Underground Library Project

More room for learning. The same open campus above.

Concept direction, site choice, program and iterative design decisions: Jiace Zhao. Substantial geometry, materials, code and presentation were developed using AI-assisted scripting, procedural Blender modeling and rendering. This is an independent speculative study, not a UC Berkeley commission, approved building proposal or Harvard-affiliated project.

A pool, a lawn, a possibility.

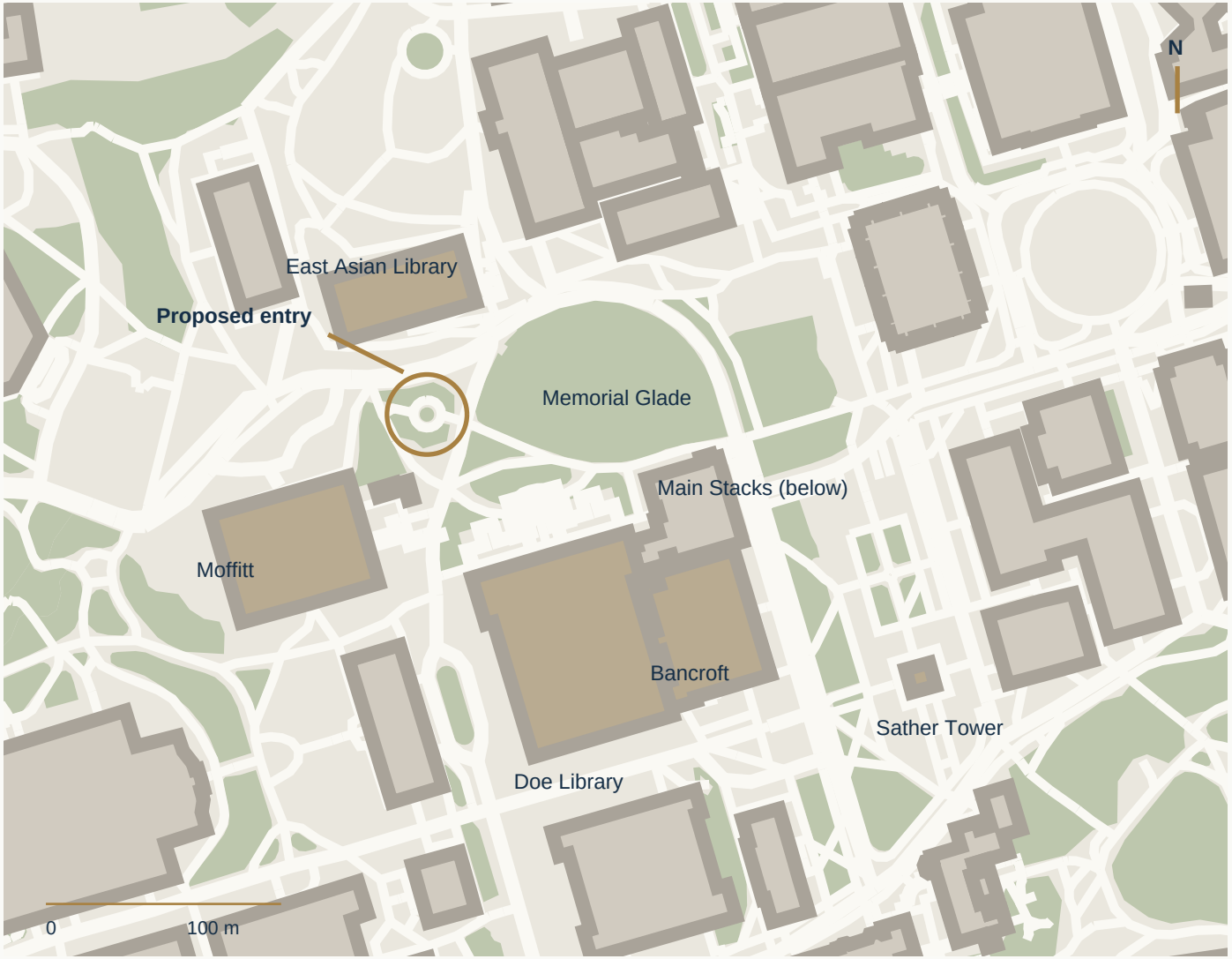
My starting point was the circular pool and seating area beside Moffitt, facing Memorial Glade. I wanted to explore a larger public library without replacing the openness of this part of campus with another large building.

The Louvre expansion suggested a spatial idea: a relatively small intervention at the surface can open into a much larger public world below. I wanted to translate that relationship to Berkeley, not import the pyramid as an object.

As the project developed, retaining the pool became the central decision. The entrance changed from a glass-and-stone pavilion study into a circular water court with a spiral descent. The question shifted from what the building should look like to how people would arrive, find their way, and choose a place to study.

Retained pool position and circular descent, V5. The narrative reflects the project brief and its revisions; it does not invent a site visit or a measured demand study.

An entrance at the edge, not the center.



