

MADINA · ACCRA · GHANA

THE LOOM

Madina Vertical Campus

A 200-room, 800-bed student residence for six universities, woven on half an acre: passive-cooled, solar-crowned and built in eighteen months.

800

BEDS

200

POD-QUAD ROOMS

0.50

ACRE SITE

G+8

PLUS SKY LOOM

6

UNIVERSITIES

CONCEPT DESIGN · QS COST PLAN · INVESTMENT PROPOSAL

October 2026 · RIBA Stage 2 equivalent · for client discussion · Rev B (open-market rent)

Lead Architect & Quantity Surveyor

Winner, Most Creative & Innovative Architect, August 2026 · 20 years designing & costing in West Africa

Concept visualisation, AI-assisted; for illustration only

DESIGN STATEMENT

Woven for Wisdom

“Kente is never woven as one wide cloth. It is woven in narrow strips, and only when the strips are sewn together does the pattern appear. We took that as our brief.”

Madina sits at the centre of a remarkable academic geography. The University of Ghana, UPSA, Wisconsin, Academic City, Radford and GIMPA all lie within a short drive. Each has its own campus, but their students share one problem: too few safe, decent, well-managed beds. Our response is a single building that weaves those communities together.

THE LOOM stacks 800 students on half an acre without feeling crowded. Two slim residential bars run east-west, shielding every room from the low sun. Between them a twelve-metre **Wind Canyon** pulls the sea breeze through every room and up into the sky. A woven facade of terracotta fins in Kente colours shades the windows and gives Madina a landmark. A floating solar canopy, the **Sky Loom**, crowns the building and turns the roof into a campus park.

Every move does more than one job. The courtyard ventilates, gathers people and harvests water. The facade shades, secures and identifies. The roof generates power, grows food and hosts events. That economy of means, applied with rigour and joy and costed line by line, is the difference between an image and a building that gets built.

Lead Architect & Quantity Surveyor

Most Creative & Innovative Architect, August 2026



Executive summary

800 beds, half an acre, one woven community

800

200 identical Pod-Quad rooms, each with four private sleeping pods

0.50 ac

2,025 m² assumed site · plot ratio 3.85 · coverage 43%

G+8

28.5 m to roof terrace; Sky Loom canopy at 32.1 m

7,797 m²

GFA · 9.7 m² per bed · 64% net-to-gross on typical floors

GHS 101.1m

total development cost incl. 20% VAT (USD 8.64m); USD 10,801 per bed

GHS 8,487

construction per m² (USD 725), efficient end of Accra 2026 band

GHS 20,000

per bed per year, open market at 2026 prices (c. GHS 24,500 at opening)

GHS 12.9m

stabilised net operating income at 2026 prices (21% operating cost ratio)

15.2%

stabilised yield on cost as designed; 17.2% with the optimisation package

22.9%

unlevered project IRR in GHS as designed; 25.1% optimised (USD: 17.0% / 19.1%)

18 mo

build from July 2027; soft opening January 2029; full academic year 2029/30

215 kWp

solar + 500 kWh battery; c. 33% less mains/borehole water; on-site sewage treatment

THE PROPOSAL

A ground-plus-eight residence of 200 identical four-person rooms. Every student gets a private sleeping pod, a desk and a wardrobe, and each room has a split en-suite. A public **Campus Street** at ground level holds retail, a cafe, the shuttle hub and a 24/7 study hall. A solar-shaded **Sky Campus** crowns the roof.

THE NUMBERS

Construction is estimated at **GHS 66.2m** (GHS 8,487/m²). Total development cost is **GHS 101.1m** including irrecoverable VAT, plus land. At the open-market rent of GHS 20,000 per bed per academic year, the stabilised NOI is GHS 12.9m at today's prices.

THE RETURN

As drawn: **15.2%** yield on cost and **22.9%** GHS IRR (NPV +GHS 65.0m at 15%), a strong inflation-linked income asset. Our optimisation package (solar PPA, targeted value engineering, metered AC option, Sky-Floors premium, naming sponsor) lifts this to **17.2%** and **25.1%**. The 15% hurdle still holds down to c. GHS 12,900 per bed, 35% below the base rent.

THE CRITICAL PATH

Planning: c. 1,600 persons per acre against the Re C guideline of c. 120, plus the parking and plot-size standards. We recommend an immediate pre-application with LaNMMA and LUSPA, backed by the building's infrastructure self-sufficiency and a transport plan. Commercially, prove the open-market rent by pre-letting: published 2026 four-person rates are GHS 7,600-12,000.



Nyansapo Court and the Wind Canyon (concept visualisation)

A structural shortage on Madina's doorstep

Demand is deep, persistent and under-served at the quality end

45,000

students on UG's Legon campus versus 25,000-30,000 beds, including private hostels (UG Vice-Chancellor).

GHS 7.6-21k+

per student per year for private rooms around UG in 2026: four-person en-suites GHS 7,600-12,000; doubles and singles GHS 13,000-21,000+.

10,000

beds in the UG-GIIF PPP signed March 2026, phased over three years. It validates demand and raises the quality benchmark.

6

universities within c. 3-10 km of Madina, so one building can draw on several intakes and calendars.

WHY MADINA

Madina is one of the hostel districts that already serve UG and UPSA students. It is a commercial and transport hub with the trotro station, market, food and services. Land is cheaper than East Legon, and the road network reaches six campuses.

OUR POSITIONING

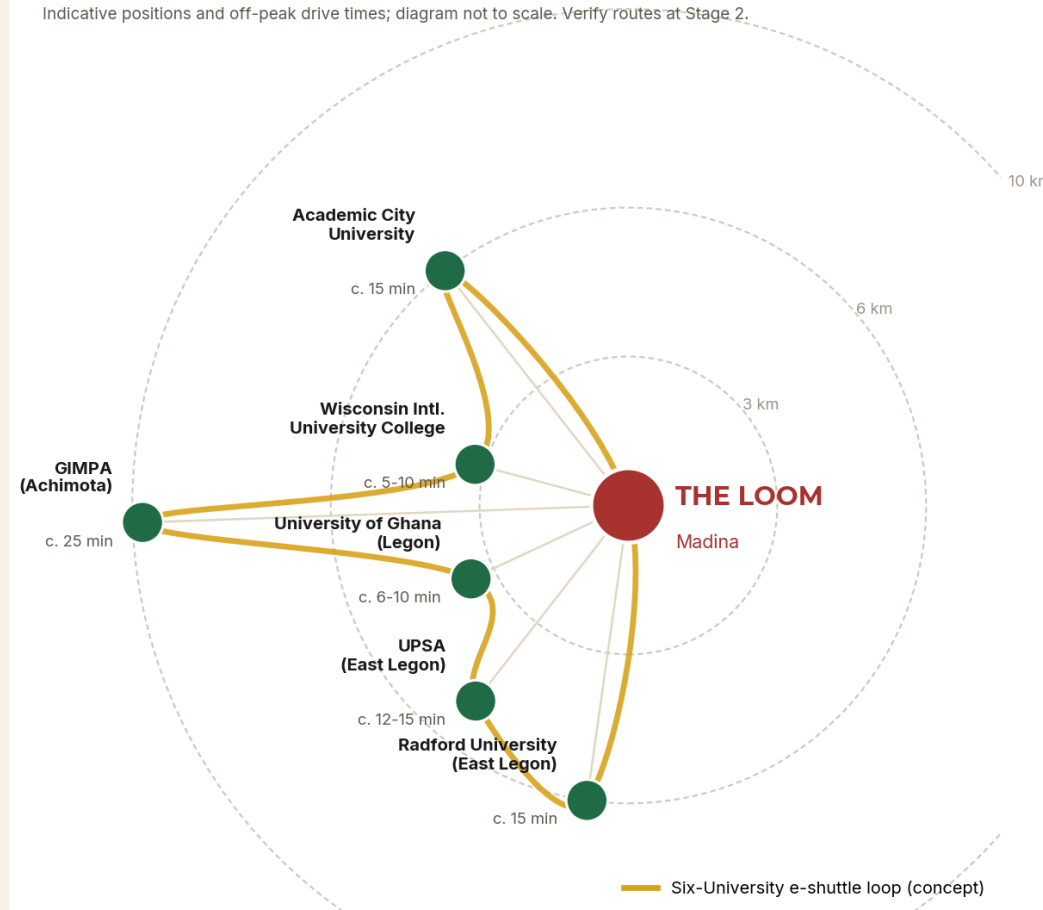
Open-market rent, premium product. At the open-market rent of GHS 20,000 per bed we sit in the top tier of the 2026 market, priced alongside premium doubles and singles rather than four-bed rooms. The product has to earn it: a private, lockable pod for every student (single-room privacy), solar-backed 24/7 power, secure water, fibre Wi-Fi, a six-university e-shuttle, study space and professional management.

WHAT STUDENTS COMPLAIN ABOUT

Overcrowding, power cuts, water shortages, poor sanitation and insecurity. THE LOOM is engineered against each of them, and that is the marketing story.

SIX-UNIVERSITY CATCHMENT

Indicative positions and off-peak drive times; diagram not to scale. Verify routes at Stage 2.



