PORTFOLIO / SELECTED WORKS

2023 - 2026

Sengly Silamongkul

ARCHITECTURE + TECHNICAL DESIGN

PHNOM PENH / CAMBODIA

About me

With the Edobashi physical model, Mie University

Sengly Silamongkul

ARCHITECTURAL DESIGNER

Japan-educated architecture and engineering graduate based in Phnom Penh. My work connects public-space design with precise architectural documentation and materials research. I bring practical AutoCAD experience, an interest in construction coordination, and a careful approach to communicating how buildings work.

EDUCATION

2026

Mie University

Bachelor of Engineering in Architecture / Japan

2024

Nihon Kogakuin

Architecture Design / Japan

PRACTICE

PH Construction / Peng Huoth Group

Architectural internship / June - August 2026

Architectural plans, structural/MEP coordination and AutoCAD construction details and shop drawings.

WORKING TOOLS

AutoCAD / Vectorworks

D5 Render / Photoshop

Revit: developing capability

LANGUAGES

Khmer: native

English: professional / TOEIC 890

Japanese: conversational / working

Selected works

Design, context and construction.

Architecture from the first concept to the detail. Seven projects connect original design, urban intervention, material testing and collaborative practice.

FJCEC

ORIGINAL DESIGN / ACADEMIC

From a cultural brief to an architectural proposal.
Exhibition, learning and gathering around a shared courtyard.

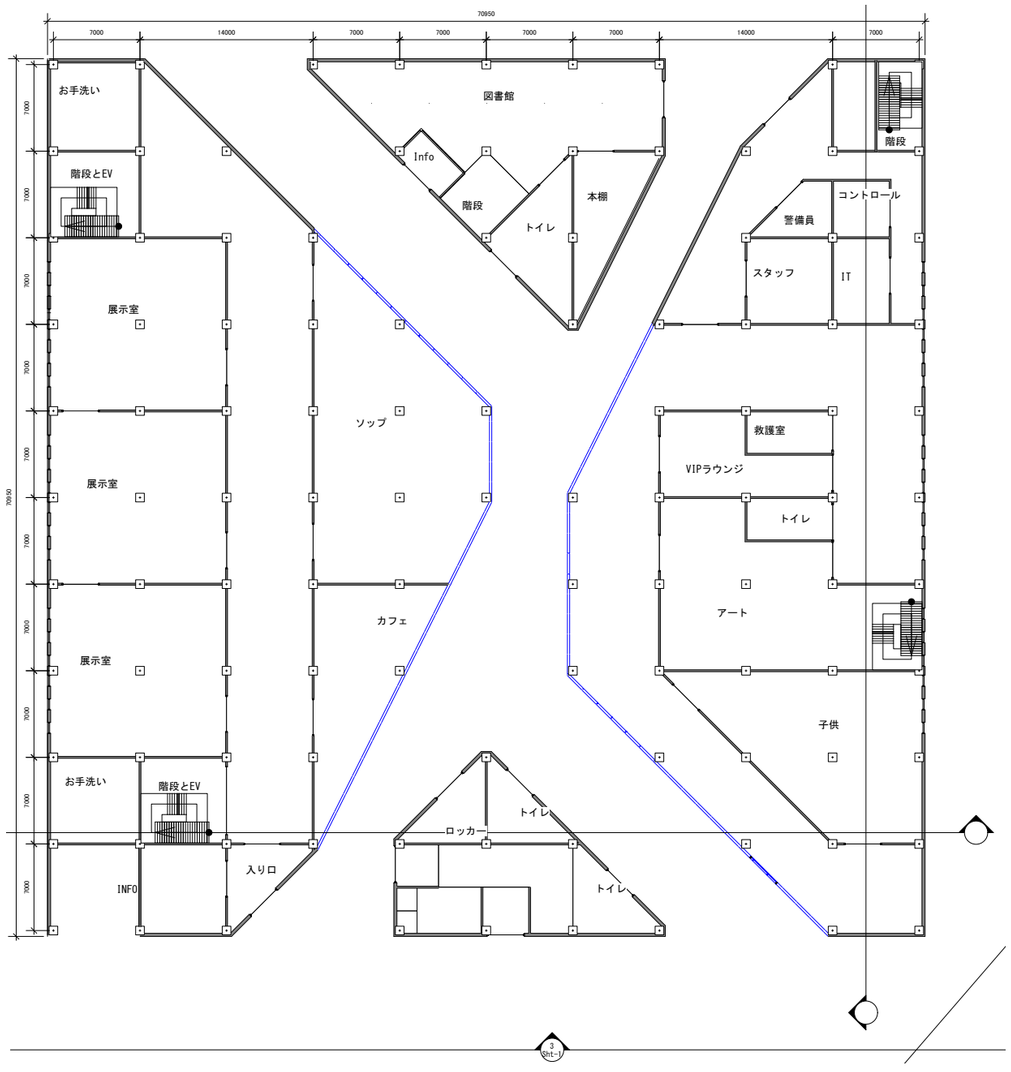
A shared place for cultural exchange

Nihon Kogakuin / Haneda area, Tokyo / 2023 - 2024

Courtyard and roofscape / architectural visualization

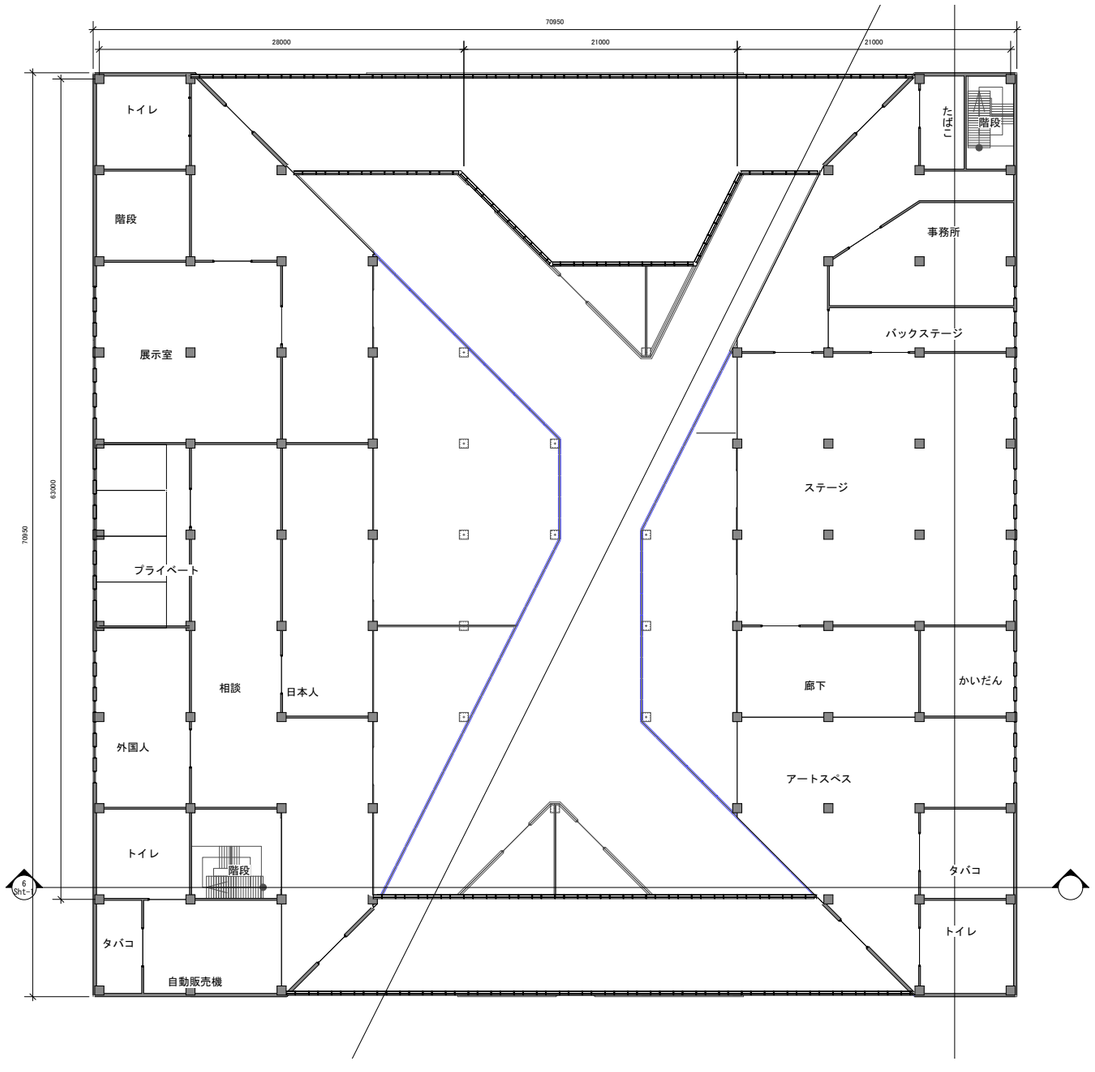
Program around an open courtyard

The central void creates a clear meeting point. Public rooms line its edges, while stairs and support functions sit within the surrounding volumes.



01 / GROUND FLOOR

Exhibition / library / cafe / information / support

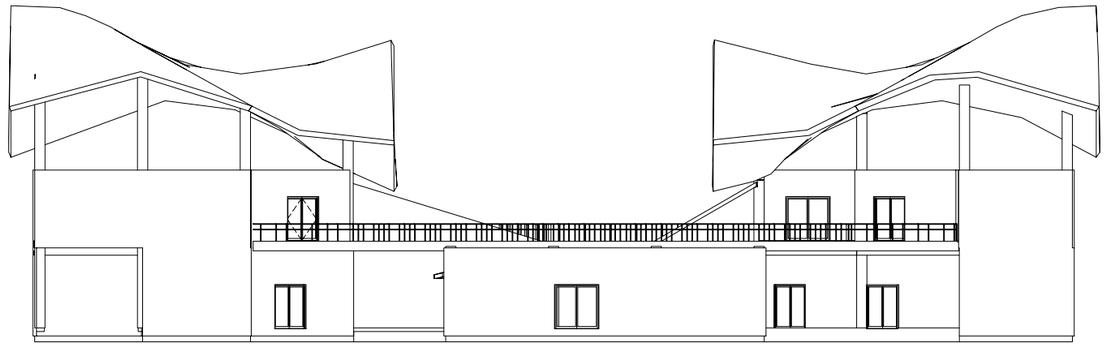


02 / UPPER FLOOR

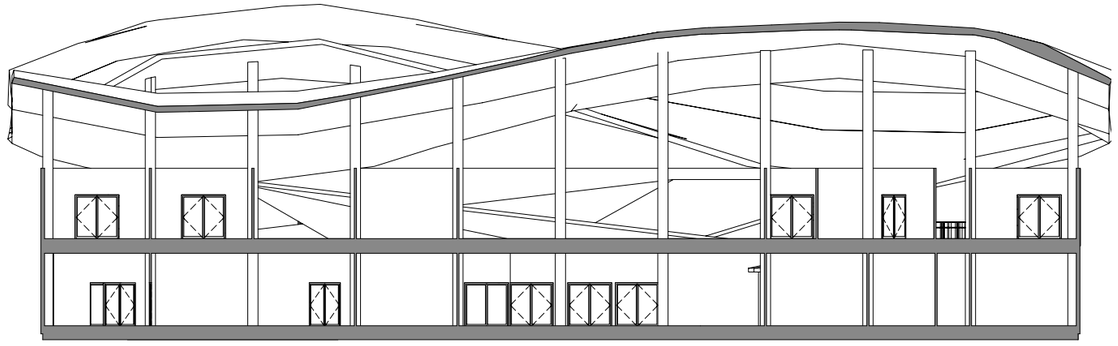
Consultation / offices / stage / art space / terraces

Drawings at portfolio scale. Refer to written dimensions.

