



Tender No.T2020021

Date: 30th July, 2021

Firm Name: _____

Address: _____

Dear Sirs,

INVITATION TO TENDER
TENDER FOR THE SERVICE OF SCHOOL WI-FI SETUP &
SUBSCRIPTION SERVICES (36 MONTHS)

1. You are invited to tender for the service of the stores or services as specified in the enclosed tender schedule. If you are not prepared to accept a partial order, please state this clearly on the tender schedule.
2. Your sealed tender, in duplicate, should be clearly marked on the envelope:

TENDER FOR THE SERVICE OF SCHOOL WI-FI SETUP &
SUBSCRIPTION SERVICES (36 MONTHS)

The envelope should be clearly marked with tender no. and addressed to the principal, No.2 Kan Hok Lane, Tiu Keng Leng, Tseung Kwan O and arrive not later than 12:00 noon on 13th August, 2021. Late tenders and information will not be accepted. Your tender will remain open for 90 days from the "Closing Date", and you may consider your tender to be unsuccessful if no order is placed with you within these 90 days. You are requested to note that unless Part II of the tender form is completed, the tender will not be considered.

3. If you are unable or do not wish to tender, it would be appreciated if you return the tender form with reason to the above address at your earliest convenience.
4. Tenders will be accepted on an 'overall' / 'group' / 'itemised' basis.

If you have any enquiries, please contact Chief I.T. and Innovation Development Master Mr. Tsang Ming Hong.

Address: No. 2, Kan Hok Lane, Tiu Keng Leng, Tseung Kwan O

Tel. No.: (852) 27066969 Fax. No. : (852) 27069906

Yours sincerely,
Cheung Chi Man
Principal



TENDER FOR THE SERVICE OF SCHOOL WI-FI SETUP & SUBSCRIPTION

SERVICES (36 MONTHS)

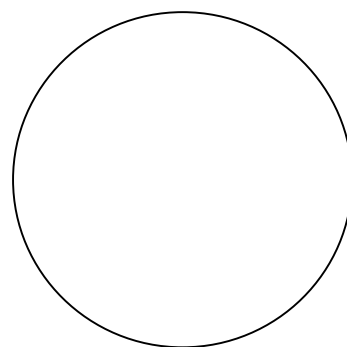
Tender Schedule (to be completed in duplicate)

Tender No.T2020021

(Columns 4 to 6 to be completed by Supplier)

(1) Item No.	(2) Description / Specification	(3) Quantity Required	(4) Unit Rate (HK\$)	(5) Total Amount (HK\$)	(6) Delivery Offered
	Please see the Appendix Part X & Part Y				

We / I understand that if we / I fail to supply the stores or services as offered in our / my tender upon accepting school's order, we are / I am prepared to pay the price difference to the school if such stores or services are obtained from elsewhere.



Company Chop

Name of Supplier: _____

Name and Signature of Person authorized to sign Tender:

Name (in block letters): _____ Signature: _____

Date: _____



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SERVICES (36 MONTHS)

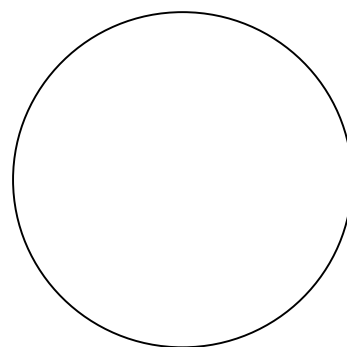
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Tender Form for Services

TENDER FORM FOR THE SERVICES OF SCHOOL WI-FI SETUP & SUBSCRIPTION SERVICES (36 MONTHS)

School name and address : Man Kwan QualiEd College

No. 2, Kan Hok Lane, Tiu Keng Leng, Tseung Kwan O

Tender No. : T2020021

Tender closing date : 13th August, 2021 at 12:00 noon

Release Date : 20th August, 2021

PART I

The undersigned hereby offers to undertake the service as described in the tender schedule within the period of time as specified therein from the date of a firm order placed by the school at the price or prices quoted in the tender schedule including labour, materials, all other charges and in accordance with the details provided by the school. In so doing, the undersigned acknowledges that all items not otherwise specified shall be provided in accordance with such details; tenders shall REMAIN OPEN FOR 90 DAYS after the Closing Date; and the school is not bound to accept the lowest or any tender and reserves the right to accept all or any part of any tender within the period during which the tenders remain open. The undersigned also warrants that his Company's Business Registration and Employees' Compensation Insurance Policy are currently in force and that the service which his Company offers to undertake will not cause any damage to the school's premises.

PART II

RECONFIRMATION OF TENDER VALIDITY

With reference to Part I of this tender document, it is reconfirmed that the validity of tender offered by this company remains open for 90 days from 13th August, 2021.

PART III

According to "Prevention of Bribery Ordinance", without authorization or acceptable reasons, any acceptance of interest (including commission) from suppliers and / or contractors by school staff or any interest (including donations) provided by suppliers and / or contractors to school staff during procurement process is regarded as an offence.

The undersigned also agrees to accept the fact that once the validity of tender is reconfirmed, the pre-printed clause specified in the Company's tender forms in regard to this nature shall NOT apply.

Dated this _____ day of _____ 2021



萬鈞匯知中學

MAN KWAN QUALIED COLLEGE

SUPERVISOR:

Prof. TAM MAN KWAN, P.h.D., B.H., B.B.S., J.P.

PRINCIPAL:

Mr. CHEUNG CHI MAN

校監：譚萬鈞教授·太平紳士

校長：張志文先生

Name (in block letters): _____

Signature: _____ in the capacity of _____

(state official position e.g. Director, Manager, Secretary)

Duly authorized to sign tenders for and on behalf of:

whose registered office is situated at _____

Telephone No.: _____ Fax No.: _____



Tender Form for Services

**TENDER FORM FOR THE SERVICES OF SCHOOL WI-FI SETUP &
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Letter to Suppliers / Contractors regarding Offering Gifts to School Staff

Offering Gifts to School Staff

I am writing this letter to inform you that our school has formulated a clear policy on the solicitation and acceptance of gifts by staff in their official dealings.

In order to maintain a team of clean and honest school staff, it is stipulated in our school policy that no staff shall solicit or accept gifts, money or any other form of advantages in their course of duty without the special permission of the School Management Committee.

Our staff has understood the policy in which any breach will result in disciplinary action and the school is ready to report all offences to the Independent Commission Against Corruption (ICAC).

We therefore earnestly request your support to our commitment of managing our school in a fair and just way. Should any member of our staff approach you for an advantage, please report to me immediately.

Yours sincerely,
Cheung Chi Man
Principal



萬鈞匯知中學

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Tender No.T2020021

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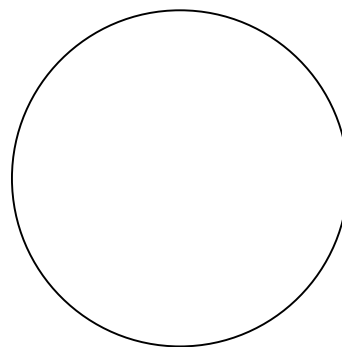
Firm Name : _____

Address : _____

Statement of Expression of No Interest for the tender

Our company will not tender for THE SERVICE OF SCHOOL WI-FI SETUP
& SUBSCRIPTION SERVICES (36 MONTHS).

Please explain the reason(s) : _____



Company Chop

Name of Supplier : _____

Name and Signature of Person authorized to sign Tender

Name (in block letters) : _____ Signature : _____

Date : _____

PART X – WiFi REQUIREMENTS SPECIFICATION

1. Background

The Contractor is invited to

- Build up a WiFi network in Man Kwan QualiEd College; and
- Provide and maintain a WiFi service through subscription mode.

2. Background

The School will **enhance / top up** the IT infrastructure so as to set up the necessary WiFi environment in the school premises (full WiFi coverage in ALL classrooms) for supporting e-learning in class. Regarding the enhancement of WiFi infrastructure, we would like to hire a contractor to design, build, operate and maintain the whole infrastructure; and to pay for the service by subscription thereafter, through a **subscription** model.

3. User Requirements

This section specifies the user requirements of the School of the WiFi network. The Contractor shall be capable of supporting the requirements set out below.

3.1 Standard Provision

- **WiFi Internet Connectivity** – use IEEE 802.11 a/b/g/n/ac/ac wave 2 or ax network or above in a standard classroom. The minimum number of classrooms to be covered shall be at least equal to the number of approved classes for the 2021/24 school year, that is 24 classrooms.
- **WiFi coverage** – include special rooms and open areas as per Part Y.
- **Number of Concurrent Connection** – commensurate with the maximum number of students, say 40, in a class with at least 3Mbps upload / download bandwidth per connection
- **Number of classrooms using WiFi concurrently:** 15 Classrooms
- **Authentication Method**
 - use 802.1x standard based authentication and Hong Kong Education City single sign-on services.
 - User account system being used by school (e.g. AD, pre-shared key)
- **Session Control** – Hong Kong Education City authentication service

can support one device or multiple devices to connect based on user group (student, teachers).

- **WLAN system access control** – specific request on MAC address filtering.
- **MAC Address Monitoring** – The lists of filtering and filtered MAC addresses are to be monitored by the Contractor. The school can review the MAC address list 10 times/school year with no other extra costs.
- **Integration of networks**
 - system integration with existing network with secure design.
 - Set up VLAN setting for different SSID
 - Staff/Teachers SSID able access to ITED network
 - Students SSID cannot access to ITED network
- **Internet Content Filtering Service** – based on filtering profile commonly adopted by most schools and managed by vendors.
- **Existing Network Facilities** – not rely on any existing network facilities and cabling of the School
- **Broadband Network** – use separate broadband with 16 IP address for the WiFi service. Provide 2000Mbps Internet connection at school.
- **Managed Service** – operate the WiFi network using managed service model, provide end-to-end service with single point of contact including configuration, provisioning of service, proactive monitoring, maintenance and regular reporting.
- **Monitoring of WiFi network** – specific request on monitoring of WiFi network by School.
- **Service Level Agreement** – ensure at least 99.7% availability of the WiFi service, support four-hour response time and four-hour service recovery with active monitoring, helpdesk support with support hours from Mon to Sat 8:00 am to 6:00 pm, and provide monthly monitoring reports for the School.
- **Support hours** – extended support hours and/or reduced time for recovery.
- **Contract End Arrangement** – All provisions of trunks, conduits, cables, LAN ports and power points shall be considered as fixture of the School and shall become the property of the School. The Contractor shall remove or keep those provisions according to the instruction of the School. Contractor can remove the network equipment such as switch, routers, and access points.

3.2 Add-on Service (to be aligned with Part Y)

- No add-on Service

3.3. Deliverables

3.3.1 The Contractor is required to provide the following deliverables for the WiFi network design:

- Master Activity Plan
- Network Configuration Report and Network Diagram
- Network Test Plan and Network Test Result Report
- Operation Manual for End User
- User Acceptance Test Plan
- Exit Plan

3.3.2 The Contractor is required to provide the monthly monitoring report with the following items:

- Network Health Report
- Network Usage Report
- Reporting of security incidents
- Reporting on trend and statistics of incident and their analysis
- Reporting of the failure rate for all equipment with detailed fault analysis
- Problem log and incident log for critical failure of the network
- Statistical report on the type and no. of calls
- Summary of the outstanding enquiry for the month-to-date

4. Technical Specification (Standard Provision)

4.1 WiFi Network

4.1.1 The Wireless LAN (WLAN) System of the WiFi network shall support simultaneous dual-operation-mode that is FAT Access Point (AP) and Thin Access Point are both supported together with WLAN Controller. WLAN Controller shall be capable of fully centralized provisioning, configuration and monitoring all APs functionalities; a backup of the WLAN Controller shall be available.

4.1.2 The thin client WLAN Access Point (AP) shall be a high performance wireless network access device, which shall be connected with the Power over Ethernet (PoE) Access Switches via Structured Cabling System. Appropriate type of connection cables between WLAN APs and the antenna shall be provided.

4.1.3 The WLAN APs shall be compatible with IEEE 802.11a/b/g/n/ac/ax standard or above, support dual band of 2.4GHz and 5GHz.

4.1.4 The WLAN APs should support CleanAir technology (or similar feature) enhanced with 80MHz channel support, which delivers proactive, high-speed spectrum intelligence across 20-, 40-, and 80-MHz-wide channels to combat performance problems due to wireless interference.

4.1.5 The Contractor shall design the WLAN System to provide the coverage for the required wireless coverage place. The received signal strength measurement from the WiFi Service at the WiFi client device (such as tablet PC or notebook computer) is no worse than -68 dBm. The Contractor shall provide certificate or test report to illustrate that the WiFi client device for testing satisfies the power emission requirement.

4.1.6 The WLAN AP shall support DHCP, PoE, WPA2, IEEE 802.1x and certificate authentication.

4.1.7 The WLAN System shall support automatic channel selection, protocol filtering, multicast/broadcast storm filtering and load balancing.

4.1.8 The WLAN system shall allow single or multiple devices per user account to be authenticated using 802.1x and Hong Kong Education City single sign-on service and using existing school AD.

4.1.9 Each WLAN AP shall be able to support at least concurrent 40 users connecting to the network simultaneously. In no circumstance shall the speed of data transmission symmetrically fall below the data rate requirement at any place or any corner or any highly congested area within the areas being covered. In case the transmission speed is below the said data rates, the Contractor shall be responsible for all remedial measures to rectify or configure fine-tuning of antenna or even increase the quantity of

the WLAN AP at Contractor's own costs in order to meet the data rate requirement as mentioned in the Specification. A complete set of catalogues with brand and model shall be submitted and highlighted for reference. The catalogues shall show all the features and technical specifications of the products and systems.

4.1.10 The system shall provide bandwidth control per connection.

4.1.11 The WLAN shall allow different authentications by using Service Set Identifiers (SSIDs).

4.1.12 The SSIDs shall be able to be set hidden from searching by WiFi devices. The devices have to manually set SSID to make connection.

4.1.13 Individual APs shall be allowed to be assigned by more than one SSIDs.

4.1.14 Antennas of APs shall be 3x3 Omni or directional at least and capable of detecting user locations in real time for direction switching while devices in motion.

4.1.15 The DHCP server shall support at least 30 queries/sec.

4.1.16 The WLAN system shall suspend the session of the user once the session control is expired and the suspension time shall be configured by the school.

4.1.17 The Contractor shall in provision of the service comply with non-interference requirements of and shall not cause interference prohibited under the Telecommunication Ordinance (Cap 106) or any other laws or regulation of Hong Kong.

4.1.18 The WLAN System shall provide termination of idle sessions and control of the duration features.

4.1.19 The WLAN System shall support client roaming across Access Points.

4.1.20 The WLAN system shall cover all areas specified under this tender.

4.1.21 The quotation shall include the cost to provide sufficient quantity and its cabling work required, including but not limited to supply and install the Fibre optics, Cat 6 cable, Conduit, cable patch panel, cable faceplate, Cable patch cord.

4.1.22 The Contractor shall provide complete set of WLAN Systems which consist of Wireless Access Point, Connection Cable, Authentication System, Wireless LAN Controller, PoE Switch, horizontal UTP Cat 6 cable/OM3 Fiber, patch cable UTP Cat 6 / OM3 Fiber Optics, any required license and all associated accessories.

4.1.23 All access points (AP) shall be certified by OFCA and copy of certificates issued by OFCA shall be attached to the proposals.

4.1.24 The Contractor shall ensure that there is no interference between WLAN Access Points due to limited non-overlapping channels assignment when the WLAN AP is installed. The Contractor shall be responsible at his own costs for providing solution to eliminate the interferences including but not limited to reassignment of the non-overlapping channels, adding extra APs with lower transmission power and/or replacement of the WLAN AP.

4.1.25 The WLAN System shall support Web GUI management.

4.1.26 FTP service shall not be allowed in the WiFi network (to avoid exchanging credential and files in plain text without any encryption).