Site, climate & planning envelope

An assumed half-acre plot, optimised and ready to adapt to the survey

ASSUMED SITE

50.0 m (east-west frontage) × 40.5 m = 2,025 m², 0.50 acre. Road to the south, reasonably level, serviced by ECG and GWL. Setbacks: 6.0 m front, 4.5 m rear, 4.85 m sides. The 3.10 m module lets the plan stretch or shrink to the surveyed plot without redesign.

CLIMATE

Tropical savanna. Monthly means 25.7-29.3 °C, high humidity, c. 740 mm of rain a year (peaks May-June, minor season Sept-Oct). Prevailing south-west sea breeze; dry north-east harmattan December to March. At 5.6° N the sun is high all year, from the south in Oct-Feb and the north in Apr-Aug. The answer: long faces north and south, short ends east and west, deep shading and through-ventilation.

WHAT WE DESIGNED FOR

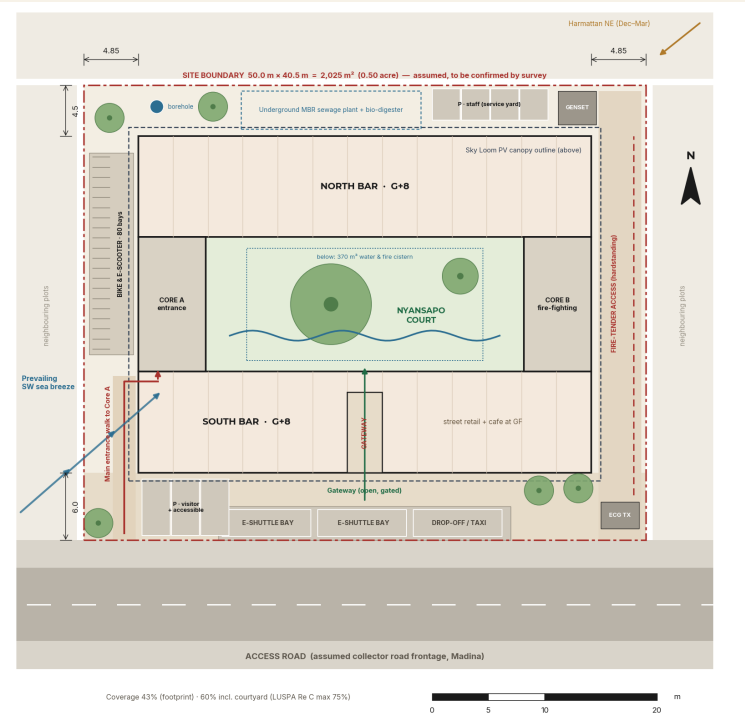
Cooling without AC by default. Rain that arrives in bursts, so harvest it. Unreliable grid power and mains water, so carry our own. Dust in the harmattan, so use mesh screens and planted galleries.

Climate at a glance	Accra / Madina
Mean monthly temperature	25.7 °C (Aug) to 29.3 °C (Mar)
Rainfall	c. 740 mm / yr · peaks May-June, minor Sept-Oct
Wind	SW sea breeze most of the year · NE harmattan Dec-Mar
Sun (5.6° N)	Noon altitude 61° (Dec, south) to 72° (Jun, north)
Solar resource	c. 1,400-1,450 kWh per kWp per year
Design response	N/S long faces · E/W cores · fins · courtyard stack

LUSPA RESIDENTIAL ZONE C (HIGH-RISE) CHECK

Parameter	Standard (LUSPA 2025)	THE LOOM	Status
Use	Student hostels permitted in Re C	Student hostel + ground-floor shops	Complies
Building coverage	Max. 75%	43% footprint · 60% incl. courtyard	Complies
Landscaped open space	Min. 25% of site	57% open (external + courtyard)	Complies
Green / recreation	Min. 10% of site	340 m ² courtyard (17%) + roof campus	Complies
Commercial	Shops at ground floor only	Ground-floor retail & cafe only	Complies
Fire safety	Hydrants, tender access, fire escapes	2 stairs, FF lift, sprinklers, hardstanding	Complies*
Parking	Min. 1 space per dwelling unit	7 cars + lay-by + 80 bikes; e-shuttle	Exemption (TIA)
Density	c. 120 persons/acre normally; more with special approval	c. 1,600 persons/acre	Special approval
Minimum plot	Re C sample standard: 1.0 acre	0.50 acre	Confirm / variance
Access road	At least a collector road	Assumed collector frontage	Confirm

* subject to GNFS approval. Source: LUSPA Revised Zoning Guidelines & Planning Standards (2025, published Feb 2026), s.2.3. Our approvals strategy is on page 22.

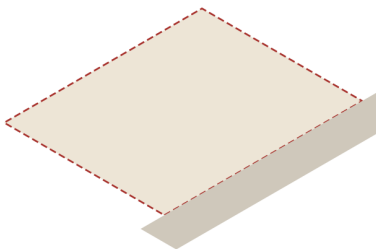


Warp & weft: weaving six universities into one

A building organised like a loom

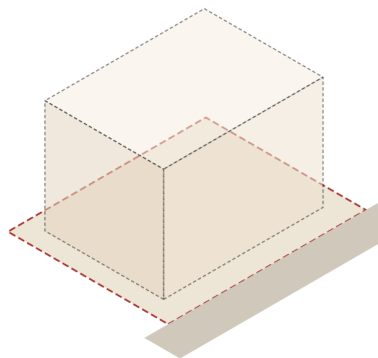
1 The 0.5-acre plot

50.0 × 40.5 m · road to the south



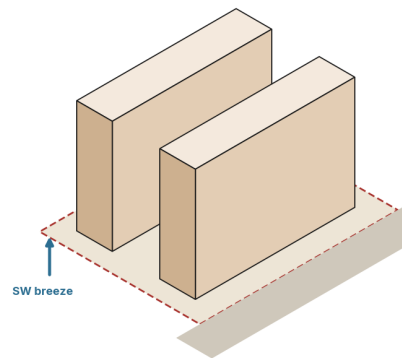
2 Setback envelope

max. 40.3 × 30.0 × 28.5 m



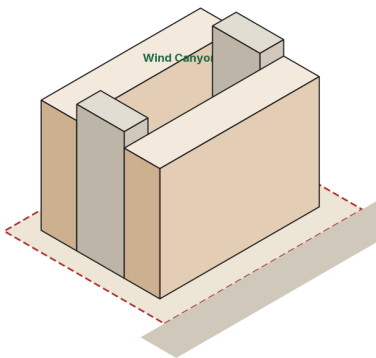
3 Two bars, east-west

long faces N/S: least sun, best breeze



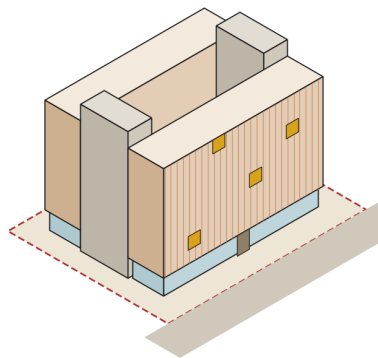
4 Weave the cores

stairs & lifts bridge the canyon; E/W buffers



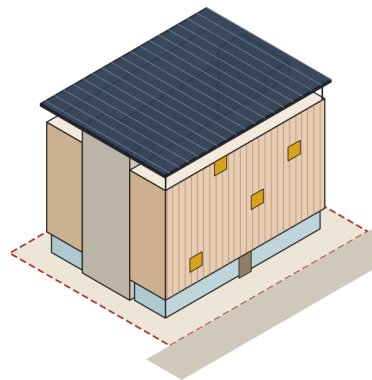
5 Lift the ground, thread the commons

open Campus Street + Gateway; glowing commons



6 Crown with the Sky Loom

215 kWp PV canopy shades the whole roof



WARP

Two residential bars, 40.3 m long and 9.0 m deep, form the long threads. Each holds 13 modules per floor: 25 rooms plus one Study Commons.

WEFT

Cores, bridges, galleries and commons cross between the bars, holding stairs, lifts, lounges and kitchen nooks. The east and west ends act as thermal buffers.

PATTERN

Fins woven in Kente colours. The gold Study Commons shift position every floor and glow at night like a weft thread crossing the cloth.

KNOT

The **Nyansapo** (wisdom knot) is the Adinkra symbol of ingenuity and learning. It names the courtyard and becomes the building's emblem, cut into the breeze-block screens of the cores.

RESULT

Density without darkness. Every room has two aspects, one to the street or garden and one to the courtyard, so every room gets daylight and moving air.

Eight moves, one building

Why this design wins: every element does at least two jobs

01

THE WIND CANYON

A 12 m open courtyard cross-ventilates all 200 rooms through louvre windows and high-level gallery vents. The stack effect lifts warm air out under the canopy. No corridor AC, no mechanical ventilation.

200 / 200

rooms cross-ventilated

02

THE POD-QUAD

Four private pods per room give the privacy of a single at the price of a shared room. 20.5 m² clear, split en-suite, four desks and four wardrobes. Two hundred identical rooms build like a factory product.