Roof, section and spatial experience



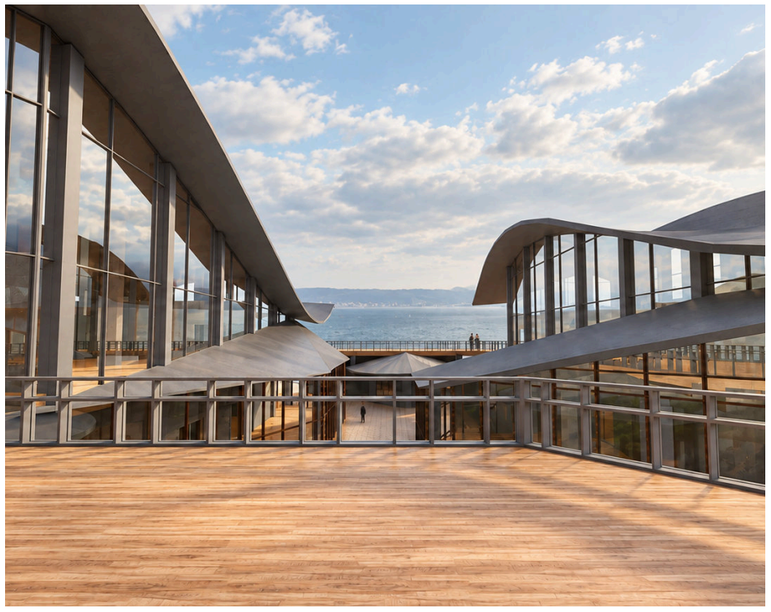
SECTION STUDY 01



SECTION STUDY 02

Library / material and light

Cafe terrace / gathering



Upper deck / shared circulation

Library, cafe and upper deck / architectural visualizations

Edobashi Crosslink Plaza

EXISTING-SITE INTERVENTION / ACADEMIC DESIGN

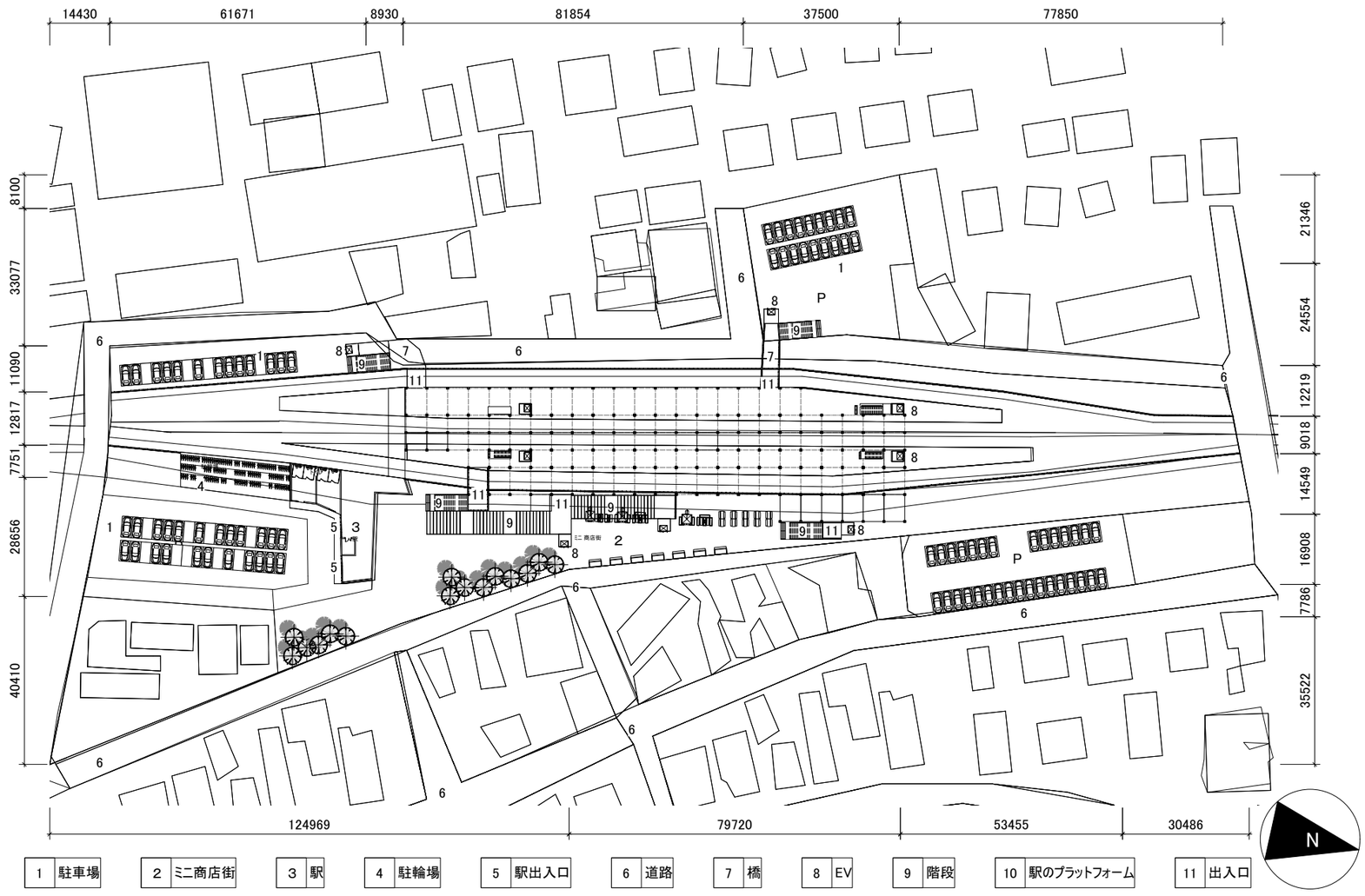
MIE UNIVERSITY / TSU, MIE / 2025 - 2026

Connecting transport and everyday life

The existing railway and urban edges form the starting conditions for a connected public place. Terraces, stairs and shared routes extend the station into the surrounding neighbourhood.

Site study, architectural design, drawings and physical model.

An existing station, a broader civic role



GROUND / SITE PLAN

Station platforms, street access, bicycle parking and surrounding blocks

Drawings at portfolio scale. Refer to written dimensions.

Existing Edobashi station entrance

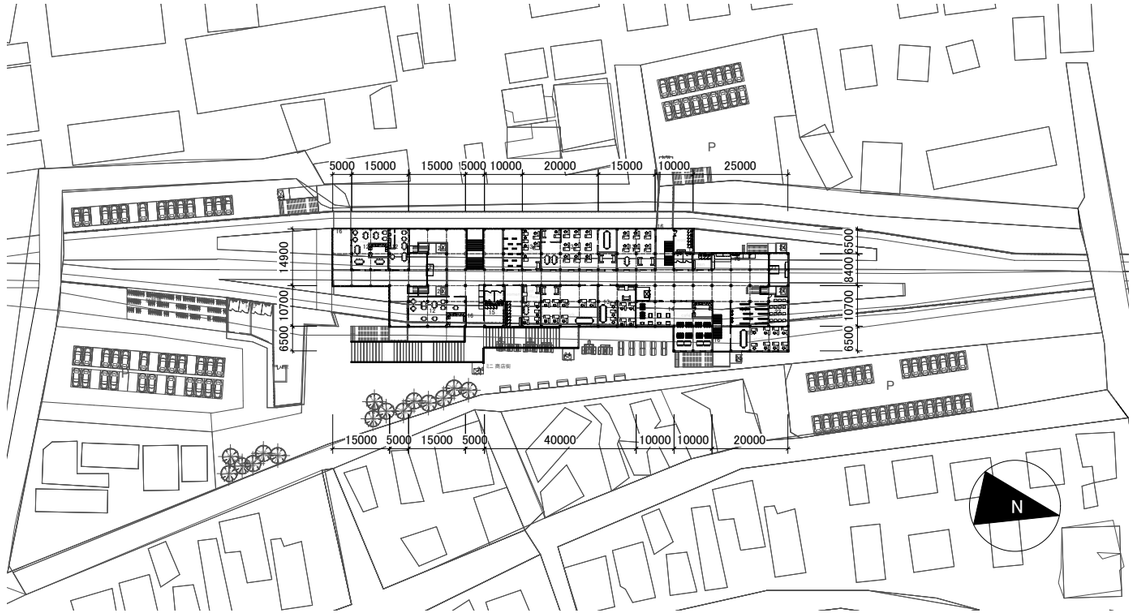
Bicycle access and rail crossing / site observations

INTERVENTION

Keep the station as the point of arrival. Extend public movement through elevated connections and place daily services along the route.

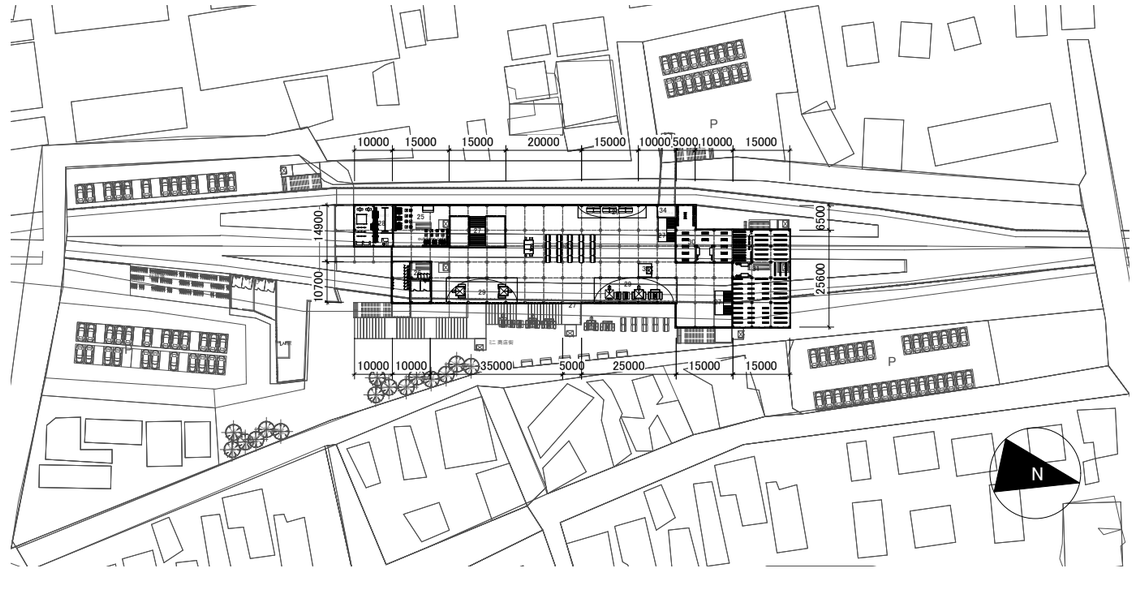
The design addresses commuters alongside students, nearby residents and visitors.

Layered programs and public connections



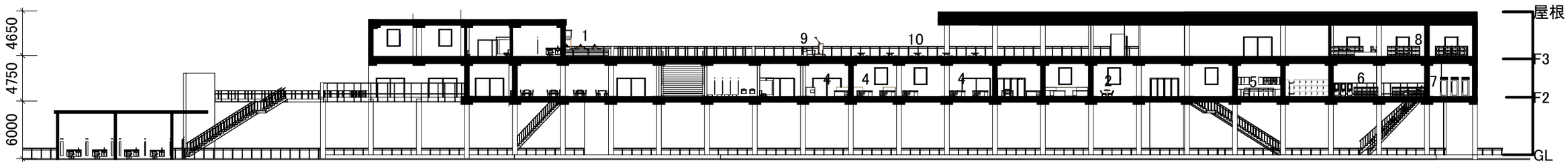
LEVEL 02 / WORK + EVERYDAY SERVICES

Restaurants / workspaces / bookshop / station services



LEVEL 03 / RETAIL + LEISURE

Shops / play / performance / shared seating / terrace



LONGITUDINAL SECTION

Station level below a connected sequence of public and commercial floors

Drawings at portfolio scale. Refer to written dimensions.

A place to pause beneath the public route

Everyday encounters.

LOWER-LEVEL DINING COURT

Food kiosks and shared tables create a place to sit, eat and meet alongside the station.

The space beneath the elevated circulation brings everyday activity into the redevelopment, connecting movement with places to stay.

Dining court / shared seating, kiosks and planted edges

Laterite mortar: making and testing

Prisms and cylinders in the laboratory curing pool

Mie University / 2025 - 2026 / Prof. Noriyuki Mita

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MORTAR SPECIMENS PRODUCED

Can laterite replace conventional fine aggregate while maintaining useful mortar performance?

