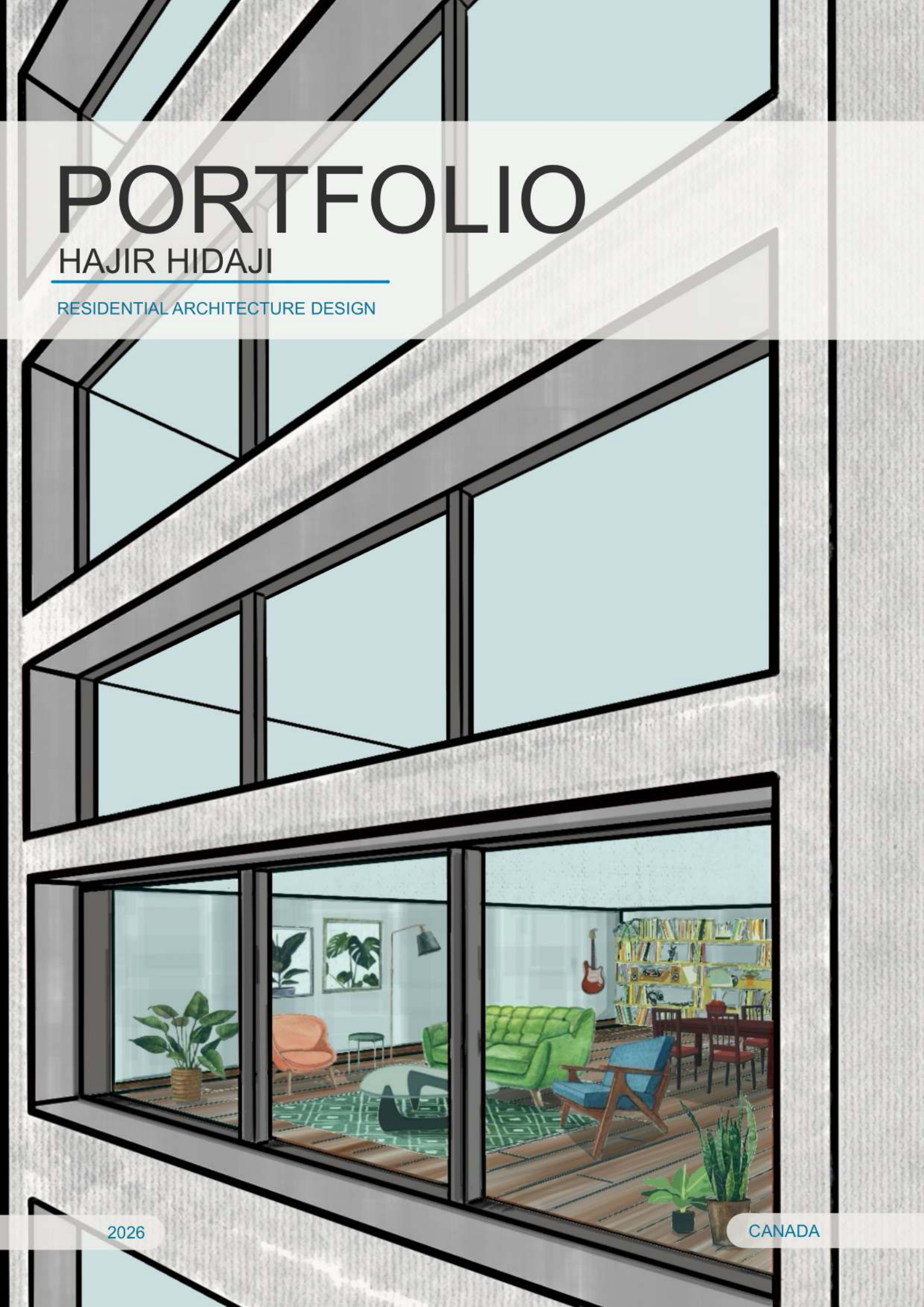
PORTFOLIO

HAJIR HIDAJI

RESIDENTIAL ARCHITECTURE DESIGN



2026

CANADA

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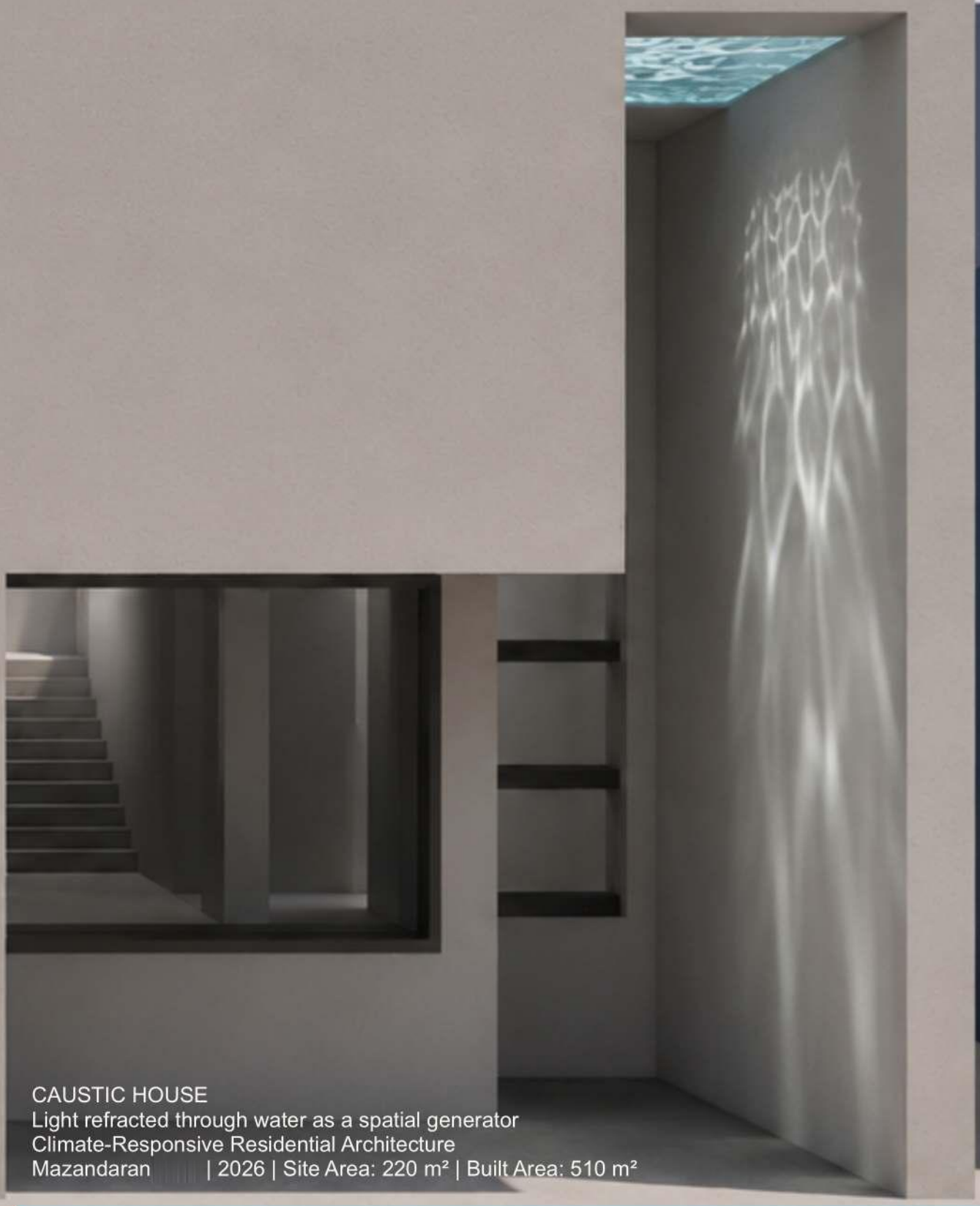
BACKGROUND/SKILLS/TOOLS

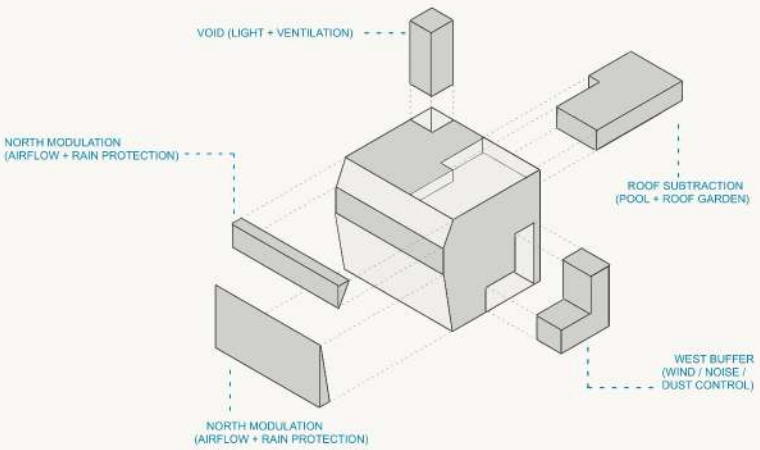
This portfolio was designed and created using AutoCAD, 3ds Max, and Procreate.

