.2. SUB COMMUNICATIONS CABINET(S)

Sub communications cabinets are necessary to accommodate both passive and active network components, such as fibre-optic backbone patch panels, copper cabling patch panels, power distribution units, and access switching equipment. The cabinet(s) are used to distribute network service to specific areas, floors or blocks of the site.

Requirements

Size	Height: See table below Width: 500mm Depth: 500mm
Cabinet type	Floor standing or wall mounted
Cabinet rails	19-inch rack rails, with front mounting
Location and positioning	Sub communication cabinet locations should be planned to take into consideration cabling distance specifications, containment capacity and cabinet capacity, and can be located within a dedicated room, telecommunications riser or shaft, or other suitable location. Wall mounted cabinet must be installed no higher than 2000mm to the top of the cabinet
Passive components	See table below
Active components	See table below
Adoption	The sub communication cabinets shall not be used for other services, unless with prior consultation and agreement with ASK4.
Installation	The cabinet must be earthed in accordance with the relevant standards and regulations, and the manufacturers specification.
Power distribution units	See table below
Finish	Walls and ceilings must be sealed or painted. Where a dedicated room is provided, the room must have anti-static floor covering, or painted with a hardwearing anti-static floor paint.
Environmental	The location must be debris, dust/particle free
Temperature Control	Passive or active ventilation is required to maintain sub communication cabinet location temperature below 30°C with a heat dissipation from ASK4 equipment of 500BTU/Hr for every patch panel (fibre and copper) within the sub comms room.
Security	Sub communication cabinets must be located within secure landlord areas of the building – not within a resident flat or apartment – access to be restricted to authorised personnel for maintenance purposes only.

Sub Communications Cabinet Capacity Table

Passive components	**Active components**	**Cabinet size**	**PDU sockets**	**Layout**
Patch panels and cable management bars (fibre and copper)	*Space reserved for ASK4*	*Sub communication cabinet rack units (height in rack units)*	*No. of PDU 13-amp socket required*	*Cabinet patch panel layout example*
Up to 5U	6U	12U	6	See Appendix 4.X
Up to 8U	9U	18U	6	See Appendix 4.X
Up to 11U	12U	24U	6	See Appendix 4.X
Up to 14U	12U	27U	8	See Appendix 4.X
Up to 20U	21U	42U	12	See Appendix 4.X

4.3. FIBRE-OPTIC BACKBONE CABLING

Fibre-optic backbone cabling must be installed to link the main communications cabinet with all sub-communications cabinets throughout the site. Every physical block and building should be integrated into this backbone using a star topology, with connections emanating from the main communications cabinet.

Requirements

Fibre specification	Single-mode OS2 (9/125)
Topology	Star topology emanating from the main communications cabinet
Fibre count	12 fibre cores between the main communications room and each sub communications cabinet
Termination	For each link, all 12 fibre core must be terminated via fusion splicing onto fibre-optic patch panel using **LC/UPC** connectors. For each 1U patch panel, 1U cable management bar must be installed
Containment	Cabling must be installed in dedicated, appropriately sized vertical and horizontal containment and must comply with relevant standards, regulations, and manufacturer specification. Vertical riser containment must be at least 150mm width, and horizontal containment must be at least 100mm.
Testing	Fibre-optic backbone cabling must be tested and certified to support IEEE standards: 1000BASE-LX, 10GBASE-LR, 25GBASE-LR, 100GBASE-FR1. Testing must use manufacturer-approved equipment. Test results must be submitted to ASK4 before active equipment installation.
Labelling & Documentation	Patch panels must be labelled at both ends with source and destination detail, additionally a ‘patch panel schedule’ documentation must be provided, including: • Near-end and far-end rack • Patch panel identification • Patch panel core/port identification • Cable type • Cable length • Connector type

4.4. RESIDENT COPPER DATA CABLING

Copper data cabling is required throughout all residential accommodation and living areas to support ASK4 Internet services. Each cable must be installed as a dedicated home-run connection from the service area RJ45 outlets to the nearest sub-communications cabinet. Only Category 6 or Category 6A cabling is acceptable, and must comply with the specification as detailed in section Copper Data Cabling Specification .