REPLACEMENT BY MASS

- 0%
- 25%
- 50%
- 75%
- 100%

1:1

Cement : aggregate

Water/cement 0.60

1:2

Cement : aggregate

Water/cement 0.70

1:3

Cement : aggregate

Water/cement 0.80

PREPARATION + CURING

Dry mix 1 min; wet mix 3 min. Prisms: 40 x 40 x 160 mm. Cylinders: 50 mm diameter x 100 mm. Demould after 24 h; water-cure at 20 C and test at 7 and 28 days.

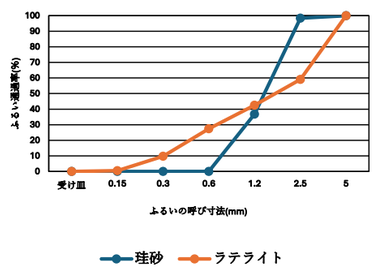


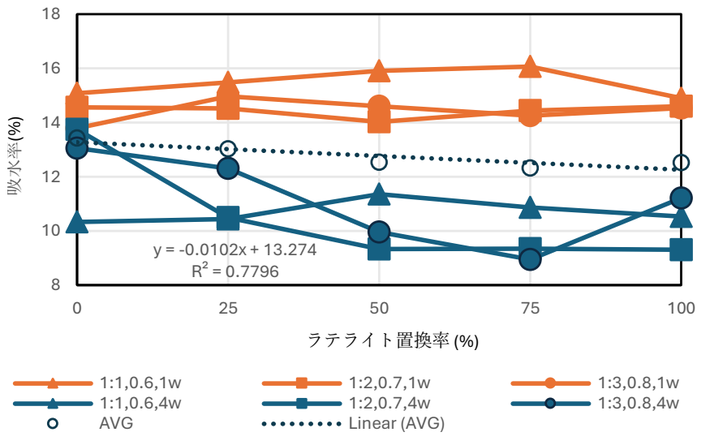
Fig. 1 / Particle-size distribution

Japanese tennis-court laterite was tested as a proxy for Cambodian material. At 100% laterite, a second series replaced 15% of cement with fly ash or slag.

Plain mixes: physical and mechanical response

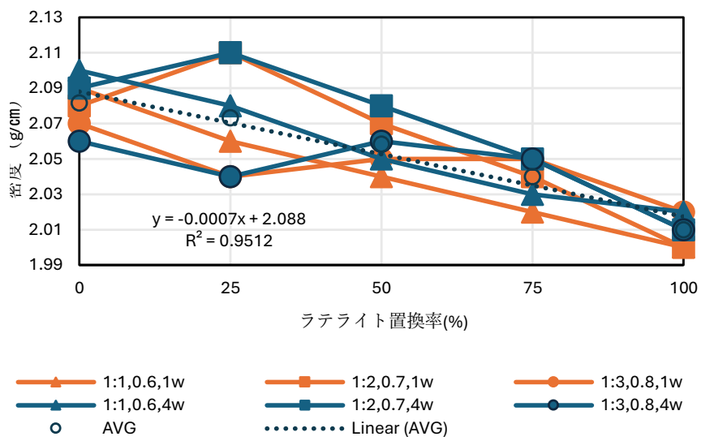
The replacement series reveals different responses in absorption, bulk density and strength. Read each trend within its tested mix and curing age.

Water absorption



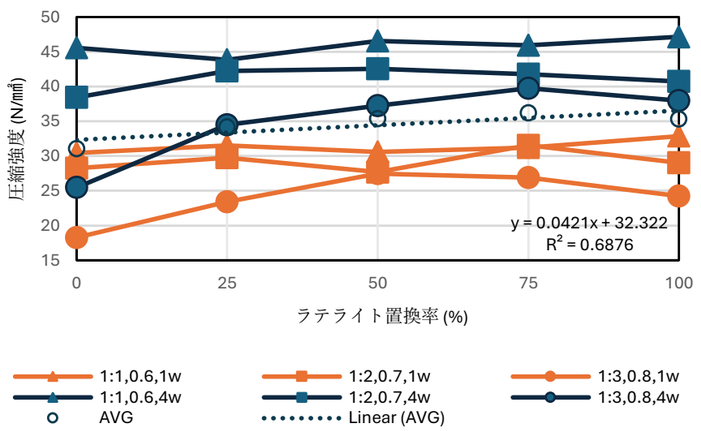
Absorption generally decreased as laterite replacement increased. The thesis proposes that fine particles interrupted the connected pore network.

Hardened density



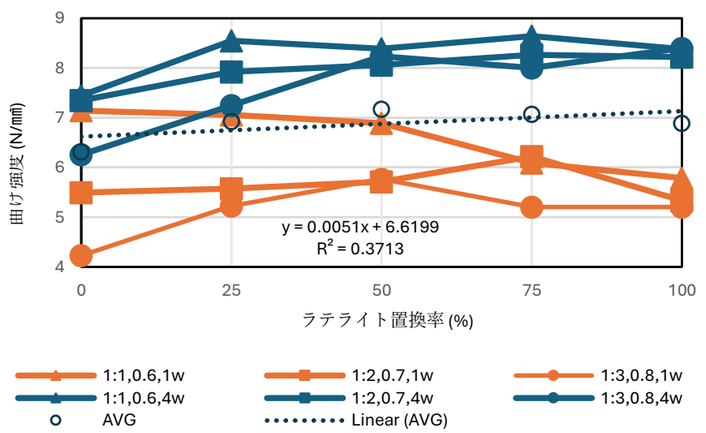
Bulk density declined slightly. Compaction and entrapped air are proposed explanations; the trend does not establish the pore mechanism.

Compressive strength



Strength generally increased with replacement, with responses varying by mix and age. Richer mixes showed stronger performance.

Flexural strength



Bending strength showed a modest upward tendency. The thesis interprets rough aggregate surfaces as a possible contribution to bond and interlocking.

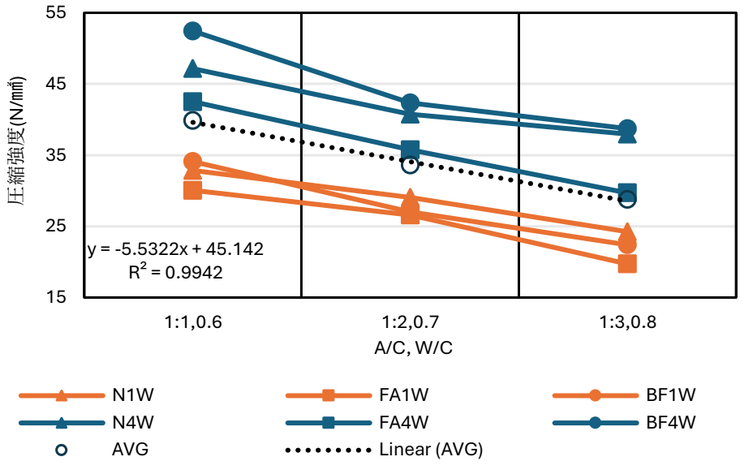
Legend: cement:aggregate ratio, water/cement ratio and curing age. 1w = 7 days; 4w = 28 days.

Original thesis Figs. 3-6. Axes and plotted values retained. Horizontal axis: laterite replacement by mass (%).

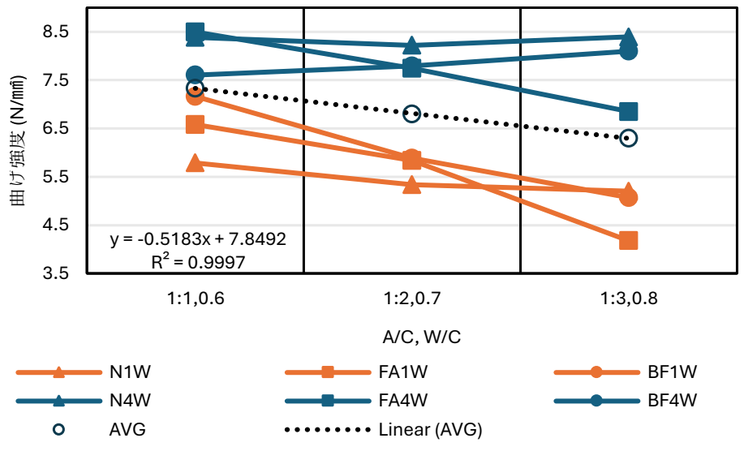
Binder modification at 100% laterite

A second comparison replaces 15% of the cement with fly ash or blast-furnace slag, testing whether binder selection can improve the full-laterite mixes.

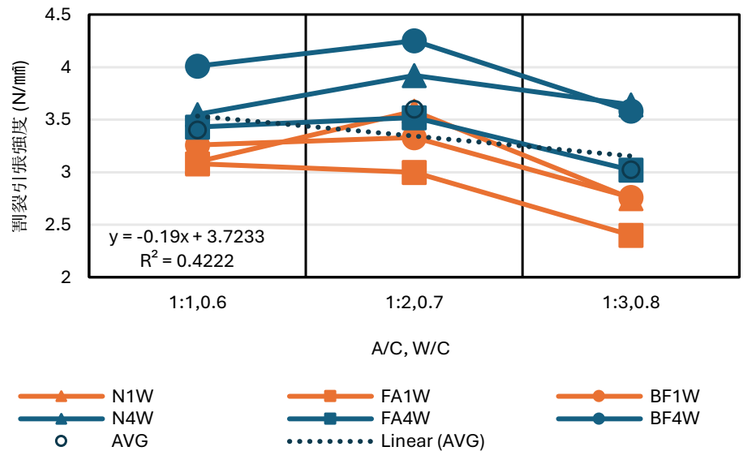
Compressive strength



Flexural strength



Splitting tensile strength



Original thesis Figs. 8-10 / N: plain binder; FA: fly ash; BF: blast-furnace slag. 1W: 7 days; 4W: 28 days.

STRONGEST COMPRESSION RESPONSE

The thesis reports a peak of approximately 54 N/mm2 for a slag-modified mix. BF outperformed the corresponding plain and FA series in compression; performance still varied with mix proportion.

DIFFERENT STRENGTH MEASURES

FA showed a small flexural advantage in the W/C 0.60 group, while BF improved splitting tensile performance. One binder choice should therefore be assessed across several properties.

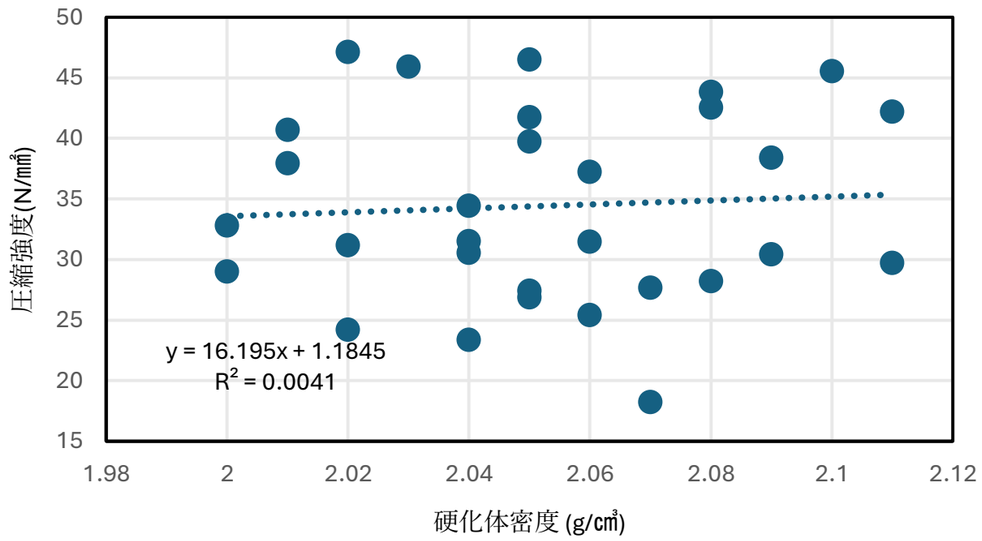
MECHANISM AS AN INTERPRETATION

The thesis proposes pore refinement, mechanical interlocking and internal curing as explanations. These mechanisms are interpretations of the test results, rather than direct microstructural measurements.

Source: submitted thesis, sections 3.4-3.5. Units N/mm2 are numerically equivalent to MPa.