CAUSTIC HOUSE



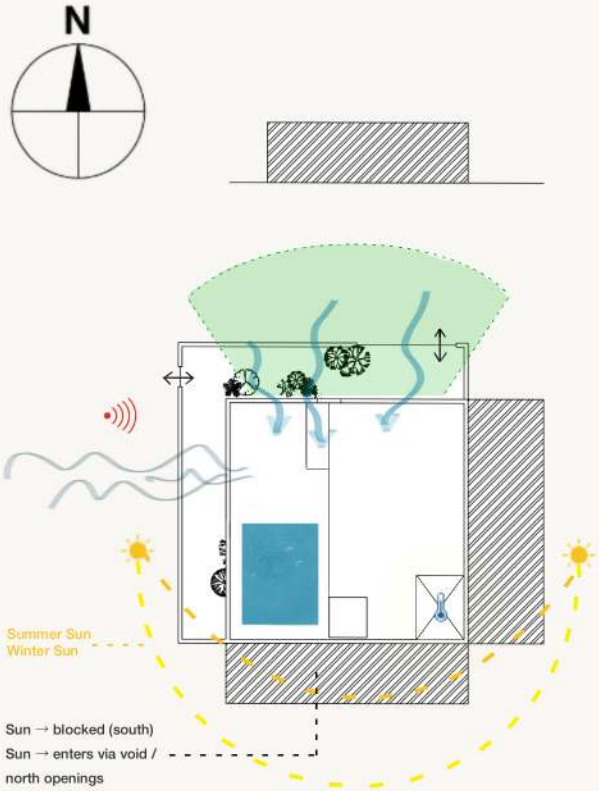
CAUSTIC HOUSE
Light refracted through water as a spatial generator
Climate-Responsive Residential Architecture
Mazandaran | 2026 | Site Area: 220 m² | Built Area: 510 m²

CAUSTIC



SITE ANALYSIS & DESIGN RESPONSE

Volume subtraction
climate + client-driven →



FINAL DESIGN ARGUMENT

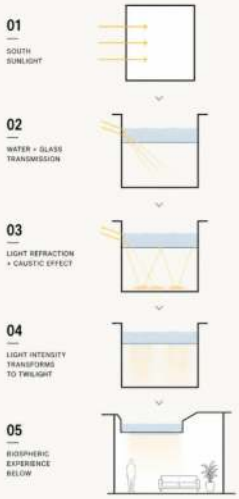
Problem
West exposure to wind, rain, and noise; south and east blocked → limited daylight

Data
Stable diffuse northern light; humid climate conditions

Response
Southeast void, large north-facing openings, glass-bottom pool

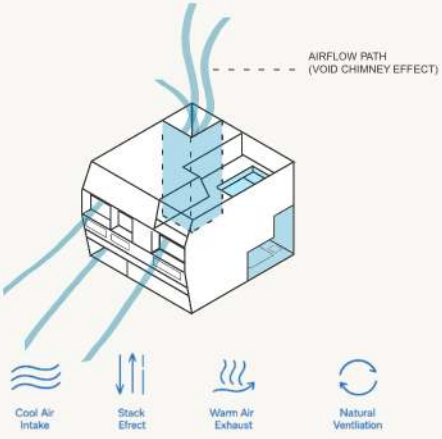
Result
Deep daylight penetration, passive ventilation, reduced western disturbance

CAUSTIC DIAGRAM

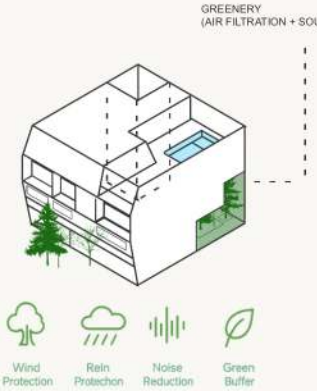


1. SOLAR ORIENTATION
2. WIND DIRECTION
3. CLIMATIC ANALYSIS
4. NOISE ANALYSIS
5. ACCESS & CIRCULATION
6. VIEW ANALYSIS
7. URBAN CONTEXT
8. DESIGN RESPONSE

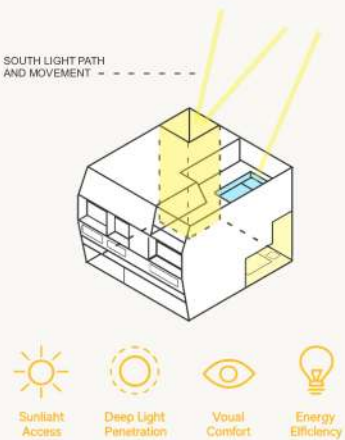




Passive Ventilation



Environmental Buffer



Daylighting Strategy

CAUSTIC

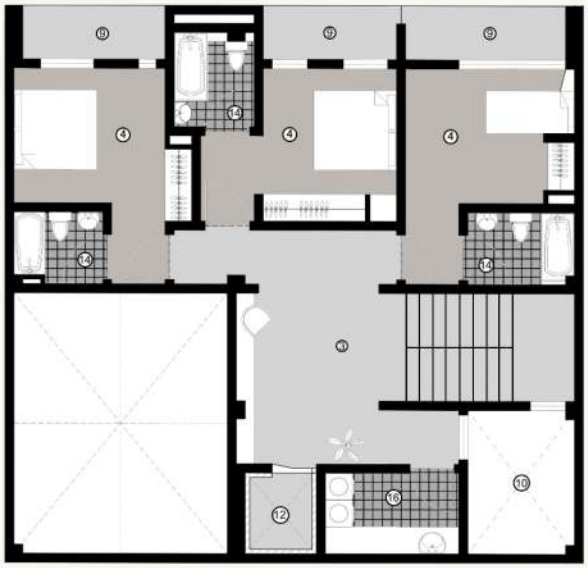
The design uses a modular plan based on function, spatial relationships, and climate response. Spaces are arranged from public to private for efficient circulation and privacy. A glass-floor pool and a void in the south of the house enhance natural light and visual continuity.



