KENYA LITERATURE BUREAU

TENDER FOR INSTALLATION OF LOCAL AREA NETWORK INFRASTRUCTURE

TENDER NO: KLB/RT/21/2021-22

ADDENDUM

Additional information

1. Five (5) revised floor plans and dimensions are provided. The floor plans as indicated below.
    a. Ground floor, Production, warehouse, stores
    b. 1st Floor production
    c. Ground Floor, main building
    d. 1st Floor, main building
    e. 2nd Floor, main building
2. The LAN must support Network monitoring, VLAN setup and enhanced Security features.
3. External dimensions of the building are given in the floor plans. The individual office dimensions shall be estimated by the bidder. The plans are not drawn to scale.
4. The distribution of the network points is as indicated in the plans.
5. Wireless access points locations are indicated in the plans: Wi-Fi Floor Plan

Additional preliminary Mandatory evaluation

Provide a valid annual practicing / certified certificate of Registration from National Construction Authority in Electrical works Category 5 and above.

Additional overall objectives

1. 100% reuse of trunking, additional trunking where non exist shall be provided by the bidder.
2. Provide for redundant fiber optic cable / links, from the core switch to the switch.
3. Bidders are required to bid for decommissioning of the old Local Area Network infrastructure.

Additional specifications

Horizontal Cabling

No	**Technical Specifications**	**Bidders Technical Response**	**Reference to Support Response (Highlighted and provide page no. in the bid document)**
1.	The primary media for horizontal cabling will be 4-pair Foiled Unshielded Twisted Pair (F/UTP) that must meet or exceed ANSI/TIA/EIA-568-C2 and ISO/IEC 11801 CLASS EA standards requirements.		
2.	F/UTP Category 6A or higher quality cables must be used.		
3.	Each room to be networked shall have wall plates installed and each outlet terminated with 8-pin modular jacks (RJ-45) and shall be flash with trunking.		
4.	Each designated network interface/ port will have capacity to support at least 1GEthernet.		
5.	Cables shall be required to move through metal trunking firmly when pulled.		
6.	Cables installed between faceplates and patch panel shall not exceed recommended distance of 90meters.		
7.	Cables shall not be crushed using cable ties.		
8.	Cable conduits must not be overfilled. Trunking and cable ways must be sized to 2.5 times the requirement of the current installation.		
9.	No distortion due to kinks, sharp bends or excessive hauling tension shall be allowed.		
10.	Cables shall be run in a manner eliminating any possibility of strain on the cable itself or on the terminations		
11.	Bending radii shall not be less than eight times the overall cable diameter.		
12.	The manufacturers hauling tension shall not be exceeded.		
13.	All cable ties and fixings shall be tightened to support the cable loom		

	without distortion of the cable sheath.		
14.	All cables must pass through trunking and should not be seen from outside		
15.	There shall be no splicing of installed cables. Intermediate cross-connects and transition points are not allowed.		
16.	All user-area patch cords shall be at least 3-metre in length. However, 5-metre patch cords shall also be provided as indicated in the BoQ. All patch cords must be shielded F/UTP		
17.	Cabinet Patch cords being used to connect patch panel and the access switch shall be 1meter shielded F/UTP		
18.	Data outlets shall be flash mounted on the metal trunking.		
19.	All user-area patch cords and cabinet patch cords will be supplied to match the total number of data outlets.		
20.	The contractor shall pull two cables for each faceplate and terminate both cables.		
21	The contractor shall ensure that existing power sockets are mounted on the metal trunking.		
22	The Contractor may combine two or more blocks to form one LAN segment to leverage on the active devices. This should be shown clearly in the proposed bidder's design.		
23	The combined blocks LAN segment F/UTP cables shall not be more than 90M from the active equipment to the data point.		
24	Where there is a combined blocks LAN segment, 110mm HDPE ducts shall be used to interconnects the blocks and outdoor F/UTP cables shall be used. The HDPE shall pass through a trench that is 1.5meters deep.		
25	Cables entry between the blocks shall be not more than 0.5M from the ground and the outer cover shall be galvanized metallic trunk.		
26	Except for the patch cords used to connect NICs to the RJ45 sockets, all patch cords must be labelled at each extremity with soft PVC indelible		

	marking. For all other components, the label type should be of stiff plastic PVC.		

Backbone cabling

No	Technical Specifications	Bidders Technical Response	Reference to Support Response (Highlighted and provide page no. in the bid document)
Requirements			
1.	The primary media for backbone cabling shall be fiber optic.		
2	For Backbone cables interconnecting between buildings, telecommunication rooms, equipment rooms and entrance facilities shall be installed in star topology		
3.	Multimode fiber optic cable (62.5/125 micron) will be used.		
4.	Fibre optic cable shall have a core/cladding diameter on nominal 850nm and 1300nm optical wavelength.		
5.	The fiber optic cable shall have a minimum of eight (8) strands.		
6.	All strands must be terminated at each end of the fiber cable whether used or not.		
7.	All optical fiber components and installation practices shall meet applicable building and safety codes requirements and shall provide well organized cable installation management in accordance with the manufacturer's guidelines		
8.	Fiber optic cables running through risers must be protected by PVC conduits to protect them from interferences from other bidders providing other services in future		
9.	All fiber optic backbone links will be terminated at the identified MDF room as per the physical topology design.		

10.	All fiber interfaces for uplink must use relevant transceivers.		

Patch panels

No	Technical Specifications	Bidders Technical Response	Reference to Support Response (Highlighted and provide page no. in the bid document)
Requirements			
1.	All patch panels must conform to ANSI/TIA/EIA568 B.		
2.	All Patch Panels must be shielded		
3.	Patch panels must be equipped with shielded RJ45 Category 6A sockets contacts with capacity of 24 ports as needed.		
4	Each Data Patch Panel shall be identified alphabetically from the top of the cabinet. The number of the cabinet should be used for identification on a1 to 24-way panel. e.g., A-a-01 means Block A patch panel a point no 1.		
5.	Fiber Optic patching shall be done from the floor cabinets or cabinet housing optic boxes/ panels as well as the optic electronic equipment.		
6.	Fiber Optic patch panel (ODF) shall have a sliding tray		
7.	All patch panels, including fiber optic patch panels must be rack mounted.		
8.	All patch panels must be earthed to provide electrical safety to users in future and screening to prevent electromagnetic radiations.		
9.	Fiber optic patch panels shall be used for distribution and management of fiber optic cable, Provision of fiber splicing, termination, management and storage in one unit.		
10.	Fiber optic patch panels will be connected as per the number of		

	strands terminated at each location.		
11.	Each Fiber optic patch panel should be fully loaded with adapters, pigtails, splice trays and other required accessories.		