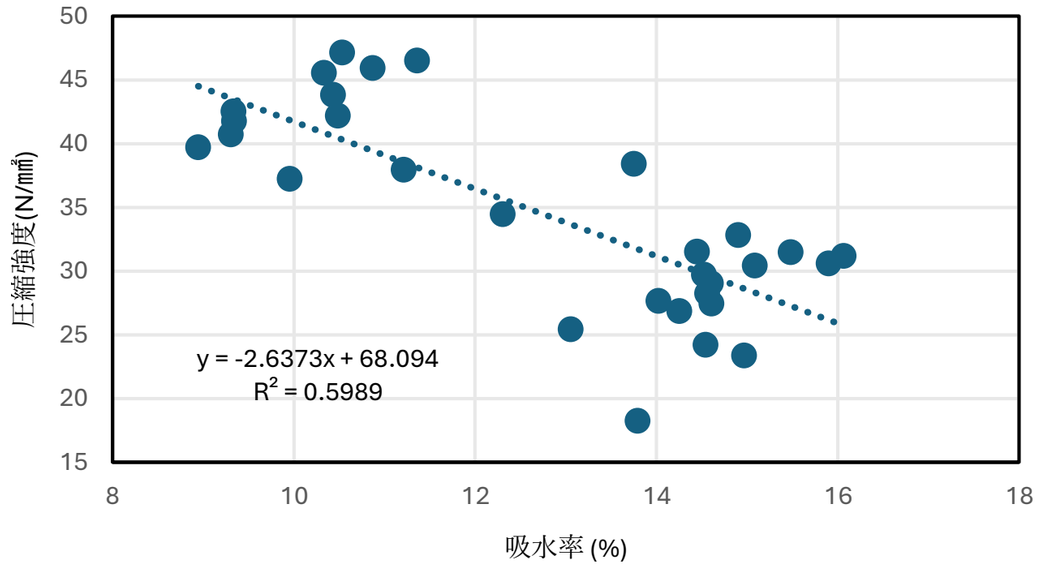
What the evidence supports

Density is a weak predictor in this dataset.



R2 = 0.0041: the fitted linear relationship between hardened density and compressive strength is negligible in these tested mixes.

Absorption gives a clearer relationship.



R2 = 0.5989: higher absorption accompanies lower compressive strength. This is an association within the tested set, not proof of a single cause.

CONCLUSION

Full sand replacement was feasible in selected laboratory mixes. Slag modification improved compression. The study connects material choice, mix proportions and measurable performance.

LIMITS OF TRANSFER

The laterite is a Japanese proxy material. Water/cement ratio changes with cement:aggregate ratio, so comparisons across series combine both effects. Long-term durability and local-source variability remain to be tested.

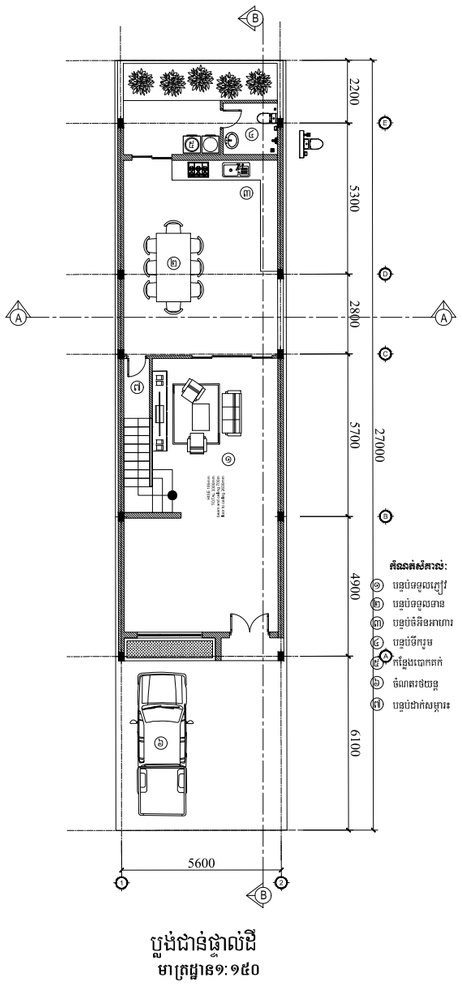
CONTRIBUTION AND NEXT STEP

Experimental preparation, testing, analysis and technical presentation under university supervision. A next research stage would test Cambodian laterite and check durability, workability and field consistency.

Source: Sengly Silamongkul, Experimental Study on Properties of Mortar Using Laterite Sand as Fine Aggregate / Figs. 13-14

Poipet Residential Flat

A narrow residential building organized vertically around a central stair. Architectural planning and AutoCAD documentation developed with a collaborating architect.



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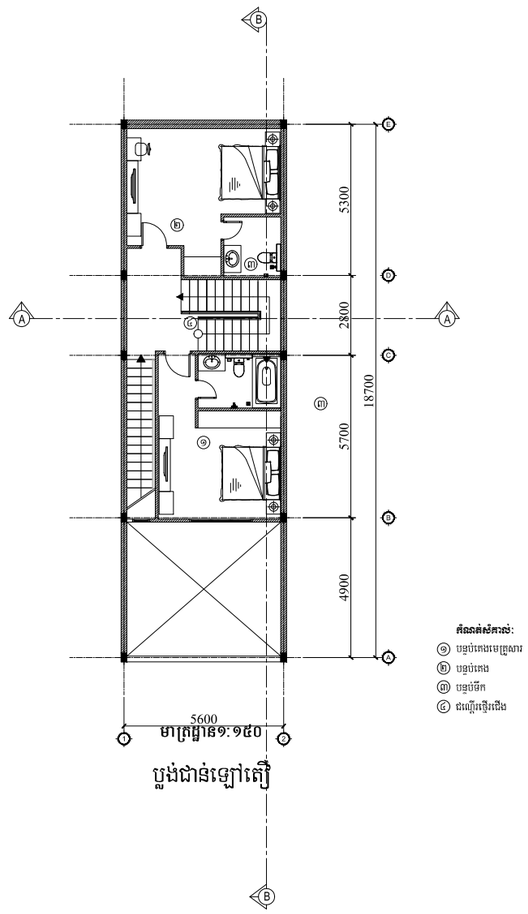
មាត្រដ្ឋាន ១:១៥០



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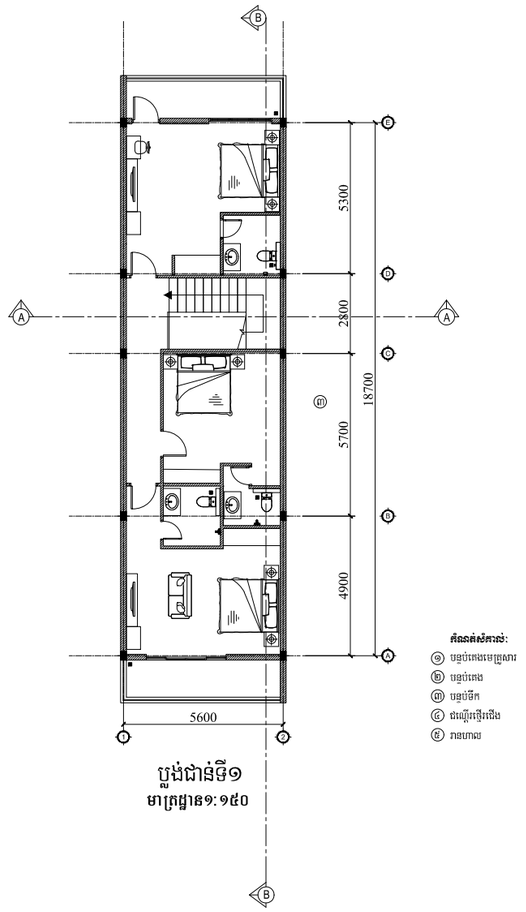

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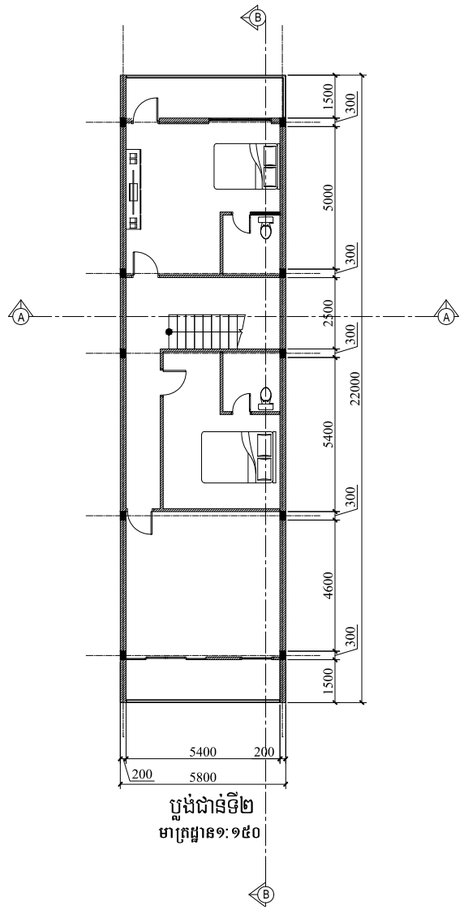


ប្លង់ជាន់ទី២
មាត្រដ្ឋាន ១:១៥០

GROUND

Arrival / parking / living

MEZZANINE

Intermediate residential level

FIRST FLOOR

Bedrooms and shared circulation

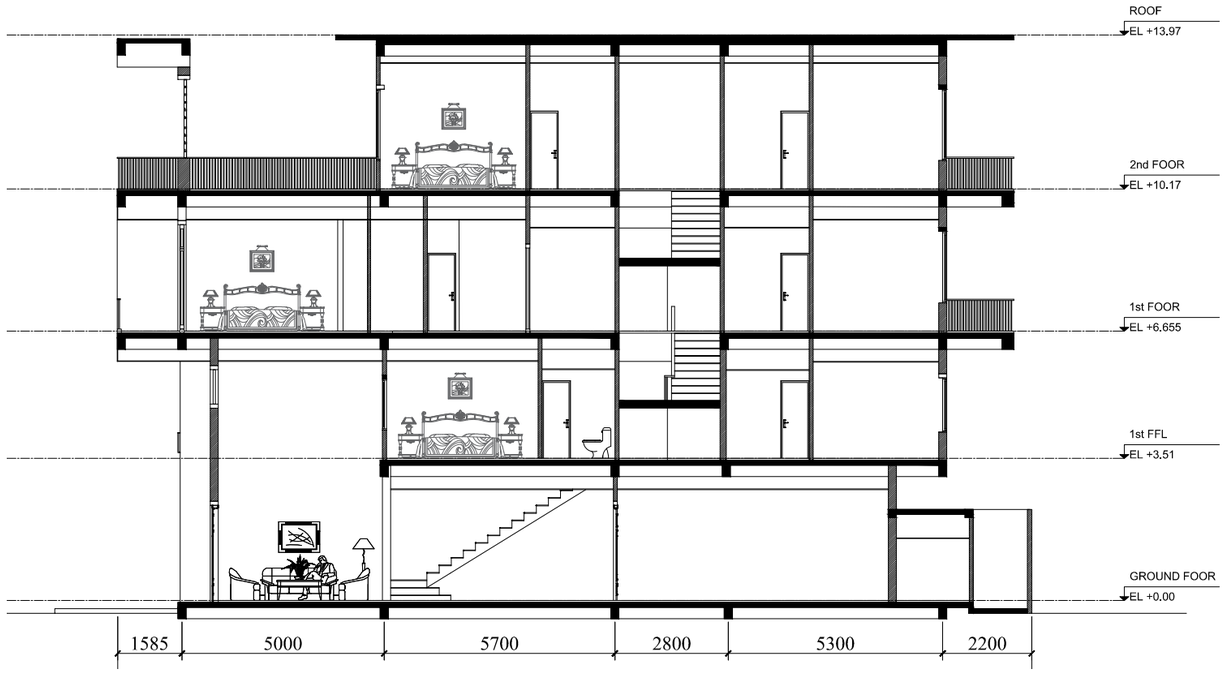
SECOND FLOOR

Upper rooms and terrace

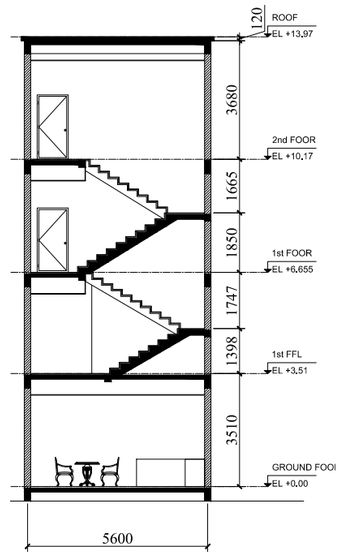
Poipet, Cambodia / 2024 / Role: architectural planning and drawings within a collaboration

Drawings at portfolio scale. Refer to written dimensions.