. GROUND FLOOR PLAN



. FIRST FLOOR PLAN



. SECOND FLOOR PLAN



.THIRD FLOOR + POOL TERRACE

.SPATIAL LEGEND

1.ENTRANCE
2.LOBBY
3.HALL
4.MASTER BEDROOM
5.KITCHEN
6.LIVING AREA
7.DINING AREA
8.SITTING AREA
9.TERRACE
10.OPEN SPACE
11.STORAGE
12.LIFT
13.WC
14.BATH
15.PARKING
16.LAUNDRY
17.POOL

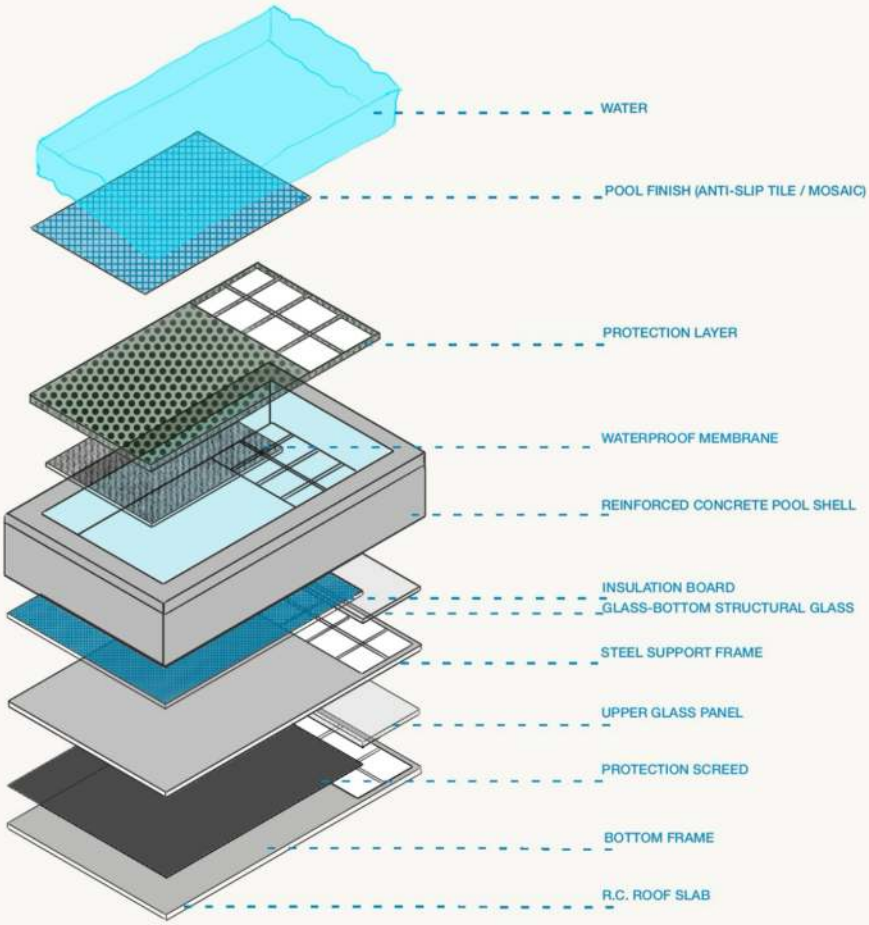
SCALE 1:200

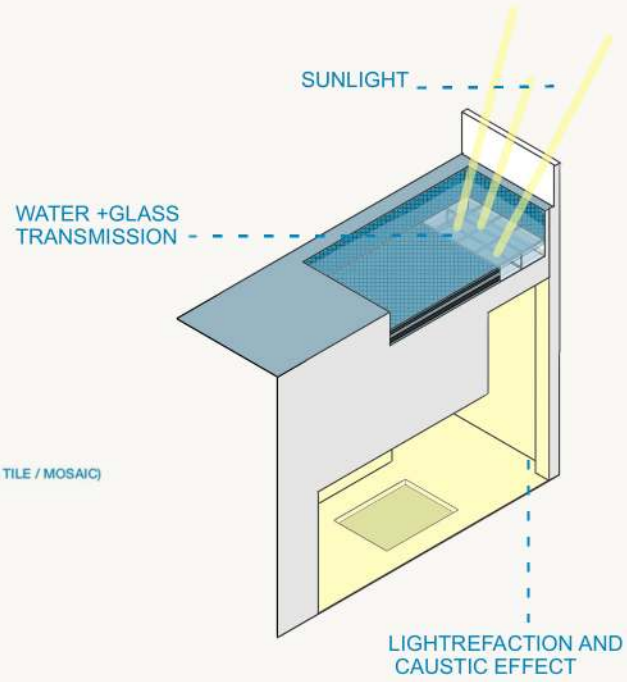




PUBLIC ZONE
SEMI PRIVATE ZONE
PRIVATE ZONE
SERVICE ZONE
CIRCULATION ZONE

CAUSTIC

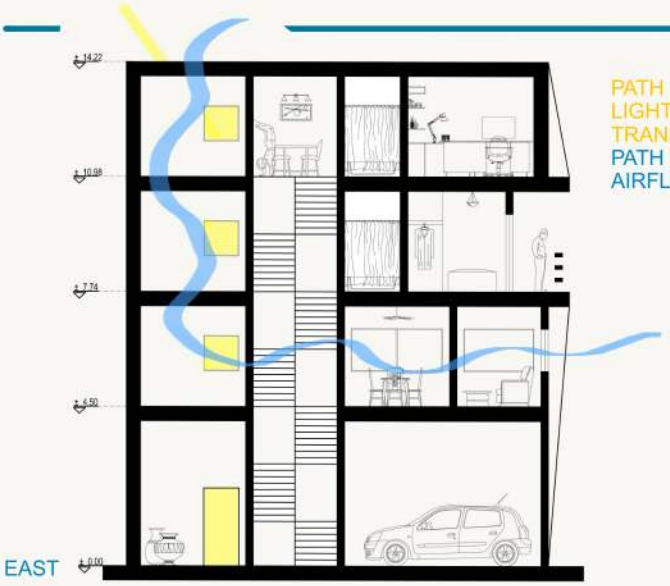


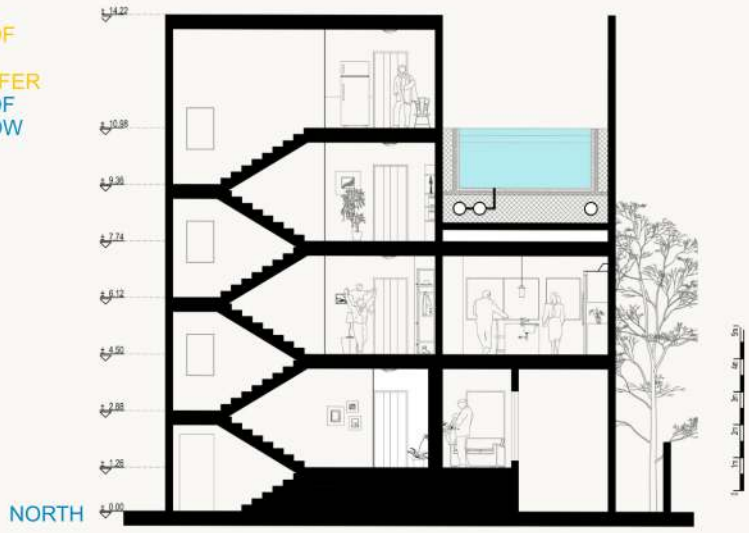


Part of the pool floor uses structural glass to transmit daylight through water and glass to the western patio and interior spaces.

Refraction through moving water creates caustics—dynamic light patterns—enhancing visual richness and spatial experience in areas such as the kitchen.

HOUSE & POOL SECTIONS





CAUSTIC

The façade design is developed through principles of simplicity, balance, and climate responsiveness. White-grey cement creates a clean and timeless architectural expression, while matte metal elements introduce contrast and a contemporary character.



. WEST



. NORTH



. NORTHWEST



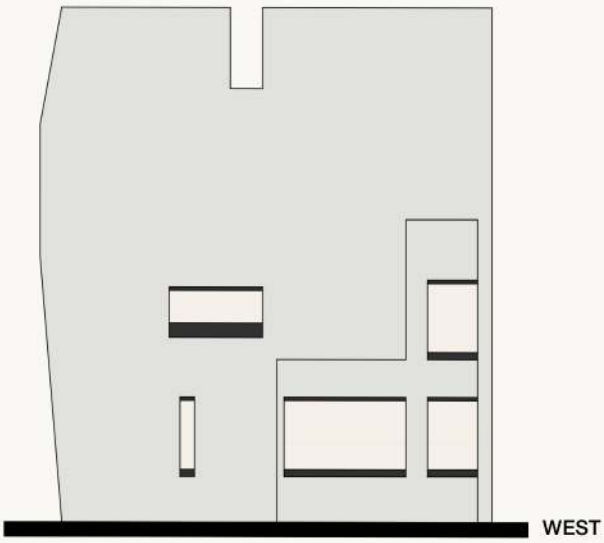
WHITE GREY CEMENT

- DURABLE — High strength and long-lasting performance.
- BREATHABLE — Allows moisture vapor to pass through.
- LOW MAINTENANCE — Easy to clean and resistant to mold and bacteria.
- LIGHT REFLECTIVE — Reflects natural light and helps reduce energy use.
- SUSTAINABLE — Made from natural materials with low environmental impact.