Source: OpenStreetMap contributors / ODbL. Local metric projection; interpreted site basis, not a survey.

THE SELECTED NODE

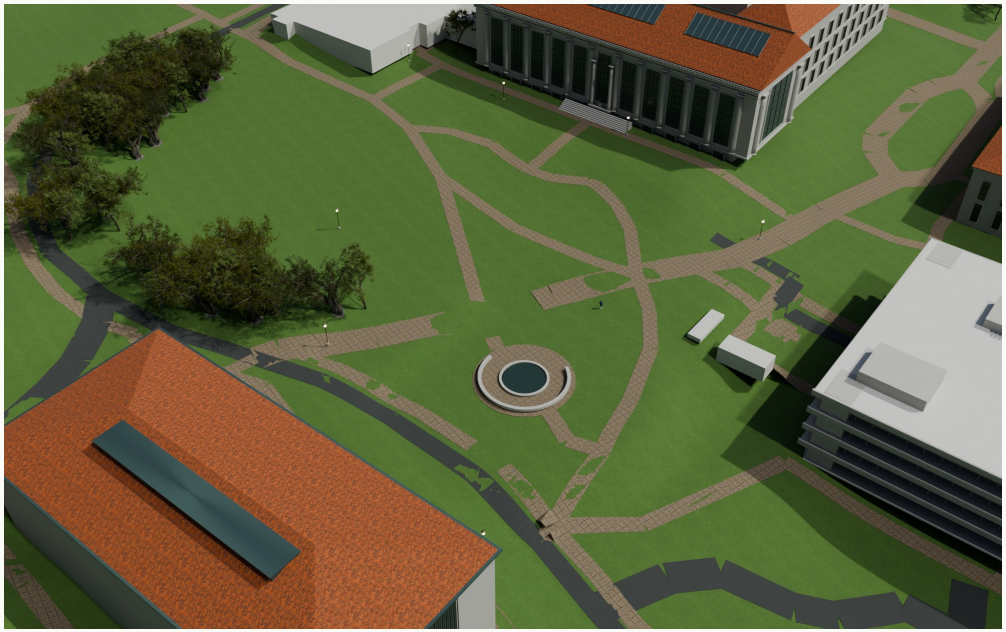
The pool / seating area beside Moffitt, at the west edge of Memorial Glade, is the point of arrival. Doe and Sather Tower remain campus references; the new pavilion does not compete with the tower vertically.

AN EXISTING UNDERGROUND CAMPUS

Gardner Main Stacks already extends below grade. Its precise boundary and available connection points remain unresolved. This is a conditional spatial study, not an assertion that the subsurface is empty.

A familiar place, another layer of space.

BEFORE / CONCEPTUAL RECONSTRUCTION



Existing pool, campus context and a surface path network form the starting point. This image reconstructs that condition by removing the proposed intervention from the model.

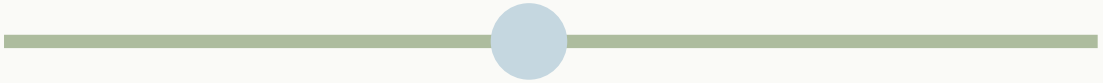
AFTER / DESIGN PROPOSAL

A circular glass entrance gives access to a much larger underground program. The design intends to keep through-movement legible while adding a separate choice to descend.

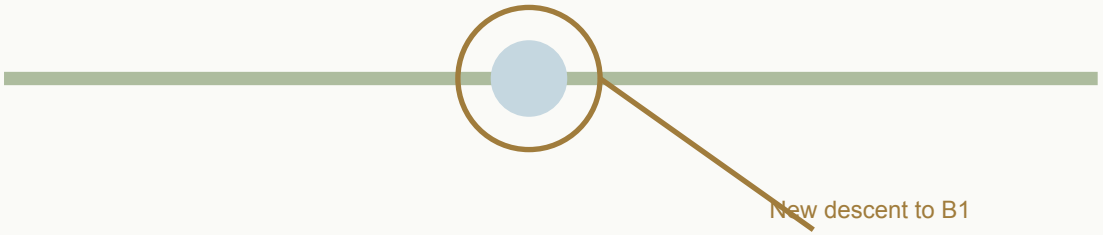
Comparison protocol: same camera, lighting and context. Both images are model renders; neither is a current photograph or a surveyed before-condition. New below-grade capacity is conceptual, not a verified floor-area calculation.

Continue across campus. Or go below.