Core switch

a) The core switch must be rack mounted in standard racks and connected to the backbone using appropriate Transceivers.
b) The core switch will have 12 ports all Provided with fiber optic SFP Modules
c) The Core Switch must support 10G Speeds for backbone connectivity
d) All fiber optic backbone links must be aggregated by a common active device.

Enclosure Type	1 RU
Feature Set	IP base
Ports	12 ports of SFP Ethernet fiber connection with Flexible Netflow feature Populate with 4 RJ45 SFP Ethernet module
Maximum stacking number	9
Stack bandwidth	480Gbps
Forwarding Performance	68.4Mpps
Switching Capacity	68Gbps
RAM	4 G
Flash Memory	2 G
Number of AP per switch/stack	100
Number of wireless clients per switch/stack	2000
Warranty	The switch should have 3-year warranty

Edge switches

a) The edge switch must be rack mounted in standard racks and connected to the backbone using appropriate Transceivers.
b) Active devices for back bone cabling must support 100/1000Mbps auto-sensing
c) Switches will be 48 port (and or 24 port) with POE
d) Active devices for Backbone cabling must support 1G Speeds for backbone connectivity
e) All fiber optic backbone links must be aggregated by a common active device.
f) Active devices used at the LAN edge must support IP routing and auto-sensing for Ethernet ports
g) Each network cabinet shall have one edge switch linked back vi fibre optic to the core switch.
h) All active devices must support Power over Ethernet (POE)

No.	Technical Specifications	Compliance	Bidders Remarks
Requirements			
1.	The switches for horizontal cabling must support at least 100Mbps auto-sensing.		
2.	The switches must be rack mountable in standard racks and should therefore be attached to the backbone.		
3.	The switches must be able to integrate with the existing infrastructure.		
4.	• The switches should support 02.1x authentication and limit on the number of users on an interface. • Storm suppression • IP Source Guard • Multiple authentication methods including AAA authentication, RADIUS authentication, and TACACS+ authentication • 802.1x authentication, MAC address authentication, MAC bypass authentication • DHCP snooping • Port isolation and sticky MAC • Packet filtering based on MAC addresses • Limit on the number of learned MAC addresses • Suppression of multicast, broadcast, and unknown unicast packets • CPU defense • DHCP relay		
5.	The network should be scalable to guarantee the support for future remote sites, applications, users, traffic, technologies without the need for major forklifts, upgrades, or restructuring.		
6.	The proposed network solution should be based on perpetual licensing. Annual or periodical licensing of any features is not allowed.		
7.	The switches should have full PoE+ capability support.		

8.	The switches should have 48 -100Mbps/1Gbps ports with 2 SFP+ interface slots accepting 10G transceivers.		
10.	The switches should have switching capacity of at least 32 Gbps.		
11.	The switches should support stacking and must be supplied with the required accessories (stack adapters and power cables).		
12.	The switches should support autosensing for Ethernet ports for uplink connections.		
13.	The switches should have 3-year warranty.		

Wireless Access Points (8 Units)

The bidder shall provision POE enabled access switches which shall meet the following minimum technical specifications:

No.	Technical Specifications	Compliance (Yes/No)	Bidders Remarks
	Access Points		
1.	Access Points should be at least MIMO 4x4 Wave2		
2.	At least 2 frequency bands (2.4Ghz and 5Ghz)		
3.	It should support PoE+		
4.	Wifi standards 802.11 a/b/g/n/ac should be supported.		
5.	Radios should support auto channel and power selection based on surrounding wifi conditions		
6.	Access Points should have the ability to load balance users between APs in the same area.		
	Security		

1.	The proposed solution should support WPA/WPA2/TKIP/AES security		
2.	The proposed solution should support Authentication methods that include 802.1x, Mac-based and Captive Portal		
3.	The Access Points should support radius authentication of wireless users		
4.	The Access Points should support hidden SSIDs		
5.	The Access Points should have built-in Wi- Fi Protected Setup (WPS) and Wireless Distribution System (WDS) to provide protection against wireless DoS attacks.		
6.	The proposed solution should have firewall policy enforcement based on user roles, besides the standard firewall policies by subnet, port		
7.	The Access Points should support Mobile- friendly Web portal		
	Management: All the installed wifi devices should be able to be managed by a centralized controller (hardware/Software) Supplied as a package with the Access points system. Bidders to state and give details of their solution for the Controller		
8.	It should 3 Year warranty		

METAL TRUNKING

The existing metal trunks shall be used.

All additional metal trunking used shall be spray painted to approval and shall be fabricated from mild steel not less than 18 swg and at least two compartments.

UPS

The UPS shall be 1000VA for the 9U cabinet, rack mountable, SMART signaling and line interactive.

3 The installed UPS must have a warranty of one (1) year

Site visit

Site visit 8th February 2022.

Bids close

Submit your bids by 15th February 2022.