Vertical organization and facade

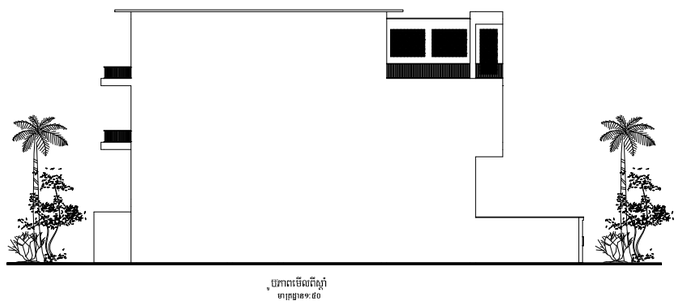


LONGITUDINAL SECTION A-A

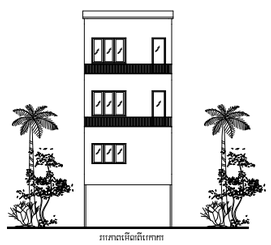


SECTION B-B

FRONT ELEVATION



Side elevation



Rear elevation

Drawings at portfolio scale. Refer to written dimensions.

DOCUMENTATION

Plans, sections and elevations coordinate the floor levels, stair and facade openings within the same drawing set.

Private Villa

PRELIMINARY CONCEPT / JANUARY 2026

A low roof over a shared domestic centre

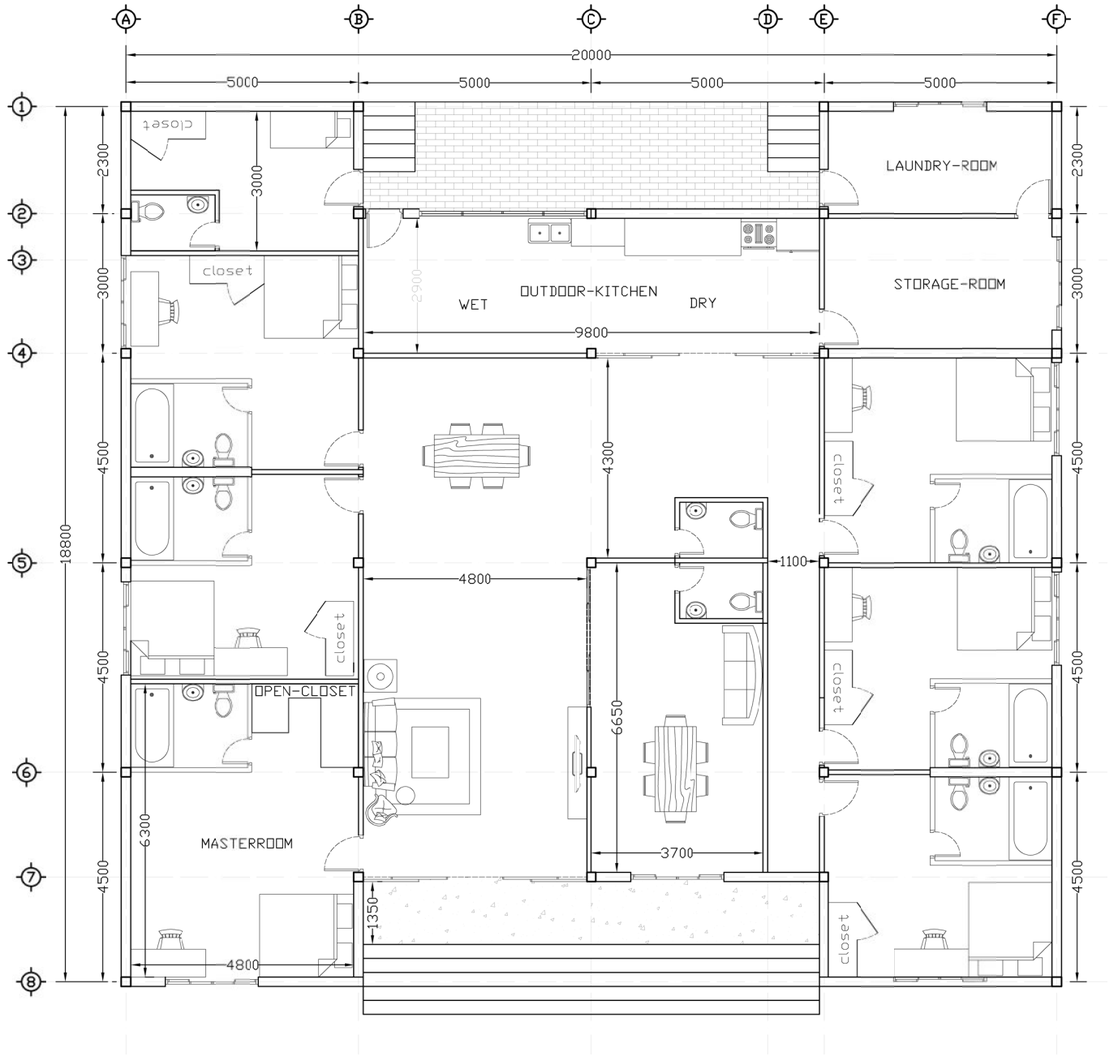
A single-storey concept arranged around shared living and dining, with bedrooms along the outer edges and a sheltered outdoor kitchen to the rear.

My role: architectural concept + full 2D design.

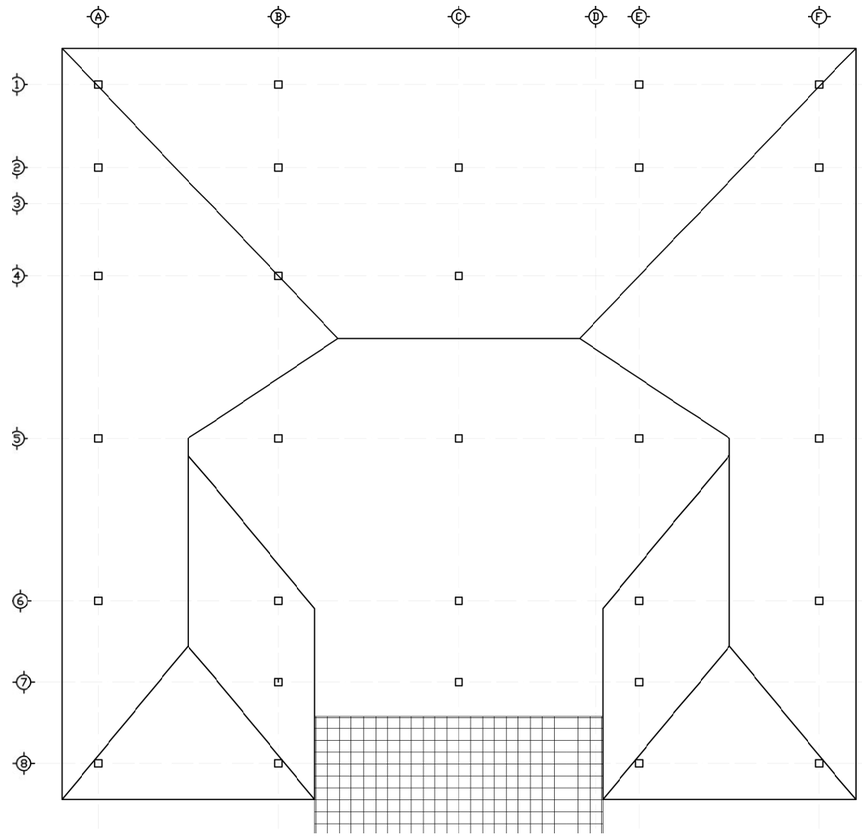
Collaboration: 3D model + preliminary engineering input.

A plan for shared and private life

The supplied concept floor plan and roof plan establish the architectural arrangement before detailed design development.



GROUND FLOOR / CONCEPT PLAN



ROOF / CONCEPT PLAN

Bedrooms frame the shared centre. Front arrival and rear outdoor cooking create two different domestic thresholds.

Original 2D source extracts from 1 (5).pdf and 2 (6).pdf. Preliminary concept drawings; refer to written dimensions.

From the 2D concept to a spatial model

CUTAWAY / RELATIONSHIP OF ROOMS

Rear terrace / outdoor kitchen concept

COLLABORATIVE DEVELOPMENT

I developed the architectural concept and full 2D design. A civil-engineer collaborator developed the SketchUp / 3D model and provided preliminary column, beam and MEP recommendations.

The project remained at an early concept stage. These images communicate the proposed spatial character and arrangement.

Supplied collaborative concept visualizations / architectural design by Sengly Silamongkul; 3D modelling by collaborator

06

Professional Internship

PH CONSTRUCTION / PENG HUOTH GROUP

June - August 2026

Architectural internship

Greenhouse & estate support buildings

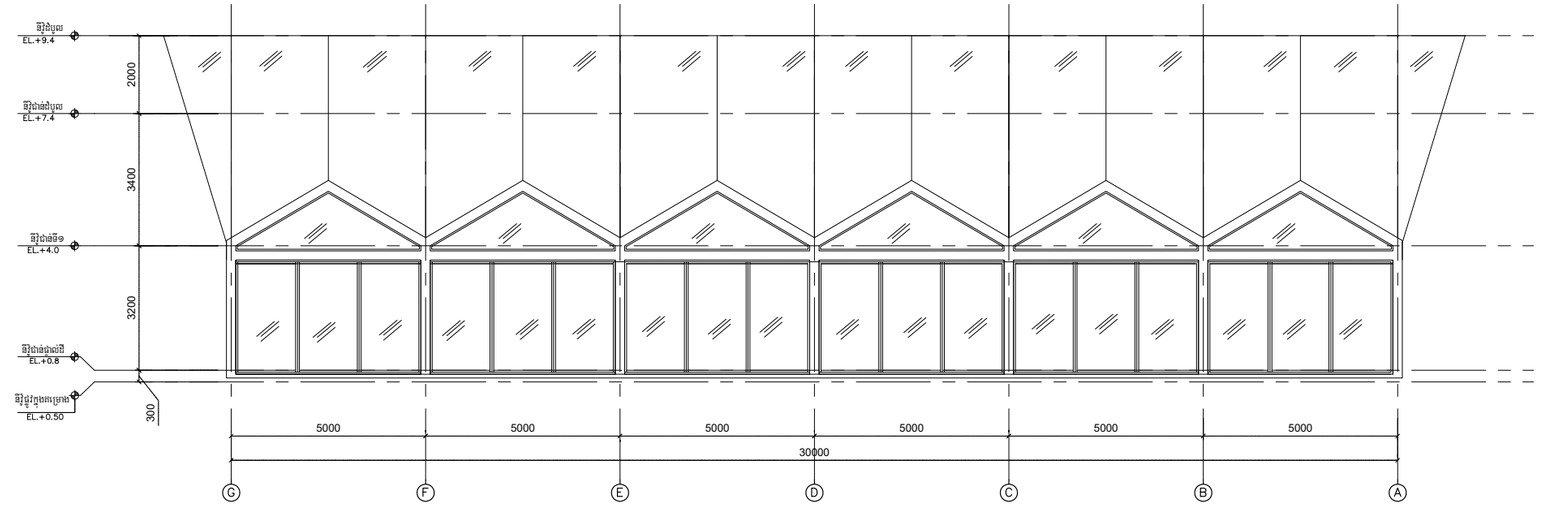
One residential estate

Status: under construction

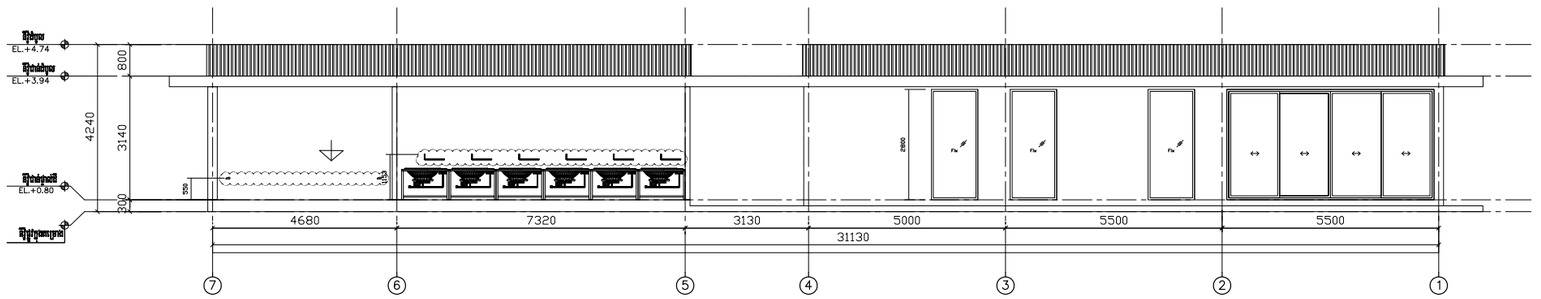
Architectural layout design, AutoCAD drawing development and technical detailing.