4 pods

per room · 20.5 m² clear

03

THE KENTE SKIN

Terracotta / GRC fins in Kente colours shade, give privacy, add security and give the building its identity, all in one layer. Locally fabricated; the colour is fired in, so it does not fade.

2,031 m²

of woven fins

04

THE SKY LOOM

A 42 × 31.5 m solar canopy (c. 215 kWp, c. 300 MWh/yr) shades the whole roof, harvests rain and creates a rooftop campus with study decks, an urban farm, fitness and events.

c. 300 MWh

solar energy per year

05

CAMPUS STREET & GATEWAY

An active ground floor: pharmacy, mini-mart, print shop, the Chop Bar cafe, the shuttle lounge and the 24/7 Reading Loom. The Gateway frames Nyansapo Court from the street.

GHS 0.39m

retail rent per year (2026)

06

INFRASTRUCTURE-POSITIVE

Solar + battery + genset. Borehole + 370 m³ cistern + rainwater + greywater recycling. On-site MBR sewage plant and bio-digester. The building carries its own load, which is the key argument for its density.

c. 33%

less mains / borehole water

07

BUILT FAST, BUILT LOCAL

A 3.10 m module, post-tensioned flat slabs, CSEB and breeze blocks from Ghanaian earth and cement, locally made pods and semi-prefabricated wet cores: an 18-month build.

18 months

from start on site

08

ONE COMMUNITY, SIX CAMPUSES

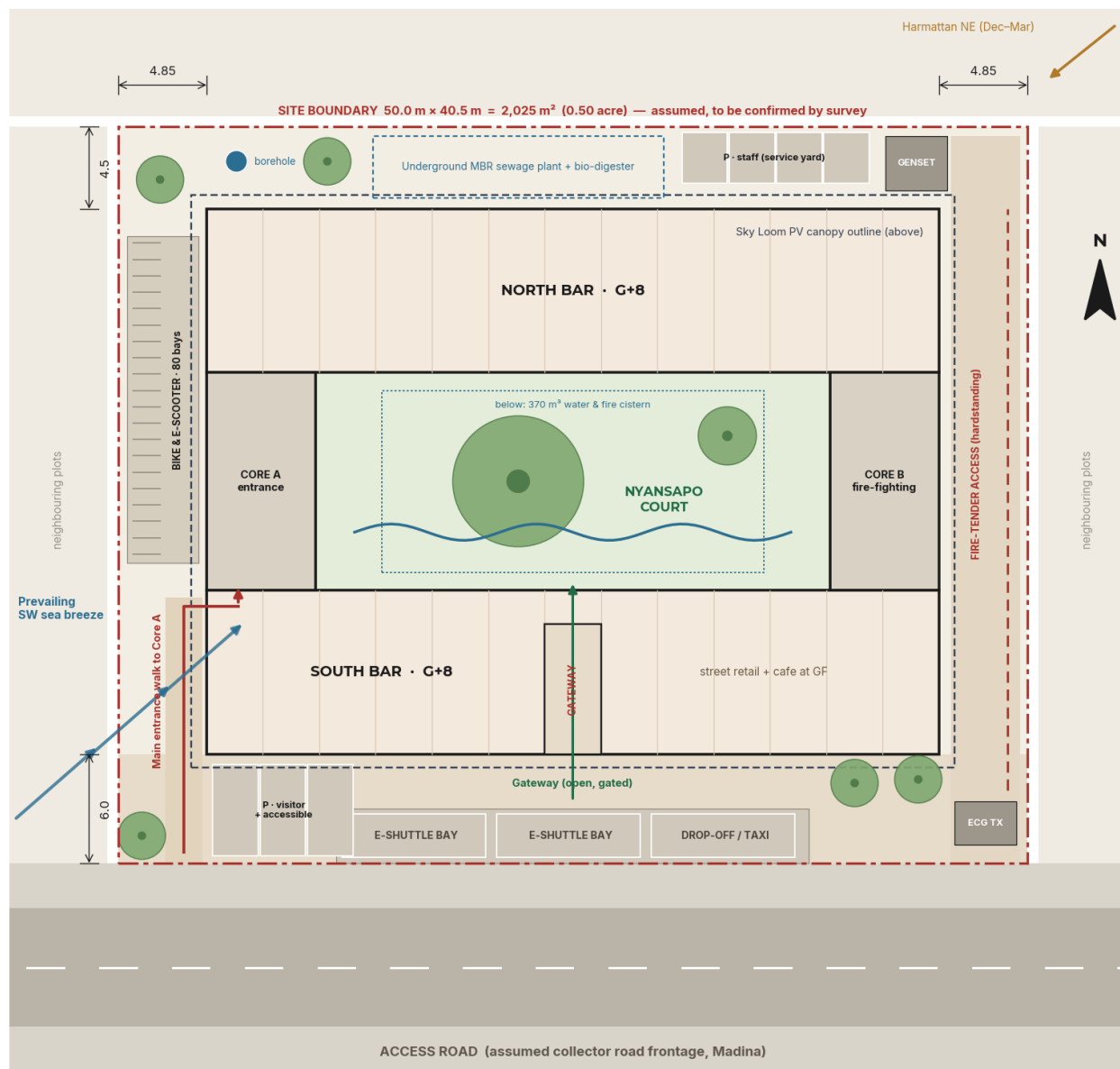
An e-shuttle loop links six universities. Floor clusters mix courses and campuses. The Reading Loom and Sky Campus host a cross-university programme of talks, hackathons and start-up nights.

6 campuses

one e-shuttle loop

Site plan

Generous edges, a shaded forecourt and a servicing loop



ARRIVAL

A drop-off lay-by with two e-shuttle bays and a taxi / ride-hail bay keeps the road clear. The main secure entrance runs along the shaded west walk to Core A. The Gateway opens the courtyard to view from the street and can be closed at night.

SERVICING & FIRE

Fire-tender hardstanding runs the full depth of the east side. The ECG transformer kiosk sits at the road edge; genset, refuse and staff parking are in the rear service yard.

UTILITIES BELOW GROUND

A 370 m³ water and fire cistern sits under the courtyard. The MBR sewage plant and bio-digester sit under the rear setback, with a WRC-permitted borehole.

LANDSCAPE

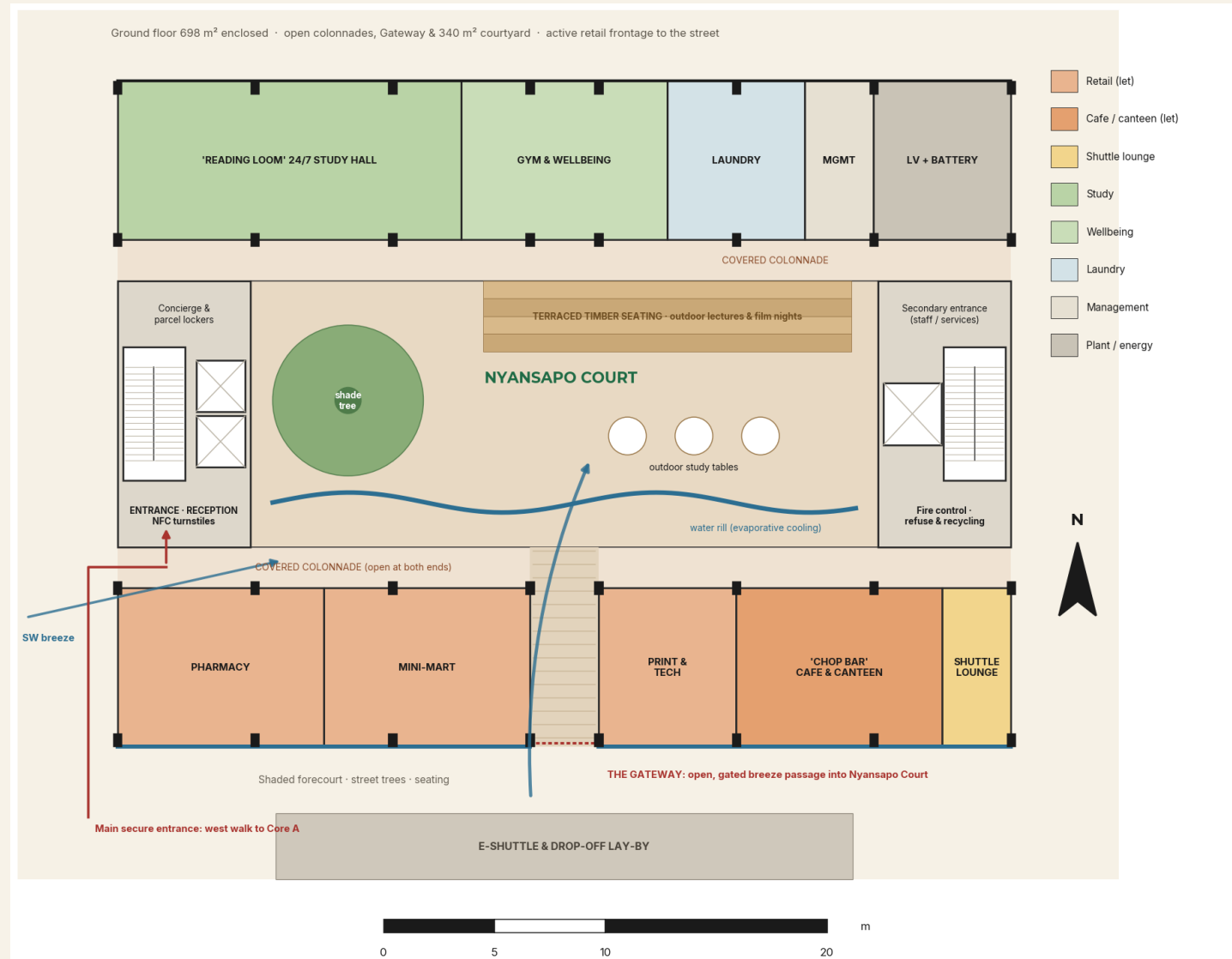
Street trees, a planted boundary and a courtyard shade tree. 57% of the site stays open, exceeding the Re C requirement of 25%.