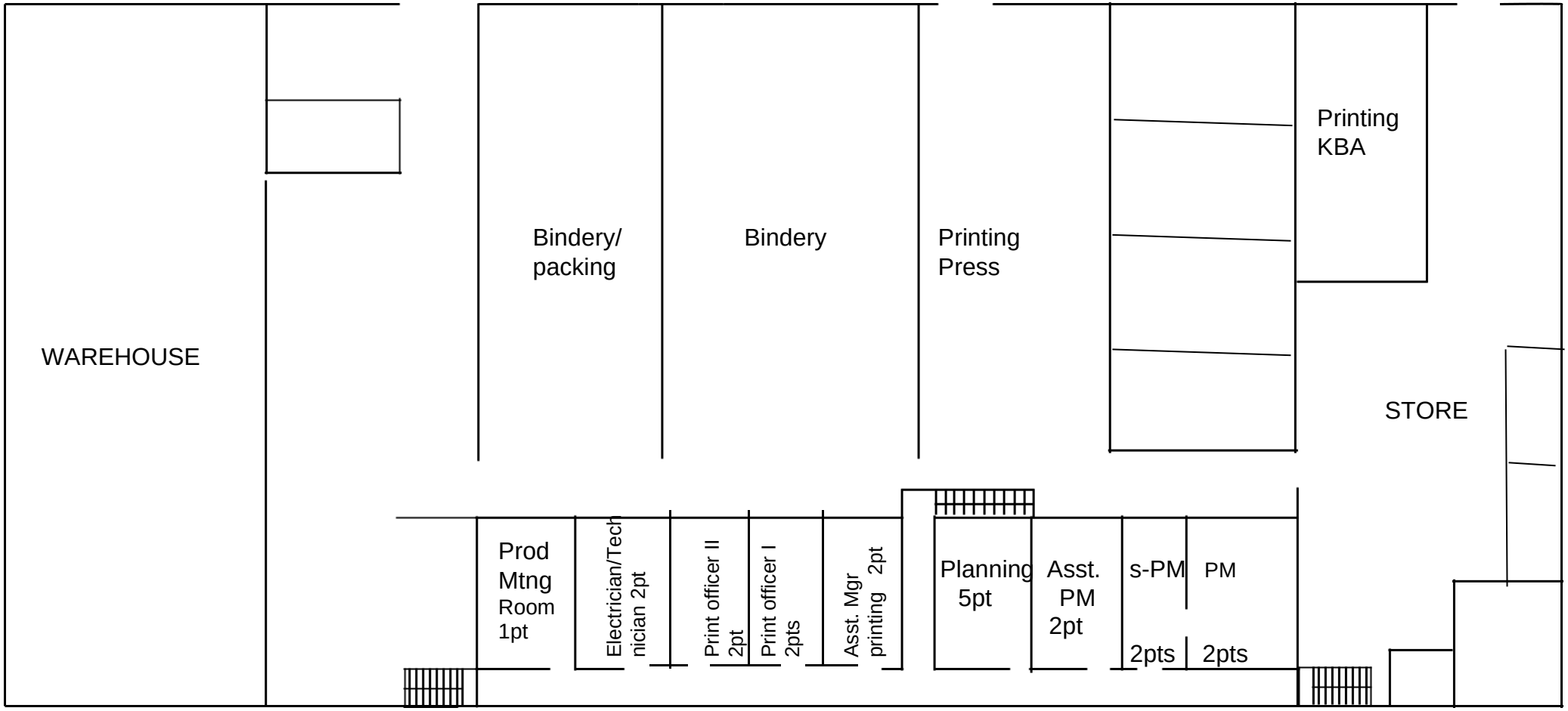
Bill of quantities

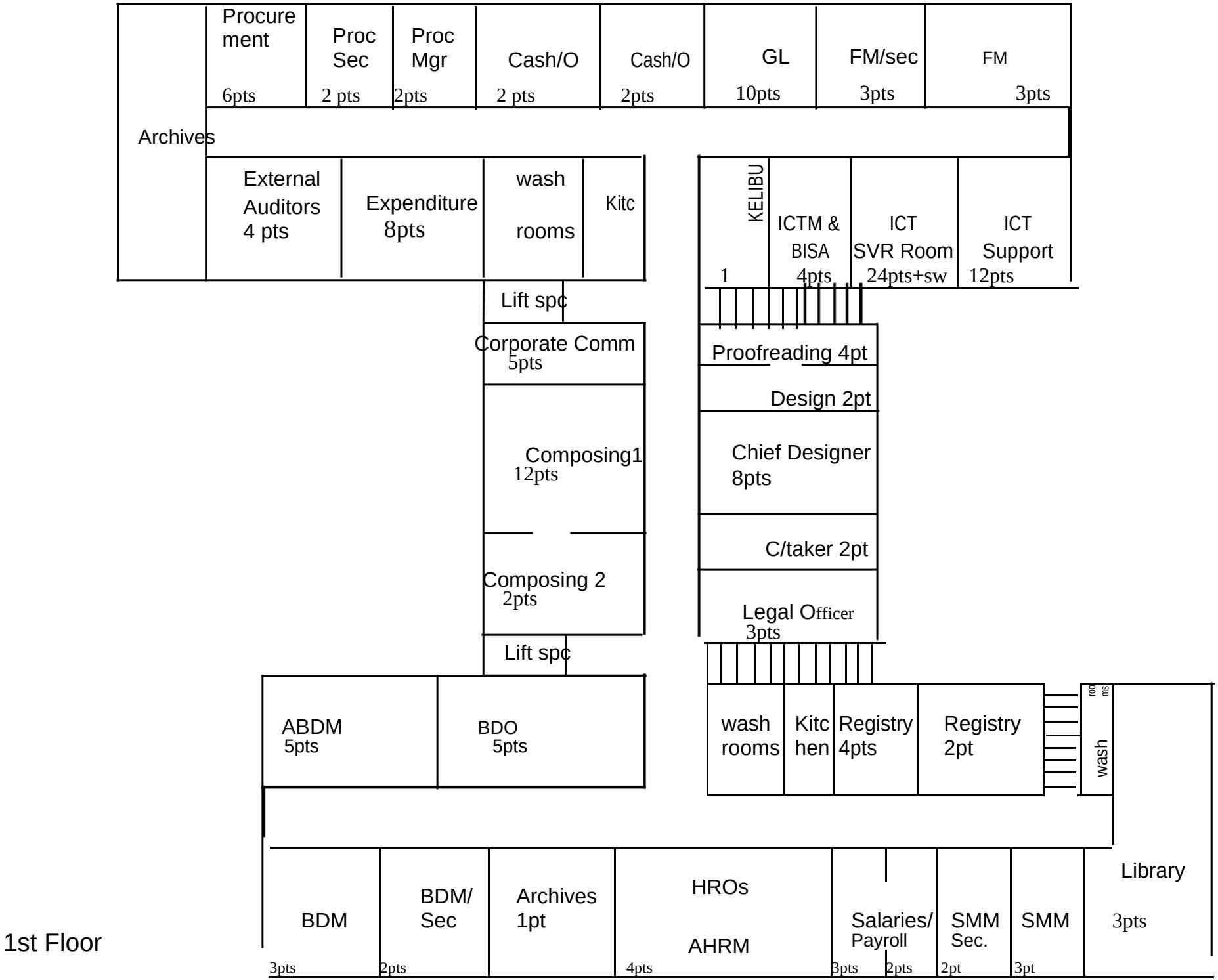
	Horizontal cabling	Quantity
	9U cabinet, (minimum quantities)	8
	Faceplates single or double outlets (maximum quantities)	350
	Modules	350
	Patch panel, (minimum quantities)	8
	Switch 48 port or 24 port (minimum quantities)	8
	Core Switch	1
	Cable manager	8
	1m patch cord	350