Structural coordination and initial MEP pipe coordination within the practice team.

GREENHOUSE + ACCOMMODATION / FACADE



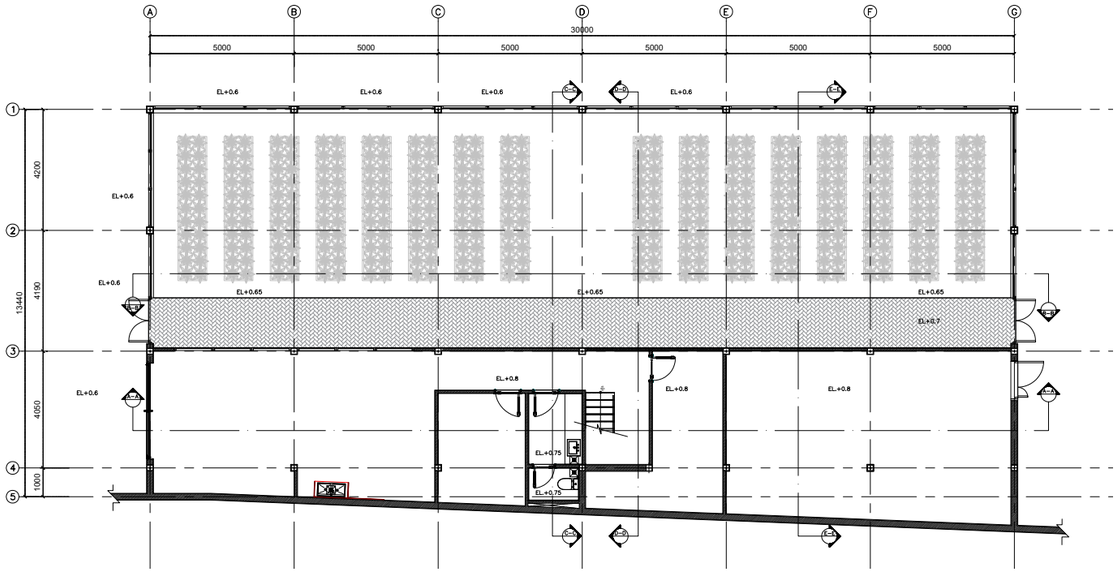
DRIVER + SUPPORT FACILITIES / FACADE



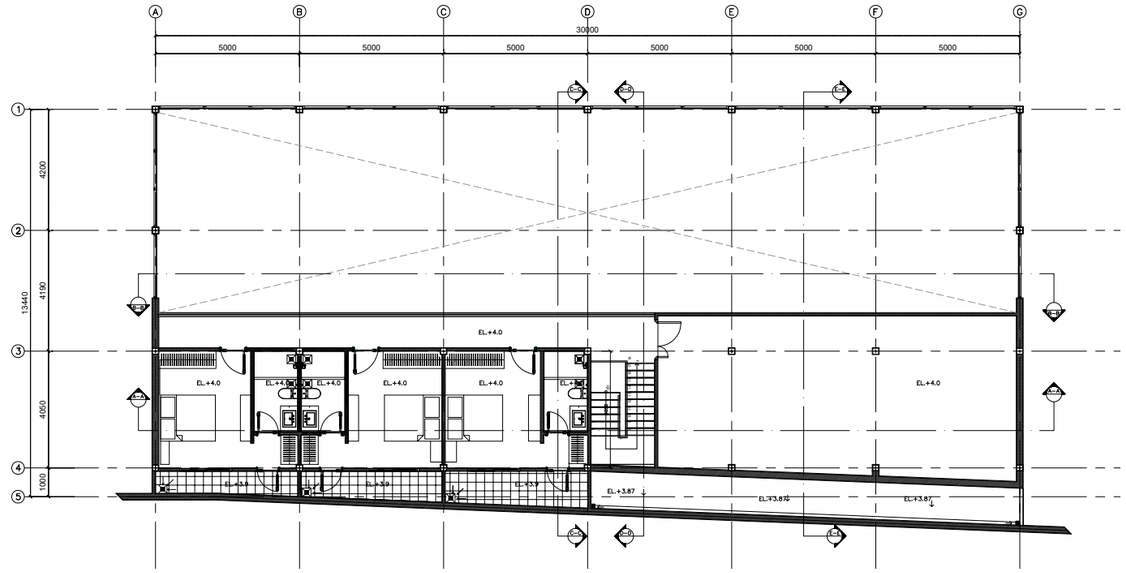
Professional internship work / practice and team authorship retained / original drawing extracts

Greenhouse + accommodation: plans

The drawing set combines cultivation, support space and upper-level accommodation within one building envelope.



GROUND / CULTIVATION + SUPPORT



UPPER / ACCOMMODATION

PLAN ORGANIZATION

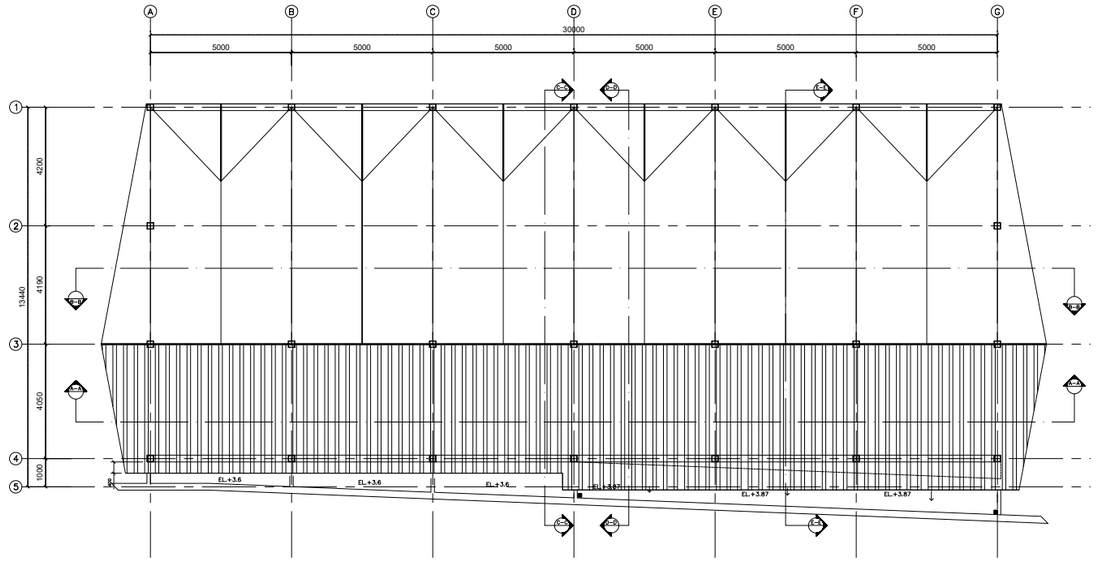
A repeated structural rhythm organizes the long cultivation space. The service and accommodation band creates a different room depth and circulation pattern along one edge.

DRAWING COORDINATION

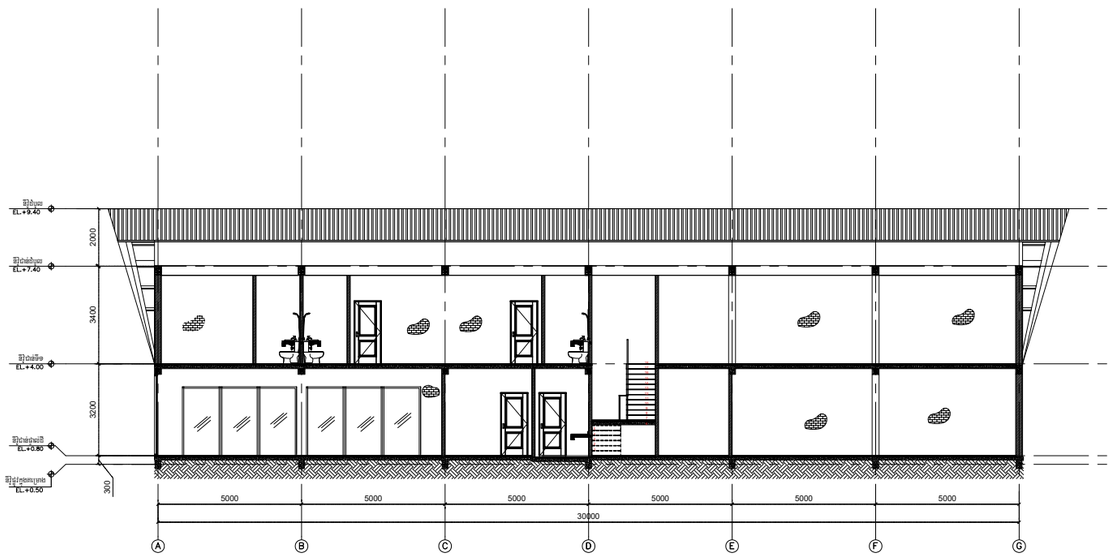
The plans establish room boundaries, openings, stair position and the building grid. Architectural drawings were developed alongside structural coordination and initial MEP discussions.

Source: supplied greenhouse set, sheets 1-2. Drawings at portfolio scale; refer to written dimensions.

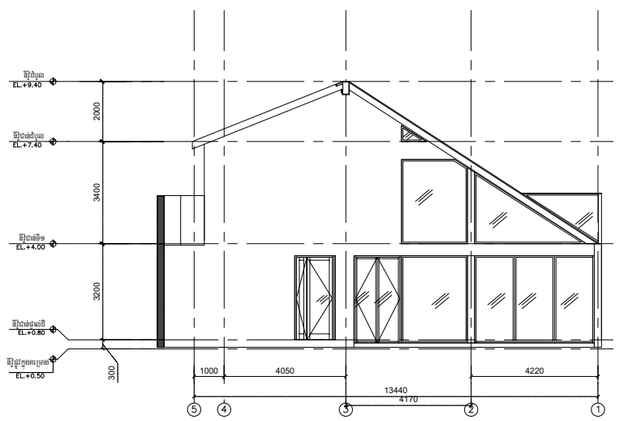
Greenhouse: roof, elevations and section