MOBILITY

80 bike / e-scooter bays, 3 visitor / accessible and 4 staff car spaces. The car-free student policy is the basis for the parking exemption.

Campus Street

A ground floor that gives back to Madina



STREET FRONT (LET)

Pharmacy, mini-mart, print & tech shop and the Chop Bar cafe & canteen, with affordable meal plans for residents. 11 lettable modules (244 m²) earn GHS 0.39m a year at 2026 rents.

THE GATEWAY

One module left open and gated. It draws the south-west breeze and the passer-by's eye into Nyansapo Court, and is the building's signature threshold.

RESIDENT AMENITY

The 24/7 Reading Loom study hall, a gym & wellbeing studio, the laundry, management office and the Six-University shuttle lounge.

NYANSAPO COURT

Terraced timber seating for lectures and film nights, a shade tree, an evaporative water rill and outdoor study tables. It is the social heart and the intake for the Wind Canyon.

SECURITY

Core A reception with NFC turnstiles. Lifts are zoned by floor, and the female and male floor clusters can be re-zoned to match demand.

Typical floor • L1 to L8

25 rooms, 100 beds, every room cross-ventilated



PLAN

Two bars of 13 modules (3.10 m) around the 12 m Wind Canyon. Single-loaded open-air galleries (1.85 m) with planters face the courtyard. Cores bridge the east and west ends.

PER FLOOR

25 Pod-Quad rooms = 100 beds · 869 m² GFA · 64% net-to-gross · one Study Commons · two lounges · two kitchen nooks.

ESCAPE

Two remote protected stairs and a firefighting lift. Open-air galleries naturally clear smoke. Maximum travel to a stair is c. 20 m, with two directions of escape. Sprinklers throughout.

STRUCTURE

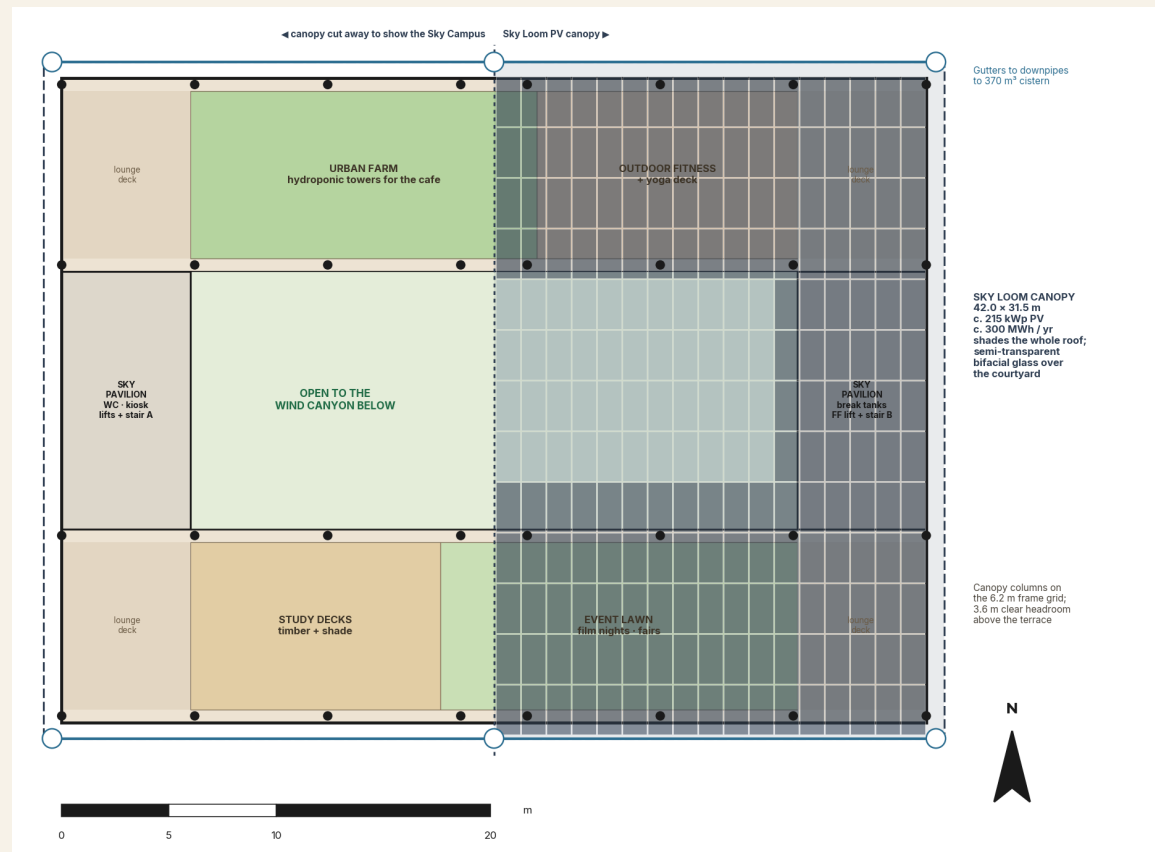
Columns on a 6.2 m / 3.1 m rhythm along the party walls. 200 mm post-tensioned flat slabs cantilever to form the galleries. Concrete cores provide lateral stability.

WOVEN COMMONS

The Study Commons moves floor by floor (L1 north-6, L2 south-3, L3 north-10 and so on), so the facade reads as woven cloth and every floor gets a different view.

The Sky Loom

A solar canopy that turns the roof into a campus park



Sky Campus at dusk: study decks, hydroponic farm and fitness under the PV canopy (concept visualisation).

POWER

c. 215 kWp of PV on a raised steel canopy produces c. 300 MWh a year, roughly 80% of annual demand in the fan-cooled base case. Paired with a 500 kWh LFP battery, about 60-65% of demand is met on site. Semi-transparent bifacial glass over the courtyard lets in light and lets out heat.

SHADE & WATER

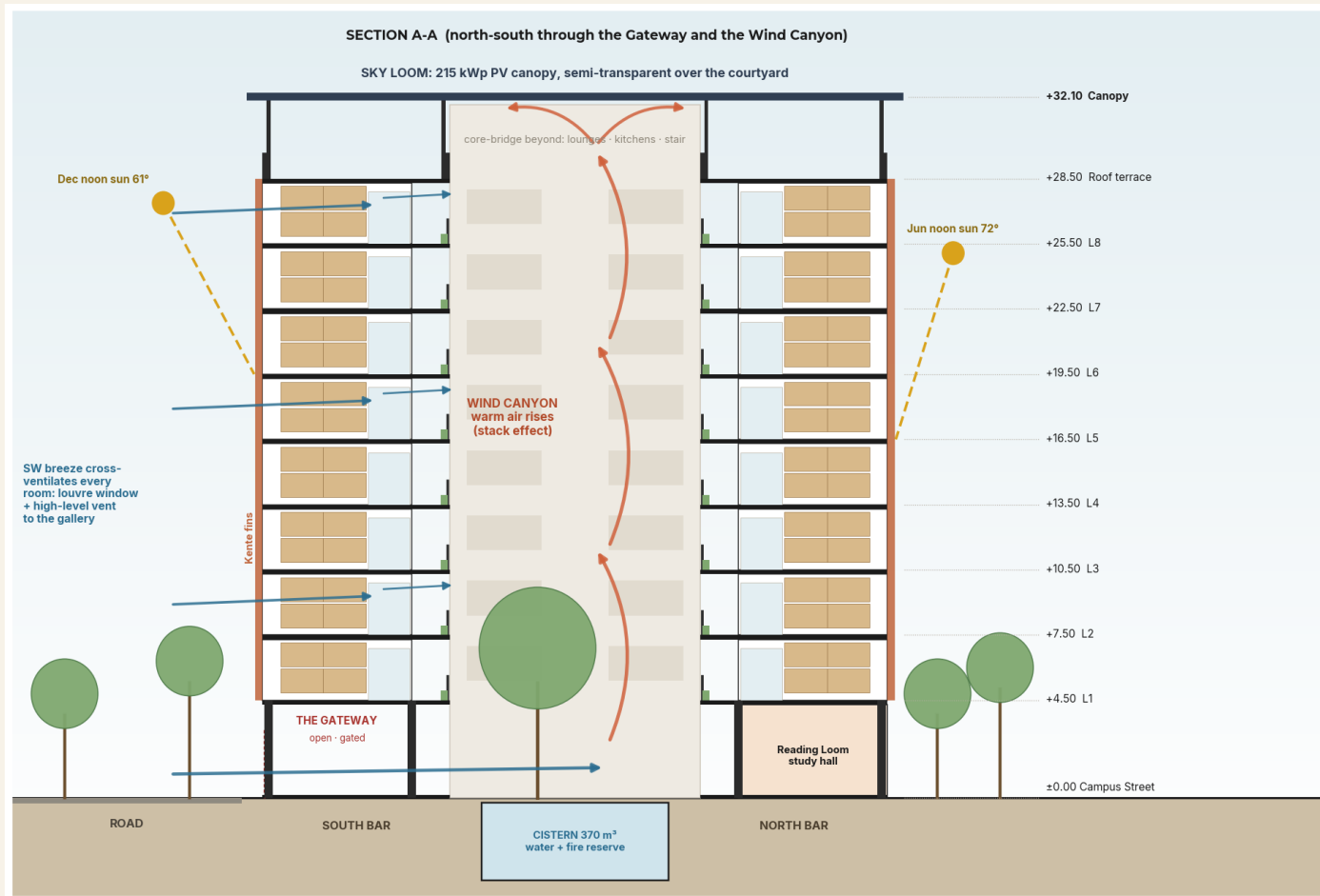
The canopy shades the whole roof slab, cutting heat gain to the top floor, and feeds gutters into the 370 m³ cistern.