BEFORE / PATH + WATER NODE



AFTER / KEEP THE PATH, ADD A CHOICE



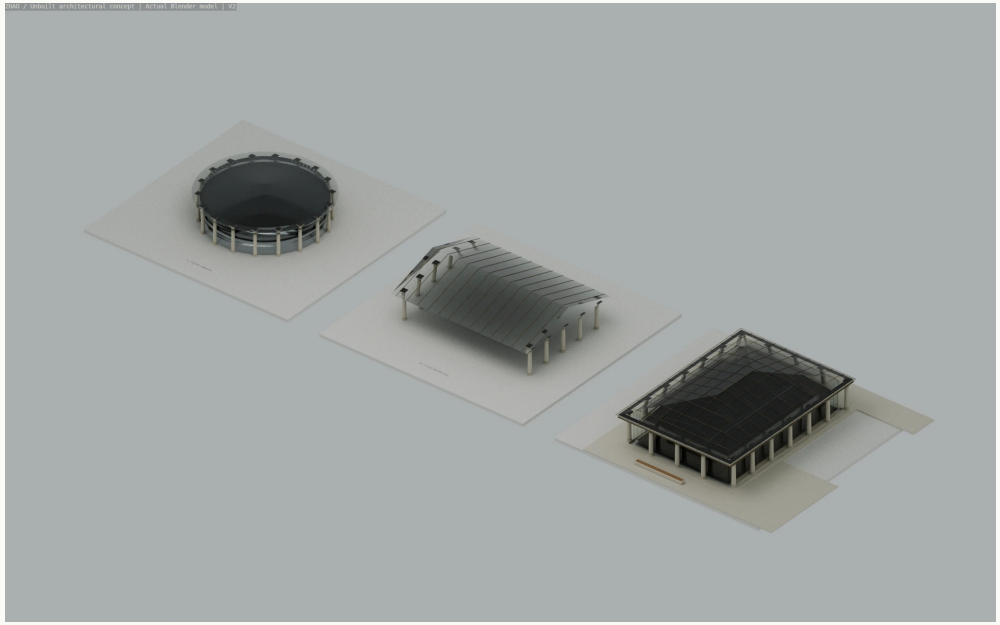
01 Keep through-movement at the surface legible. The entrance branches from the path network at the pool rather than treating the lawn as a forecourt that everyone must cross.

02 Separate passing through from going down. A visitor can continue across campus or enter a two-turn promenade around the water court; a conceptual lift provides a separate vertical route.

03 Give the underground a clear address. The arrival forum, garden edge and repeated circulation spine are intended to help visitors orient themselves across five levels. These are spatial strategies, not measured pedestrian-flow results.

Relational diagram, not to scale. Keeping a route line in a diagram does not demonstrate unchanged flows; path widths, pedestrian counts and desire lines require a separate study.

The important changes were spatial.



V2 entrance studies: rotunda, glass gate and glass stoa. The stoa was an intermediate decision, superseded by the retained-water circular scheme. Earlier image lettering is part of the design record, not a proposed naming claim.

V1 / Find the brief

Test a restrained surface entrance and monumental underground forum. The first site context was too approximate for the intended campus relationship.

V2 / Rebuild the context

Use mapped footprints, terrain and LiDAR-informed heights. Compare rotunda, glass gate and glass stoa entrance studies; retain the stoa as an intermediate exploration.

V3 / Establish the interior palette

Introduce Berkeley blue and restrained gold, pale stone, wood and warm light. The next revision exposed the need for a stronger spatial plan.

V4–V5 / Retain water; make descent spatial

Replace the stoa with a circular glass water forum and a two-turn spiral promenade. Add scanned materials, representative vegetation and an exported desktop scene.

V6 / Organize routes before furniture

Move reception off the arrival axis and public stairs to the north. Rework B1–B4 as reading neighborhoods, with carpeted study zones, quiet rooms and a continuous circulation spine.

A glass room around water.

Pale stone, slender bronze-toned details and a low circular glass canopy turn the existing water node into an address for the underground library. Monumentality comes from proportion and sequence rather than a large above-ground object.

Retained V5 exterior. The pool location is retained in the concept; conserving its actual fabric requires survey and detailed design.