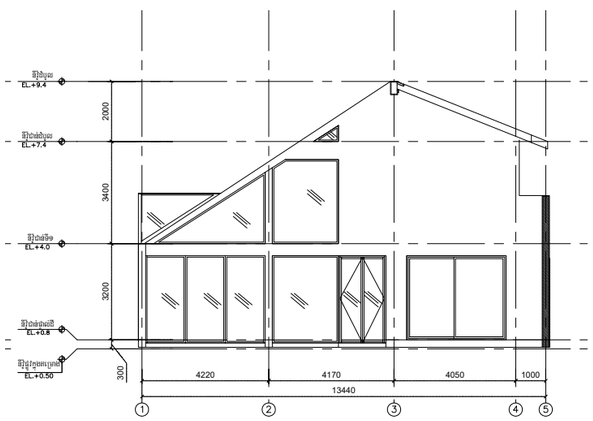
ROOF / GRID + ROOF GEOMETRY



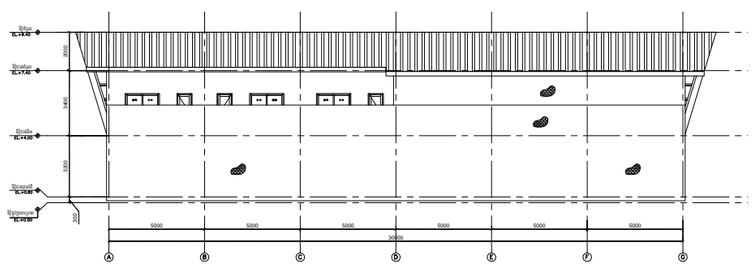
LONGITUDINAL SECTION / LEVELS



END ELEVATION 01



END ELEVATION 02

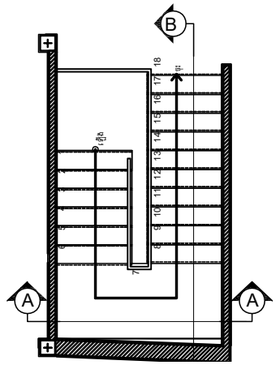


REAR ELEVATION

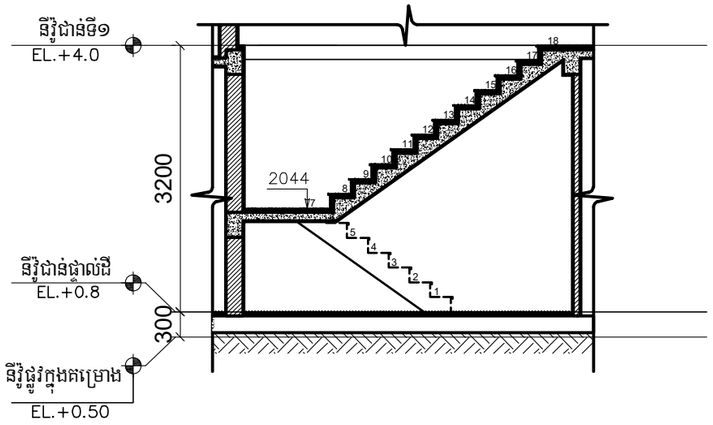
Source: greenhouse sheets 3, 4, 6 and 8. Original grid, roof geometry, levels and openings retained.

Greenhouse: stair and sanitary details

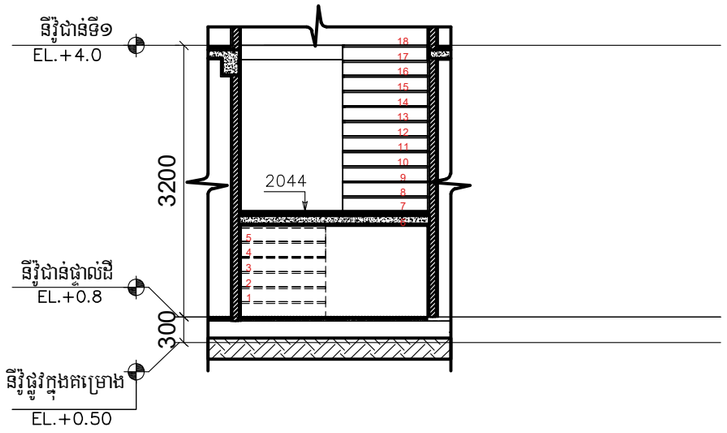
Enlarged extracts show the relationship between plans, sections, level changes and fixture positions.



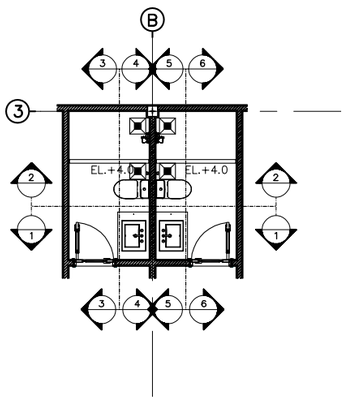
STAIR PLAN



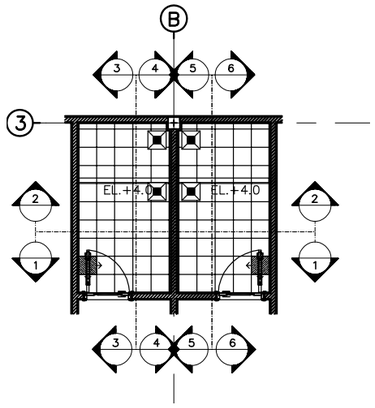
STAIR SECTION / LEVELS



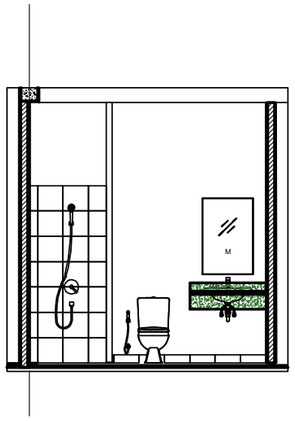
STAIR CROSS-SECTION



WC 2 + 3 / FIXTURES



WC 2 + 3 / FLOOR LAYOUT



INTERNAL SECTION

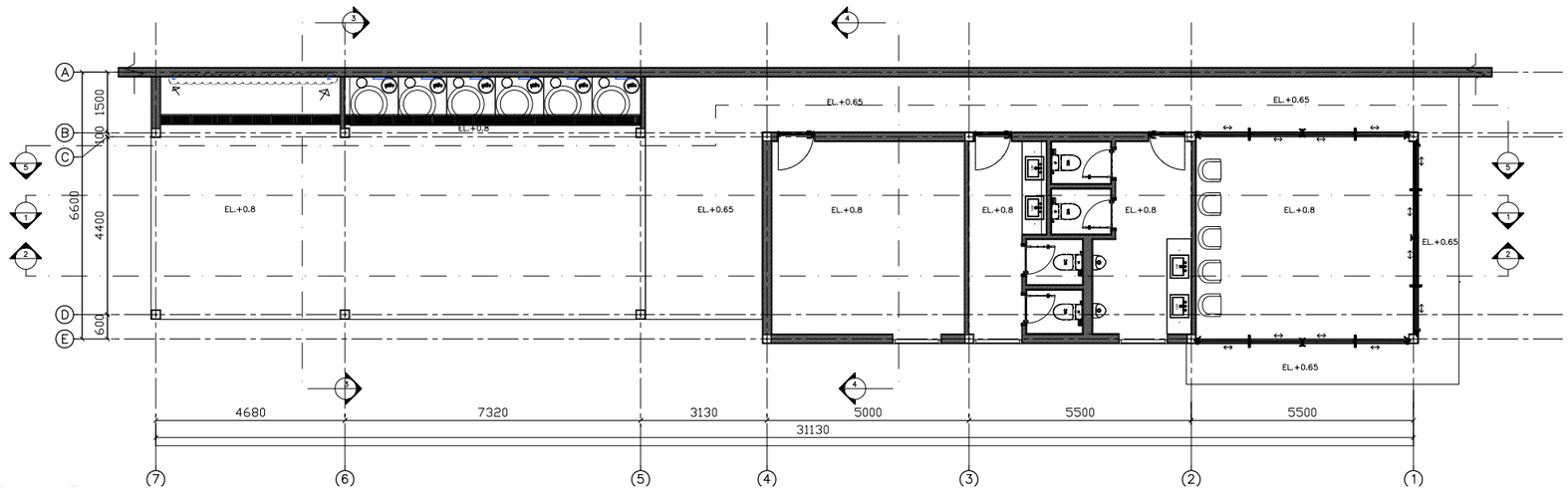
TECHNICAL CONTRIBUTION

AutoCAD documentation connects the overall design to stair dimensions, sanitary layouts and coordination information.

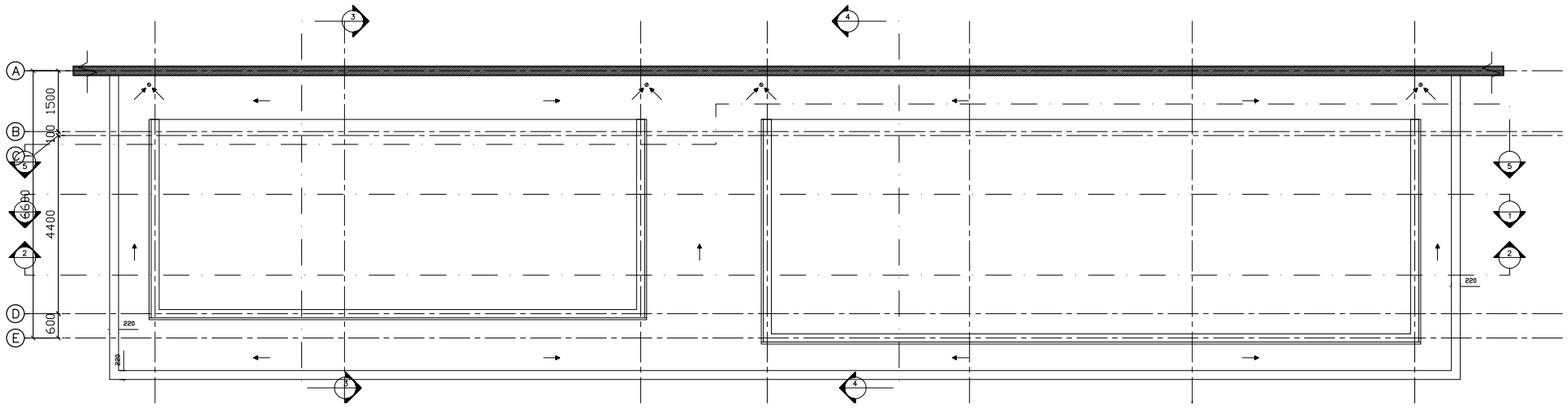
Source: greenhouse sheet 11. Selected details enlarged independently; each drawing is shown at portfolio scale.

Driver facilities: plan and roof

A linear support building brings sitting space, driver accommodation and sanitary facilities into a coordinated arrangement.



GROUND / SITTING + DRIVER + SANITARY FACILITIES



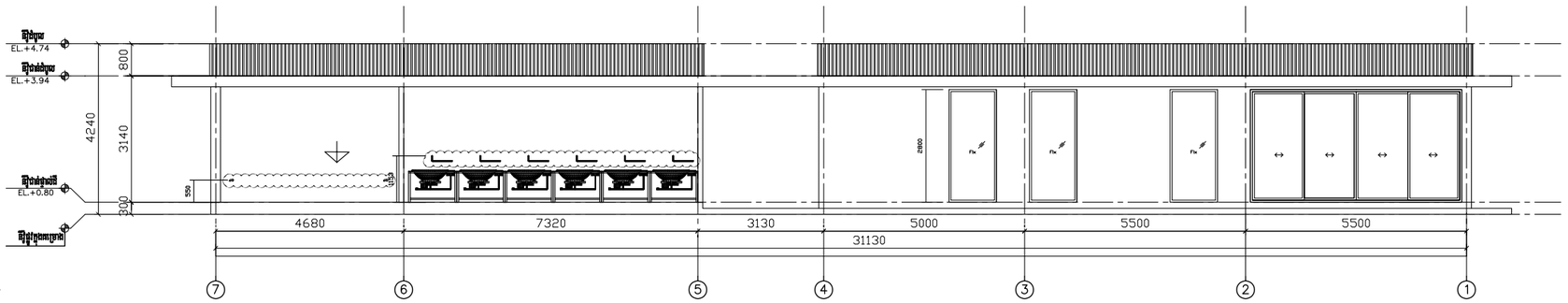
ROOF / OVERALL ORGANIZATION

Source: driver facilities sheet 1. Original architectural arrangement and dimensions retained.

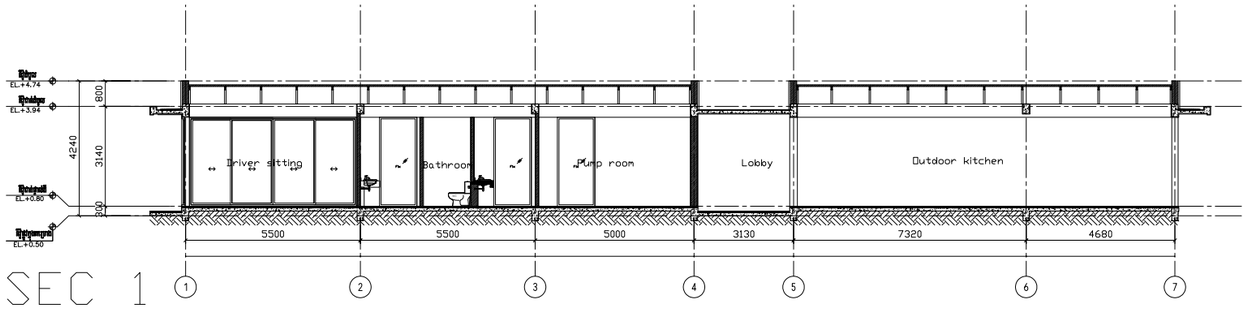
LAYOUT AND COORDINATION

The architectural plan establishes the sequence of spaces and the sanitary core. The roof and structural grid provide a shared reference for section and elevation development.