	3m parch cord	350
	UTP CAT 6A cables (305M rolls)	60
	Trunking 50X100mm	Lot
	50X100 data plates	200
	Accessories	Lot
	Backbone cabling	
	8 core fibre optic multimode	1000
	fibre patchcords (1M)	12
	Fibre tray	8
	Fiber connectors	100
	SFP modules	16
	Fibre adapters	12
	Fibre blanks	12
	Wireless network	
	Wi-fi controller	1
	Wi-fi access points	12
	Power	
	1kva UPS for cabinets (minimum quantities)	8
	Decommissioning	Lot

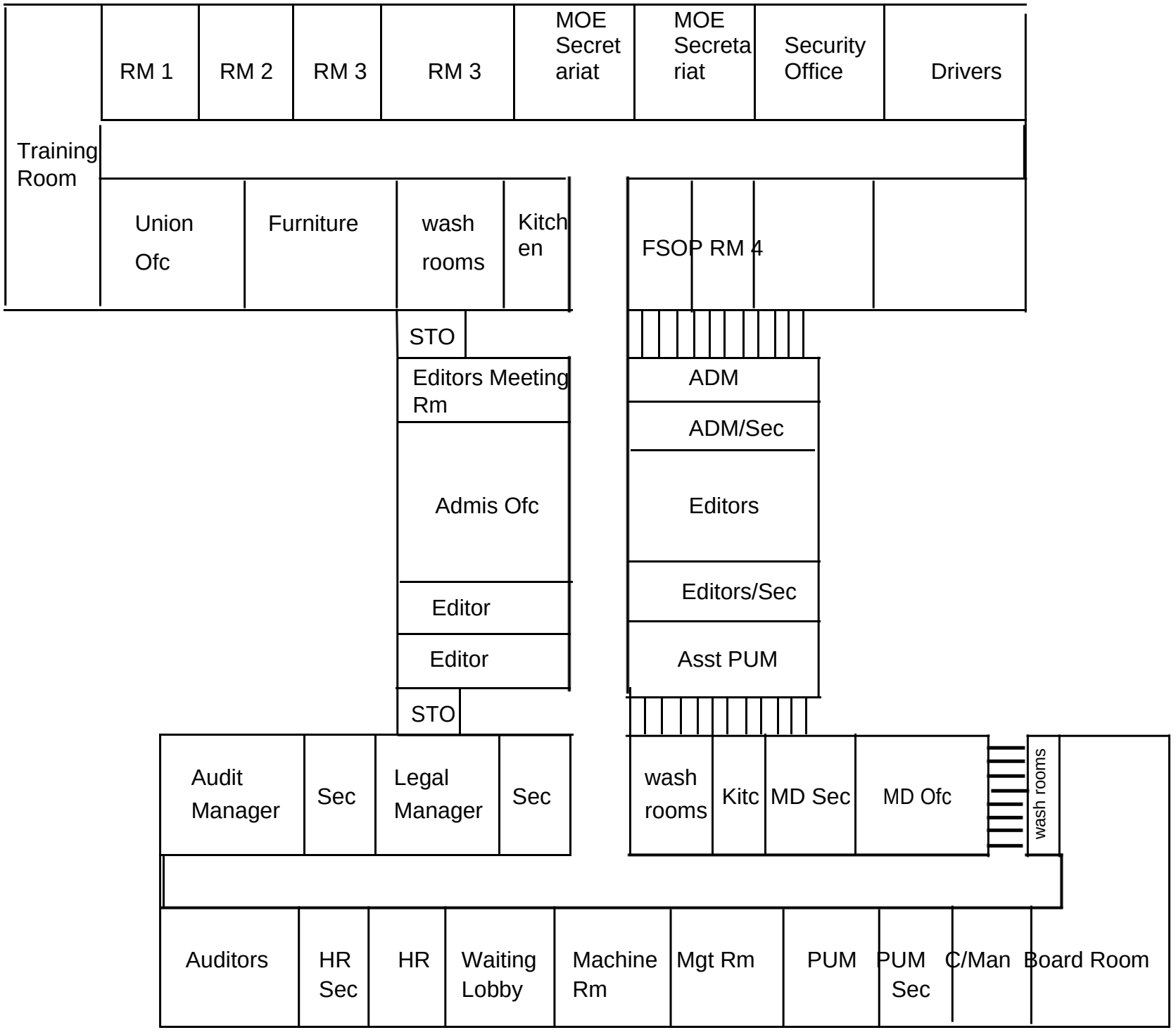
NB:

The above bill of materials is indicative only. Bidders should conduct independent site survey and quote for all the items required for the system to work.