PROGRAMME

Study decks, an event lawn for film nights and fairs, a hydroponic urban farm supplying the cafe, outdoor fitness and two sky pavilions.

The climate engine

Section A-A through the Gateway and the Wind Canyon



BREEZE

The south-west breeze enters through louvre windows behind the fins, crosses each 7 m deep room, and leaves through high-level vents into the open galleries. Ceiling and pod fans keep air moving on still nights.

STACK

Shaded, planted and cooled by the rill at the bottom, the 12 m courtyard warms towards the top. Warm air rises and escapes under the raised canopy, drawing fresh air in through the Gateway and the colonnade ends.

SUN

Noon sun is 61° from the south in December and 72° from the north in June. The fins and slab edges shade the glass on both facades; the east and west ends are solid cores.

HEIGHTS

Ground floor 4.5 m; residential floors 3.0 m with 2.80 m clear under exposed PT soffits, enough for two-high pods with 1.10 m headroom each. Roof terrace at +28.50, canopy at +32.10.

AC-OPTIONAL

Rooms are designed to be comfortable without AC. North-facing rooms are AC-ready (sleeves, condensate, spare circuit) for an optional, individually metered upgrade.

The Kente Skin

Shade, privacy, security and identity in a single woven layer



SOUTH ELEVATION · THE KENTE SKIN

Glazed terracotta fins woven in Kente colours over shaded louvre windows; gold Study Commons shift position every floor like a weft thread; open Gateway at the centre.



THE WEAVE

Ten vertical fins per 3.10 m module. Alternate modules carry warp stripes (gold, green, red, black) or weft blocks (terracotta with gold accents), offset each floor to read as cloth.

PERFORMANCE

The fins cut low-angle sun, screen views from the street and act as a security layer in front of the louvre windows. They also protect the glass from harmattan dust and driving rain.

MATERIAL

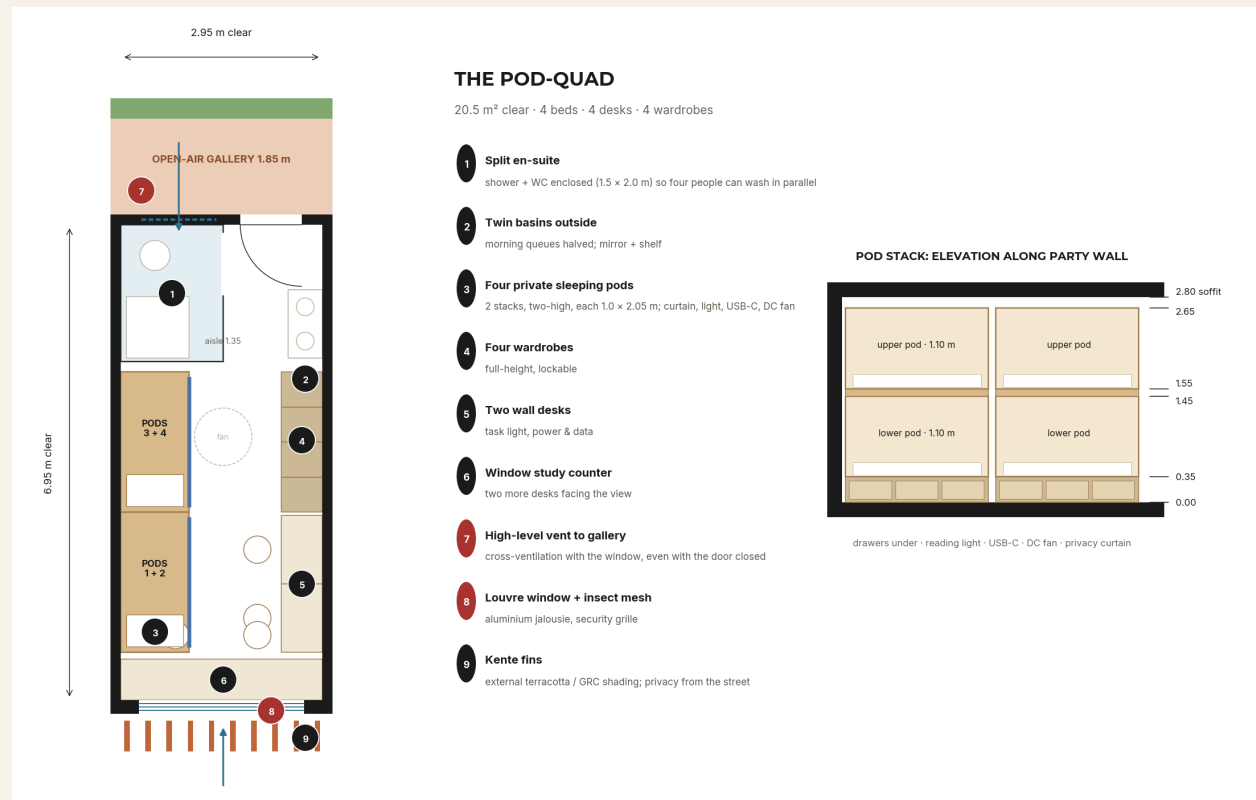
Glazed terracotta or GRC baguettes on a galvanised sub-frame. The glazed colour is fired in and non-combustible. The value-engineering alternative is pigmented precast GRC (saves c. GHS 0.57m).

NIGHT

The gold Study Commons glow through the weave, so the building reads as a lantern from the Madina road.

The Pod-Quad

The privacy of a single room at the price of a shared one



Pod-Quad interior: pods along the party wall, desks and wardrobes opposite, study counter at the window (concept visualisation).

WHY IT WORKS

Ghanaian students accept sharing to keep costs down, but they want privacy, security and sleep. Each pod is a lockable-curtain bed niche with a reading light, USB-C, a DC fan, a shelf and drawers. That turns a four-bed room into four private bedrooms around a shared study.

SPECIFICATION

20.5 m² clear (2.95 × 6.95 m). Split en-suite with shower + WC enclosed and twin basins outside. Four wardrobes, four desks, a louvre window with insect mesh and security grille, a high-level vent, terrazzo-look porcelain floor, smart lock, prepaid sub-meter and fibre Wi-Fi.

BUILDABILITY

Two hundred identical rooms allow factory-made pods, standardised wet cores and repeat MEP. Ghanaian joiners fabricate the pods at scale, at c. GHS 3,500 each in our cost plan.

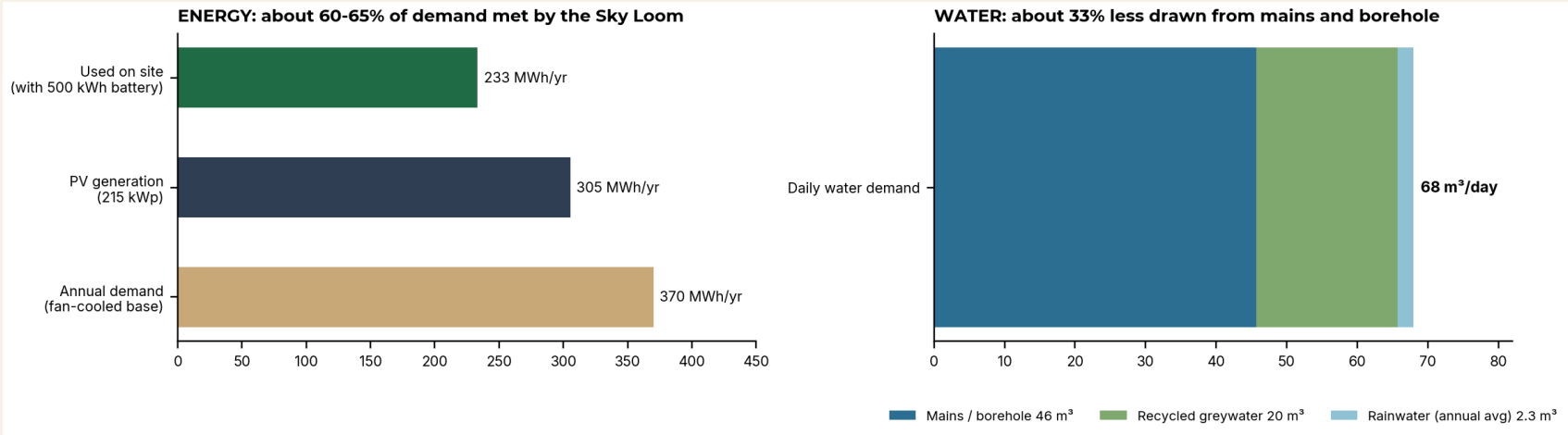
12 LIFE IN THE LOOM

Nyansapo Court

Looking up the Wind Canyon: planted galleries, breeze-block balustrades, bridges between the cores and dappled light through the solar glass. Below, the terraces, the rill and the shade tree make the busiest room in the building, and it is open to the sky.