Requirements

Location	Quantity	Note & Cabling Presentation
Bedroom study desk	1	Single RJ45 socket at each study desk location, below or above the desk 40 to 60mm deep recessed back box/mounting box 100mm clearance all around the socket - Appendix 2 – Typical Data Point
Television point	1	Single RJ45 socket at each TV location 40 to 60mm deep recessed back box/mounting box 100mm clearance all around the socket - Appendix 2 – Typical Data Point
Share living room / kitchen	1	Single RJ45 socket low level within each shared lounge/kitchen 40 to 60mm deep recessed back box/mounting box 100mm clearance all around the socket - Appendix 2 – Typical Data Point
Wi-Fi access point(s)	1	Ceiling mounted Wi-Fi access point location – as required to ASK4 specified location Cable with field terminated RJ45 plug within 500mm of ASK4 specified location Presented below the ceiling through suitable hole, with 100mm of cable that can be pushed back into the ceiling void

4.5. LANDLORD/AMENITY COPPER DATA CABLING

Copper data cabling is required throughout all landlord and amenity areas to support ASK4 Internet services – and where required additional third-party building systems. Each cable must be installed as a dedicated home-run connection from the service area RJ45 outlets to the nearest sub-communications cabinet. Only Category 6 or Category 6A cabling is acceptable, and must comply with the specification as detailed in section Copper Data Cabling Specification

Requirements

Location	Quantity	Note & Cabling Presentation
Wi-Fi access point(s)	1	Ceiling mounted Wi-Fi access point location – as required to ASK4 specified location. Plasterboard Ceiling Cable with field terminated RJ45 plug Presented below the ceiling through suitable hole, with 100mm of cable that can be pushed back into the ceiling void Solid / Exposed Ceiling Single RJ45 socket, mounted on the ceiling, or cable 40 to 60mm deep surface mounted back box/mounting box Ceiling Tiles (Lay-in Grid) Single RJ45 socket, mounted above the ceiling 40 to 60mm deep surface mounted back box/mounting box
Wi-Fi access point(s) – Outdoors	1	Single RJ45 socket installed within a weather resistant box The weather resistant box must include an available cable gland to connect a patch lead to the external Wi-Fi AP
Reception & Management Office	4 per desk space	Quad RJ45 socket to each desk location
Additional third-party building services	As required	As required by the Client for landlord services and 3rd party systems

4.6. COPPER DATA CABLING SPECIFICATION

Copper data cabling must be installed to the specification detailed below.

Requirements	
Cable specification	Category 6 Category 6A
Cable distance	Category 6 up to 45m Category 6A up to 90m
Topology	Each cable must be installed as a dedicated home-run connection emanating from the nearest sub-communication cabinet.
Termination	Copper data cabling must be terminated in compliance with the TIA/EIA-568-B standard. Each cable must be connected to an RJ45 patch panel within the sub-communications cabinet, while the corresponding service area outlet must be presented using an RJ45 module and faceplate, unless otherwise specified
Containment	Cabling must be installed in dedicated, appropriately sized vertical and horizontal containment and must comply with relevant standards, regulations, and manufacturer specification. Vertical riser containment must be at least 150mm width, and horizontal containment must be at least 100mm.
Testing	Copper data cabling must be tested and certified for IEEE 802.3ab (1000BASE-T), IEEE 802.3bz (2.5/5GBASE-T) IEEE 802.3an (10GBASE-T) data transmission and IEEE 802.3af, 802.3at and 802.3bt Power over Ethernet (PoE) standards using a tester approved by the data cabling manufacturer and in accordance with relevant cabling regulations and standards. Test results must be submitted to ASK4 before active equipment installation.
Labelling & Documentation	Patch panels and service area outlets must be labelled, additionally a 'patch panel schedule' documentation must be provided, including: • Rack/cabinet identification • Patch panel identification • Patch panel port identification • Cable type • Cable length • Connector type • Service area outlet location (block, floor, area) • Outlet purpose

5. POWER

Dedicated power supplies are required for each main communications cabinet and sub communications cabinet from the landlord power distribution. Power supplies must be completed by the Developer in accordance with the schedule outlined in the Responsibilities and Key Dates table. Any delay in completing these works may affect the overall timeline for service delivery.

Requirements

Location	Quantity	Additional Information
Main communications room	2 x 16amp commando socket per cabinet within the main communications room	16amp power supply are to be connected to the rack power distribution unit (PDU) bar Sockets should be mounted directly above or below each main communications cabinet
Main communications room	1 x 32amp commando socket per cabinet within the main communications room	Sockets should be mounted directly above or below each main communications cabinet
Sub communications cabinet(s)	2 x 16amp commando socket per sub communications cabinet	16amp power supply are to be connected to the rack power distribution unit (PDU) bar Sockets should be mounted directly above or below each sub communications cabinet