4.1.27 The WLAN System shall support IPV6 addressing method.

4.1.28 The Contractor should provide physical wireless controller.

4.1.29 The wireless controller must support up to 150 access points and 3000 clients, and Multi-gigabit Ethernet technology or similar feature.

4.2 Core Switch

4.2.1 The Core Switch would be responsible for connecting all PoE access switches in typical floors for WLAN AP.

4.2.2 The Core Switch shall be capable of providing the required bandwidth, QoS, and policy-based routing to carry all sorts of information including video, voice, data, image, etc.

4.2.3 Each Core Switch shall provide a Gigabit Ethernet connection to each PoE Access Switch in typical floors. The uplink interface of Core Switch should at least 16 x 10Gigabit Ethernet.

4.2.4 The Core Switch shall support Layer 2 and Layer 3 switching and capable of providing the wired speed performance.

4.2.5 The Core Switch shall support basic IP unicast routing protocols, Static route, multicaserouting, Routing Information Protocol (RIPv1, RIPv2), inter VLAN routing.

4.2.6 The Core Switch shall support Internet Group Management Protocol (IGMP) snooping and multicast and unicast storm control, Spanning-Tree Protocol.

4.2.7 The Core Switch shall support WebGUI Management, Access Control Lists (ACLs), DHCP Interface and SNMP.

4.2.8 The Core Switch shall support VLANs including support for IEEE 802.1Q and IEEE 802.1p.

4.3 PoE Access Switch

4.3.1 The Access Switches shall be deployed to provide high performance interconnectivity between the Core Switches and the WLAN APs on typical floor.

4.3.2 The Access Switch shall consist of 8/12/24/48 x 10/100/1000Base-T Ethernet ports, with minimum of 1 x 1000Base-T / 1000Base-SX SFP Gigabit Ethernet uplink ports connected with the Core Switch.

4.3.3 The Access Switch shall be used for connecting the WLAN APs. The Contractor shall determine the Maximum power loading of the devices to be connected with the PoE Access Switches. The Contractor shall provide additional PoE Access Switch(es) if the total power loading summed up from the PoE devices exceeds the maximum power loading capacity of the PoE Access Switch.

4.3.4 The Access Switches shall support VLAN configuration.

4.3.5 The Access Switches shall be at wired speed.

4.3.6 The Access Switches shall be provided sufficient port density to meet all the required links.

4.3.7 The Access Switches shall support PoE and shall conform to IEEE 802.af / IEEE 802.3af standard, which delivers power over single copper UTP cable for WLAN AP.

4.3.8 The Access Switches shall support Internet Group Management Protocol (IGMP) snooping and multicast and unicast storm control, IEEE 802.1D Spanning-Tree Protocol.

4.3.9 The Access Switches shall support Virtual local area network (VLANs) including support for IEEE 802.1Q and IEEE 802.1p.

4.3.10 The Access Switches shall support WebGUI Management, Access Control Lists (ACLs), DHCP Relay and SNMP.

4.4 Firewall

4.4.1 The performance of the Firewall shall not be degraded with 100% Internet bandwidth utilization.

4.4.2 Network Address Translation (NAT) is required.

4.4.3 Access Control Policy is required.

4.4.4 The firewall should support UTM feature and dual WLAN. School

has the administrative right to add the policy, say, bandwidth control and routing.

4.4.5 The configuration settings of the appliance shall be allowed to export to files for backup and restore for rapid recovery and shall control all incoming and outgoing Internet traffic, serving as the sole entry and exit point between the Internet and the WLANs in all locations.

4.4.6 The configuration settings of the appliance shall support blocking specific network ports, including ports of Transmission Control Protocol (TCP) and User Datagram Protocol (UDP). Blocking denial of service (DoS) attacks and malformed packet attacks shall also be configured.

4.4.7 The firewall policy should be applied to control network traffic such that public users should be prohibited to access the internal network segments of the School.

4.4.8 The router policy should be applied to shape the guest user VLAN traffic to designated bandwidth requested by School to preserve the e-Learning in class which is the primary purpose of School Wi-Fi

4.5 Service Requirements

4.5.1 The Contractor shall be responsible for the total project management and shall assign a person to act as the single contact point to the School regarding all related activities of the contract. This single contact point cannot be transferred to a sub-contractor unless explicitly agreed by the School. Contractor should formally inform the School in writing if there is a change of contact point.

4.5.2 The Contractor shall provide rack/cabinet or use existing school rack if there is available rack space. All switches/firewall shall be properly installed into wall mounted cabinet or rack.

4.5.3 Cables shall be labelled with connected port and its device id.

4.5.4 All the equipment shall be labelled with an identifiable id.

4.5.5 The placement of cables, cabinets, racks and appliances shall be shown on the network diagram.

4.5.6 Switches and/or other appliances shall be properly installed into cabinet/rack with appropriate ventilation.

4.5.7 13A power cord(s) shall be bundled with appliance(s).

4.5.8 Cable shall be properly set up onto appropriate cable management guide.

4.5.9 Contractor should make sure that the actual environment is suitable for the installation and operation of equipment with School agreement in advance, and make necessary suggestions, if any.

4.6 Service Level Requirements

4.6.1 The Contractor shall provide incident/problem report to the School within 5 working days after each incident and the resolution taken.

4.6.2 The Contractor shall derive mechanism, including forms and reference tables for measuring and recording the Service Level Measures, to ease the administration and monitoring by the School.

4.6.3 Advance notice by at least 2 weeks shall be given to the School prior to all scheduled maintenance. At most 4 scheduled maintenances per year are excluded from the calculation of Service Levels. No more than 1 hour service interruption or an agreed time slot is accepted for each scheduled maintenance.

4.6.4 Service Level, expressed in percentage, is the ratio of actual available time to the scheduled available time for the WiFi network of the School and is calculated according to the following formula:

Service Availability Level = (Schedule Uptime within the month—Unscheduled Downtime within the month) / Scheduled Uptime within the month, where

Scheduled Uptime: The duration, in unit of minutes, for the WiFi network of the School is scheduled to be available for the month. The duration will exclude the scheduled downtime, which is defined as duration agreed between the School and the Contractor during which the service may be deliberately made unavailable to users.

Unscheduled Downtime: The amount of time, in unit of minutes, that the service are unavailable due to equipment failure or other reasons under the responsibility of the Contractor.

4.7 Service Level Rebates

4.7.1 The Service Rebates to the School operate as liquidated damages for the performance fallen short of the target service levels over a period of one month. The service measures stipulated in 4.6 will be used to determine the Service Rebates in Service Availability (S1) and Service Resumption Time (S2).

4.7.2 The application of the Service Level Rebates adjustment to the monthly charge will commence with effective from the acceptance of the reliability test.

4.7.3 For each month, the Service Rebates for different service measures (S1, S2) will be calculated as below if the Contractor cannot meet the target Service Levels for the WiFi network of the School under the availability agreed:

$\text{Failure Hour} \times [(\text{Yearly Subscription Fee}) / (365 \times 24)] \times 2$, where

Failure Hour: The unscheduled downtime or the time to resume the network due to the failure of hardware or software which is provided by the Contractor. Failure Hour is calculated in the increment of 0.5 Hour.

4.7.4 The Service Rebates of the WiFi network of the School, if any, will be paid by crediting the invoice of the following month.

4.8 Helpdesk Service

4.8.1 The Helpdesk Service shall maintain dedicated hotline, including phone, email and fax, for enquiries and complaints.

4.8.2 The Helpdesk Service shall answer enquiries and complaints originated from the School concerning the Service.

4.8.3 The Helpdesk Service shall operate from Mon to Sat 8:00 am to 6:00 pm.

4.8.4 The Helpdesk Service shall maintain call logs on enquiries and complaints. The information shall be included but not be limited to date, time, description of issues, contact information, and follow-up actions. The Contractor shall observe and comply with Personal Data (Privacy) Ordinance in handling all information relating to these enquiries and complaints.

4.8.5 The Contractor shall provide the following information concerning the Helpdesk service related to the implementation of the Service:

- Detailed information of the helpdesk office, such as address, phone number, fax number; and
- Facilities, computer systems and equipment provided in the helpdesk office, such as private branch exchange (PBX), keyline telephone system (KTS), interactive voice response system (IVRS) and voice recording system.

4.8.6 The Contractor shall provide helpdesk staff with the necessary tools, including but not limited to hardware and software, related training for supporting the Service.

4.8.7 The Contractor shall not make use of the Helpdesk Service to transmit any message or conduct any activity to the School, which is not connected with the provision of the Service. The School shall have the full discretion to determine whether any such message or activity is in breach of this provision. The Contractor shall forthwith stop transmitting such message or conducting such activity and refrain from doing it further once the School has notified the Contractor in writing or verbally of its determination.

4.9 User Acceptance Test

4.9.1 The Contractor shall conduct tests with the School before the service is officially accepted and subscription started. Tests shall include User Acceptance Test for reliability and performance of the hardware and software, and also the monitoring, operation support and all other aspects related to the Service Level Agreement of the Service. At least 14 school working days of trial period is expected for service monitoring after testing.

4.9.2 The contractor will be required to perform test making reference to the User Acceptance Test and System Test documents at www.edb.gov.hk/ited/wifi900. They include the types of testing to be performed, the requirements to be tested, the testing environment, testing tools and pass/fail criteria as reference to the Contractor.

4.9.3 The Contractor shall upon request by the School arrange briefings to the School and/or Responsible Parties of the School, with briefing materials, prior to the User Acceptance Test when required.

4.9.4 The Contractor shall provide detailed acceptance test plan and a step by step testing procedure with expected results against the requirements set out in this specification.

4.9.5 The Contractor shall provide, configure and set up the proper software and hardware for the School to carry out the User Acceptance Test.

4.9.6 The Contractor shall be required to carry out tests to demonstrate that the equipment and system meet the specification and other contractual requirements. The Contractor shall also be responsible for the timely preparation and compilation of all test schedules, test procedures and test reports.

4.9.7 The Contractor shall follow the agreed standards as laid down in this specification for the testing methods and procedures.

4.9.8 The Contractor shall submit a schedule of site performance and commissioning tests at least 3 working days prior to the commencement of the scheduled commissioning date.

4.9.9 Special tools, test equipment, test objects and simulators required for the demonstration of either bench or commissioning tests shall be made available by the Contractor at no extra charge to the School.

4.9.10 All test equipment used by the Contractor shall be properly and periodically calibrated. Measuring standards used in calibration shall be traceable to international or national measurement standards, or to an industry recognized manufacturer's reference, subject to approval of the School.

4.9.11 Calibration procedures and results shall be documented and signed by certifying body where applicable. The Contractor may be requested to show evidence of calibration of test equipment by submission of copies of these calibration records prior to conduction of any tests.

4.9.12 The Contractor shall submit the User Acceptance Test report within 3 working days. The acceptance of the installation will only be granted after receiving a satisfactorily UAT report from the Contractor.

4.9.13 All equipment to be installed may be subject to inspection and bench testing. The Contractor shall meet the cost of deliveries for bench test. Notwithstanding, the Contractor shall have carried out the tests in accordance with the requirements and procedures stipulated in this specification and submitted the associated test reports for inspection.

4.10 Termination of Service

4.10.1 The School reserves the right to terminate all or part of the Service at any time with written notice of 10 working days in advance if:

- The Contractor fails to meet the target service levels under Service Level Requirements for two consecutive months, or three months in total within the committed subscription period;
- The School suspects that unauthorized activity has occurred or is occurring in relation to the Service;
- The provision of the Service will cause the School to be in breach of any applicable law;

4.10.2 The Contractor shall provide to the School and implement the Exit Plan in accordance with:

- The Contractor shall provide to the School an Exit Plan with feasible arrangements before the committed subscription contract date;
- If the School considers the Exit Plan as not satisfactory, it will notify the Contractor with comments. The Contractor shall revise the Exit Plan by taking into consideration of the School's comments and provide to the School with five (5) working days after the date of receiving the School's comments. If the Exit Plan has been considered as not satisfactory for three or more times, the School shall have the right to terminate this Contract by giving 10 days' notice in writing;
- Detailed exit procedures, disengagement timetable and actions to be taken by both the Contractor and the School for smooth termination of all or any part of the Service;
- The Exit Plan shall aim at enabling the School or its authorized parties to perform in substitution for the Contractor and to eliminate or minimize any disruption or deterioration of the Service. The Exit Plan shall contain, but not limited to the following information:
 - Detailed exit procedures, disengagement timetable and actions to be taken by both the Contractor and the School for smooth termination of all or any part of the Service;
 - Any information that is necessary for the School or a new service provider to continue the provision of the Service;
 - Details of the Contractor's personnel and other resources that will assist the School or the School's authorized parties during the handover;
 - All provisions of facilities such as trunks, conduits, cables, LAN ports and power points, shall be considered as fixture of the School venues and shall become the property of the School. The Contractor shall remove or keep those provisions according to the instruction of the School. Contractor can remove the network equipment such as switch, routers, and access points.
- The Contractor shall be responsible for the implementation and execution of the Exit Plan and shall ensure that the exit plan is carried out in a timely and orderly manner.

5. Technical Specification (Add-on Requirement)

- No Add-on Technical Specification

6. Wi-Fi.HK (optional service)

6.1 The implementation of Wi-Fi.HK is advocated by the School, the decision of the implementation will not be served as a basis of discrimination for proposal evaluation.

6.2 To make it easier for the public and visitors to access free Wi-Fi services in Hong Kong, the Government is promoting the free Wi-Fi services offered by the public and private sectors in Hong Kong under a common Wi-Fi brand “Wi-Fi.HK”. It will help the public and visitors find and connect to the public Wi-Fi hotspots throughout Hong Kong. These free hotspots will be promoted under the Wi-Fi.HK brand through various means such as the Wi-Fi.HK thematic website and mobile app. With a common brand in place, it will create more business opportunities for the Wi-Fi.HK participating organisations to promote and deliver their products and services to their customers by leveraging on mobile technologies.

6.3 Contractor is invited to provide free Wi-Fi service riding on the same Wi-Fi network infrastructure using the Wi-Fi.HK SSID for school visitors such as parents to access the Internet in schools and such services shall incur no additional charge to the School.

6.4 The following are the requirements of the Wi-Fi.HK scheme:

- Aggregated total of at least 30 minutes free access time per day per device;
- Service available 24 hours x 7 days;
- All Access Points be registered with OFCA;
- SSID of Access Points be presented in “Wi-Fi.HK via <designated name of service provider>” format;
- Landing page with Wi-Fi.HK logo, terms and conditions and disclaimers for user to accept for connection but no need for user to login using username or password;
- Hotline service, contact email or on-site support be provided for public enquiry and technical support; and
- At least 100 Access Points be offered (counted by Service Providers including services in multiple schools)

6.5 The network for supporting Wi-Fi.HK shall not be allowed to have direct access to the School's network. Connections via Wi-Fi.HK shall have access to the Internet only.

6.6 Content filtering is not a requirement for Wi-Fi.HK.

6.7 When the School terminates all or part of the Service, the Wi-Fi.HK service of the related area will be terminated together. The School also reserves the right to request the Contractor to terminate or suspend the Wi-Fi.HK service at any time.

6.8 More details of the scheme can be found at Wi-Fi.HK thematic website (<http://www.wi-fi.hk>).

7. Sub-Contracts

7.1 The Tenderer shall be the prime Contractor for all the services specified in Part X and Part Y of this contract. The Tenderer shall be the single point of contact for all contractual matters.

7.2 The Tenderer shall be liable for the performance or breach of any provisions of the contract by Sub-Contractors.

7.3 The Tenderer shall provide details of the sub-contract service for the Wifi operation and maintenance of the Sub-Contractors in the format listed on Section 5 of Part Y. The hierarchy of the sub-contracting shall also be clearly stated below. If there are no Sub-Contractors, please enter nil.