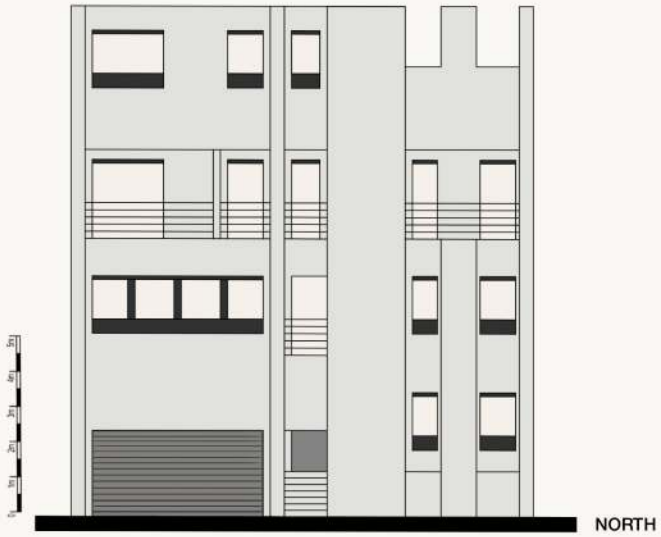


MATTE METAL (WINDOW FRAMES & PLANTERS)

- DURABLE — Strong and long-lasting, suitable for exterior use.
- SCRATCH RESISTANT — Matte finish helps hide fingerprints and minor scratches.
- WEATHER RESISTANT — Resistant to rust, corrosion, and harsh weather conditions.
- LOW MAINTENANCE — Easy to clean with a soft cloth and mild soap.
- MODERN AESTHETIC — Sleek, minimal look that complements contemporary architecture.

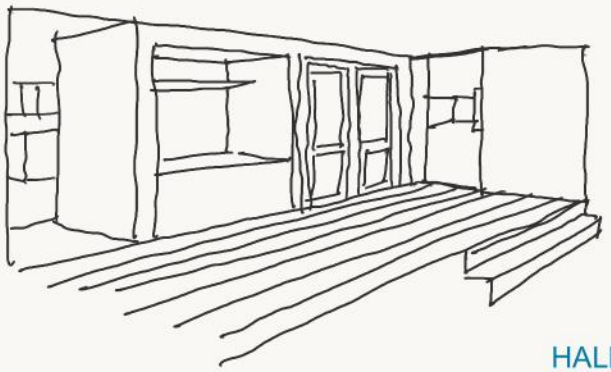


WEST



NORTH

CAUSTIC



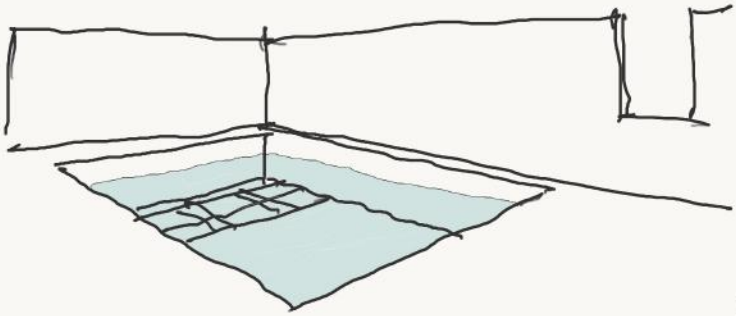
HALL



KITCHEN



LOBBY

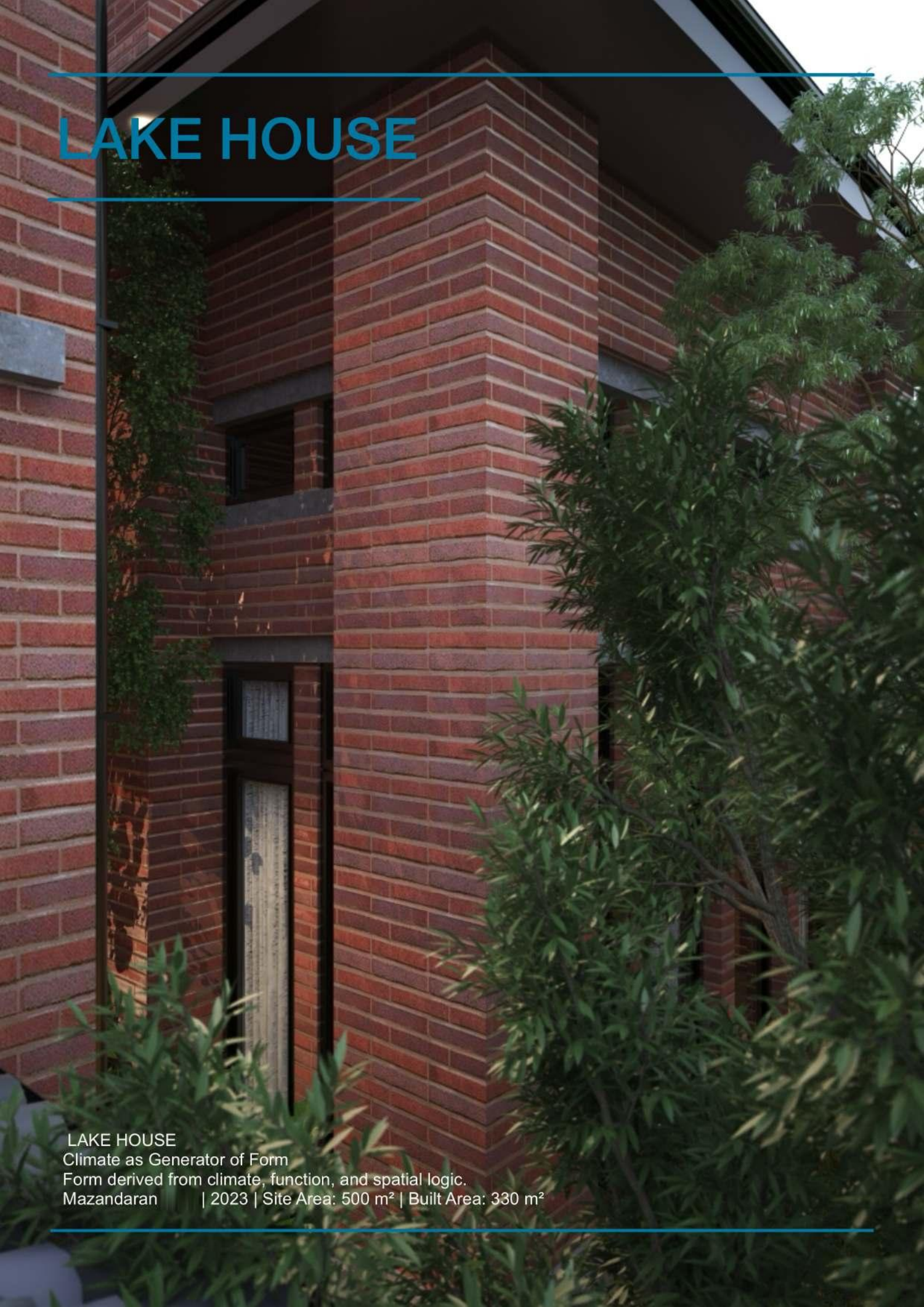


POOL



SMALL KITCHEN

LAKE HOUSE



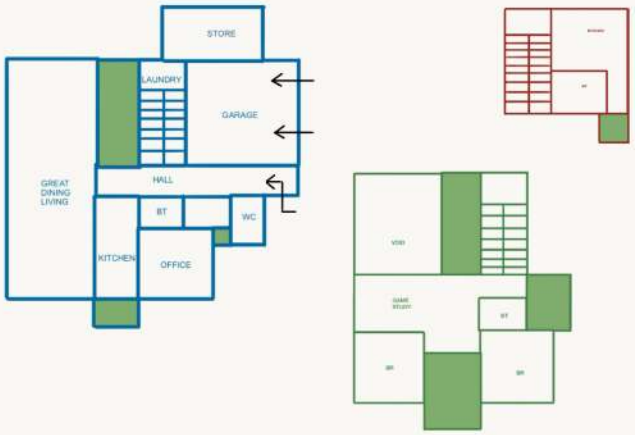
LAKE HOUSE
Climate as Generator of Form
Form derived from climate, function, and spatial logic.
Mazandaran | 2023 | Site Area: 500 m² | Built Area: 330 m²