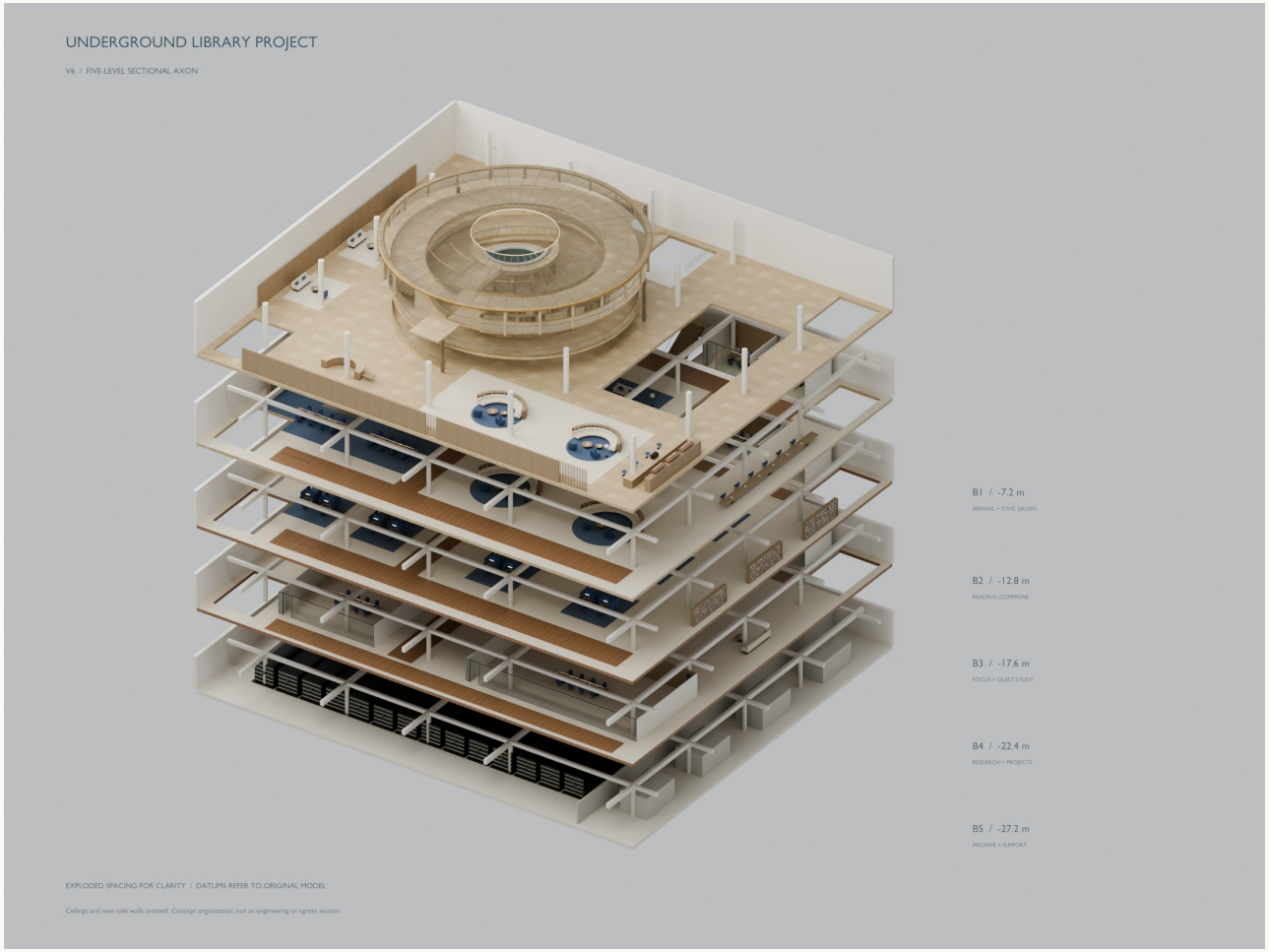
Descent becomes part of the library.

The promenade makes two turns around the water court before reaching the B1 forum. Glimpses across the void are intended to connect movement, water and activity below.

The concept includes a separate lift and vertical circulation cores. The spiral is a spatial proposal; its full geometry, inner-edge slopes, guarding, landings and evacuation role need professional review.

Recorded centerline: approximately 160.85 m, descending 7.2 m with six rest landings. These are model values, not a statement of accessibility compliance.

Five levels, one legible public system.



B1 −7.2 m

The public forum

B2 −12.8 m

The reading commons

B3 −17.6 m

A quiet neighborhood

B4 −22.4 m

The project commons

B5 −27.2 m

Archive and support

Current V6 conceptual section, with exploded spacing for clarity. Datums refer to the un-exploded model, not surveyed campus elevations. This view does not resolve existing underground conflicts or certify structure.

Arrival is a room, not a bottleneck.

Arrival, information, exhibition, café and a civic reading salon. Reception is placed to one side so the entry axis remains open. Café and exhibition belong to the arrival layer; more focused environments sit deeper in the building. 41 concept seats, not an approved occupancy.