7.4 No Sub-Contractor(s) specified in Section 5 of Part Y shall be replaced unless prior written consent has been given by the School.

7.5 The Tenderer shall ensure that the quality of the service rendered by the Tenderer shall not be affected due to any change of Sub-Contractors;

7.6 The Tenderer shall not be relieved from any of its obligations hereunder by entering into any sub-contract for the performance of any part of this contract. If request by the School, the Tenderer shall describe which

part of the service shall be performed by the Sub-Contractor(s) in the sub-contract(s) between the tenderer and its Sub-Contractor(s).

8. Schedule of Work

8.1 The Contractor shall provide the service according to the following schedule.

Phase	Items	Starting Date	Ending Date	Service fee
I (a)	Build up of WiFi network (Standard Classroom (Item 2 in Part Y))	On or before 31 Aug 2021		0
I (b)	Build up of WiFi network (Special Rooms and Open Areas (Item 3 in Part Y))	On or before Aug 2021	31 Dec 2021	0
II	Subscription of service	1 Sep 2021	31 Aug 2024	Quoted price

9. Delay of Schedule

9.1 If the Contractor fails to provide any part of the WiFi service which shall be ready for use in the School within 60 days after the target Ending Date specified in Section 8 of Schedule of Work then notwithstanding anything else contained in this Contract the School shall be entitled to terminate this Contract with forthwith by giving written notice to the Contractor and to recover from the Contractor the amount of all damages and loss suffered by the School resulting from such failure, including without limitation to any damages and loss resulting from the termination of related service orders.

9.2 Within one (1) week of the termination of this Contract, the Contractor shall collect its own Hardware and Software at his own cost after the contractor has removed the School Data in the Hardware.

9.3 The Contractor shall reinstate and make good the concerned area of the School to the satisfaction of the School after removal of the hardware.

10. Terms of Payment

10.1 The subscription will be paid in arrears of each month during the subscription period.

11. Price Proposal

11.1 The Service Provider is required to provide a breakdown on the service charges for each of the service items as set out in the Price Proposal at **PART Y - PRICE SCHEDULE**. Failure in complying with this requirement will render the quotation disqualified.

11.2 Please note that, the School has the absolute discretion to accept the whole of the Services or just part of the Services as listed out by items in the Price Proposal.

11.3 Set up cost will not be considered as a part of the cost in subscription mode.

12. Invitation for Quotations

12.1 Quotations are invited for the execution of the whole of the Services as described in this document. Quotations for part but not all of the Services will not be considered.

12.2 Please provide two sets of quotation documents for processing of the quotation.

13. Tender Preparation and Submission

13.1 The Service Provider is required to submit the following information and document.

- A Statement of Compliance to provide response that the quotation complies with all requirements stated in this Specification.
- Price Schedule
- No upfront cost or one off cost schools shall be paid throughout the entire subscription period.
- Proposed AP location mark on the Floor plan.
- Proposed Network infrastructure show on the Network Diagram.
- Implementation Plan.
- WiFi Access Point certificates issued by OFCA.
- Product information including technical and descriptive literature and catalogues. Information provided by the manufacturer shall be able to substantiate that the products offered meet the mandatory Technical Specification.

14. Briefing Session/Site Visit

14.1 To facilitate the Service Provider to propose the quotation, a briefing session is arranged as follows. The Service Provider must attend the briefing session and carry out WiFi survey with appropriate tools.

Date: 5 Aug 2021

Time: 2:00pm

Venue: Man Kwan QualiEd College

15. Selection and Payment

School is looking for a contractor based on the following criteria

- Proposed pricing
- Proposed solution
- Equipment and services level
- Case reference
- Other useful information

16. Enquiry

For enquiry, please contact Mr. Tsang Ming Hong of the School at mhtsang@mkqc.edu.hk or by phone at 27066969.

PART Y - PRICE SCHEDULE

1. Price details for Standard Provision

Item	Standard Provision (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
1	WiFi Subscription period 36 months, starting from 1 Sep 2021				
2	WiFi Standard and Coverage <ul style="list-style-type: none"> ● 1/F 101, 102, 103, 104 ● 2/F 201, 202, 203, 204, 205, 206 ● 3/F 301, 302, 303, 304, 305, 306 ● 4/F 401, 402, 403, 404, 405, 406 ● 5/F 501, 502 <p>AP supports at least ac wave 2 or above (Requirement as stated in Part X)</p>				
3	WiFi coverage for other areas <ul style="list-style-type: none"> ● 1/F 105, 106 ● 5/F 503, 504, 505, 506 ● 6/F 601, 602, 604, 605 				

Item	Standard Provision (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
	<ul style="list-style-type: none"> ● 7/F 701, 702, 703, 704, 705, 706 ● 12 Lab/Special rooms ● Hall x2 ● Teacher's Room x2 ● Office x3 ● Lobby ● Covered Playground ● Playground ● Tuck Shop ● Backyard 1 ● Backyard 2 <p>AP supports at least WiFi6 (Requirement as stated in Part X)</p>				
4	Broadband service <ul style="list-style-type: none"> ● use separate broadband for the Wi-Fi service ● provide at least 2 x 1000Mbps Internet connection at school for 				

Item	Standard Provision (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
	the Wi-Fi service ● provide 16 IP address				
5	SSID & Authentication Method ● Support Multiple SSID co-exist through an AP ● Different SSID can have different authentication method ● Authentication method : Support MAC address filter (School can have the ability to add(by csv file)/edit / remove MAC address permit / deny to Wi-Fi connection) ● Authentication method : use 802.1x standard based authentication and Hong Kong Education City single sign-on services				
6	- Session Control - Internet Content Filtering Service - Integration of networks				

Item	Standard Provision (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
	- Monitoring of WiFi network - WiFi Service Recovery - Support hours - Reporting - Contract End Arrangements (Requirement as stated in Part X)				
	Total in HK\$				

2. Wi-Fi.HK Service

Wi-Fi coverage area of Wi-Fi.HK :	Please specify
Will you provide free Wi-Fi.HK service (Y/N) ?	Y/N (to be input by Contractor)

3. Details of equipment to be proposed in the Buildup of WiFi network in the School

Items	Quantity	Model
WiFi Controllers		
Access Points		
Router/Firewall		
Core Switch		
Access PoE Switches		
LAN Cables		
Others (please specify)		

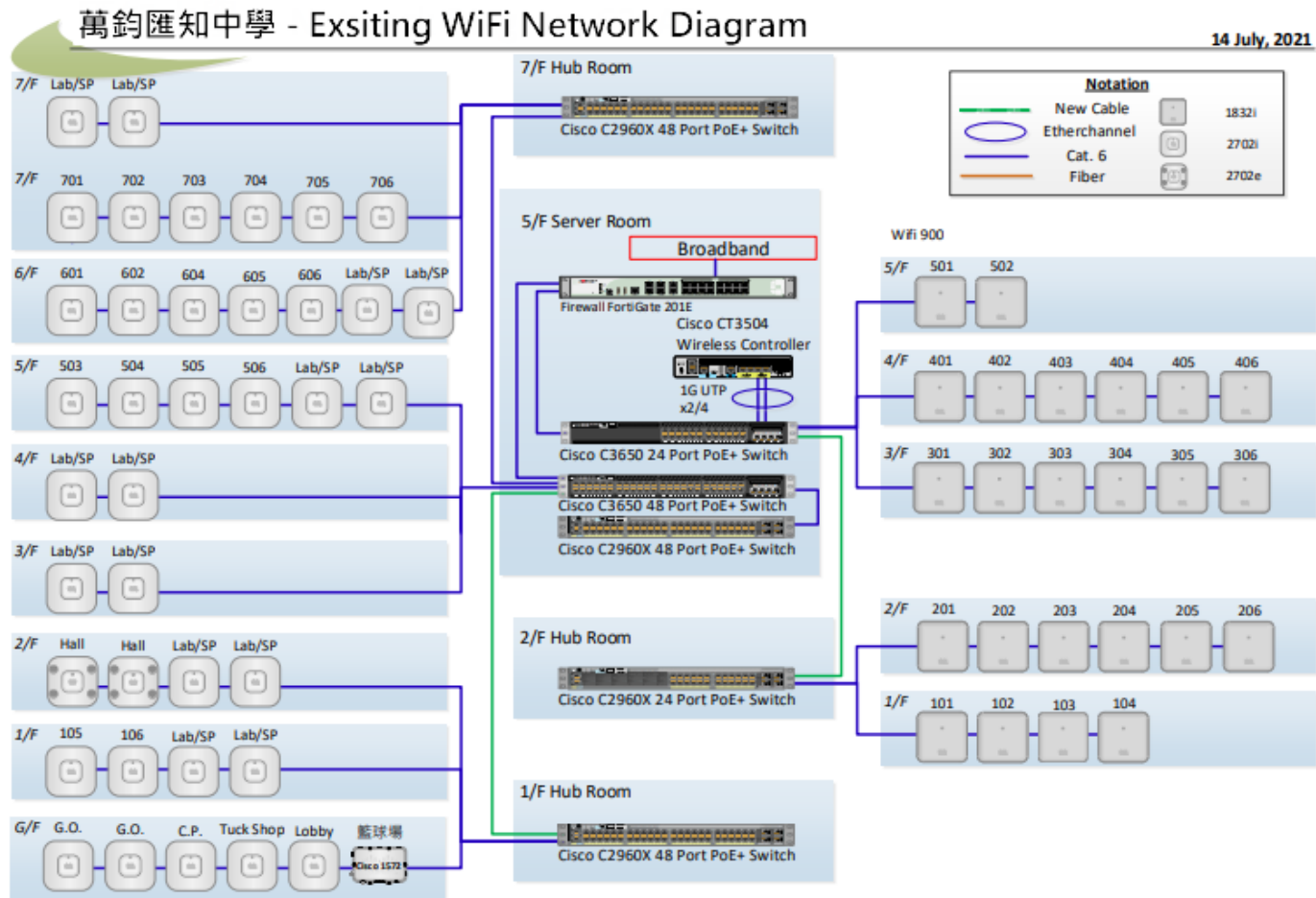
4. The Tenderer to provide details of the sub-contract service involved in the proposal for the project implementation, service operation and maintenance in the format listed below

Name of Sub-Contractor	Sub-contract service	Roles and responsibility

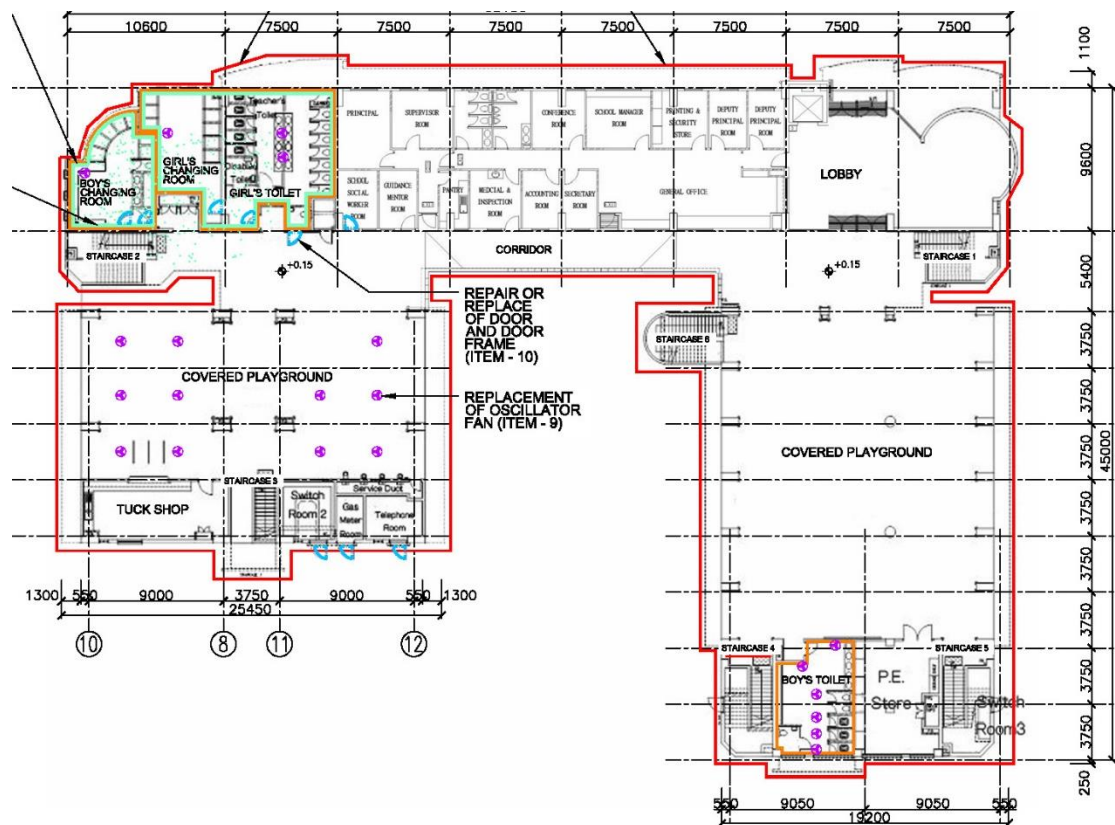
5. The Tenderer to provide case reference of past deployment in WiFi100/WiFi900 with Sub-Contractors details in the format listed below

Name of School	Name of Sub-Contractor	Sub-contract service	Roles and responsibility

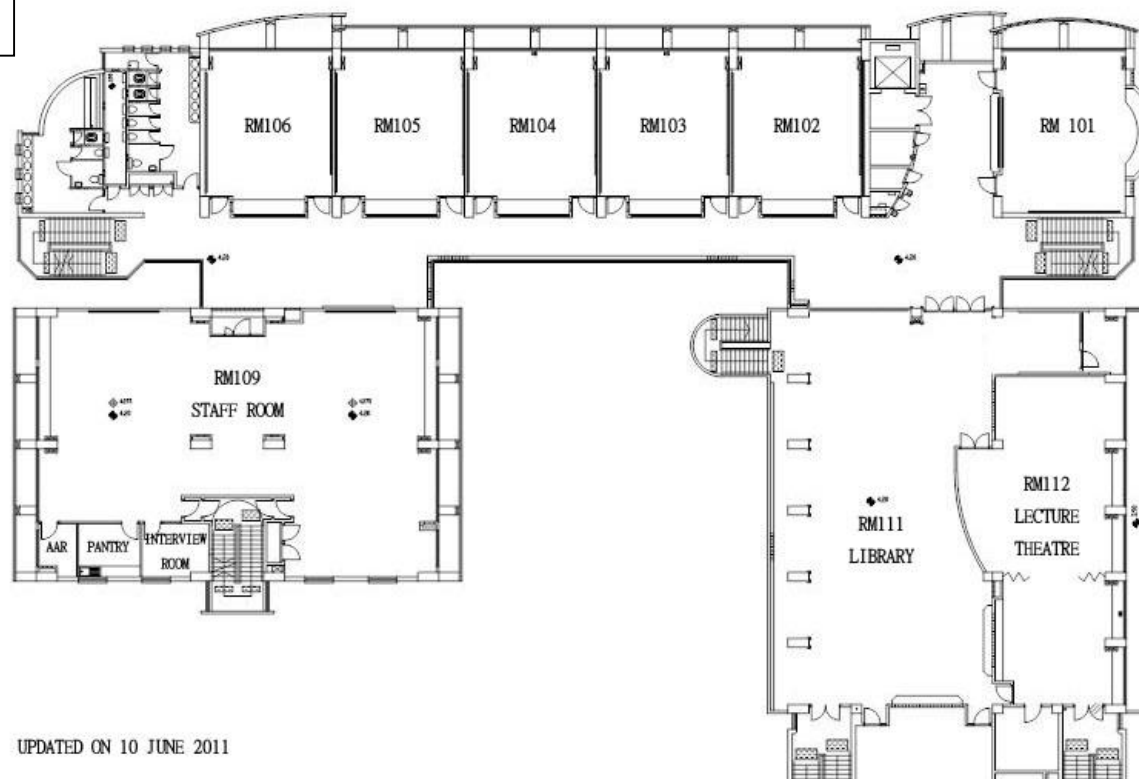
6. Existing WiFi Network Diagram and Floor plan (provided by the School) is attached.