LAKE HOUSE

SITE ANALYSIS & DESIGN RESPONSE







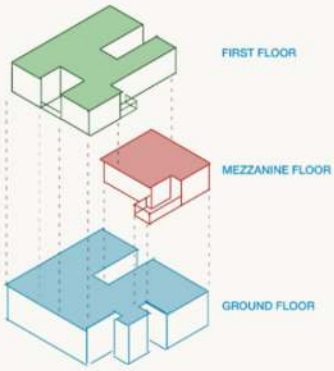
The design process followed a sequential logic:

Climatic analysis informed orientation, daylighting, and spatial organization.
The plan was developed based on functional needs and human-centered spatial relationships.
The architectural form emerged from the internal logic of the plan and site conditions, rather than from purely formal intentions.

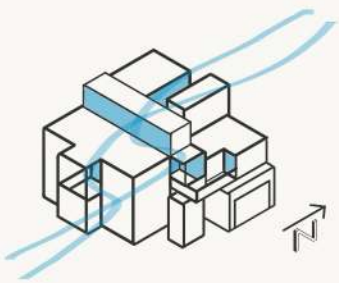
CLIMATE
Temp: 17–18°C
Humidity: High
Rain: 700–900 mm
Wind: N → S

SEASONS
SUMMER → Ventilation + Shading
WINTER → Drainage + Moisture Control

RESPONSE
Cross Ventilation
Sloped Roof
Elevated Floor



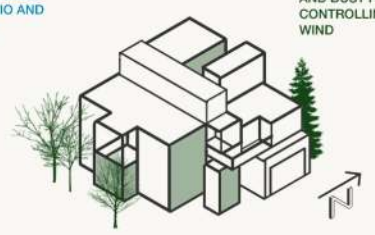
SUITABLE WIND FLOW FROM NORTH TO SOUTH, WITH FAVORABLE WIND CONDITIONS, IS UTILIZED THROUGH THE PATIO AND LARGE OPENINGS





Passive Ventilation

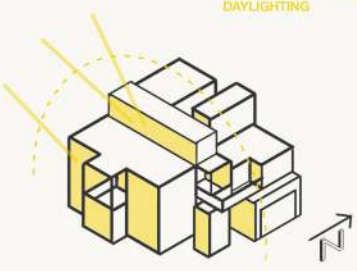
CREATION OF GREEN SPACES AND PLANTING TREES FOR SHADING, REDUCING NOISE AND DUST POLLUTION, AND CONTROLLING UNWANTED WIND





Environmental Buffer

OPTIMAL SOUTH-FACING DAYLIGHTING





Daylighting Strategy

LAKE HOUSE



GROUND FLOOR



MEZZANINE FLOOR



FIRST FLOOR

A floor plan is both a technical and experiential representation of space. The design develops through imagining the sequence of entering, moving, and perceiving the space.

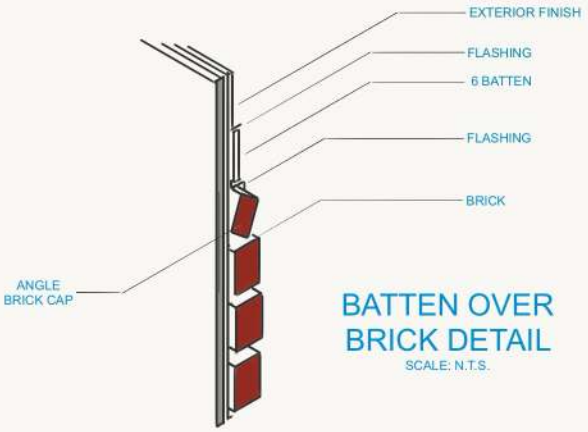
SCALE 1:200

1. Mental entry into the space
2. Movement through spatial paths
3. Experiencing light, scale, compression, and openness
4. Formation of spatial perception
5. Translating the experience into a floor plan

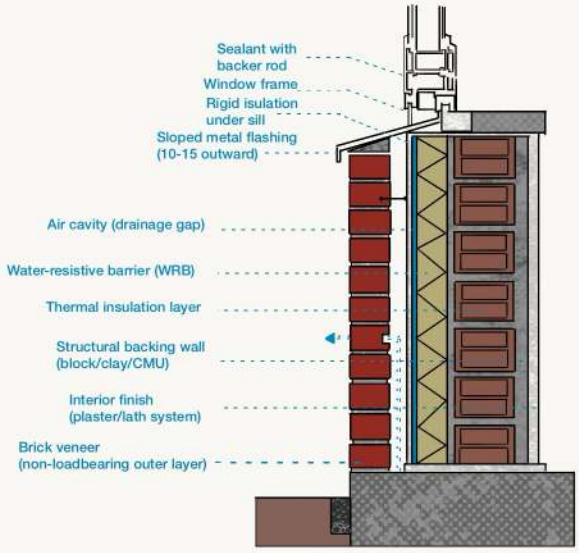


PUBLIC ZONE	
SEMI PRIVATE ZONE	
PRIVATE ZONE	
SERVICE ZONE	
CIRCULATION ZONE	

LAKE HOUSE

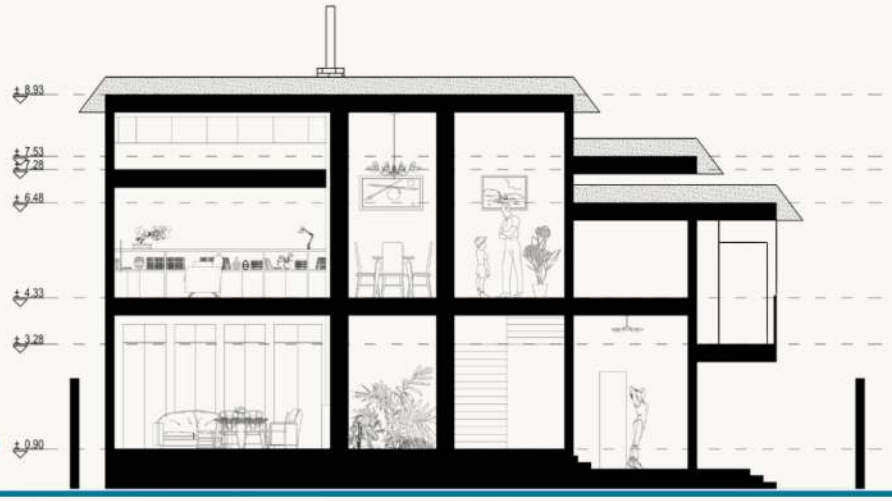


BATTEN OVER
BRICK DETAIL
SCALE: N.T.S.