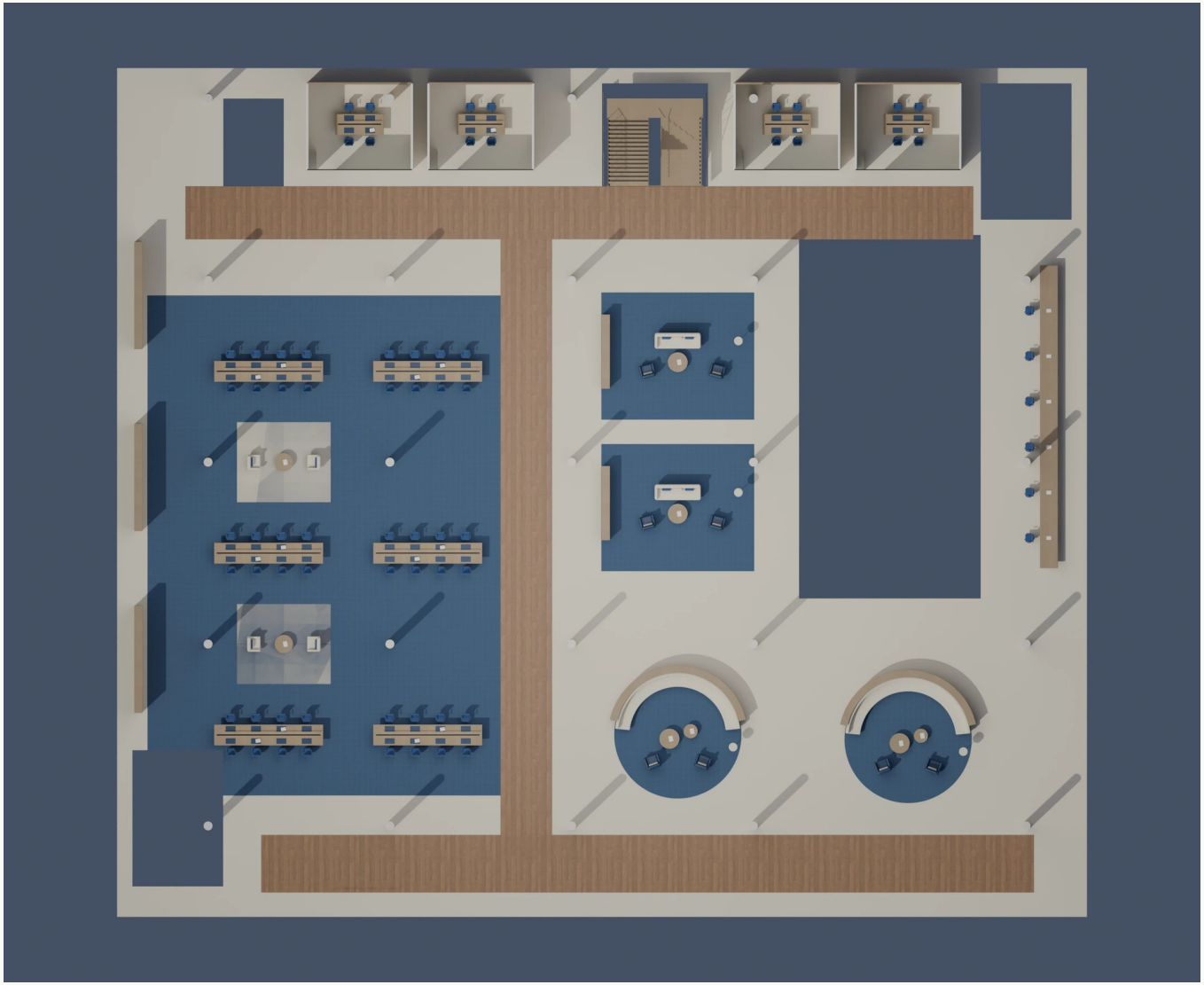
Current V6 interior. Actual Blender render of the shared concept model.

A garden edge in the underground.

The garden-facing lounge offers a less formal way to read. Low shelving and a visible planted edge are intended to keep the room understandable at a glance; real daylight penetration at this depth still requires simulation.

Current V6 interior. Actual Blender render of the shared concept model.

Routes before furniture.



112 CONCEPT SEATS

West: quiet shared tables.

South: curved reading islands.

Courtyard edge: lounge and study bar.

North: four quiet rooms.

Main spine: about 3.4 m.
North cross-route: about 3.5 m.

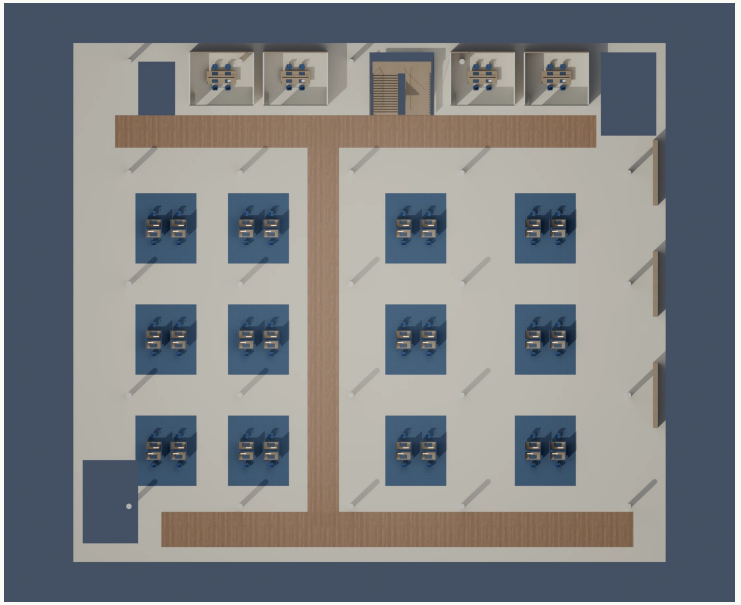
Plan and perspectives use the same V6 room and furniture objects. Dimensions shown are concept values; turning spaces and all circulation widths still need a complete access and life-safety assessment.

One commons, several ways to study.

A generous shared table can support focused individual work without isolating every reader. Task lights, warm wood, blue-gray carpet and low shelves differentiate work settings while keeping the principal route readable.

Current V6 interior. Actual Blender render of the shared concept model.