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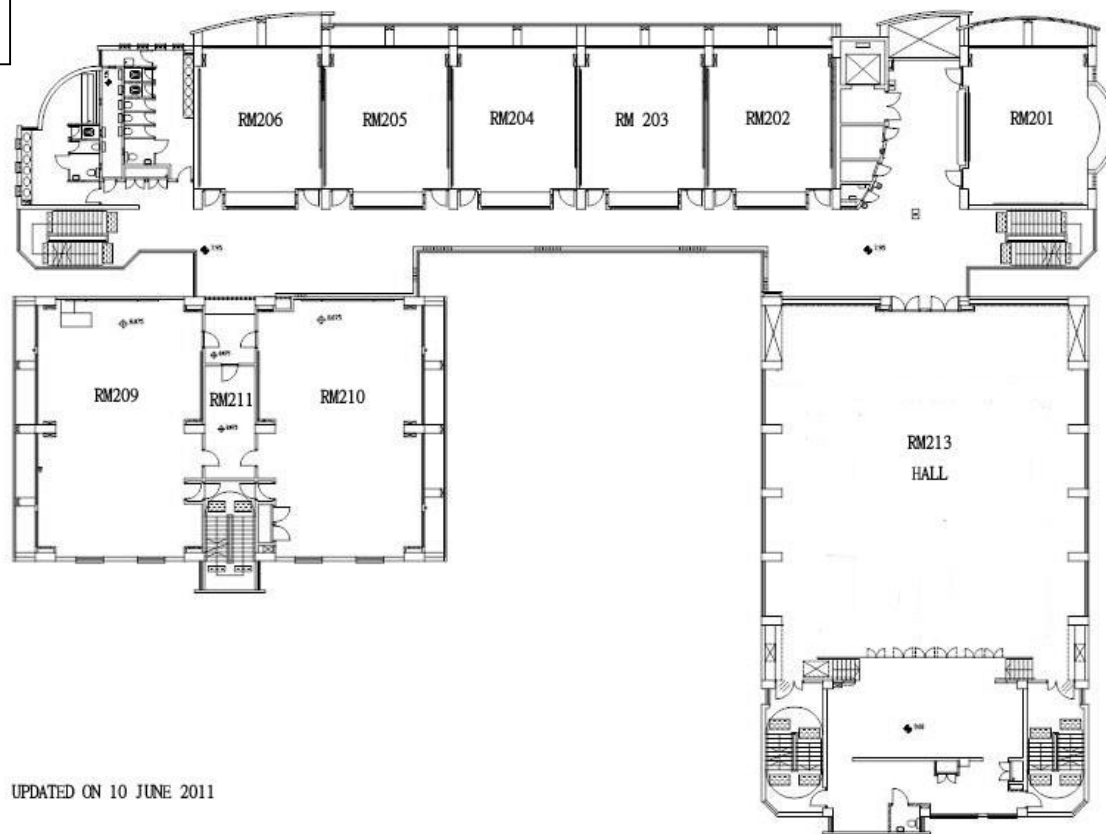


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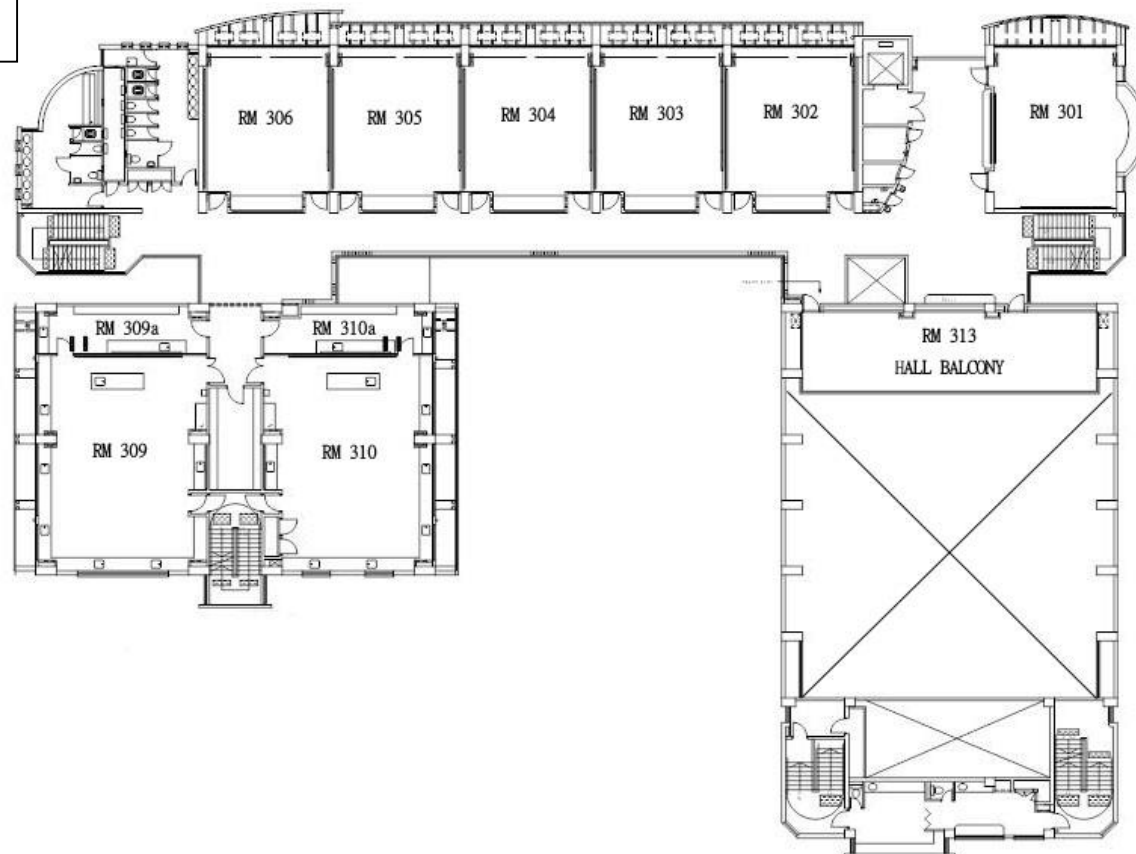
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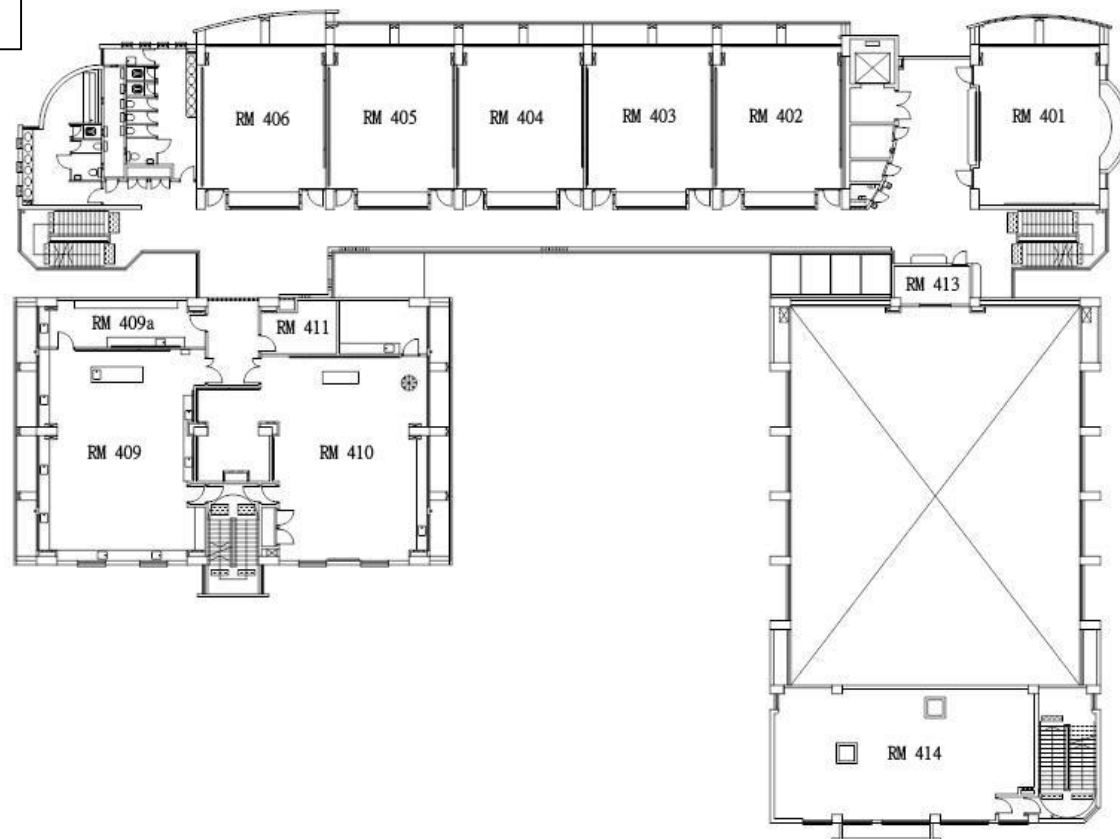


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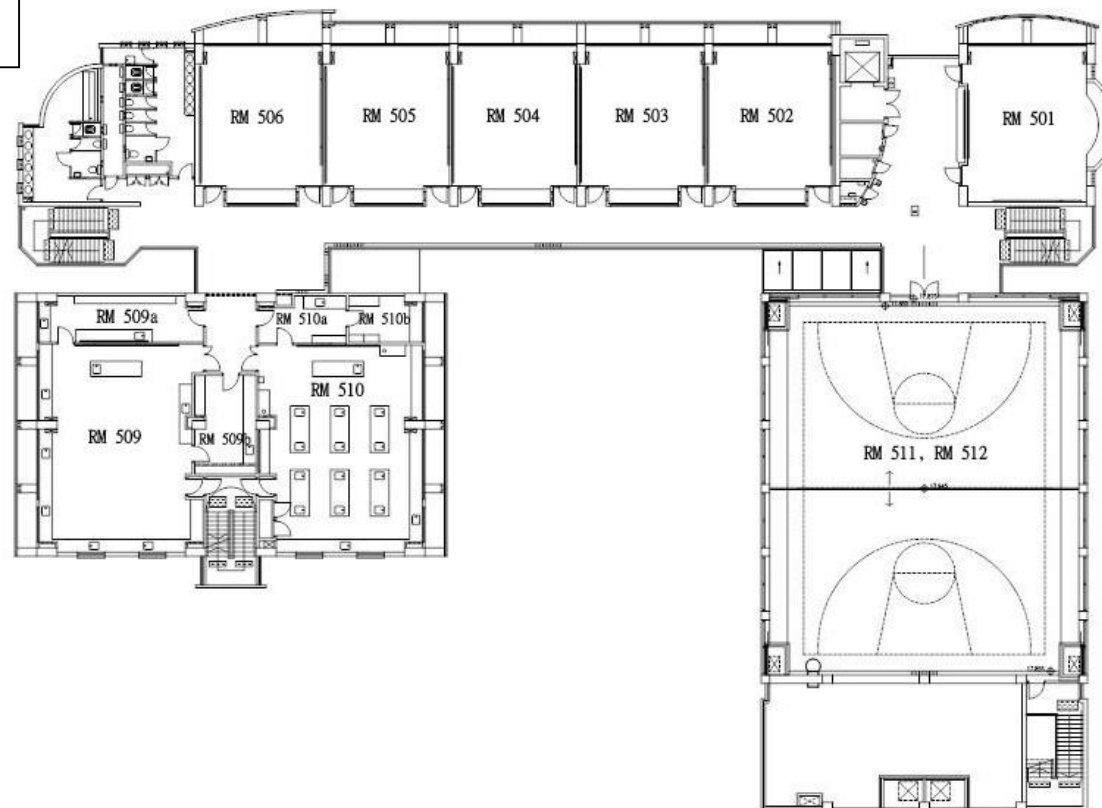
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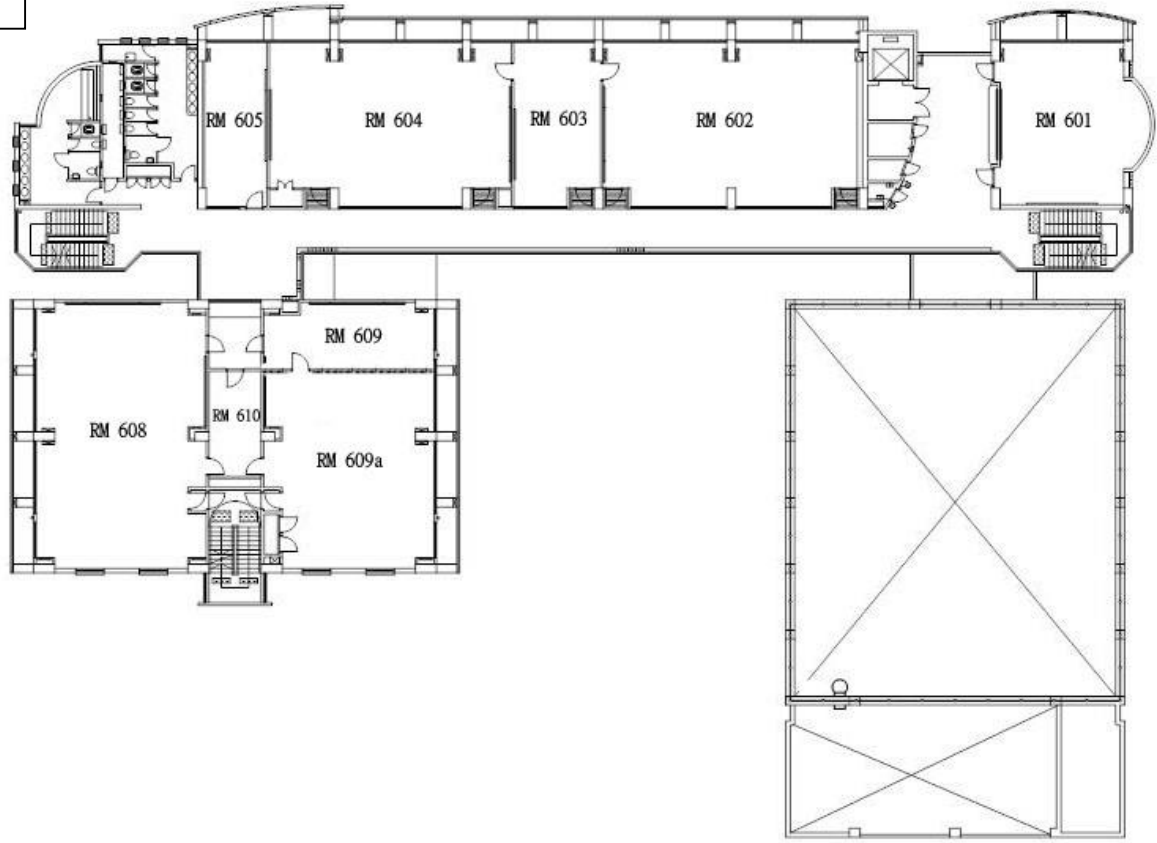
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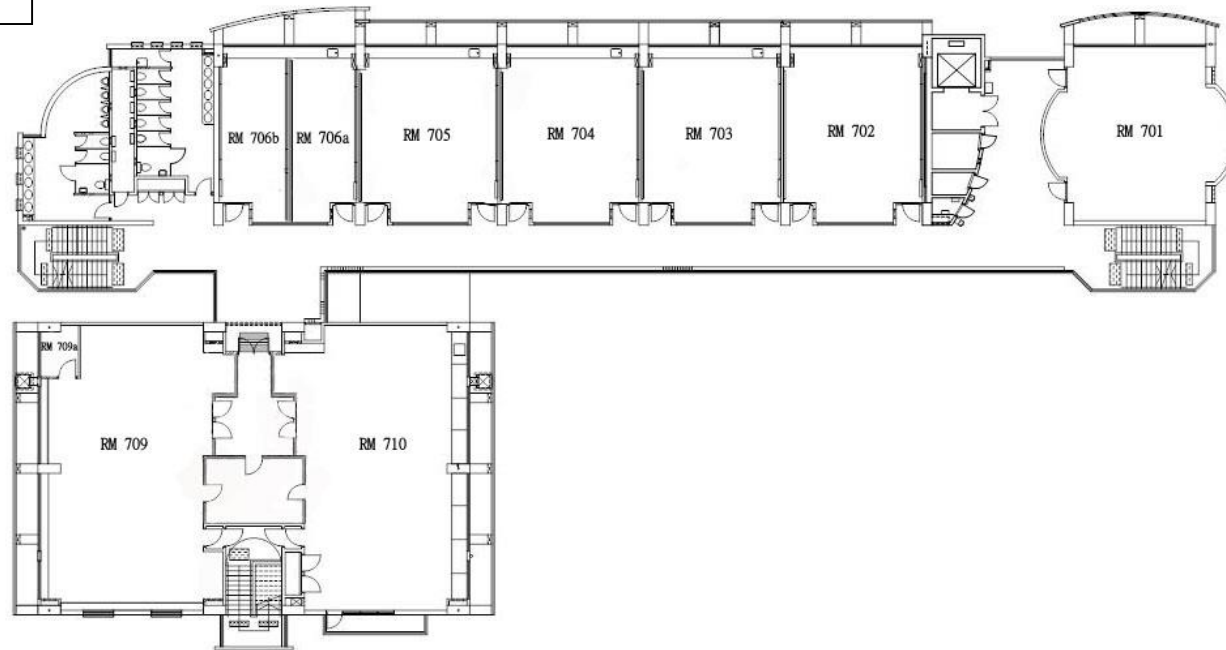
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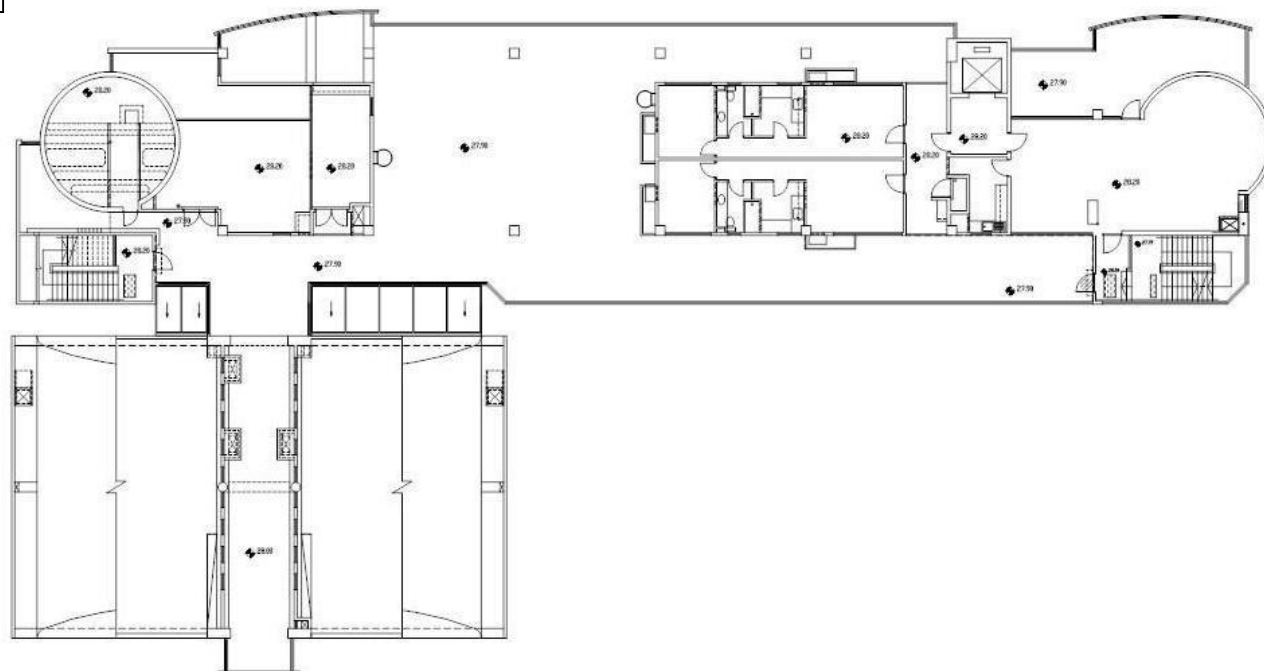
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PART X – WiFi REQUIREMENTS SPECIFICATION