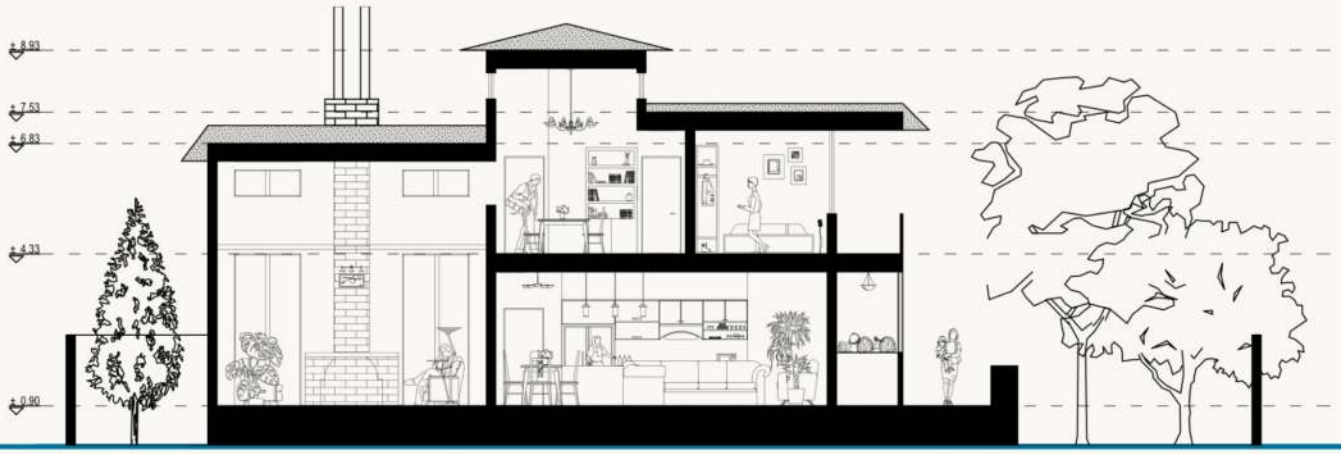
WALL AND WINDOW SECTION

STRUCTURE SECTION



SECTION NORTH
SCALE 1:150

SECTION WEST
SCALE 1:150



LAKE HOUSE







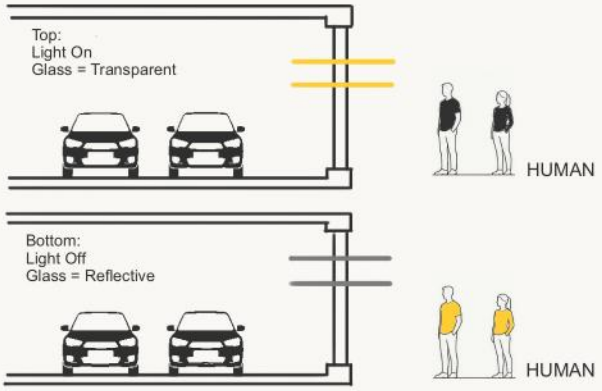


EAST



SOUTH

LAKE HOUSE




ENTRY

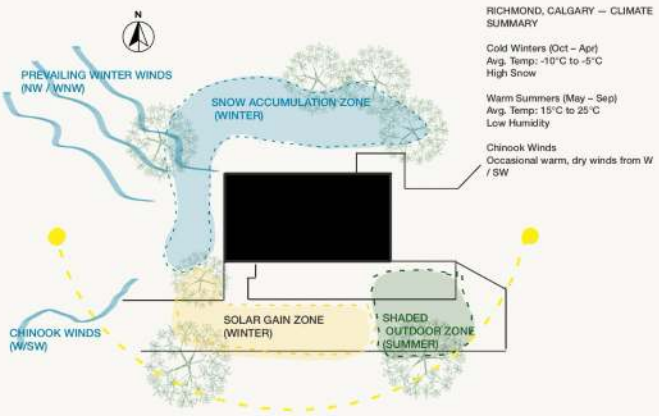

KITCHEN

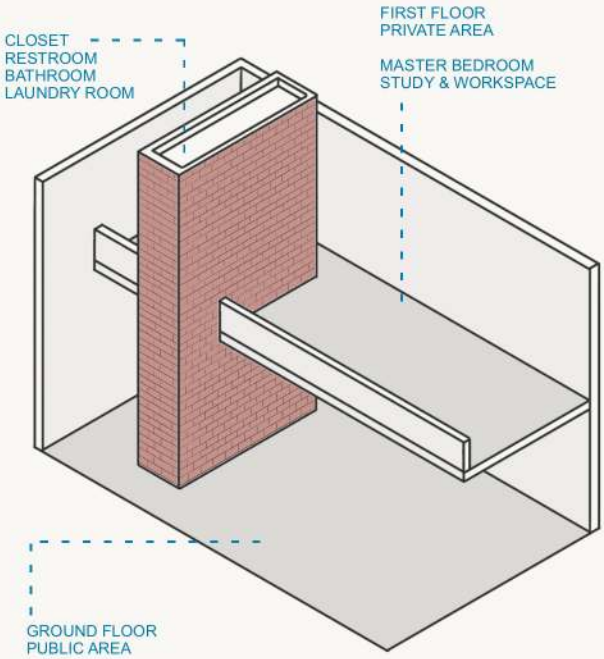
LOFT STUDIO

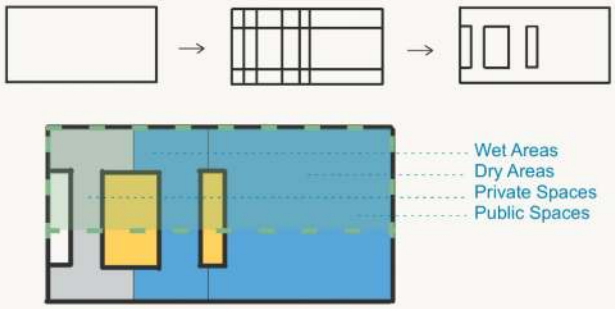


LOFT STUDIO
Form-Driven Architecture
Concept-driven design based on loft architecture and open-plan living, shaped through climatic responsiveness.
Calgary, Canada | 2026 | Site Area: 600 m² | Built Area: 200 m²

LOFT STUDIO







DESIGN LOGIC

PUBLIC TO PRIVATE

The ground floor is dedicated to public and social functions, while the upper loft provides a private retreat.

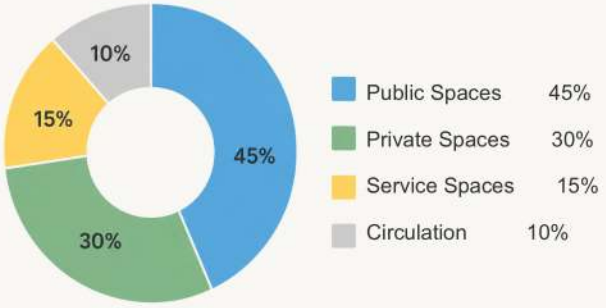
CLIMATE ADAPTIVE

Orientation and zoning respond to Calgary's climate, maximizing solar gain and minimizing winter heat loss.

FLEXIBLE LOFT LIVING

Open plan, high ceilings, and minimal partitions allow spatial flexibility for living, working, and hosting.