APPENDICES

APPENDIX 1 – LABELLING AND PATCH PANEL SCHEDULE GUIDE

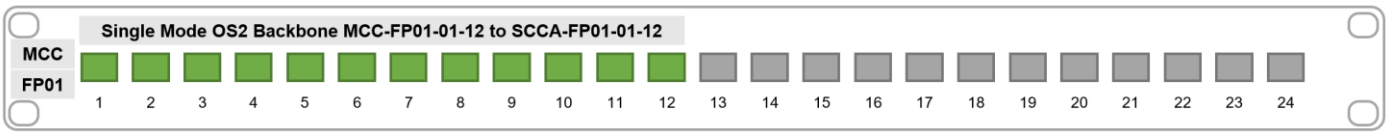
Fibre-Optic Backbone Cabling

Fibre-optic backbone cabling must be labelled on the patch panel at each end identifying the near-end (source) and far-end (destination) cabinet, patch panel and fibre cores. The patch panel schedule must include the near-end and far-end rack, patch panel, core/port, fibre-optic cable type, cable length and connector type.

Example labelling scheme:

In this example there is a 12-core single-mode backbone fibre from the Main Comms Cabinet to the Sub Comms Cabinet A.

Patch panel label	[Cabinet] [Patch Panel]
Port label	[Cable Type] [Cabinet]-[Patch Panel]-[Port(s)] to [Cabinet]-[Patch Panel]-[Port(s)]



Example backbone patch panel schedule:

Source				Destination				Cable Type	Cable Length
Cabinet	Patch Panel	Core/Port	Connector	Cabinet	Patch Panel	Core/Port	Connector		
MCC	FP01	01	SC/APC	SCC A	FP01	01	SC/APC	SM OS2	400m
MCC	FP01	02	SC/APC	SCC A	FP01	02	SC/ACP	SM OS2	400m
MCC	FP01	03	SC/APC	SCC A	FP01	03	SC/APC	SM OS2	400m
…	…	…	…	…	…	…	…	…	…

Copper Data Cabling

Copper data cabling must be labelled at Sub Comms Cabinet (SCC) patch panel and data point with the corresponding data point identification. The labelling/identification scheme must be provided on a 'patch panel schedule' including cabinet, patch panel, port, connector, floor, service area, purpose, cable type and cable length.

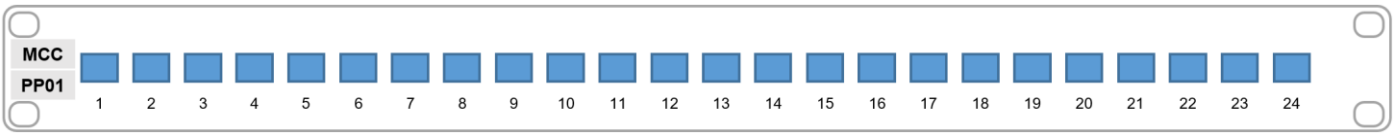
Example labelling scheme:

In this example there are 4 copper data cables from the Main Comms Cabinet for Data, Wi-Fi and CCTV connections in the Office, Lobby and Gym areas, and 6 copper data cables from Sub Comms Cabinet A serving apartments 101 and 102.

Patch panel labelling at the Sub Comms Cabinet.

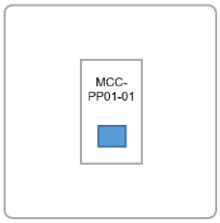
Patch panel label [Cabinet] [Patch Panel]

Port label [Port]



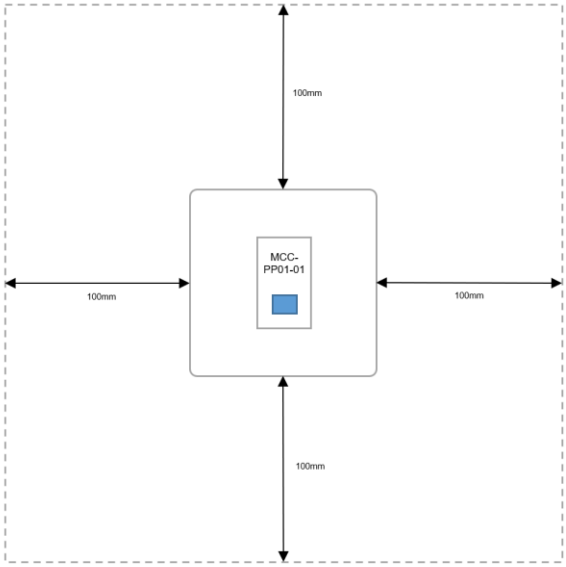
Data point/sockets labelling.