1. Background

The Contractor is invited to

- Build up a WiFi network in Man Kwan QualiEd College; and
- Provide and maintain a WiFi service through subscription mode.

2. Background

The School will **enhance / top up** the IT infrastructure so as to set up the necessary WiFi environment in the school premises (full WiFi coverage in ALL classrooms) for supporting e-learning in class. Regarding the enhancement of WiFi infrastructure, we would like to hire a contractor to design, build, operate and maintain the whole infrastructure; and to pay for the service by subscription thereafter, through a **subscription** model.

3. User Requirements

This section specifies the user requirements of the School of the WiFi network. The Contractor shall be capable of supporting the requirements set out below.

3.1 Standard Provision

- **WiFi Internet Connectivity** – use IEEE 802.11 a/b/g/n/ac/ac wave 2 or ax network or above in a standard classroom. The minimum number of classrooms to be covered shall be at least equal to the number of approved classes for the 2021/24 school year, that is 24 classrooms.
- **WiFi coverage** – include special rooms and open areas as per Part Y.
- **Number of Concurrent Connection** – commensurate with the maximum number of students, say 40, in a class with at least 3Mbps upload / download bandwidth per connection
- **Number of classrooms using WiFi concurrently:** 15 Classrooms
- **Authentication Method**
 - use 802.1x standard based authentication and Hong Kong Education City single sign-on services.
 - User account system being used by school (e.g. AD, pre-shared key)
- **Session Control** – Hong Kong Education City authentication service

can support one device or multiple devices to connect based on user group (student, teachers).

- **WLAN system access control** – specific request on MAC address filtering.
- **MAC Address Monitoring** – The lists of filtering and filtered MAC addresses are to be monitored by the Contractor. The school can review the MAC address list 10 times/school year with no other extra costs.
- **Integration of networks**
 - system integration with existing network with secure design.
 - Set up VLAN setting for different SSID
 - Staff/Teachers SSID able access to ITED network
 - Students SSID cannot access to ITED network
- **Internet Content Filtering Service** – based on filtering profile commonly adopted by most schools and managed by vendors.
- **Existing Network Facilities** – not rely on any existing network facilities and cabling of the School
- **Broadband Network** – use separate broadband with 16 IP address for the WiFi service. Provide 2000Mbps Internet connection at school.
- **Managed Service** – operate the WiFi network using managed service model, provide end-to-end service with single point of contact including configuration, provisioning of service, proactive monitoring, maintenance and regular reporting.
- **Monitoring of WiFi network** – specific request on monitoring of WiFi network by School.
- **Service Level Agreement** – ensure at least 99.7% availability of the WiFi service, support four-hour response time and four-hour service recovery with active monitoring, helpdesk support with support hours from Mon to Sat 8:00 am to 6:00 pm, and provide monthly monitoring reports for the School.
- **Support hours** – extended support hours and/or reduced time for recovery.
- **Contract End Arrangement** – All provisions of trunks, conduits, cables, LAN ports and power points shall be considered as fixture of the School and shall become the property of the School. The Contractor shall remove or keep those provisions according to the instruction of the School. Contractor can remove the network equipment such as switch, routers, and access points.

3.2 Add-on Service (to be aligned with Part Y)

- No add-on Service

3.3. Deliverables

3.3.1 The Contractor is required to provide the following deliverables for the WiFi network design:

- Master Activity Plan
- Network Configuration Report and Network Diagram
- Network Test Plan and Network Test Result Report
- Operation Manual for End User
- User Acceptance Test Plan
- Exit Plan

3.3.2 The Contractor is required to provide the monthly monitoring report with the following items:

- Network Health Report
- Network Usage Report
- Reporting of security incidents
- Reporting on trend and statistics of incident and their analysis
- Reporting of the failure rate for all equipment with detailed fault analysis
- Problem log and incident log for critical failure of the network
- Statistical report on the type and no. of calls
- Summary of the outstanding enquiry for the month-to-date

4. Technical Specification (Standard Provision)

4.1 WiFi Network

4.1.1 The Wireless LAN (WLAN) System of the WiFi network shall support simultaneous dual-operation-mode that is FAT Access Point (AP) and Thin Access Point are both supported together with WLAN Controller. WLAN Controller shall be capable of fully centralized provisioning, configuration and monitoring all APs functionalities; a backup of the WLAN Controller shall be available.

4.1.2 The thin client WLAN Access Point (AP) shall be a high performance wireless network access device, which shall be connected with the Power over Ethernet (PoE) Access Switches via Structured Cabling System. Appropriate type of connection cables between WLAN APs and the antenna shall be provided.

4.1.3 The WLAN APs shall be compatible with IEEE 802.11a/b/g/n/ac/ax standard or above, support dual band of 2.4GHz and 5GHz.

4.1.4 The WLAN APs should support CleanAir technology (or similar feature) enhanced with 80MHz channel support, which delivers proactive, high-speed spectrum intelligence across 20-, 40-, and 80-MHz-wide channels to combat performance problems due to wireless interference.

4.1.5 The Contractor shall design the WLAN System to provide the coverage for the required wireless coverage place. The received signal strength measurement from the WiFi Service at the WiFi client device (such as tablet PC or notebook computer) is no worse than -68 dBm. The Contractor shall provide certificate or test report to illustrate that the WiFi client device for testing satisfies the power emission requirement.

4.1.6 The WLAN AP shall support DHCP, PoE, WPA2, IEEE 802.1x and certificate authentication.

4.1.7 The WLAN System shall support automatic channel selection, protocol filtering, multicast/broadcast storm filtering and load balancing.

4.1.8 The WLAN system shall allow single or multiple devices per user account to be authenticated using 802.1x and Hong Kong Education City single sign-on service and using existing school AD.

4.1.9 Each WLAN AP shall be able to support at least concurrent 40 users connecting to the network simultaneously. In no circumstance shall the speed of data transmission symmetrically fall below the data rate requirement at any place or any corner or any highly congested area within the areas being covered. In case the transmission speed is below the said data rates, the Contractor shall be responsible for all remedial measures to rectify or configure fine-tuning of antenna or even increase the quantity of

the WLAN AP at Contractor's own costs in order to meet the data rate requirement as mentioned in the Specification. A complete set of catalogues with brand and model shall be submitted and highlighted for reference. The catalogues shall show all the features and technical specifications of the products and systems.

4.1.10 The system shall provide bandwidth control per connection.

4.1.11 The WLAN shall allow different authentications by using Service Set Identifiers (SSIDs).

4.1.12 The SSIDs shall be able to be set hidden from searching by WiFi devices. The devices have to manually set SSID to make connection.

4.1.13 Individual APs shall be allowed to be assigned by more than one SSIDs.

4.1.14 Antennas of APs shall be 3x3 Omni or directional at least and capable of detecting user locations in real time for direction switching while devices in motion.

4.1.15 The DHCP server shall support at least 30 queries/sec.

4.1.16 The WLAN system shall suspend the session of the user once the session control is expired and the suspension time shall be configured by the school.

4.1.17 The Contractor shall in provision of the service comply with non-interference requirements of and shall not cause interference prohibited under the Telecommunication Ordinance (Cap 106) or any other laws or regulation of Hong Kong.

4.1.18 The WLAN System shall provide termination of idle sessions and control of the duration features.

4.1.19 The WLAN System shall support client roaming across Access Points.

4.1.20 The WLAN system shall cover all areas specified under this tender.

4.1.21 The quotation shall include the cost to provide sufficient quantity and its cabling work required, including but not limited to supply and install the Fibre optics, Cat 6 cable, Conduit, cable patch panel, cable faceplate, Cable patch cord.

4.1.22 The Contractor shall provide complete set of WLAN Systems which consist of Wireless Access Point, Connection Cable, Authentication System, Wireless LAN Controller, PoE Switch, horizontal UTP Cat 6 cable/OM3 Fiber, patch cable UTP Cat 6 / OM3 Fiber Optics, any required license and all associated accessories.

4.1.23 All access points (AP) shall be certified by OFCA and copy of certificates issued by OFCA shall be attached to the proposals.

4.1.24 The Contractor shall ensure that there is no interference between WLAN Access Points due to limited non-overlapping channels assignment when the WLAN AP is installed. The Contractor shall be responsible at his own costs for providing solution to eliminate the interferences including but not limited to reassignment of the non-overlapping channels, adding extra APs with lower transmission power and/or replacement of the WLAN AP.

4.1.25 The WLAN System shall support Web GUI management.

4.1.26 FTP service shall not be allowed in the WiFi network (to avoid exchanging credential and files in plain text without any encryption).

4.1.27 The WLAN System shall support IPV6 addressing method.

4.1.28 The Contractor should provide physical wireless controller.

4.1.29 The wireless controller must support up to 150 access points and 3000 clients, and Multi-gigabit Ethernet technology or similar feature.

4.2 Core Switch

4.2.1 The Core Switch would be responsible for connecting all PoE access switches in typical floors for WLAN AP.

4.2.2 The Core Switch shall be capable of providing the required bandwidth, QoS, and policy-based routing to carry all sorts of information including video, voice, data, image, etc.

4.2.3 Each Core Switch shall provide a Gigabit Ethernet connection to each PoE Access Switch in typical floors. The uplink interface of Core Switch should at least 16 x 10Gigabit Ethernet.

4.2.4 The Core Switch shall support Layer 2 and Layer 3 switching and capable of providing the wired speed performance.

4.2.5 The Core Switch shall support basic IP unicast routing protocols, Static route, multicaserouting, Routing Information Protocol (RIPv1, RIPv2), inter VLAN routing.

4.2.6 The Core Switch shall support Internet Group Management Protocol (IGMP) snooping and multicast and unicast storm control, Spanning-Tree Protocol.

4.2.7 The Core Switch shall support WebGUI Management, Access Control Lists (ACLs), DHCP Interface and SNMP.

4.2.8 The Core Switch shall support VLANs including support for IEEE 802.1Q and IEEE 802.1p.

4.3 PoE Access Switch

4.3.1 The Access Switches shall be deployed to provide high performance interconnectivity between the Core Switches and the WLAN APs on typical floor.

4.3.2 The Access Switch shall consist of 8/12/24/48 x 10/100/1000Base-T Ethernet ports, with minimum of 1 x 1000Base-T / 1000Base-SX SFP Gigabit Ethernet uplink ports connected with the Core Switch.

4.3.3 The Access Switch shall be used for connecting the WLAN APs. The Contractor shall determine the Maximum power loading of the devices to be connected with the PoE Access Switches. The Contractor shall provide additional PoE Access Switch(es) if the total power loading summed up from the PoE devices exceeds the maximum power loading capacity of the PoE Access Switch.