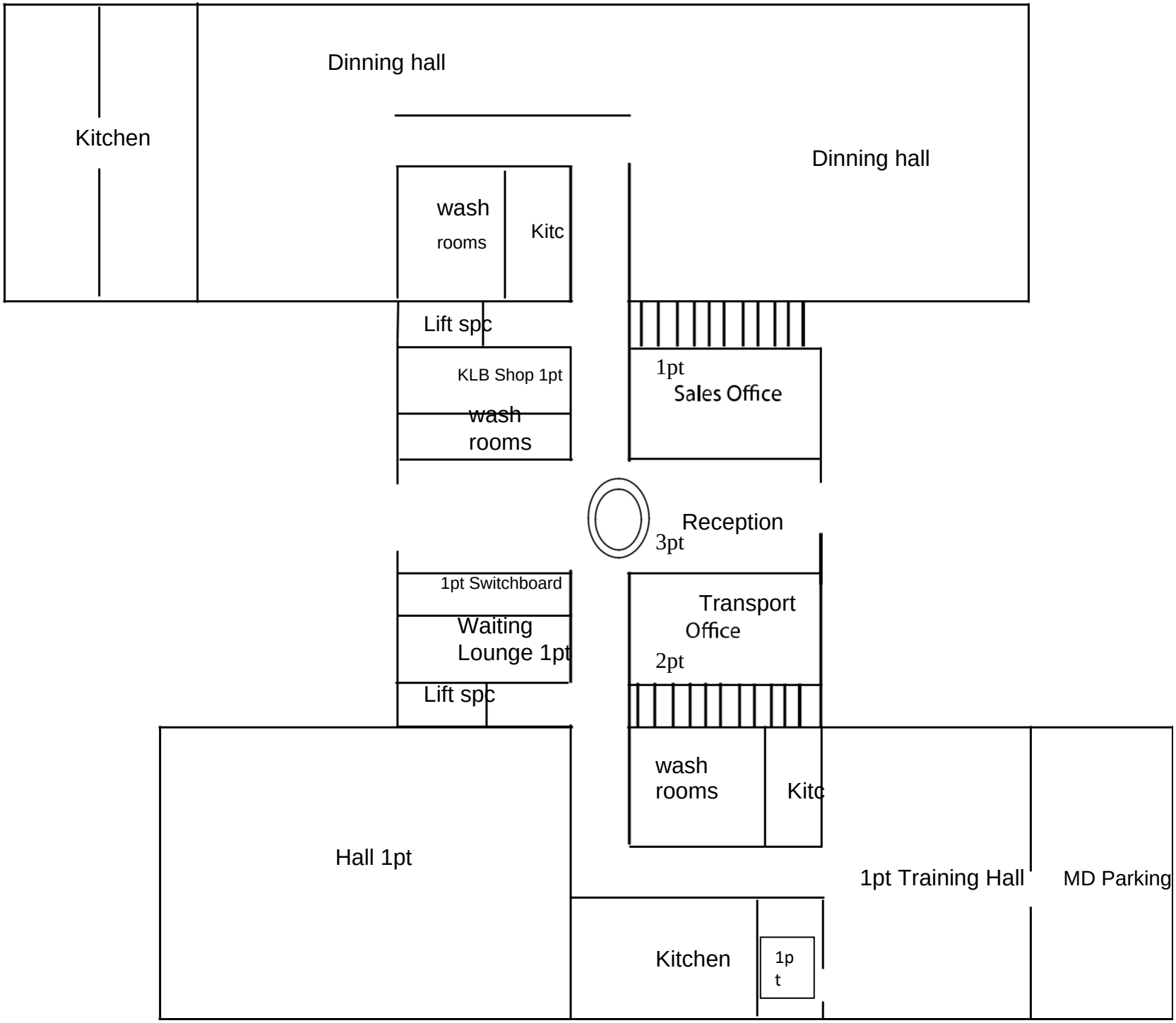

WAREHOUSE
Bindery/
packing
Bindery
Printing
Press
Printing
KBA
STORE
Prod
Mtng
Room
1pt
Electrician/Tech
nician 2pt
Print officer II
2pt
Print officer I
2pts
Asst. Mgr
printing 2pt
Planning
5pt
Asst.
PM
2pt
s-PM
PM
2pts
2pts


Procure ment
6pts
Proc Sec
2 pts
Proc Mgr
2pts
Cash/O
2 pts
Cash/O
2pts
GL
10pts
FM/sec
3pts
FM
3pts
Archives
External Auditors 4 pts
Expenditure 8pts
wash rooms
Kitc
KELIBU
1
ICTM & BISA
4pts
ICT SVR Room
24pts+sw
ICT Support
12pts
Lift spc
Corporate Comm
5pts
Proofreading 4pt
Design 2pt
Composing1
12pts
Chief Designer
8pts
C/taker 2pt
Composing 2
2pts
Legal Officer
3pts
Lift spc
ABDM
5pts
BDO
5pts
wash rooms
Kitc hen
Registry
4pts
Registry
2pt
wash rooms
BDM
3pts
BDM/ Sec
2pts
Archives
1pt
HROs
AHRM
4pts
Salaries/ Payroll
3pts
2pts
SMM Sec.
2pt
SMM
3pt
Library
3pts