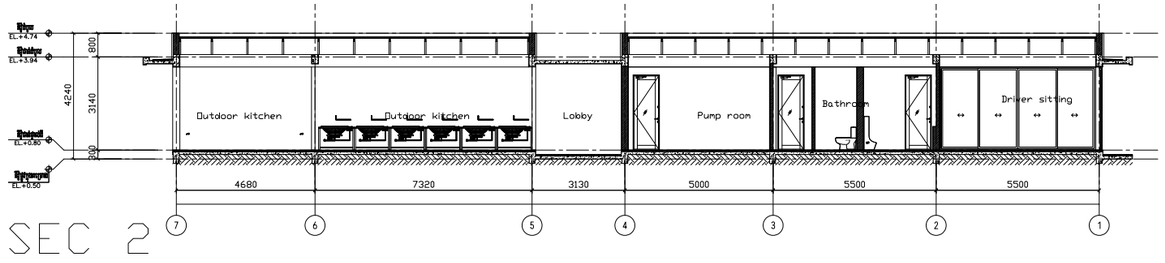
Driver facilities: facade and building sections



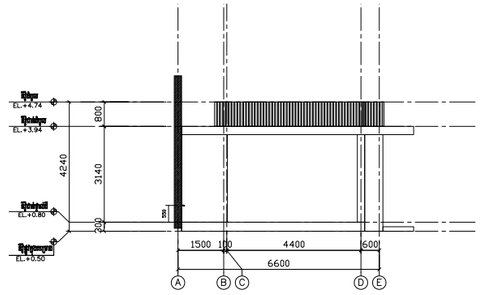
FRONT ELEVATION / SITTING + SUPPORT BUILDING



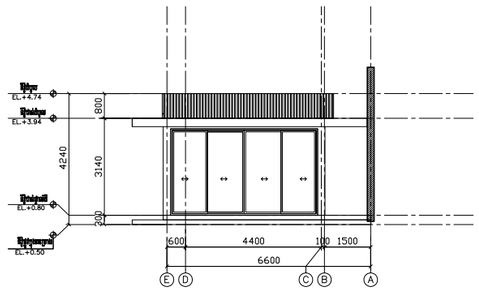
SECTION 01 / ROOMS + LEVELS



SECTION 02 / SANITARY EDGE



END ELEVATION 01

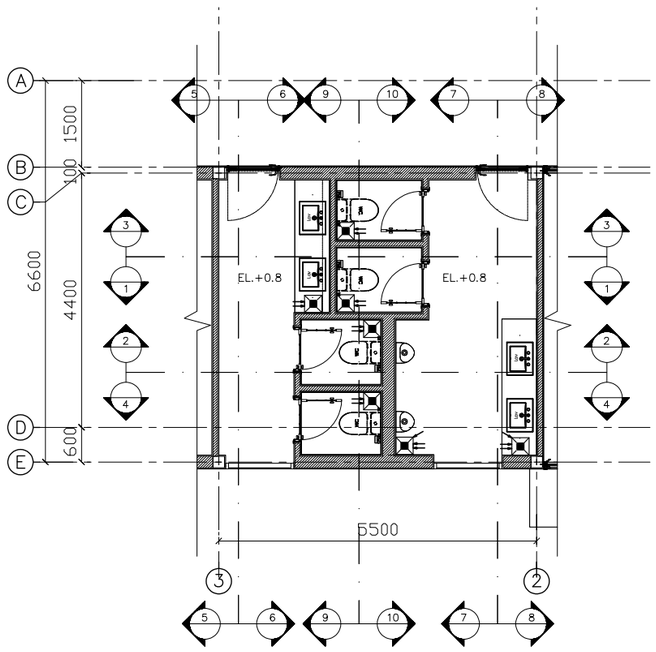


END ELEVATION 02

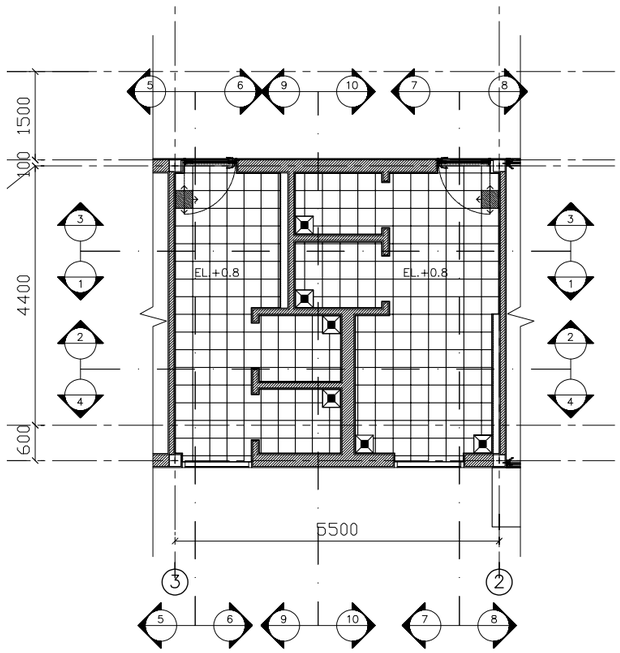
Source: driver facilities sheets 2-3. Drawings at portfolio scale; refer to written dimensions.

Driver facilities: the sanitary core

The bathroom package moves from fixture planning to floor layout and internal sections, giving the technical work room to be read.



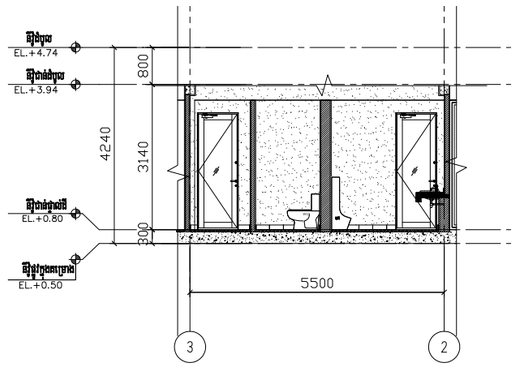
FIXTURE PLAN



FLOOR LAYOUT

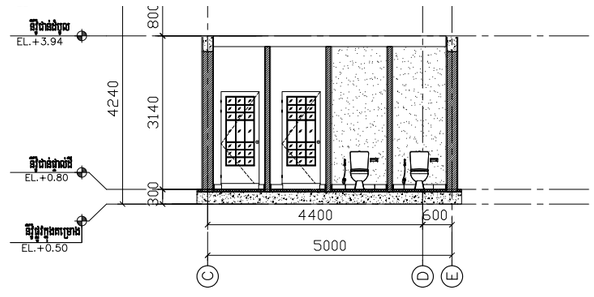
MY CONTRIBUTION

Architectural layout, AutoCAD drawing development and sanitary detailing. Initial MEP coordination addressed pipe routes; structural coordination aligned the architectural and engineering work.



BATHROOM SECTION

Source: driver facilities sheets 5 and 8. Internship work within the PH Construction / Peng Huoth Group team.



INTERNAL ELEVATION / FIXTURES

Tiny House

Small footprint.
A complete interior.

ACADEMIC / PLANNING + VISUALIZATION

A compact two-storey house uses vertical connections to create several distinct domestic settings. The study brings sleeping and service space together below an upper living level and loft.

DESIGN FOCUS

Compact residential planning, sectional relationships and material expression. The render set describes the home from overall form to everyday use.

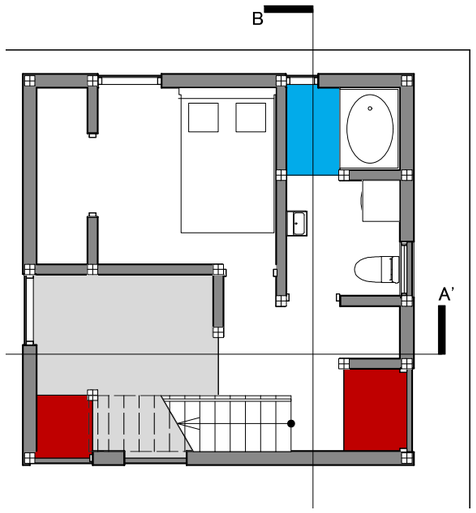
VISUALIZATION APPROACH

Five views explore the relationship between compact planning, daylight and material detail, from the exterior envelope to the living spaces, bedroom and sanitary room.

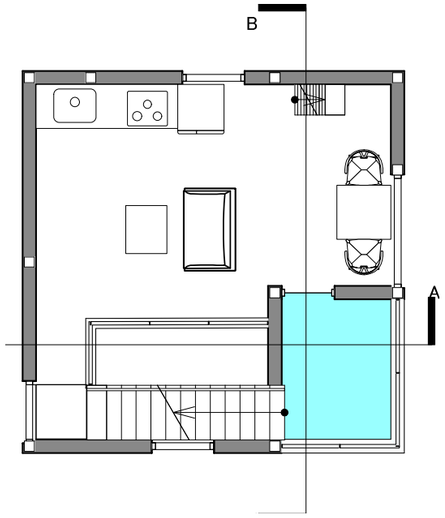
Nihon Kogakuin / academic design study / exterior visualization

Two floors, linked in section

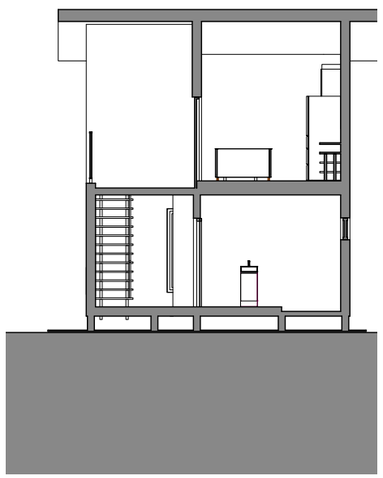
The two principal floor plans show the compact footprint; the section and upper-level view explain how the spaces connect vertically.



GROUND FLOOR



UPPER FLOOR



SECTION A-A

VERTICAL CONNECTION

Sleeping and services below; living, kitchen and dining above. The compact ladder connects the upper room with the loft, while the stair links the two principal floors.

Upper-level view / living space and vertical connection

Material, daylight and daily life

Upper living / white cabinetry, timber surfaces and a compact kitchen

Bedroom / warm timber and soft daylight

Sanitary room / fixture and material study

Living space, bedroom and sanitary room / architectural visualizations

Sengly Silamongkul

ARCHITECTURAL DESIGNER

Architectural design

Construction documentation

Materials research

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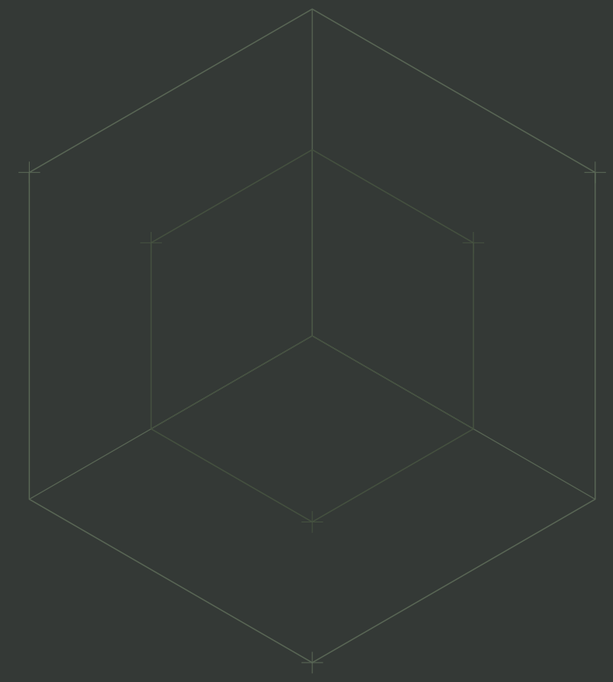

Selected works

2023 - 2026