SPACE ALLOCATION

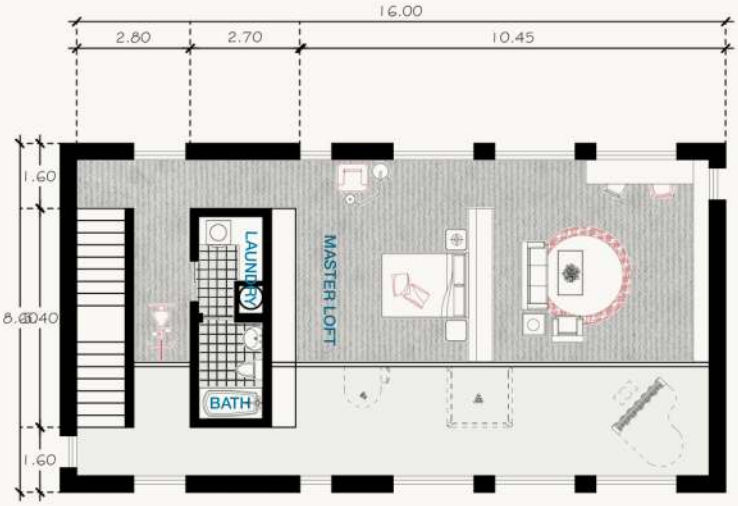


PROJECT DATA

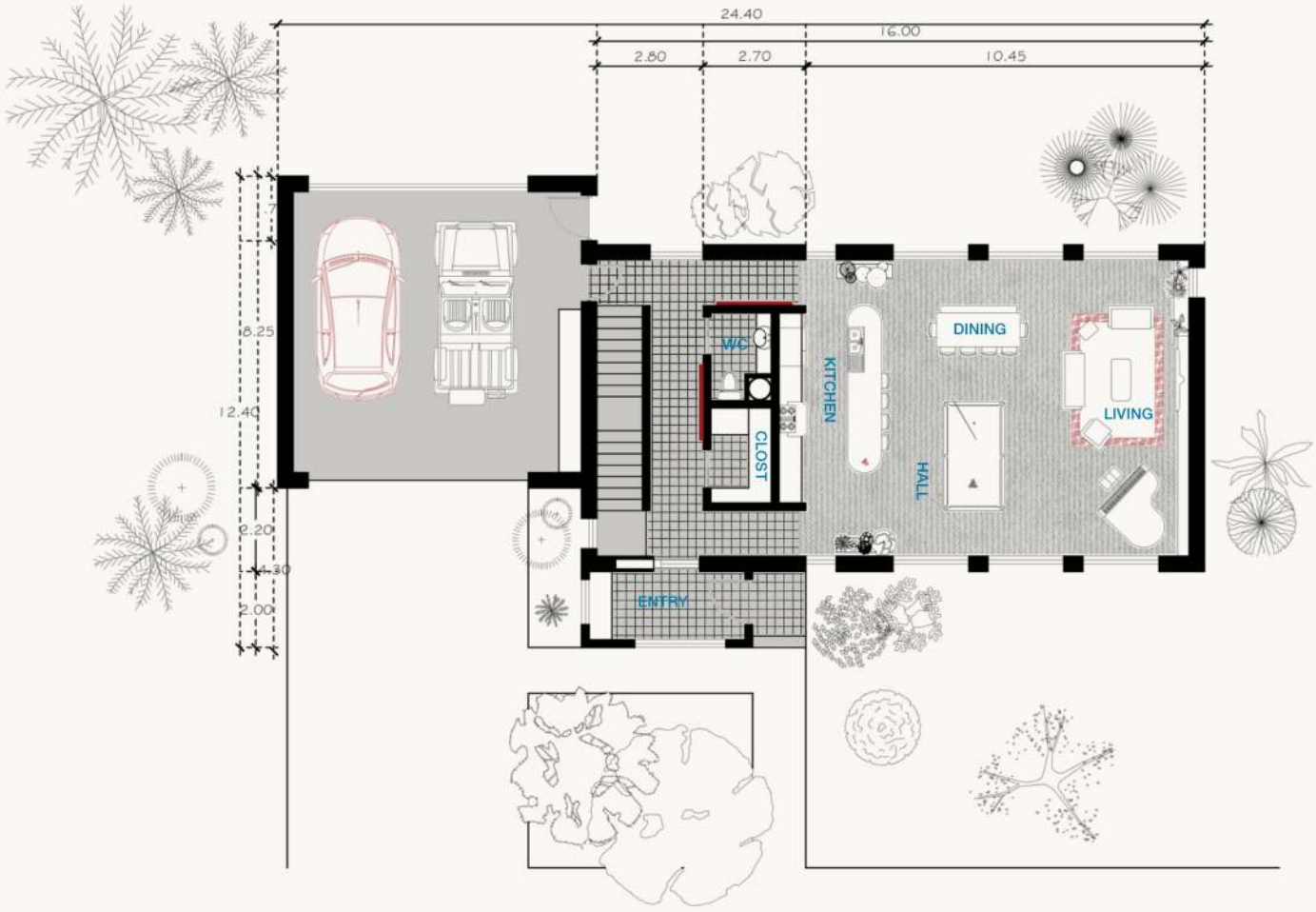
Site Area	600 m²
Built Area	200 m²
Floors	2
Bedrooms	1 – 2
Typology	Urban Residential Loft
Location	Calgary, AB, Canada
Climate Zone	7A
Status	Concept Design
Date	2026

LOFT STUDIO





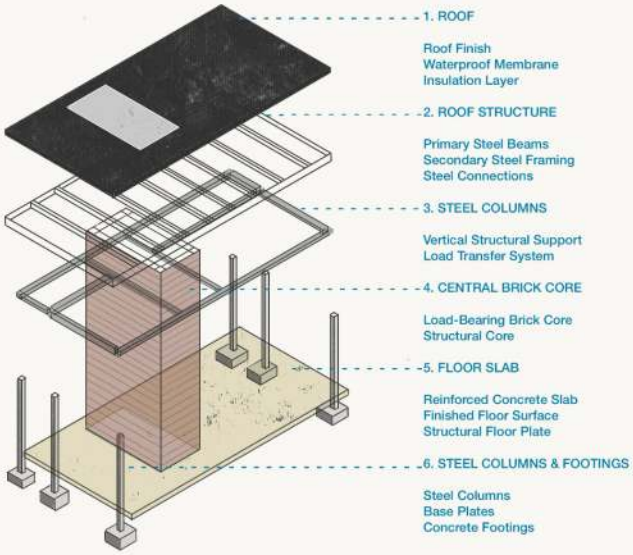
. FIRST FLOOR PLAN

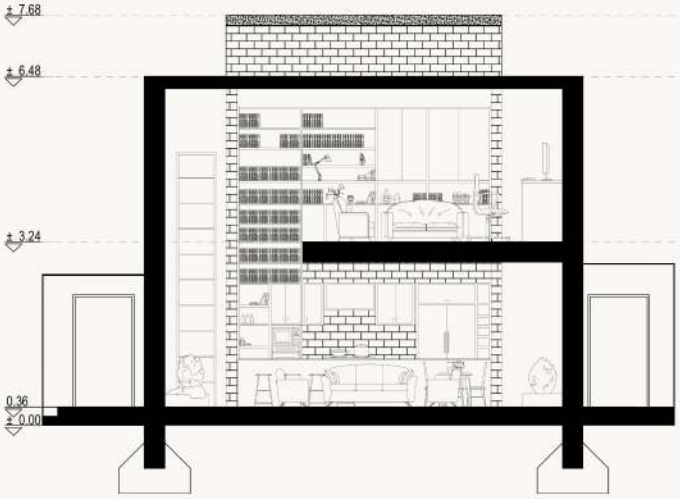


. GROUND FLOOR PLAN

LOFT STUDIO

Structural System & Layer Composition

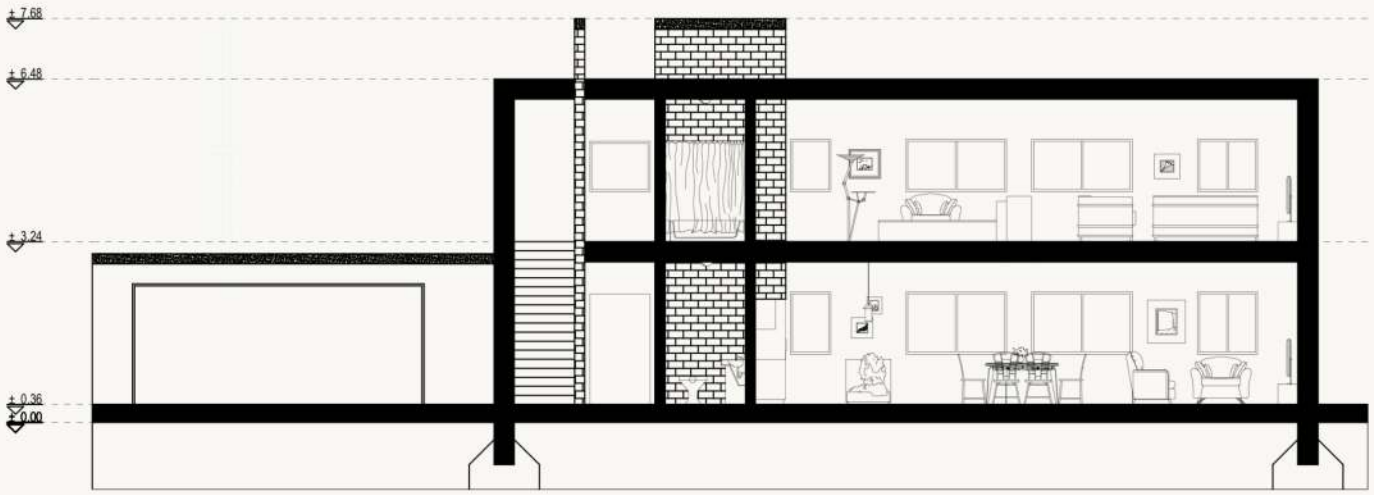




.East

A sectional exploration of the loft's structural framework, material layering, and load transfer strategy.