4.3.4 The Access Switches shall support VLAN configuration.

4.3.5 The Access Switches shall be at wired speed.

4.3.6 The Access Switches shall be provided sufficient port density to meet all the required links.

4.3.7 The Access Switches shall support PoE and shall conform to IEEE 802.af / IEEE 802.3af standard, which delivers power over single copper UTP cable for WLAN AP.

4.3.8 The Access Switches shall support Internet Group Management Protocol (IGMP) snooping and multicast and unicast storm control, IEEE 802.1D Spanning-Tree Protocol.

4.3.9 The Access Switches shall support Virtual local area network (VLANs) including support for IEEE 802.1Q and IEEE 802.1p.

4.3.10 The Access Switches shall support WebGUI Management, Access Control Lists (ACLs), DHCP Relay and SNMP.

4.4 Firewall

4.4.1 The performance of the Firewall shall not be degraded with 100% Internet bandwidth utilization.

4.4.2 Network Address Translation (NAT) is required.

4.4.3 Access Control Policy is required.

4.4.4 The firewall should support UTM feature and dual WLAN. School

has the administrative right to add the policy, say, bandwidth control and routing.

4.4.5 The configuration settings of the appliance shall be allowed to export to files for backup and restore for rapid recovery and shall control all incoming and outgoing Internet traffic, serving as the sole entry and exit point between the Internet and the WLANs in all locations.

4.4.6 The configuration settings of the appliance shall support blocking specific network ports, including ports of Transmission Control Protocol (TCP) and User Datagram Protocol (UDP). Blocking denial of service (DoS) attacks and malformed packet attacks shall also be configured.

4.4.7 The firewall policy should be applied to control network traffic such that public users should be prohibited to access the internal network segments of the School.

4.4.8 The router policy should be applied to shape the guest user VLAN traffic to designated bandwidth requested by School to preserve the e-Learning in class which is the primary purpose of School Wi-Fi

4.5 Service Requirements

4.5.1 The Contractor shall be responsible for the total project management and shall assign a person to act as the single contact point to the School regarding all related activities of the contract. This single contact point cannot be transferred to a sub-contractor unless explicitly agreed by the School. Contractor should formally inform the School in writing if there is a change of contact point.

4.5.2 The Contractor shall provide rack/cabinet or use existing school rack if there is available rack space. All switches/firewall shall be properly installed into wall mounted cabinet or rack.

4.5.3 Cables shall be labelled with connected port and its device id.

4.5.4 All the equipment shall be labelled with an identifiable id.

4.5.5 The placement of cables, cabinets, racks and appliances shall be shown on the network diagram.

4.5.6 Switches and/or other appliances shall be properly installed into cabinet/rack with appropriate ventilation.

4.5.7 13A power cord(s) shall be bundled with appliance(s).

4.5.8 Cable shall be properly set up onto appropriate cable management guide.

4.5.9 Contractor should make sure that the actual environment is suitable for the installation and operation of equipment with School agreement in advance, and make necessary suggestions, if any.

4.6 Service Level Requirements

4.6.1 The Contractor shall provide incident/problem report to the School within 5 working days after each incident and the resolution taken.

4.6.2 The Contractor shall derive mechanism, including forms and reference tables for measuring and recording the Service Level Measures, to ease the administration and monitoring by the School.

4.6.3 Advance notice by at least 2 weeks shall be given to the School prior to all scheduled maintenance. At most 4 scheduled maintenances per year are excluded from the calculation of Service Levels. No more than 1 hour service interruption or an agreed time slot is accepted for each scheduled maintenance.

4.6.4 Service Level, expressed in percentage, is the ratio of actual available time to the scheduled available time for the WiFi network of the School and is calculated according to the following formula:

Service Availability Level = (Schedule Uptime within the month—Unscheduled Downtime within the month) / Scheduled Uptime within the month, where

Scheduled Uptime: The duration, in unit of minutes, for the WiFi network of the School is scheduled to be available for the month. The duration will exclude the scheduled downtime, which is defined as duration agreed between the School and the Contractor during which the service may be deliberately made unavailable to users.

Unscheduled Downtime: The amount of time, in unit of minutes, that the service are unavailable due to equipment failure or other reasons under the responsibility of the Contractor.

4.7 Service Level Rebates

4.7.1 The Service Rebates to the School operate as liquidated damages for the performance fallen short of the target service levels over a period of one month. The service measures stipulated in 4.6 will be used to determine the Service Rebates in Service Availability (S1) and Service Resumption Time (S2).

4.7.2 The application of the Service Level Rebates adjustment to the monthly charge will commence with effective from the acceptance of the reliability test.

4.7.3 For each month, the Service Rebates for different service measures (S1, S2) will be calculated as below if the Contractor cannot meet the target Service Levels for the WiFi network of the School under the availability agreed:

$\text{Failure Hour} \times [(\text{Yearly Subscription Fee}) / (365 \times 24)] \times 2$, where

Failure Hour: The unscheduled downtime or the time to resume the network due to the failure of hardware or software which is provided by the Contractor. Failure Hour is calculated in the increment of 0.5 Hour.

4.7.4 The Service Rebates of the WiFi network of the School, if any, will be paid by crediting the invoice of the following month.

4.8 Helpdesk Service

4.8.1 The Helpdesk Service shall maintain dedicated hotline, including phone, email and fax, for enquiries and complaints.

4.8.2 The Helpdesk Service shall answer enquiries and complaints originated from the School concerning the Service.

4.8.3 The Helpdesk Service shall operate from Mon to Sat 8:00 am to 6:00 pm.

4.8.4 The Helpdesk Service shall maintain call logs on enquiries and complaints. The information shall be included but not be limited to date, time, description of issues, contact information, and follow-up actions. The Contractor shall observe and comply with Personal Data (Privacy) Ordinance in handling all information relating to these enquiries and complaints.

4.8.5 The Contractor shall provide the following information concerning the Helpdesk service related to the implementation of the Service:

- Detailed information of the helpdesk office, such as address, phone number, fax number; and
- Facilities, computer systems and equipment provided in the helpdesk office, such as private branch exchange (PBX), keyline telephone system (KTS), interactive voice response system (IVRS) and voice recording system.

4.8.6 The Contractor shall provide helpdesk staff with the necessary tools, including but not limited to hardware and software, related training for supporting the Service.

4.8.7 The Contractor shall not make use of the Helpdesk Service to transmit any message or conduct any activity to the School, which is not connected with the provision of the Service. The School shall have the full discretion to determine whether any such message or activity is in breach of this provision. The Contractor shall forthwith stop transmitting such message or conducting such activity and refrain from doing it further once the School has notified the Contractor in writing or verbally of its determination.

4.9 User Acceptance Test

4.9.1 The Contractor shall conduct tests with the School before the service is officially accepted and subscription started. Tests shall include User Acceptance Test for reliability and performance of the hardware and software, and also the monitoring, operation support and all other aspects related to the Service Level Agreement of the Service. At least 14 school working days of trial period is expected for service monitoring after testing.

4.9.2 The contractor will be required to perform test making reference to the User Acceptance Test and System Test documents at www.edb.gov.hk/ited/wifi900. They include the types of testing to be performed, the requirements to be tested, the testing environment, testing tools and pass/fail criteria as reference to the Contractor.

4.9.3 The Contractor shall upon request by the School arrange briefings to the School and/or Responsible Parties of the School, with briefing materials, prior to the User Acceptance Test when required.

4.9.4 The Contractor shall provide detailed acceptance test plan and a step by step testing procedure with expected results against the requirements set out in this specification.

4.9.5 The Contractor shall provide, configure and set up the proper software and hardware for the School to carry out the User Acceptance Test.

4.9.6 The Contractor shall be required to carry out tests to demonstrate that the equipment and system meet the specification and other contractual requirements. The Contractor shall also be responsible for the timely preparation and compilation of all test schedules, test procedures and test reports.

4.9.7 The Contractor shall follow the agreed standards as laid down in this specification for the testing methods and procedures.

4.9.8 The Contractor shall submit a schedule of site performance and commissioning tests at least 3 working days prior to the commencement of the scheduled commissioning date.

4.9.9 Special tools, test equipment, test objects and simulators required for the demonstration of either bench or commissioning tests shall be made available by the Contractor at no extra charge to the School.

4.9.10 All test equipment used by the Contractor shall be properly and periodically calibrated. Measuring standards used in calibration shall be traceable to international or national measurement standards, or to an industry recognized manufacturer's reference, subject to approval of the School.

4.9.11 Calibration procedures and results shall be documented and signed by certifying body where applicable. The Contractor may be requested to show evidence of calibration of test equipment by submission of copies of these calibration records prior to conduction of any tests.

4.9.12 The Contractor shall submit the User Acceptance Test report within 3 working days. The acceptance of the installation will only be granted after receiving a satisfactorily UAT report from the Contractor.

4.9.13 All equipment to be installed may be subject to inspection and bench testing. The Contractor shall meet the cost of deliveries for bench test. Notwithstanding, the Contractor shall have carried out the tests in accordance with the requirements and procedures stipulated in this specification and submitted the associated test reports for inspection.

4.10 Termination of Service

4.10.1 The School reserves the right to terminate all or part of the Service at any time with written notice of 10 working days in advance if:

- The Contractor fails to meet the target service levels under Service Level Requirements for two consecutive months, or three months in total within the committed subscription period;
- The School suspects that unauthorized activity has occurred or is occurring in relation to the Service;
- The provision of the Service will cause the School to be in breach of any applicable law;

4.10.2 The Contractor shall provide to the School and implement the Exit Plan in accordance with:

- The Contractor shall provide to the School an Exit Plan with feasible arrangements before the committed subscription contract date;
- If the School considers the Exit Plan as not satisfactory, it will notify the Contractor with comments. The Contractor shall revise the Exit Plan by taking into consideration of the School's comments and provide to the School with five (5) working days after the date of receiving the School's comments. If the Exit Plan has been considered as not satisfactory for three or more times, the School shall have the right to terminate this Contract by giving 10 days' notice in writing;
- Detailed exit procedures, disengagement timetable and actions to be taken by both the Contractor and the School for smooth termination of all or any part of the Service;
- The Exit Plan shall aim at enabling the School or its authorized parties to perform in substitution for the Contractor and to eliminate or minimize any disruption or deterioration of the Service. The Exit Plan shall contain, but not limited to the following information:
 - Detailed exit procedures, disengagement timetable and actions to be taken by both the Contractor and the School for smooth termination of all or any part of the Service;
 - Any information that is necessary for the School or a new service provider to continue the provision of the Service;
 - Details of the Contractor's personnel and other resources that will assist the School or the School's authorized parties during the handover;
 - All provisions of facilities such as trunks, conduits, cables, LAN ports and power points, shall be considered as fixture of the School venues and shall become the property of the School. The Contractor shall remove or keep those provisions according to the instruction of the School. Contractor can remove the network equipment such as switch, routers, and access points.
- The Contractor shall be responsible for the implementation and execution of the Exit Plan and shall ensure that the exit plan is carried out in a timely and orderly manner.

5. Technical Specification (Add-on Requirement)

- No Add-on Technical Specification

6. Wi-Fi.HK (optional service)

6.1 The implementation of Wi-Fi.HK is advocated by the School, the decision of the implementation will not be served as a basis of discrimination for proposal evaluation.

6.2 To make it easier for the public and visitors to access free Wi-Fi services in Hong Kong, the Government is promoting the free Wi-Fi services offered by the public and private sectors in Hong Kong under a common Wi-Fi brand “Wi-Fi.HK”. It will help the public and visitors find and connect to the public Wi-Fi hotspots throughout Hong Kong. These free hotspots will be promoted under the Wi-Fi.HK brand through various means such as the Wi-Fi.HK thematic website and mobile app. With a common brand in place, it will create more business opportunities for the Wi-Fi.HK participating organisations to promote and deliver their products and services to their customers by leveraging on mobile technologies.

6.3 Contractor is invited to provide free Wi-Fi service riding on the same Wi-Fi network infrastructure using the Wi-Fi.HK SSID for school visitors such as parents to access the Internet in schools and such services shall incur no additional charge to the School.

6.4 The following are the requirements of the Wi-Fi.HK scheme:

- Aggregated total of at least 30 minutes free access time per day per device;
- Service available 24 hours x 7 days;
- All Access Points be registered with OFCA;
- SSID of Access Points be presented in “Wi-Fi.HK via <designated name of service provider>” format;
- Landing page with Wi-Fi.HK logo, terms and conditions and disclaimers for user to accept for connection but no need for user to login using username or password;
- Hotline service, contact email or on-site support be provided for public enquiry and technical support; and
- At least 100 Access Points be offered (counted by Service Providers including services in multiple schools)

6.5 The network for supporting Wi-Fi.HK shall not be allowed to have direct access to the School's network. Connections via Wi-Fi.HK shall have access to the Internet only.

6.6 Content filtering is not a requirement for Wi-Fi.HK.

6.7 When the School terminates all or part of the Service, the Wi-Fi.HK service of the related area will be terminated together. The School also reserves the right to request the Contractor to terminate or suspend the Wi-Fi.HK service at any time.

6.8 More details of the scheme can be found at Wi-Fi.HK thematic website (<http://www.wi-fi.hk>).

7. Sub-Contracts

7.1 The Tenderer shall be the prime Contractor for all the services specified in Part X and Part Y of this contract. The Tenderer shall be the single point of contact for all contractual matters.

7.2 The Tenderer shall be liable for the performance or breach of any provisions of the contract by Sub-Contractors.

7.3 The Tenderer shall provide details of the sub-contract service for the Wifi operation and maintenance of the Sub-Contractors in the format listed on Section 5 of Part Y. The hierarchy of the sub-contracting shall also be clearly stated below. If there are no Sub-Contractors, please enter nil.

7.4 No Sub-Contractor(s) specified in Section 5 of Part Y shall be replaced unless prior written consent has been given by the School.

7.5 The Tenderer shall ensure that the quality of the service rendered by the Tenderer shall not be affected due to any change of Sub-Contractors;

7.6 The Tenderer shall not be relieved from any of its obligations hereunder by entering into any sub-contract for the performance of any part of this contract. If request by the School, the Tenderer shall describe which

part of the service shall be performed by the Sub-Contractor(s) in the sub-contract(s) between the tenderer and its Sub-Contractor(s).

8. Schedule of Work

8.1 The Contractor shall provide the service according to the following schedule.

Phase	Items	Starting Date	Ending Date	Service fee
I (a)	Build up of WiFi network (Standard Classroom (Item 2 in Part Y))	On or before 31 Aug 2021		0
I (b)	Build up of WiFi network (Special Rooms and Open Areas (Item 3 in Part Y))	On or before Aug 2021	31 Dec 2021	0
II	Subscription of service	1 Sep 2021	31 Aug 2024	Quoted price

9. Delay of Schedule

9.1 If the Contractor fails to provide any part of the WiFi service which shall be ready for use in the School within 60 days after the target Ending Date specified in Section 8 of Schedule of Work then notwithstanding anything else contained in this Contract the School shall be entitled to terminate this Contract with forthwith by giving written notice to the Contractor and to recover from the Contractor the amount of all damages and loss suffered by the School resulting from such failure, including without limitation to any damages and loss resulting from the termination of related service orders.

9.2 Within one (1) week of the termination of this Contract, the Contractor shall collect its own Hardware and Software at his own cost after the contractor has removed the School Data in the Hardware.

9.3 The Contractor shall reinstate and make good the concerned area of the School to the satisfaction of the School after removal of the hardware.

10. Terms of Payment

10.1 The subscription will be paid in arrears of each month during the subscription period.

11. Price Proposal

11.1 The Service Provider is required to provide a breakdown on the service charges for each of the service items as set out in the Price Proposal at **PART Y - PRICE SCHEDULE**. Failure in complying with this requirement will render the quotation disqualified.

11.2 Please note that, the School has the absolute discretion to accept the whole of the Services or just part of the Services as listed out by items in the Price Proposal.