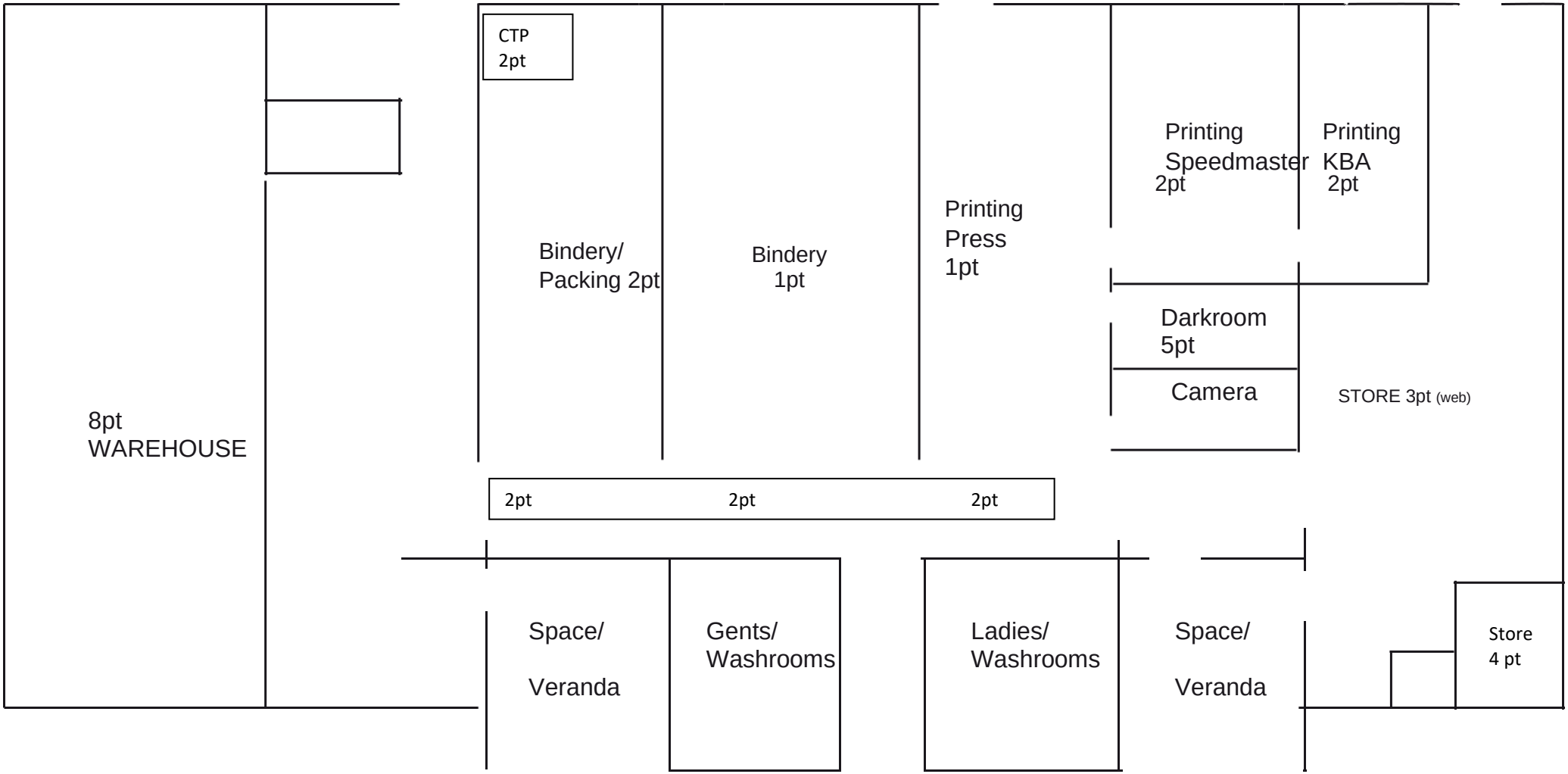
1st Floor

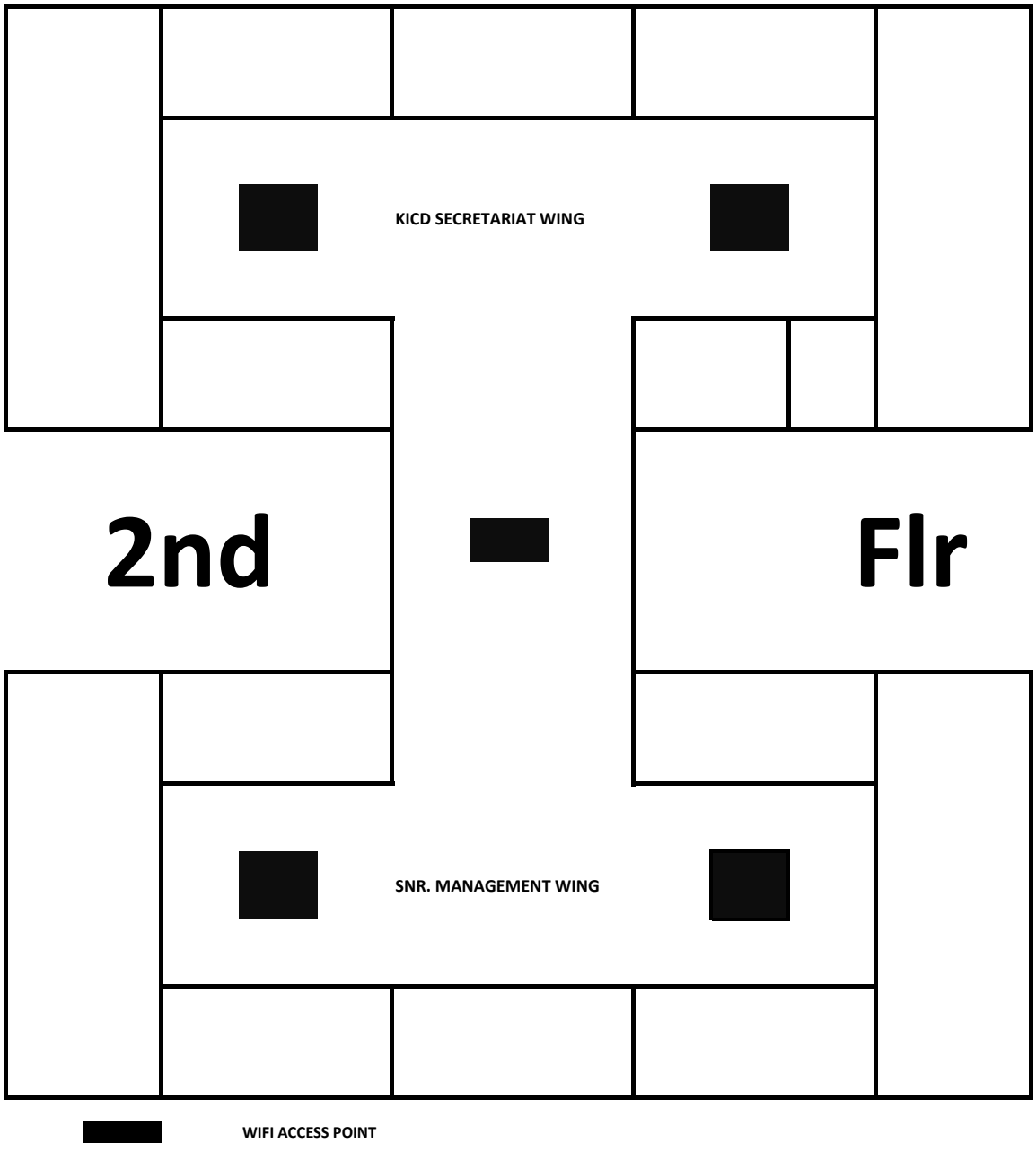

RM 1
RM 2
RM 3
RM 3
MOE Secretariat
MOE Secretariat
Security Office
Drivers
Training Room
Union Ofc
Furniture
wash rooms
Kitchen
FSOP RM 4
STO
Editors Meeting Rm
Admis Ofc
Editor
Editor
STO
ADM
ADM/Sec
Editors
Editors/Sec
Asst PUM
Audit Manager
Sec
Legal Manager
Sec
wash rooms
Kitc
MD Sec
MD Ofc
wash rooms
Auditors
HR Sec
HR
Waiting Lobby
Machine Rm
Mgt Rm
PUM
PUM Sec
C/Man
Board Room