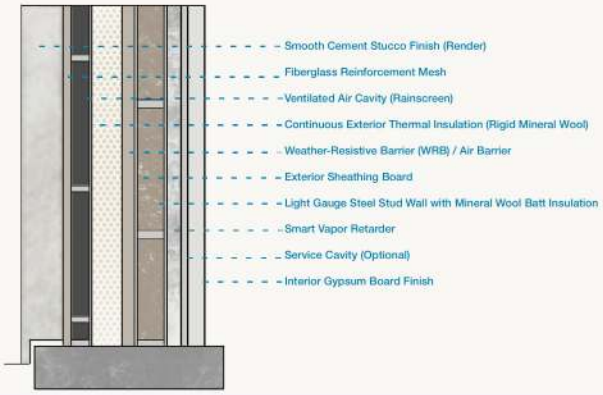


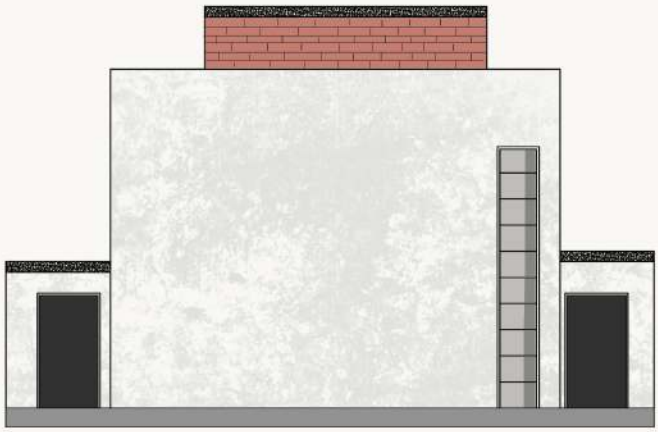


.South

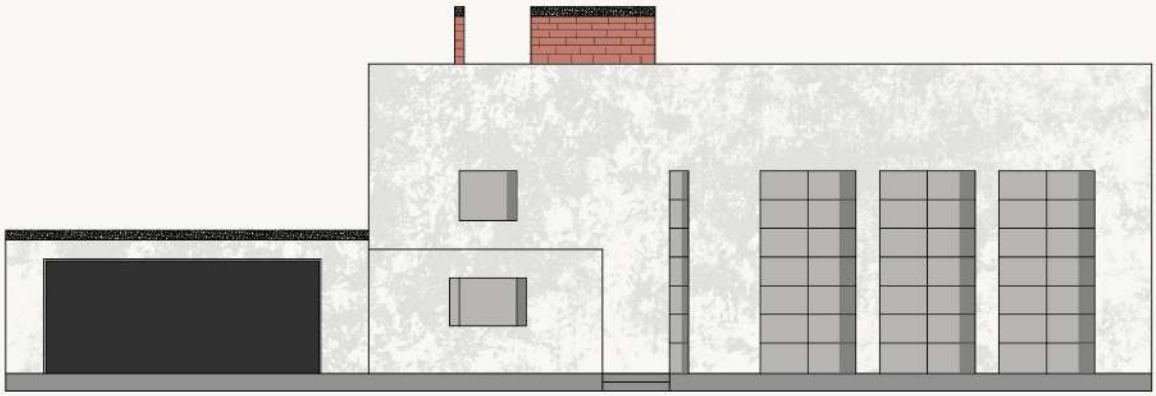
Sectional and structural study of the loft, illustrating spatial configuration, load-bearing strategy, and material layering.

LOFT STUDIO





. EAST



.SOUTH





LOFT STUDIO



CONCRETE
Smooth light gray stucco concrete finish for main facade.

METAL
Black metal window frames, doors, and trim elements for a crisp, modern contrast.



BRICK
Natural red brick for chimney and accent elements.



. SOUTH



. SOUTH WEST

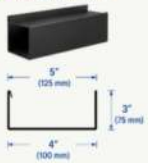
1 GUTTER SECTION DETAIL



2 DOWNSPOUT DETAIL



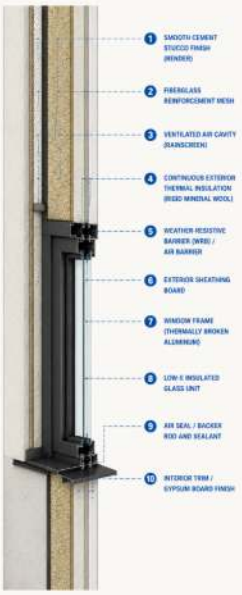
3 GUTTER PROFILE





. SOUTH EAST

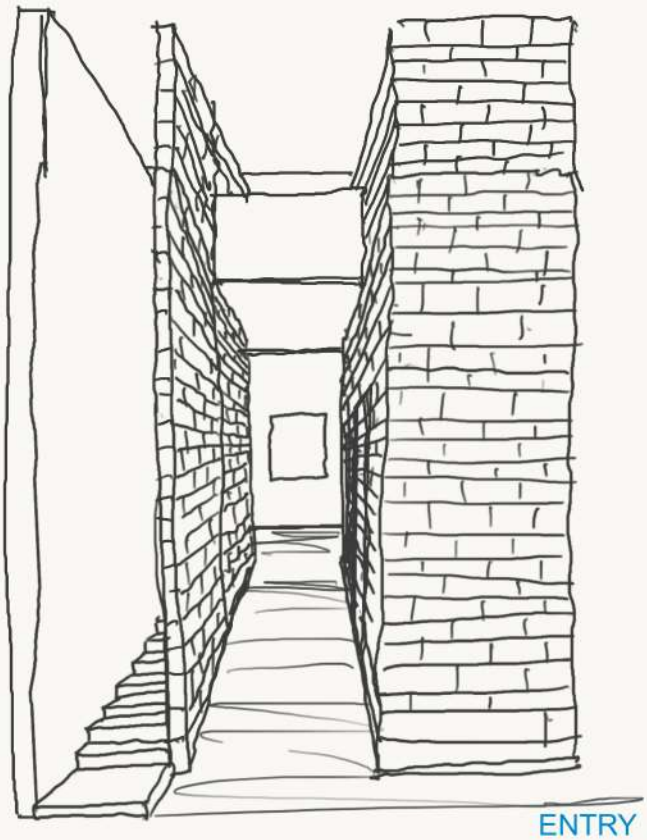
1 WINDOW SECTION DETAIL



LOFT STUDIO



UPSTAIRS



ENTRY



DOWNSTAIRS

HAJIR HIDAJI

Architectural Designer | Architectural Technologist

Architectural designer and technologist with seven years of international experience in architectural design and construction. I use freehand sketching to explore spatial relationships and develop design ideas. I prepare permit and construction drawings in Revit and AutoCAD and coordinate with engineers and contractors on site.

EXPERIENCE

Architectonic Program — Completed 2026
FarMor Architecture Inc. | Calgary, AB
Construction documentation in Revit for multi-unit wood-frame residential buildings.

Freelance Residential Designer — 2019 – Present
Hajir Design

Architectural Designer & Concept Artist (Contract) — 2021 – 2023
NIAD Office

Architectural Designer & Concept Artist (Part-time) — 2018 – 2021
NES Office

SKILLS

Core Skills

Residential Design
Space Planning
Facade & Material Studies
Technical Documentation
Permit Drawings
NBC 2023 (Alberta Edition)

Software

AutoCAD
Revit
3ds Max
Procreate
Twinmotion

Visualization

Hand Sketching
3D Rendering
Client Presentation

Revit: full project modelling, sheet setup, schedules, wall types and detailing

EDUCATION

Master's Degree in Architecture — 2020
Azad University | Scholarship Recipient

CONTACT

Let's work together

Calgary, Canada
Website: hajir.design
linkedin.com/in/hajir-hidaji
Email: hajirhidaji@gmail.com
Phone: 368-992-4231