Infrastructure-positive

A building that carries its own load: the strongest argument for its density



ENERGY

- c. 215 kWp PV on the Sky Loom (c. 300 MWh/yr)
- 500 kWh LFP battery + 250 kVA genset for outages
- Prepaid smart meters for every room: pay for what you use
- LED lighting, DC pod fans, ceiling fans; AC optional and metered
- Induction kitchen nooks: no gas cylinders in a residential tower

WATER

- Borehole (WRC permit) + GWL mains + 370 m³ cistern
- Rainwater from c. 1,300 m² of canopy (c. 800 m³/yr)
- Greywater recycling (36 m³/day) supplies WC flushing & irrigation
- Low-flow fittings; leak detection on the BMS
- Net draw c. 33% below a conventional hostel

WASTE & WASTEWATER

- Packaged MBR sewage plant (75 m³/day); treated water reused
- Bio-digester produces biogas for the cafe kitchen
- Segregated recycling stations on every floor
- Food waste composted for the rooftop farm
- Meets LUSPA Re C emphasis on bio-digesters & waste

MATERIALS & CERTIFICATION

- CSEB from site laterite; breeze blocks & terracotta made in Ghana
- PT slabs save c. 15-20% concrete & steel vs conventional
- Exposed soffits, terrazzo-look floors: low maintenance
- Target IFC EDGE Advanced (40%+ energy saving)
- c. 110-130 t CO₂/yr avoided by on-site solar

EDGE Adv.

certification target (40%+ energy saving)

c. 300 MWh

solar generation per year

500 kWh

battery: power-cut resilience

c. 33%

less mains / borehole water

100%

wastewater treated & reused on site

0

gas cylinders in the residential tower

Smart, safe & social

Run like a hotel, priced like a hostel

DIGITAL

One app for booking, rent payment (MoMo & card), access, maintenance tickets, laundry slots, shuttle tracking and community events. Fibre backbone with Wi-Fi 6 throughout.

SAFE

NFC turnstiles and smart room locks, 110 CCTV cameras, 24/7 concierge and security, lifts zoned by floor, female and male floor clusters that can be re-zoned by demand, and a full sprinkler system.

SOCIAL

Floor clusters of 100, each with a Study Commons, lounges and kitchen nooks. The Reading Loom is open 24/7. A Sky Campus events calendar and the Innovation Exchange bring together students from six universities.

MOVING

Operating model	Standard
Team	22 FTE + contracted security
Front desk & security	24/7, NFC + CCTV
Common-area cleaning	Daily; rooms by residents
Maintenance response	Urgent 4 h · routine 48 h
Rent collection	Per academic year, app / MoMo
Utilities	Water & Wi-Fi included; room power prepaid

ACCOMMODATION & AREA SCHEDULE

Level	Use	GFA m²	Rooms	Beds
Roof +28.50	Sky Loom: PV canopy, study decks, urban farm, fitness, sky pavilions	144	-	-
L8 +25.50	25 Pod-Quad rooms + Study Commons (S-5) · male cluster*	869	25	100
L7 +22.50	25 Pod-Quad rooms + Study Commons (N-8) · male cluster*	869	25	100
L6 +19.50	25 Pod-Quad rooms + Study Commons (S-11) · male cluster*	869	25	100
L5 +16.50	25 Pod-Quad rooms + Study Commons (N-3) · male cluster*	869	25	100
L4 +13.50	25 Pod-Quad rooms + Study Commons (S-8) · female cluster*	869	25	100
L3 +10.50	25 Pod-Quad rooms + Study Commons (N-10) · female cluster*	869	25	100
L2 +7.50	25 Pod-Quad rooms + Study Commons (S-3) · female cluster*	869	25	100
L1 +4.50	25 Pod-Quad rooms + Study Commons (N-6) · female cluster*	869	25	100
Ground ±0.00	Campus Street: 3 shops, cafe, shuttle lounge, Gateway, Reading Loom, gym, laundry, plant	698	-	-
TOTAL		7,797	200	800

Metric	Value
GFA per bed	9.75 m²
Plot ratio (GFA / site)	3.85
Net-to-gross (typical floor / overall)	64% / 57%
Room clear area / per bed	20.5 m² / 5.1 m²
Communal space per student (excl. roof & court)	1.0 m²
Courtyard / roof campus	340 m² / c. 870 m²

* clusters re-zonable by demand via access control. Full schedule in the Excel model.

Built fast, built local

An 18-month build from a disciplined 3.10 m module

STRUCTURE

RC frame on a 6.2 / 3.1 m rhythm. 200 mm post-tensioned flat slabs with cantilevered galleries and concrete stability cores. Pad / raft foundations, with a provisional sum held for ground improvement. PT cuts slab depth, rebar and formwork cycles (c. 3 weeks per floor).

ENVELOPE

CSEB / sandcrete infill, rendered. Aluminium louvre windows with mesh and grilles. Kente Skin fins on galvanised sub-frames; breeze-block Nyansapo screens to the naturally ventilated cores.

OFF-SITE & REPETITION

800 identical pods, 200 wet cores and repeat MEP risers make a manufacturing-led fit-out. It runs in parallel with the frame, so we gain months, not weeks.

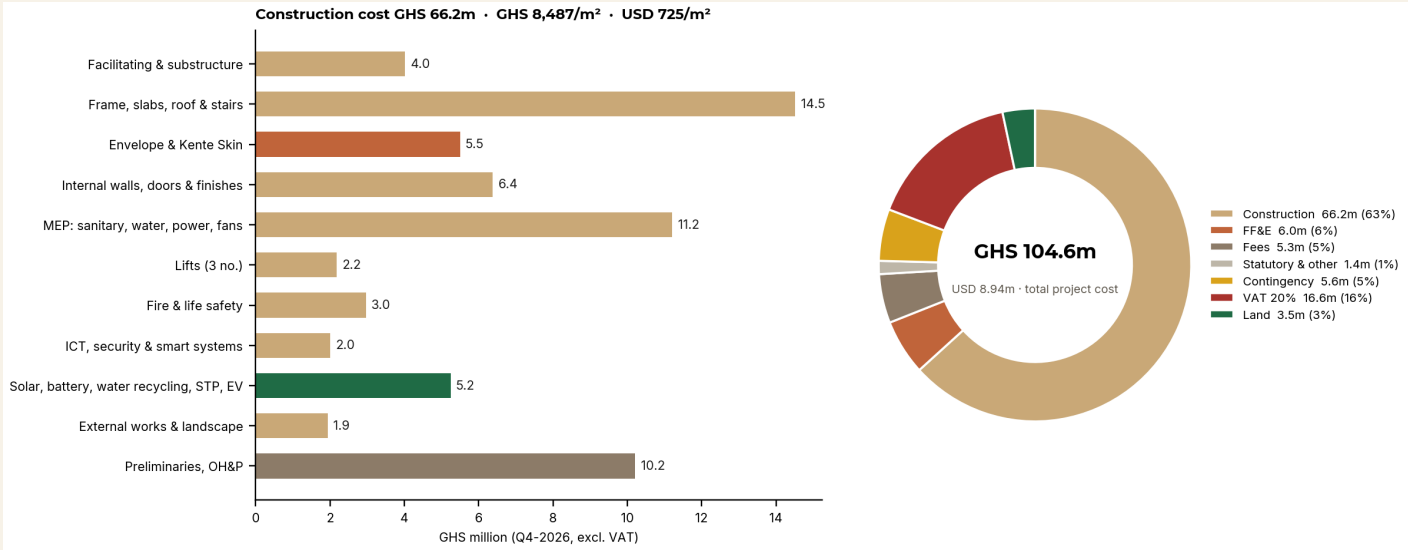
PROCUREMENT

Design & Build on a guaranteed maximum price after a Stage 4 BoQ. Imported packages (lifts, PV, battery, MEP plant) are bought early to cap FX risk. Local labour and materials wherever possible.