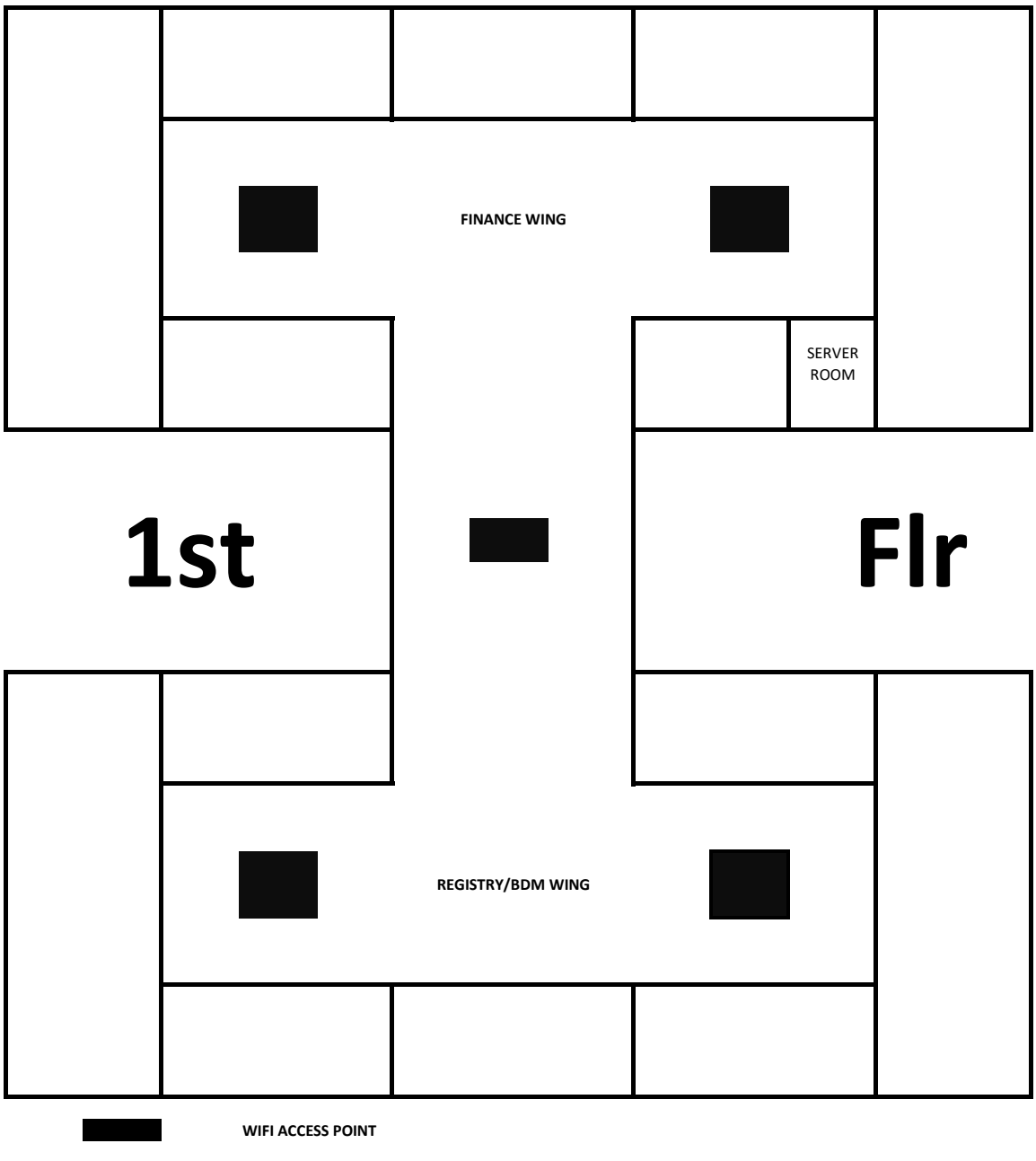
2nd Floor

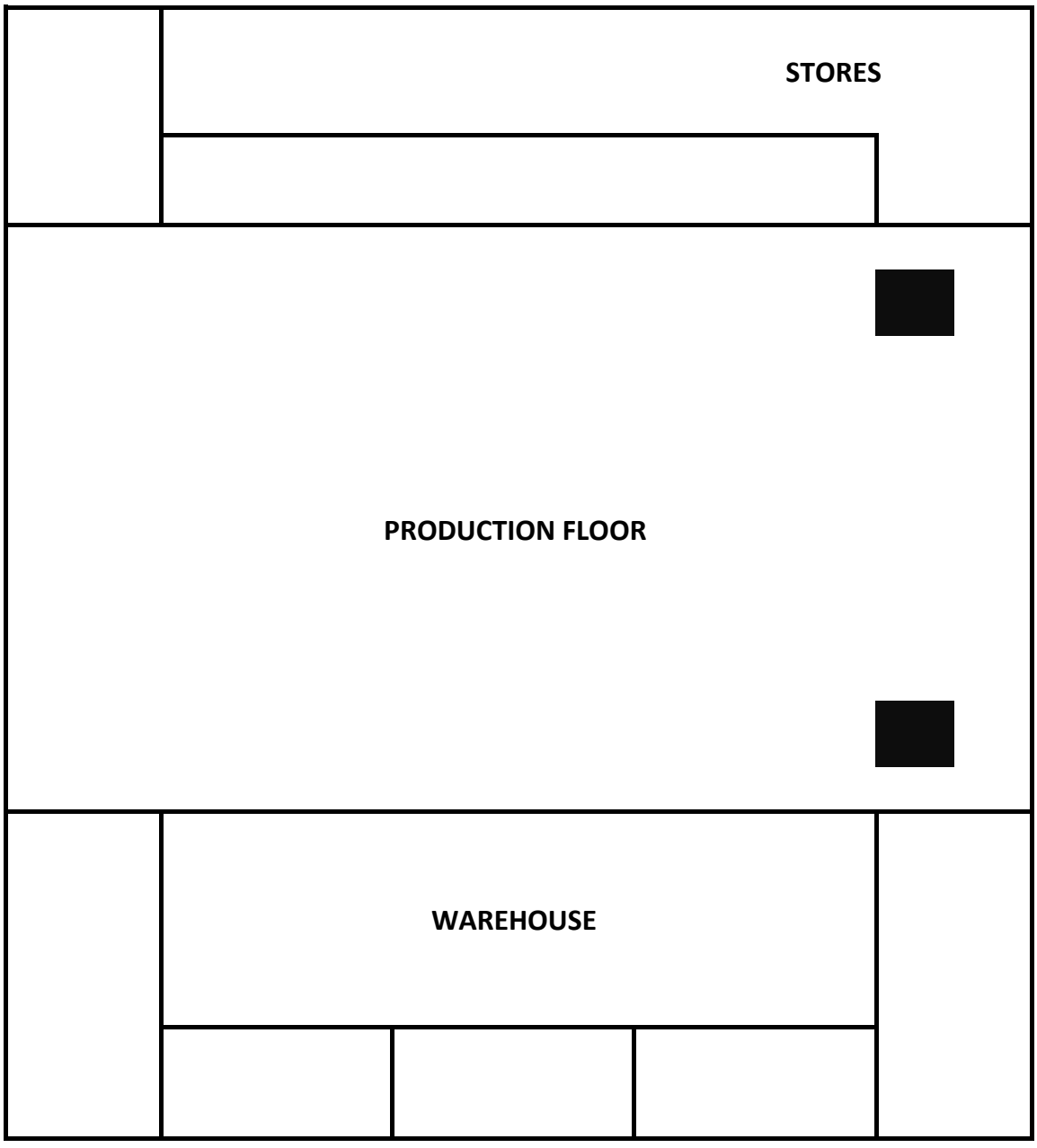

Dinning hall
Kitchen
Dinning hall
wash
rooms
Kitc
Lift spc
KLB Shop 1pt
wash
rooms
1pt
Sales Office
Reception
3pt
1pt Switchboard
Waiting
Lounge 1pt
Lift spc
Transport
Office
2pt
wash
rooms
Kitc
Hall 1pt
1pt Training Hall