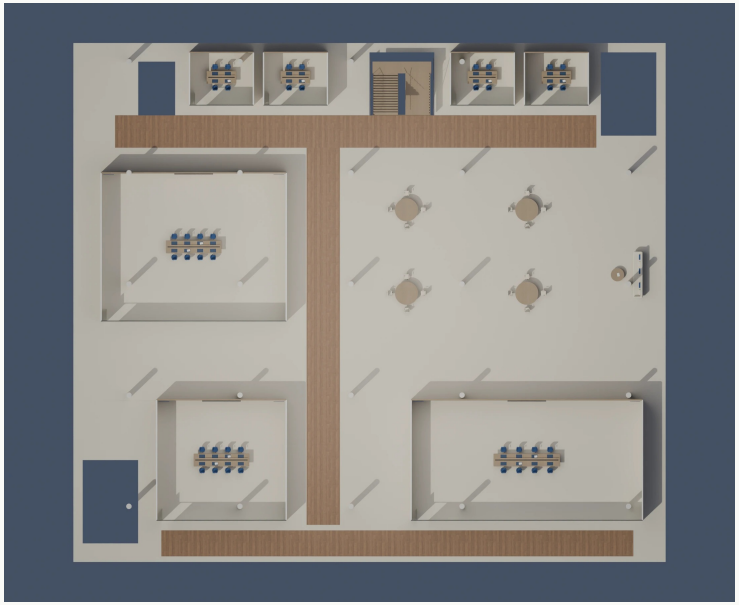
Small neighborhoods for sustained attention.



Small desk groups, individual carrels, selected sit-stand desks and enclosed silent rooms. The main route avoids cutting through desk clusters. Continuous textile surfaces and lower ceiling elements suggest a quieter scale.

64 concept seats. Acoustical appearance is not acoustical performance: absorption, reverberation and room isolation have not been calculated.

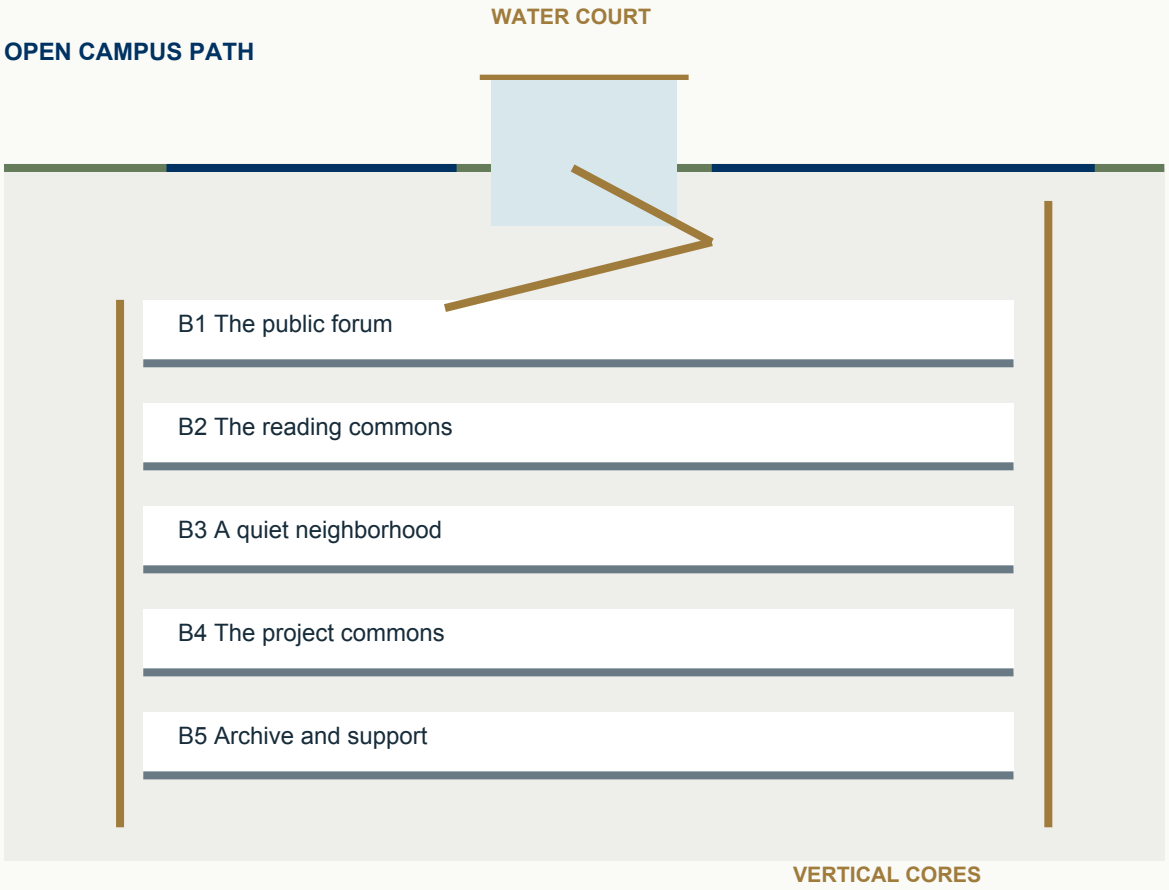
Give discussion somewhere to go.