Elemental cost plan

Q4-2026 Greater Accra rates, measured from the concept design (NRM1 format)



Element	GHS	GHS/m²	%
0 Facilitating works	351,000	45	0.5%
1 Substructure	3,666,314	470	5.5%
2.1 Frame	4,863,600	624	7.3%
2.2 Upper floors	5,981,472	767	9.0%
2.3 Roof	2,936,916	377	4.4%
2.4 Stairs & ramps	738,000	95	1.1%
2.5 External walls & Kente Skin	3,895,638	500	5.9%
2.6 Windows & external doors	1,602,315	205	2.4%
2.7 Internal walls & partitions	1,973,688	253	3.0%
2.8 Internal doors	1,358,400	174	2.1%
3 Internal finishes	3,047,675	391	4.6%
5 Services	22,925,318	2,940	34.6%
8 External works	1,936,080	248	2.9%
Builder's work in connection	687,760	88	1.0%
Preliminaries 10% · OH&P 7.5%	10,213,462	1,310	15.4%
CONSTRUCTION (excl. VAT)	66,177,638	8,487	100%

Development cost summary	GHS	USD
Construction (excl. VAT)	66,177,638	5,656,208
FF&E (pods, desks, commons, gym, roof)	5,990,000	511,966
Professional fees (8%)	5,294,211	452,497
Statutory, connections, insurance, pre-opening	1,428,688	122,110
Contingencies (design 3% + construction 5%)	5,593,711	478,095
VAT / NHIL / GETFund 20% (irrecoverable)	16,611,112	1,419,753
TOTAL DEVELOPMENT COST incl. VAT	101,095,359	8,640,629
Land (owner contribution, assumed)	3,500,000	299,145
TOTAL PROJECT COST	104,595,359	8,939,774
per bed (TDC incl. VAT)	126,369	10,801

QS COMMENTARY

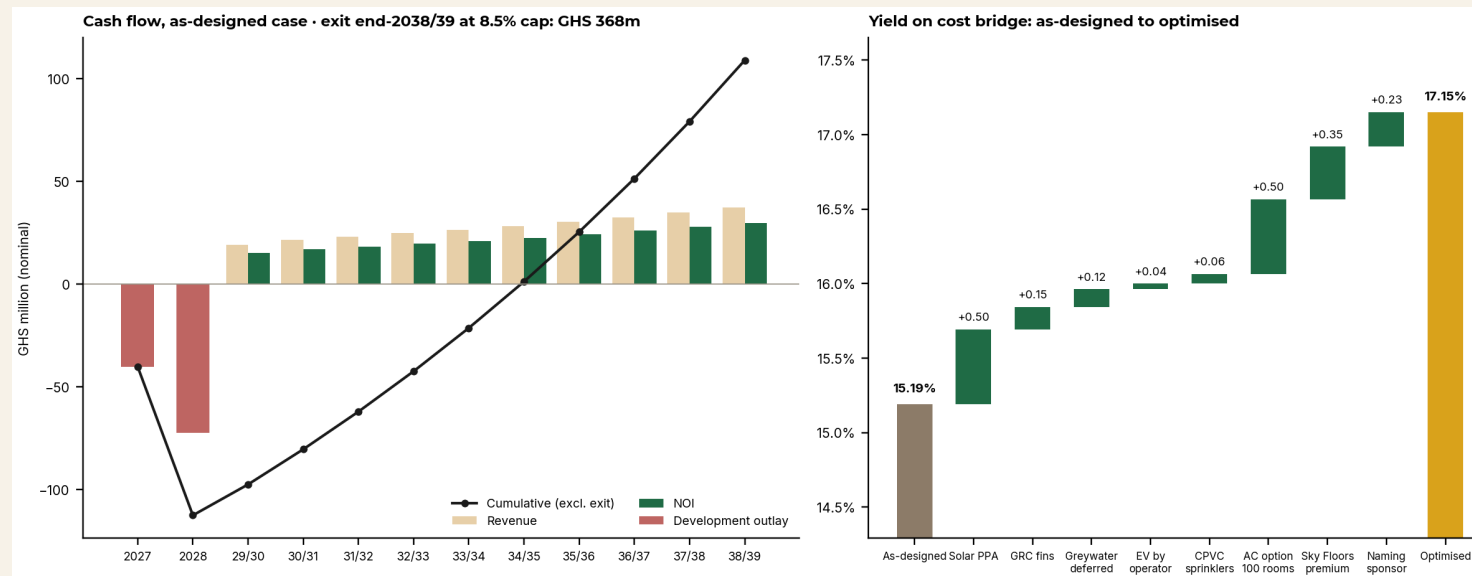
At GHS 8,487/m² (USD 725/m²) excluding VAT, construction sits at the efficient end of the 2026 Greater Accra range for mid-range residential R+4 to R+8 (GHS 8,500-12,000/m²), despite including lifts, sprinklers, PV, battery and on-site sewage treatment. Repetition, PT slabs, local masonry and a compact 9.7 m² per bed do the work.

VAT is carried as a cost because residential lettings are VAT-exempt, so input VAT cannot be recovered. Confirm with the GRA.

Finance costs are excluded (unlevered appraisal). Rates must be market-tested at tender.

Investment appraisal

A high-yield, inflation-linked income asset: 15.2% yield on cost at the open-market rent



Stabilised year (2026 prices)	GHS	USD
Bed rent: 800 × GHS 20,000 (open market) × 95%	15,200,000	1,299,145
Vacation lets (interns, NSS, summer schools)	500,000	42,735
Retail & cafe rent (244 m ²)	389,129	33,259
Laundry, vending, media & events	390,000	33,333
TOTAL REVENUE	16,479,129	1,408,473
Operating costs (21%: staff, utilities, R&M, shuttle, mgmt, reserve)	-3,536,352	-302,252
NET OPERATING INCOME	12,942,777	1,106,220

RENT CORRECTION, OCT 2026: WHAT CHANGED (AS DESIGNED)

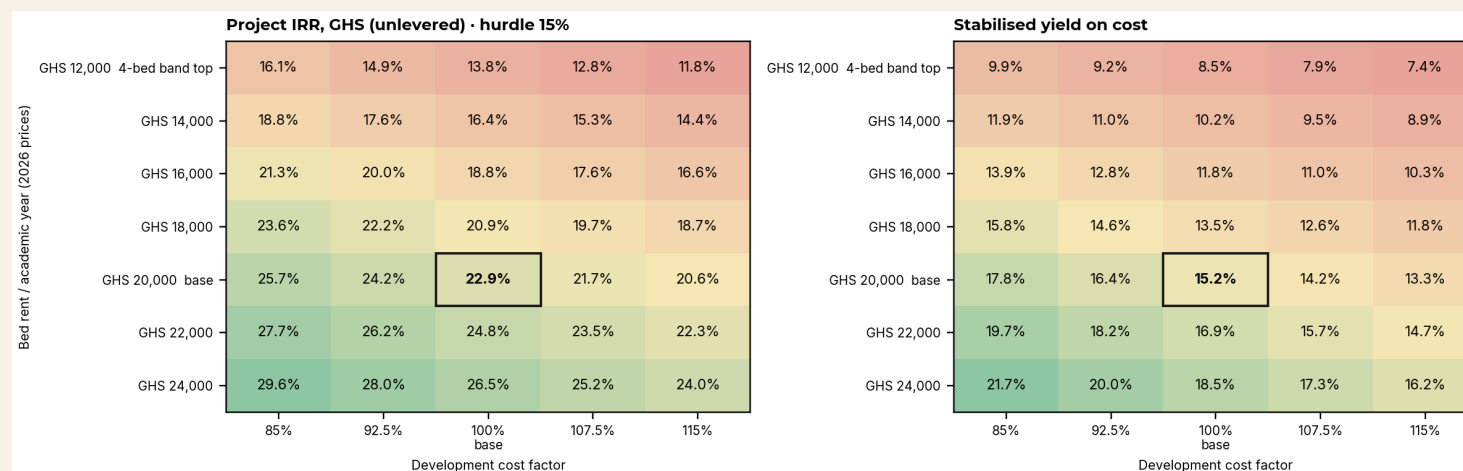
Metric	Stage 2 desk rent GHS 9,800	Open-market rent GHS 20,000	Change
Stabilised revenue (2026 prices)	GHS 8.73m	GHS 16.48m	+GHS 7.75m
Net operating income (2026 prices)	GHS 5.62m	GHS 12.94m	+GHS 7.33m
Project IRR, GHS (unlevered)	10.4%	22.9%	+12.5 pts
Stabilised yield on cost (2030/31)	6.66%	15.19%	+8.54 pts
NPV at 15% discount rate	-GHS 28.5m	+GHS 65.0m	+GHS 93.5m
Simple payback from opening	11.0 yrs	5.9 yrs	-5.1 yrs

Returns (unlevered, nominal)	As designed	Optimised
Project IRR, GHS	22.9%	25.1%
Project IRR, USD equivalent (5% p.a. depreciation)	17.0%	19.1%
Stabilised yield on cost (2030/31)	15.19%	17.15%
NPV at 15% discount rate	GHS 65.0m	GHS 82.3m
Development outlay incl. land (nominal)	GHS 112.5m	GHS 106.8m
Simple payback from opening (no exit)	5.9 yrs	5.4 yrs
Exit value end-2038/39 (8.5% cap)	GHS 368m	-

Key assumptions: bed rent GHS 20,000 per bed per academic year at 2026 prices (open market; c. GHS 24,500 at opening), replacing the Stage 2 desk figure of GHS 9,800; rent +7% p.a. (CPI 5.2%, services 8.3%, housing 10.3%); OPEX +6%, fixed costs unchanged by the rent; build cost +5.5%; occupancy 90% in year 1, then 95%; exit at 8.5% on forward NOI after 10 operating years; FX GHS 11.70/USD. Unlevered and pre-tax. All inputs are live in the Excel model.