MD Parking
Kitchen
1p
t

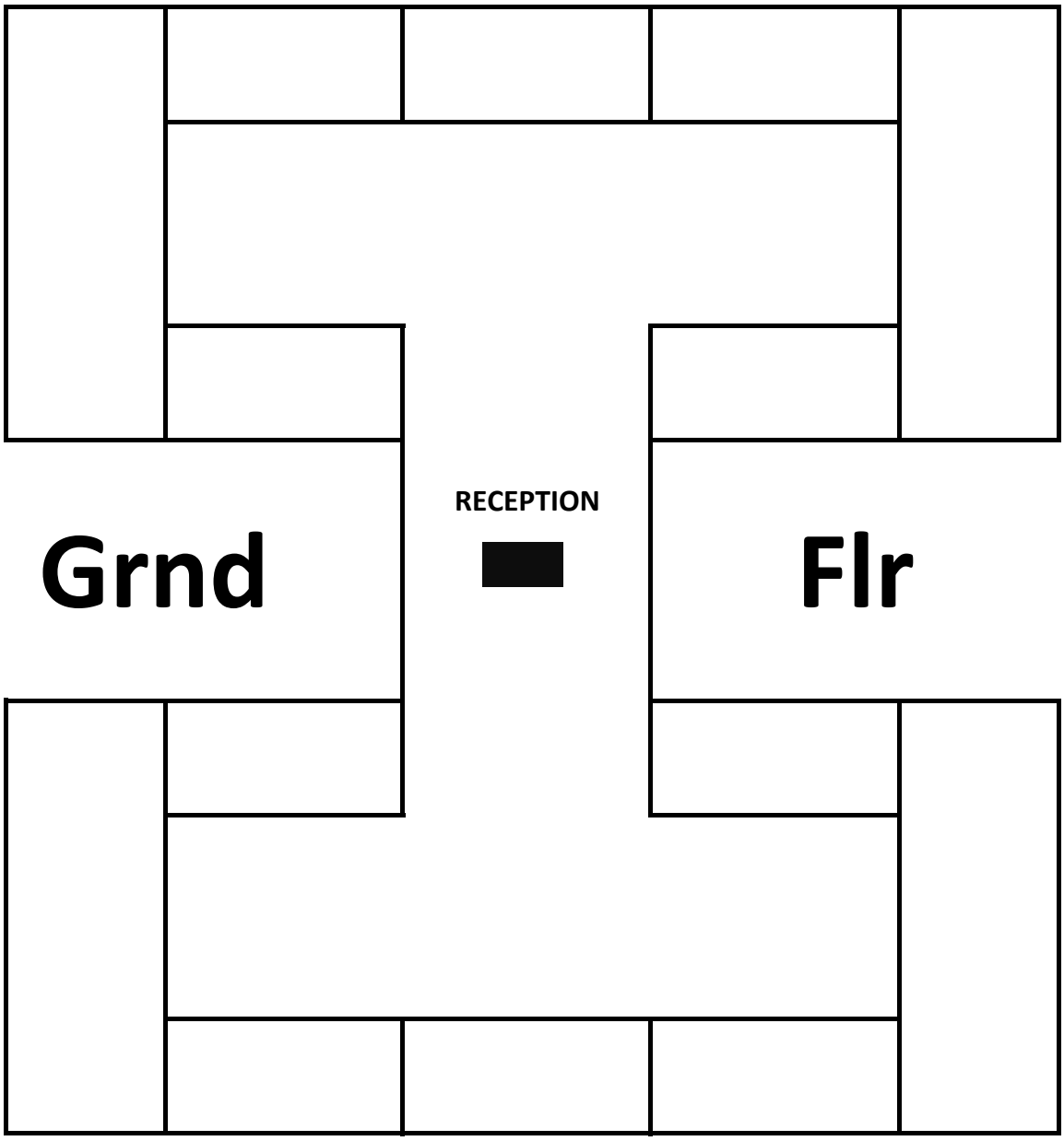
Warehouse-Production-Stores Grnd r Plan




KICD SECRETARIAT WING
2nd
Flr
SNR. MANAGEMENT WING
WIFI ACCESS POINT


FINANCE WING
SERVER ROOM
1st
Flr
REGISTRY/BDM WING
WIFI ACCESS POINT


STORES
PRODUCTION FLOOR
WAREHOUSE
WIFI ACCESS POINT



WIFI ACCESS POINT