Open collaboration alongside seminar, research, visualization and small project rooms. Sustained conversations have an enclosed setting. Flexible furniture supports changing projects without making every room a screen-filled technology showcase.

62 concept seats. Visualization and AI collaboration are program intentions, not installed or commissioned research systems.

The quiet infrastructure behind the public rooms.



Relational section, not a dimensioned structural drawing. B5 archive geometry is retained from the earlier model; its technical systems are not designed.

A retained compact-storage concept and building-support layer. Collection capacities, handling routes and environmental requirements remain to be developed.

COLLECTIONS

A high-density archive concept, with future environmental and retrieval requirements to define.

BUILDING SYSTEMS

Reserve support capacity early; plant, drainage, ventilation and service access cannot be residual spaces.

EXISTING INTERFACES

Any links toward Doe, Moffitt or Main Stacks depend on verified records and coordinated interfaces.

Berkeley blue. Gold as a detail.

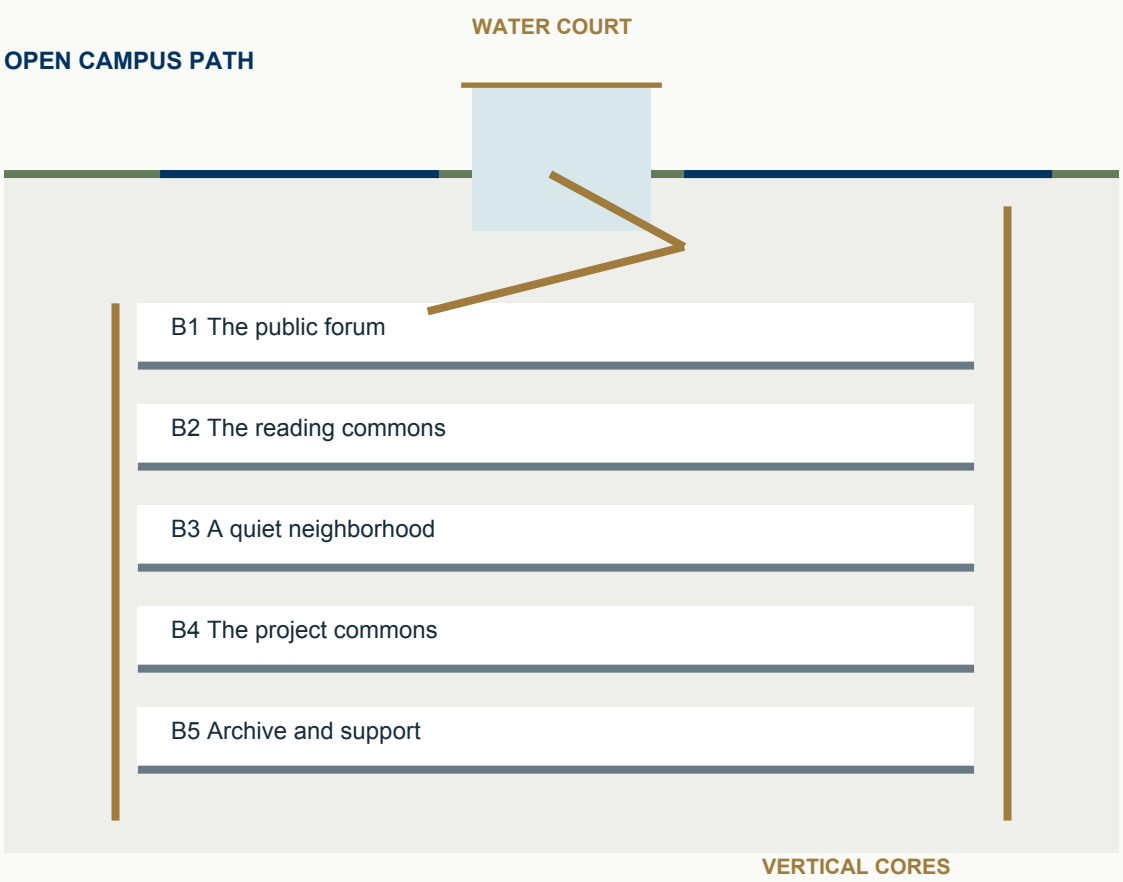
STONE OAK TEXTILE IVORY BRONZE

Pale stone and mineral plaster establish a calm background. Oak and walnut provide warmth. Blue-gray textiles define study settings; restrained brass and bronze appear in lighting, handrails and details.

Luxury is expressed through proportion, useful furniture, tactile surfaces and visual quiet, rather than ornament or pervasive screens.

Image-based material maps and representative scanned plants improve visual specificity. They are not sampled from Berkeley finishes or surveyed campus trees. Poly Haven assets are CC0.

A century is an ambition, not a guarantee.