11.3 Set up cost will not be considered as a part of the cost in subscription mode.

12. Invitation for Quotations

12.1 Quotations are invited for the execution of the whole of the Services as described in this document. Quotations for part but not all of the Services will not be considered.

12.2 Please provide two sets of quotation documents for processing of the quotation.

13. Tender Preparation and Submission

13.1 The Service Provider is required to submit the following information and document.

- A Statement of Compliance to provide response that the quotation complies with all requirements stated in this Specification.
- Price Schedule
- No upfront cost or one off cost schools shall be paid throughout the entire subscription period.
- Proposed AP location mark on the Floor plan.
- Proposed Network infrastructure show on the Network Diagram.
- Implementation Plan.
- WiFi Access Point certificates issued by OFCA.
- Product information including technical and descriptive literature and catalogues. Information provided by the manufacturer shall be able to substantiate that the products offered meet the mandatory Technical Specification.

14. Briefing Session/Site Visit

14.1 To facilitate the Service Provider to propose the quotation, a briefing session is arranged as follows. The Service Provider must attend the briefing session and carry out WiFi survey with appropriate tools.

Date: 5 Aug 2021

Time: 2:00pm

Venue: Man Kwan QualiEd College

15. Selection and Payment

School is looking for a contractor based on the following criteria

- Proposed pricing
- Proposed solution
- Equipment and services level
- Case reference
- Other useful information

16. Enquiry

For enquiry, please contact Mr. Tsang Ming Hong of the School at mhtsang@mkqc.edu.hk or by phone at 27066969.

PART Y - PRICE SCHEDULE

1. Price details for Standard Provision

Item	Standard Provision (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
1	WiFi Subscription period 36 months, starting from 1 Sep 2021				
2	WiFi Standard and Coverage <ul style="list-style-type: none"> ● 1/F 101, 102, 103, 104 ● 2/F 201, 202, 203, 204, 205, 206 ● 3/F 301, 302, 303, 304, 305, 306 ● 4/F 401, 402, 403, 404, 405, 406 ● 5/F 501, 502 <p>AP supports at least ac wave 2 or above (Requirement as stated in Part X)</p>				
3	WiFi coverage for other areas <ul style="list-style-type: none"> ● 1/F 105, 106 ● 5/F 503, 504, 505, 506 ● 6/F 601, 602, 604, 605 				

Item	Standard Provision (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
	<ul style="list-style-type: none"> ● 7/F 701, 702, 703, 704, 705, 706 ● 12 Lab/Special rooms ● Hall x2 ● Teacher's Room x2 ● Office x3 ● Lobby ● Covered Playground ● Playground ● Tuck Shop ● Backyard 1 ● Backyard 2 <p>AP supports at least WiFi6 (Requirement as stated in Part X)</p>				
4	Broadband service <ul style="list-style-type: none"> ● use separate broadband for the Wi-Fi service ● provide at least 2 x 1000Mbps Internet connection at school for 				

Item	Standard Provision (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
	the Wi-Fi service ● provide 16 IP address				
5	SSID & Authentication Method ● Support Multiple SSID co-exist through an AP ● Different SSID can have different authentication method ● Authentication method : Support MAC address filter (School can have the ability to add(by csv file)/edit / remove MAC address permit / deny to Wi-Fi connection) ● Authentication method : use 802.1x standard based authentication and Hong Kong Education City single sign-on services				
6	- Session Control - Internet Content Filtering Service - Integration of networks				

Item	Standard Provision (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
	- Monitoring of WiFi network - WiFi Service Recovery - Support hours - Reporting - Contract End Arrangements (Requirement as stated in Part X)				
	Total in HK\$				

2. Wi-Fi.HK Service

Wi-Fi coverage area of Wi-Fi.HK :	Please specify
Will you provide free Wi-Fi.HK service (Y/N) ?	Y/N (to be input by Contractor)

3. Details of equipment to be proposed in the Buildup of WiFi network in the School

Items	Quantity	Model
WiFi Controllers		
Access Points		
Router/Firewall		
Core Switch		
Access PoE Switches		
LAN Cables		
Others (please specify)		

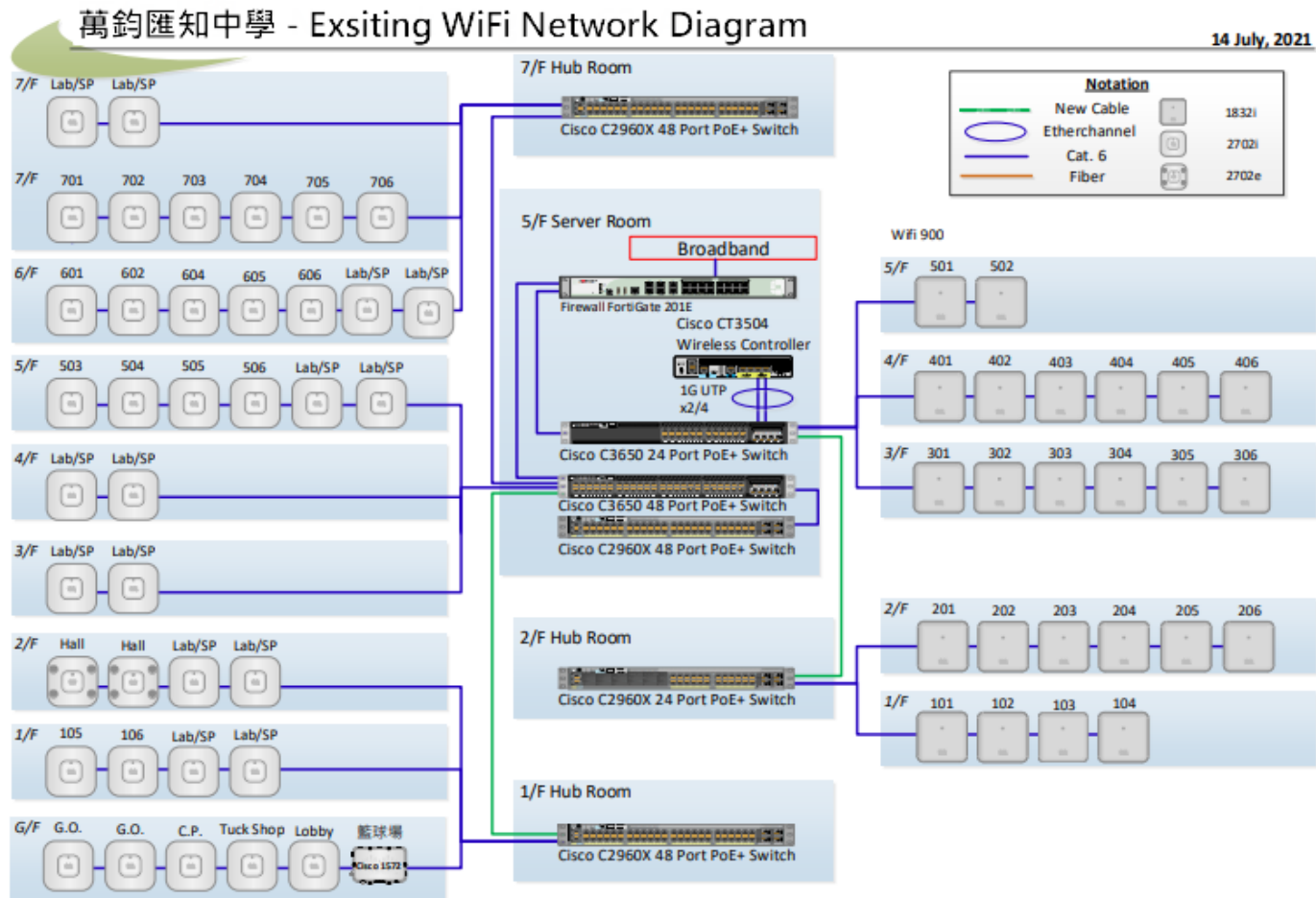
4. The Tenderer to provide details of the sub-contract service involved in the proposal for the project implementation, service operation and maintenance in the format listed below

Name of Sub-Contractor	Sub-contract service	Roles and responsibility

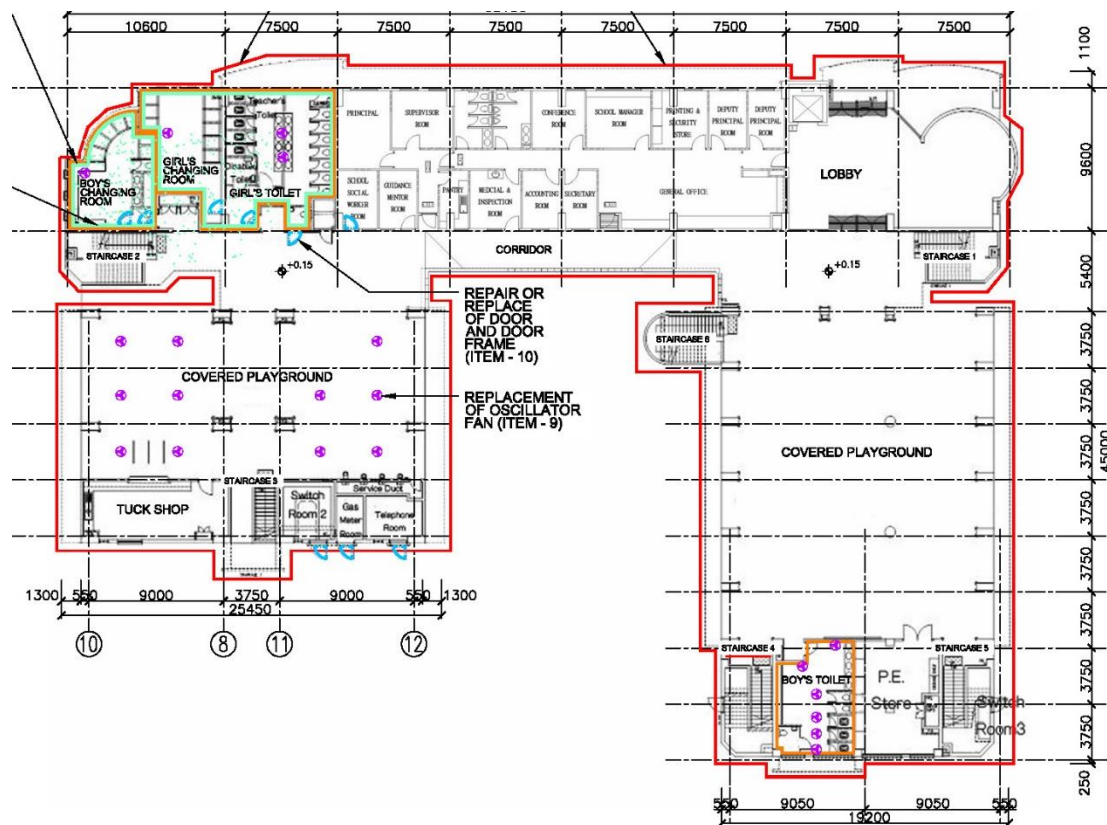
5. The Tenderer to provide case reference of past deployment in WiFi100/WiFi900 with Sub-Contractors details in the format listed below

Name of School	Name of Sub-Contractor	Sub-contract service	Roles and responsibility

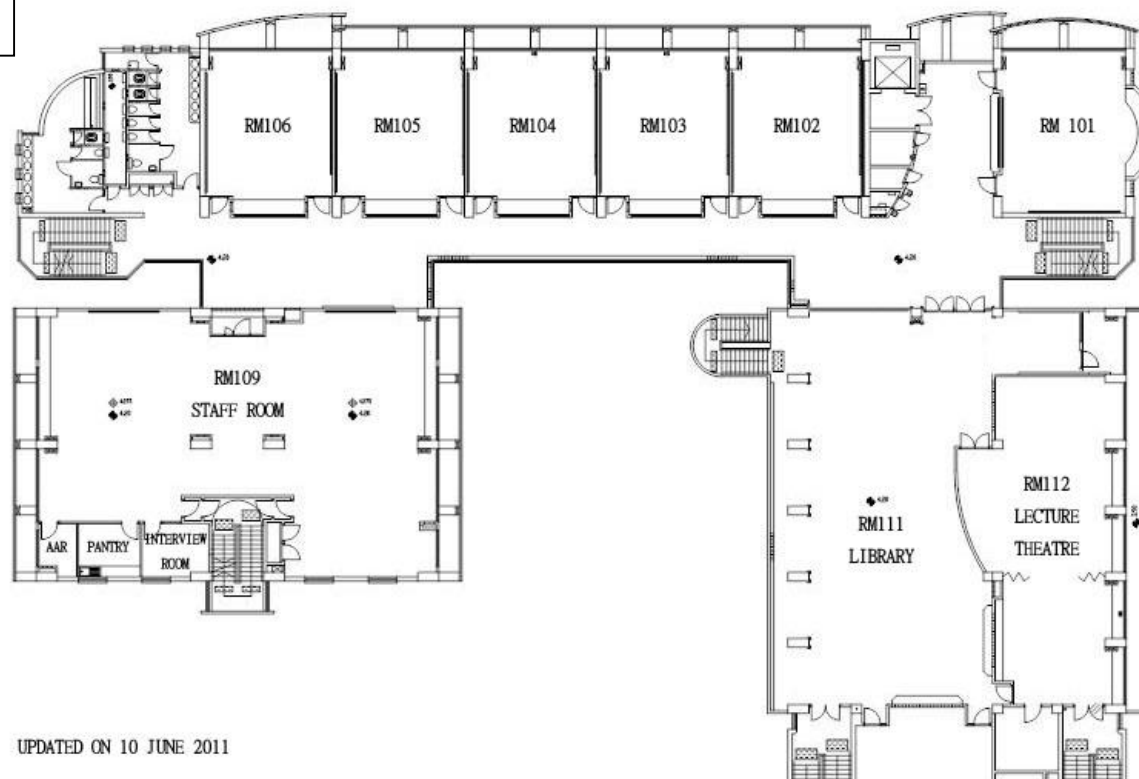
6. Existing WiFi Network Diagram and Floor plan (provided by the School) is attached.