What moves the needle

Rent and cost sensitivity, and the recommended optimisation package



#	Optimisation lever	Capex (direct)	Income / OPEX p.a.
1	Solar PV + BESS via Energy-as-a-Service PPA (ESCO-funded)	-2,554,000	(OPEX +120,000)
2	Kente fins in precast GRC instead of glazed terracotta	-568,714	-
3	Greywater plant deferred (dual pipework retained)	-450,000	-
4	EV chargers funded by shuttle operator (service fee in OPEX)	-320,000	(OPEX +40,000)
5	CPVC sprinkler pipework	-233,920	-
6	Optional inverter-AC upgrade: 100 north-facing rooms (+GHS 1,800/bed/yr, metered)	950,000	+684,000 (OPEX +30,000)
7	'Sky Floors' premium on L7-L8 (+8% on 200 beds)	-	+304,000
8	Naming sponsorship: shuttle, Wi-Fi & study hall (bank / telco)	-	+200,000
TOTAL (on-costs incl. prelims, OH&P, contingency, fees & VAT: x1.65)		-3,176,633	+1,188,000

READING THE NUMBERS

Each GHS 2,000 of rent moves the IRR by about 1.9 points; each 7.5% of development cost by about 1.3 points. The scheme still meets the 15% hurdle (NPV zero) at c. GHS 12,900 per bed and an 8% yield on cost at c. GHS 11,400: 35% and 43% below the open-market rent. At GHS 12,000, the top of the published four-person band, the IRR would be 13.8%. The optimisation package reaches 17.2% at the base rent.

OUR RECOMMENDATION

Adopt levers 1, 2, 4 and 5 now (no loss of design quality). Test levers 6 to 8 at pre-letting. Keep greywater recycling (lever 3) if the borehole yield is weak. Prove the open-market rent with letters of intent before financial close, and size any debt on a downside rent (c. GHS 16,000), not the base.

RENT HEADROOM & STRESS TESTS (AS DESIGNED)

GHS 12,911

rent per bed for a 15% GHS IRR (NPV zero): 35% headroom below the GHS 20,000 base

GHS 11,404

rent per bed for an 8% yield on cost, as designed (43% headroom)

20.8%

GHS IRR if stabilised occupancy is 85% (80% in year 1), not 95%

19.4%

GHS IRR if rent growth is held to 5% p.a. (regulated / CPI-linked)

20.6%

GHS IRR if development cost is 15% higher (base 22.9%)

Approvals strategy & risk register

Turning the density question into the project's strongest argument

THE CASE FOR DENSITY

LUSPA Re C allows higher densities in taller buildings with special approval. Our case rests on four pillars:

- 1. Infrastructure-positive:** on-site power, water, sewage and waste, so no new burden on local networks.
- 2. Transport:** a car-free policy, the e-shuttle and drop-off lay-by, evidenced in a TIA.
- 3. Public benefit:** street retail, a community cafe, landscaped edges and local jobs.
- 4. National need:** safe student housing beside six universities, aligned with national hostel policy.

APPROVALS ROADMAP

Zoning / land-use confirmation and pre-application (LaNMMA Spatial Planning Committee, LUSPA). Then EPA permit (screening / PER), development & building permit, GNFS fire certificate, GCAA height clearance (Madina is c. 8 km from KIA; confirm the obstacle surfaces), WRC borehole permit, and ECG / GWL connections.

Risk	L	I	Mitigation
Density far above the Re C guideline	4	5	Pre-app, special-approval route, infrastructure self-sufficiency evidence; fallback G+6 variant on the same module
Re C sample minimum plot 1.0 acre	3	4	Confirm the parcel's zoning (mixed-use / sub-regional); variance or consolidate an adjoining plot
Parking: 1 space per dwelling unit	4	3	TIA-based exemption (LUSPA s.10.2.1), car-free tenancy, e-shuttle, lay-by, 80 bike bays
Cost inflation & FX on imports	4	4	Early purchase of lifts / PV / MEP; local materials; GMP D&B contract; 8% contingency
Utility reliability	4	4	PV + battery + genset; borehole + cistern + recycling
Rent achievability: GHS 20,000 is above published 4-bed rates	3	4	Prove by pre-letting & letters of intent; sell single-room privacy; tiered pricing; size debt on a downside rent
Rent regulation: Rent Control froze 2026/27 hostel fee rises	3	4	Join the Rent Control consultation; transparent pricing; nomination agreements; tested at 5% rent growth
Market: UG 10,000-bed PPP & new supply	3	3	Six-campus catchment, Pod-Quad privacy, shuttle, pre-letting partnerships
Ground conditions	3	3	Boreholes at Stage 2; GHS 450k provisional sum
Fire & life safety at 28.5 m	2	5	Sprinklers, 2 stairs, FF lift, open galleries, early GNFS engagement
Accessibility (Act 715)	3	3	Step-free GF & roof, lifts to all floors, adaptable rooms on L1
VAT treatment (20%)	3	3	GRA ruling; carried as a cost in the plan

DELIVERY & FUNDING ROUTES

Owner-developer

Land as equity plus local or DFI debt. Simplest control. At a c. 15% yield on cost the scheme can carry moderate gearing; size the debt on a downside rent, not the base, and use long tenors.

Forward-fund / forward-sale

A pension fund or REIT funds the build against a pre-agreed yield and takes the stabilised asset. It de-risks the exit; a lower exit cap lifts the IRR.

University partnership

Nomination agreement or master lease with one or more of the six universities. It secures occupancy and strengthens the planning case.

Capex-light partners

ESCO solar PPA, shuttle operator, cafe / laundry concessions and naming sponsors move about GHS 4m of cost off the balance sheet.

The next 90 days

From award-winning concept to a bankable, approvable scheme

WEEKS 1-2

Brief & site

Confirm the plot, title and zoning. Topographic & utility surveys. Geotechnical boreholes. Valuation of the land.

WEEKS 2-6

Planning strategy

Pre-application meeting with LaNMMA & LUSPA. Scope the TIA and parking exemption. GCAA height enquiry. EPA screening.

WEEKS 3-8

Market proof

Prove the GHS 20,000 open-market rent: survey across the six campuses, pre-letting and letters of intent from universities and sponsors. Cafe and pharmacy tenants. Solar PPA proposals.

WEEKS 6-12

Scheme design

Fix the plan to the surveyed site. Structural & MEP concept. Fire strategy with GNFS. Stage 3 cost plan $\pm 10\%$.

WEEK 12

Investment decision

Updated appraisal, funding structure (land as equity, patient capital, DFI / bank), and a go / no-go decision on planning submission.

SOURCES

Rents: open-market rent GHS 20,000 per bed (client, Oct 2026); yen.com.gh (17 Sept 2026) private hostels around UG GHS 7,600-21,000+ (four-person self-contained GHS 7,600-12,000; doubles and singles GHS 13,000-21,000+); Pentagon 4-in-1 GHS 7,392-8,876; Rent Control Department directive of 19 May 2026 freezing 2026/27 hostel fee increases (Citi Newsroom). Demand: UG Vice-Chancellor via GhanaWeb (45,000 students vs 25-30k beds); Graphic Online (UG-GIIF 10,000-bed PPP, Mar 2026); News Ghana (hostel market, 2026). Costs: S&B BEPCO, Construction costs Ghana 2026 (GHS 8,500-12,000/m² mid-range residential R+4 to R+8); AECOM Africa Cost Guide 2024/25. Macro: Bank of Ghana interbank rate GHS 11.67-11.77/USD (Oct 2026); Ghana Statistical Service CPI 5.2% (Sep 2026); VAT 20% unified rate from Jan 2026 (GRA via VATupdate); EY Ghana tax alerts (residential VAT exemption). Planning: LUSPA Revised Zoning Guidelines & Planning Standards (2025, published 2026). Climate & solar: Climates to Travel (Accra), Global Solar Atlas (Ghana). Full links are in the Excel "Sources" sheet.

IMPORTANT NOTES

This is a Stage 2 concept for discussion. The site is assumed and must be verified by survey and title search. Costs are QS benchmarks at Q4-2026 prices, excluding finance, and must be market-tested. The base rent of GHS 20,000 per bed is the client's open-market figure and must be proven by pre-letting. The appraisal is unlevered, pre-tax and indicative, not investment advice. Visualisations are AI-assisted concept images. Approvals are not assured, and the density strategy needs early engagement with the planning authorities.

THE LOOM

Woven for Wisdom.

Six universities. Eight hundred students. One woven community on half an acre in Madina.

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