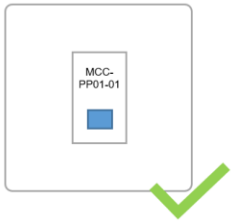
Data point [Cabinet]-[Patch Panel]-[Port]

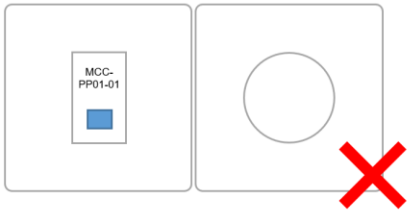


Source				Destination					Cable Type	Cable Length
Cabinet	Patch Panel	Port	Connector	Port ID	Floor	Service Area	Purpose	Connector		
MCC	PP01	01	RJ45	MCC-PP01-01	Ground	Office	Data	RJ45	Cat6	23m
MCC	PP01	02	RJ45	MCC-PP01-02	Ground	Office	Wi-Fi	RJ45	Cat6	18m
MCC	PP01	03	RJ45	MCC-PP01-03	Ground	Lobby	CCTV	RJ45	Cat6	32m
MCC	PP01	04	RJ45	MCC-PP01-04	Ground	Gym	Wi-Fi	RJ45	Cat6	27m
SCC A	PP01	01	RJ45	SCC A-PP01-01	First	Apt 101	Bedroom 1	RJ45	Cat6	25m
SCC A	PP01	02	RJ45	SCC A-PP01-02	First	Apt 101	Living room	RJ45	Cat6	24m
SCC A	PP01	03	RJ45	SCC A-PP01-03	First	Apt 102	Bedroom 1	RJ45	Cat6	32m
SCC A	PP01	04	RJ45	SCC A-PP01-04	First	Apt 102	Bedroom 2	RJ45	Cat6	28m
SCC A	PP01	05	RJ45	SCC A-PP01-05	First	Apt 102	Living room	RJ45	Cat6	34m
SCC A	PP01	06	RJ45	SCC A-PP01-06	First	Apt 102	Wi-Fi	RJ45	Cat6	26m
...	...	...	...	...	...	...	...	...	...	...

APPENDIX 2 – TYPICAL DATA POINT







APPENDIX 3 – EXAMPLE COMMS CABINET RACK LAYOUTS

Example 42U Main Comms Cabinet

U42	Fibre-optic backbone cabling	U42
U41	Cable management bar	U41
U40	Fibre-optic backbone cabling	U40
U39	Cable management bar	U39
U38	Copper data cabling	U38
U37	Copper data cabling	U37
U36	Cable management bar	U36
U35	Copper data cabling	U35
U34	Copper data cabling	U34
U33	Cable management bar	U33
U32	Copper data cabling	U32
U31	Copper data cabling	U31
U30	Cable management bar	U30
U29		U29
U28		U28
U27		U27
U26		U26
U25		U25
U24		U24
U23		U23
U22		U22
U21		U21
U20		U20
U19		U19
U18		U18
U17	Space reserved for ASK4	U17
U16		U16
U15		U15
U14		U14
U13		U13
U12		U12
U11		U11
U10		U10
U9		U9
U8		U8
U7		U7
U6		U6
U5		U5
U4	Telco A	U4
U3	Telco A	U3
U2	Telco B	U2
U1	Telco B	U1

Example 12U Sub Comms Cabinet

U12	Fibre-optic backbone cabling	U12
U11	Cable management bar	U11
U10	Copper data cabling	U10
U9	Copper data cabling	U9
U8	Cable management bar	U8
U7	Space reserved for ASK4	U7
U6		U6
U5		U5
U4		U4
U3		U3
U2		U2
U1	PDU	U1

Example 18U Sub Comms Cabinet

U18	Fibre-optic backbone cabling	U18
U17	Cable management bar	U17
U16	Copper data cabling	U16
U15	Copper data cabling	U15
U14	Cable management bar	U14
U13	Copper data cabling	U13
U12	Copper data cabling	U12
U11	Cable management bar	U11
U10	Space reserved for ASK4	U10
U9		U9
U8		U8
U7		U7
U6		U6
U5		U5
U4		U4
U3		U3
U2		U2
U1	PDU	U1

Example 24U Sub Comms Cabinet

U24	Fibre-optic backbone cabling	U24
U23	Cable management bar	U23
U22	Copper data cabling	U22
U21	Copper data cabling	U21
U20	Cable management bar	U20
U19	Copper data cabling	U19
U18	Copper data cabling	U18
U17	Cable management bar	U17
U16	Copper data cabling	U16
U15	Copper data cabling	U15
U14	Cable management bar	U14
U13	Space reserved for ASK4	U13
U12		U12
U11		U11
U10		U10
U9		U9
U8		U8
U7		U7
U6		U6
U5		U5
U4		U4
U3		U3
U2		U2
U1	PDU	U1