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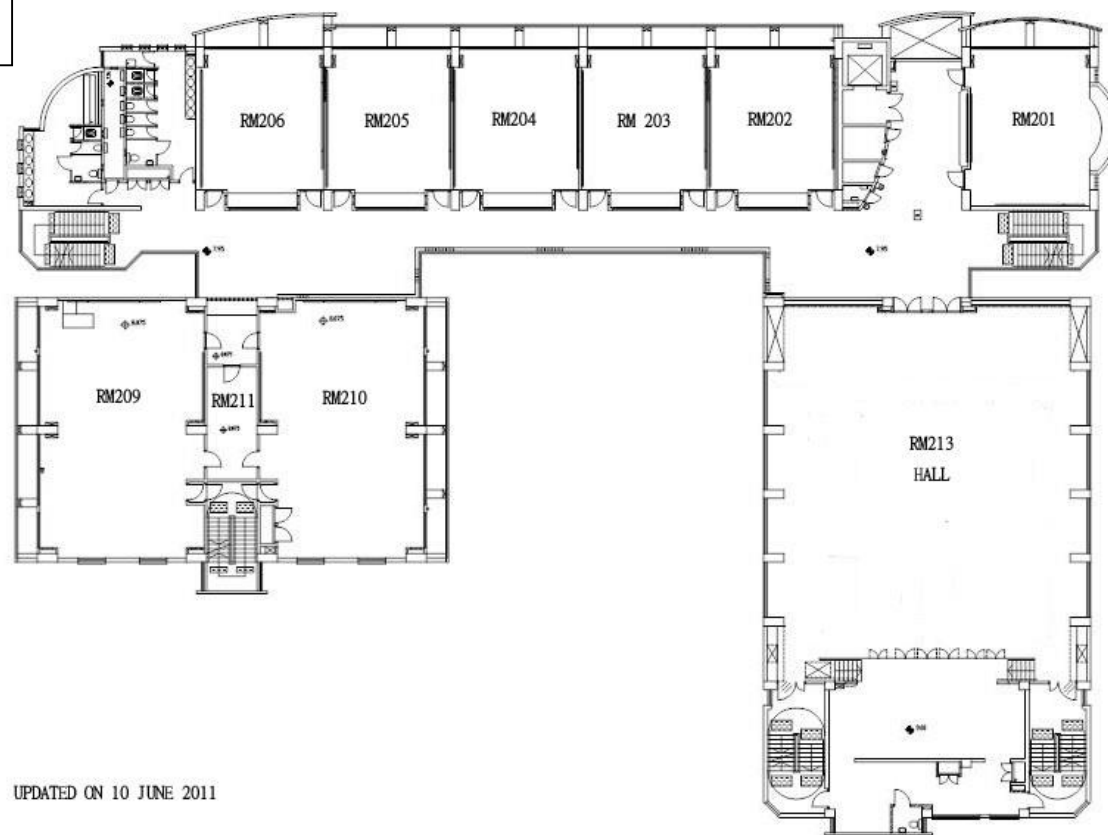


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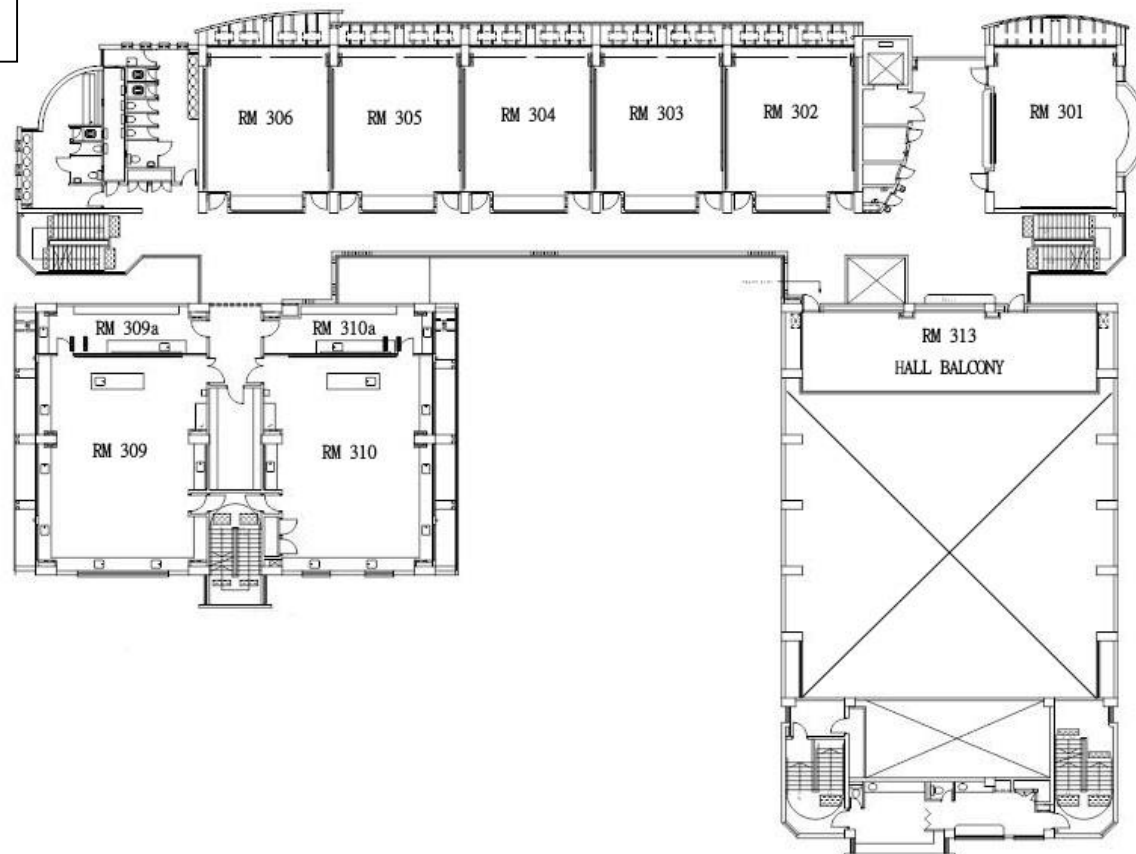
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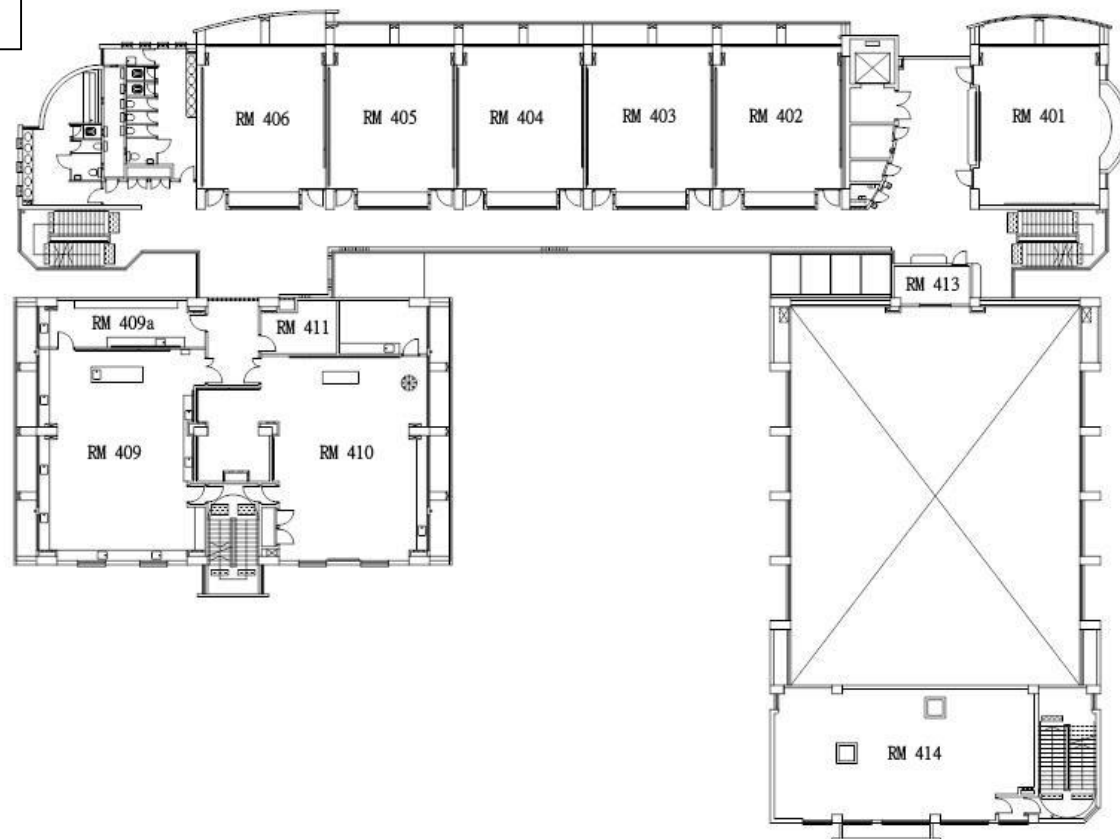


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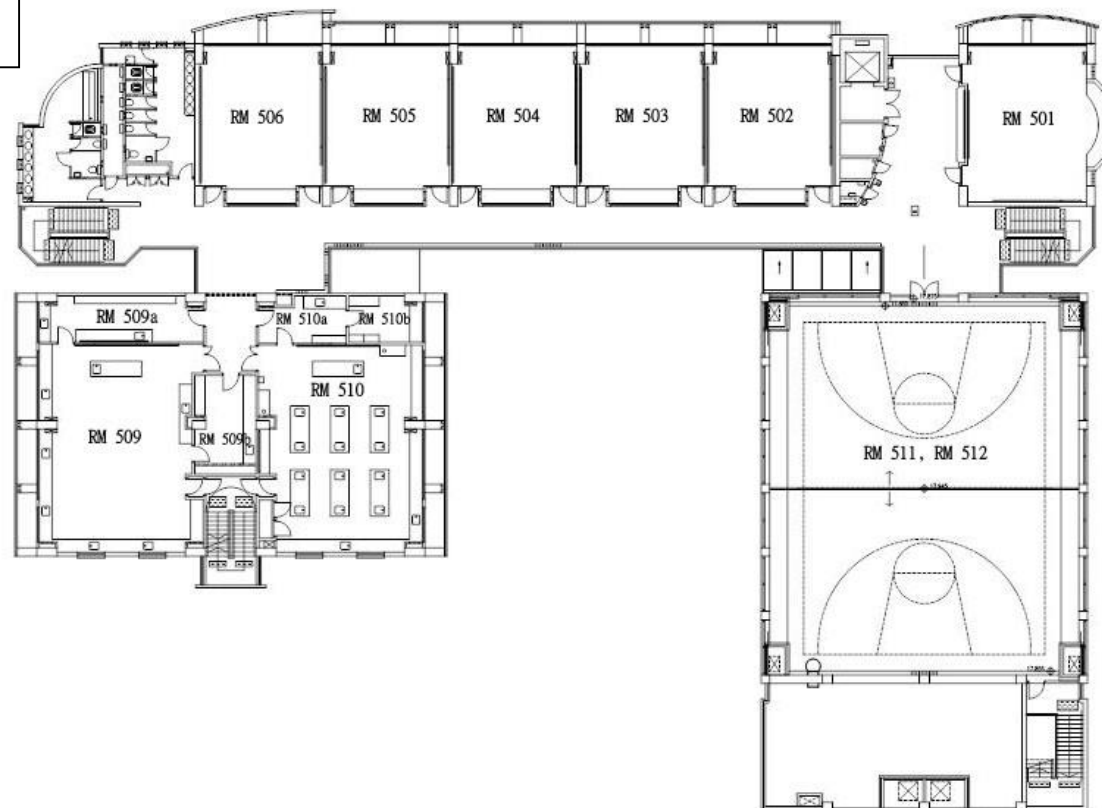
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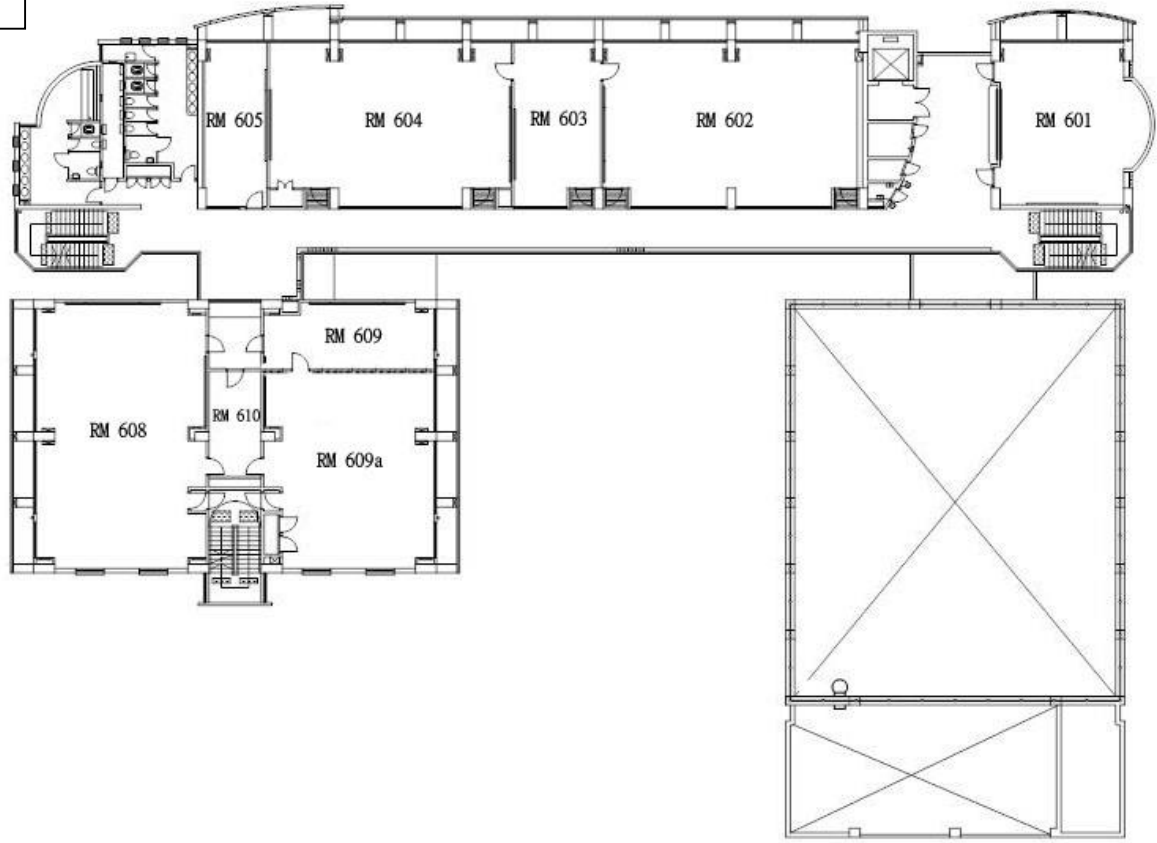
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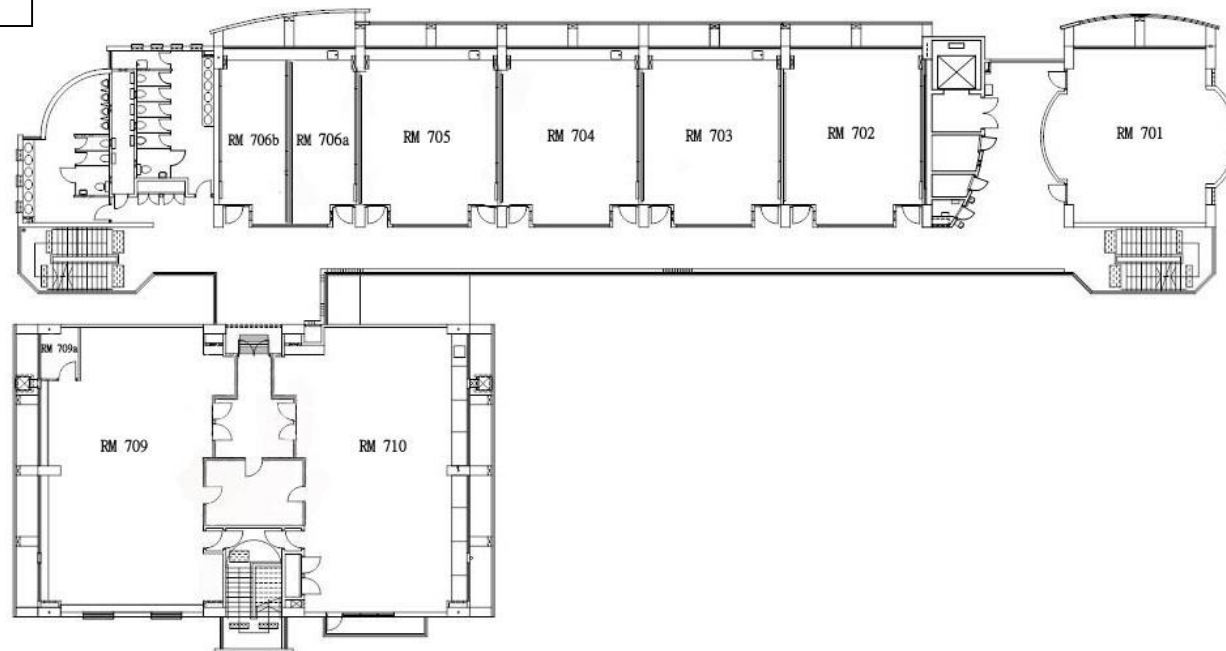
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