Conceptual system diagram; not engineered. No foundation, retaining-wall or waterproofing detail is approved or suitable for construction.

PRIMARY STRUCTURE

Regular supports and floor plates are a conceptual organizational system. Spans, loads, soil pressure and seismic behavior require structural and geotechnical design.

WATER AND LIGHT

Waterproofing, maintainable drainage and redundant water management would be essential below grade. Visible light wells do not prove adequate daylight.

LONG-TERM CHANGE

A durable primary frame with replaceable interiors could support program changes. Service life depends on design, operations, repair access and sustained maintenance.

From a brief to a reproducible scene.

01 **FRAME THE CONSTRAINTS**

Translate the brief into a retained water feature, modest surface presence, B1–B5 program, campus relationships and a long-term institutional material palette.

02 **CONSTRUCT A SITE BASIS**

Project OpenStreetMap geometry into local metric coordinates. Use USGS terrain and 2018 LiDAR-informed roof heights; interpret key façades from published references. Distinguish measured inputs from inferred detail.

03 **MODEL AND REVISE IN BLENDER**

Use AI-assisted Python scripts, modular mesh families and named collections for site, entrance, levels, furniture and lighting. Preserve earlier versions rather than overwriting the design record.

04 **TEST SELECTED SPATIAL PATHS**

Read room bounds and route centerlines from the layout manifest. Check floor support and selected doorway paths. Use these checks to identify obstructions, not as a substitute for accessibility or life-safety review.

05 **PRODUCE TWO FORMS OF EVIDENCE**

Render cameras and plan views from shared scene geometry. Export lighter GLB models with texture references for real-time inspection. Offline images and the interactive model have different lighting and detail budgets.

What the checks actually establish.

924 / 924	Recorded floor-support samples passed on selected principal routes.
15	Door opening centerlines checked in the stored V6 report.
0	Route failures and missing / unpacked image entries in that stored report.
Not established	Full collision-free use, accessibility, egress, daylight, acoustics, structure, cost or a verified increase in usable floor area.

These are results reported by the existing V6 verification files, not a new comprehensive audit. Geometric samples test limited questions; a polished image does not validate building performance.

Translate the spatial logic, not the image.

THE LOUVRE EXPANSION	A small surface address leading to a large below-ground public system. The pyramid is not copied.
LOUIS KAHN + CLASSICAL BERKELEY	Calm order, repeated structural rhythm and institutional dignity as design intentions, rather than literal stylistic replicas.
SANAA / ROLEX LEARNING CENTER	Clarity, continuity and a range of learning settings as an early conceptual influence.
NC STATE / HUNT LIBRARY	Low curved shelving, soft seating and different study environments informed the V6 layout. The project opened in 2013, not 2026.
HARVARD + STANFORD LIBRARY RENEWAL	Countway and Cubberley were earlier precedents for renewed social and focused library settings.

Design influences above reflect the brief and documented iterations. They do not imply collaboration, endorsement or affiliation.

A design proposition that can be tested.

Concept direction, site choice, program and iterative design decisions: Jiace Zhao. Substantial geometry, materials, code and presentation were developed using AI-assisted scripting, procedural Blender modeling and rendering. This is an independent speculative study, not a UC Berkeley commission, approved building proposal or Harvard-affiliated project.

My contribution is in defining the question, choosing the site, directing revisions and evaluating the spatial priorities. The use of AI-assisted production is disclosed because the process matters as much as the images.

FLOW

Compare surface desire lines and queueing before and after; test entry visibility without diverting through-movement.

SPATIAL ORIENTATION

Compare route errors and travel time across scene variants, with the water court visible or screened.

LIGHT AND RESOURCES

Use validated inputs to compare light-well geometry, daylight availability, excavation and material demand.

BUILDABILITY

Obtain reliable underground records before treating the envelope or tunnel links as feasible.

References, credits and limits.

Harvard GSD / MArch I portfolio guidance

Presentation reference: conceptual clarity across scales, drawings alongside three-dimensional views, and explicit project roles. Not an application-compliance claim.

Harvard GSD / Resolution Grounds, Paris Bezanis

Editorial reference: a project argument presented with methods, images, credits and limits of representation. Its imagery and text are not reproduced.

NC State / Rain Garden Reading Lounge

Spatial reference: curved low bookshelves, soft seating and naturally lit reading settings.

Snøhetta / James B. Hunt Jr. Library

Spatial reference for a variety of learning environments. Hunt Library opened in 2013; it is not described here as a new 2026 building.

UC Berkeley / campus map

Campus names and relationships, not survey control.

Berkeley Library / Doe, Moffitt and Main Stacks diagram

Existing library relationships, not metric subsurface boundaries.

OpenStreetMap contributors / ODbL

Mapped campus and surrounding footprints and paths. Derived site data is supplied with the model resources.

USGS / 3D Elevation Program

Terrain and 2018 LiDAR-informed height inputs.

Poly Haven / asset license

CC0 material scans, representative vegetation and daylight environment. Not measured Berkeley surfaces or individual trees.

Harvard / Countway renovation

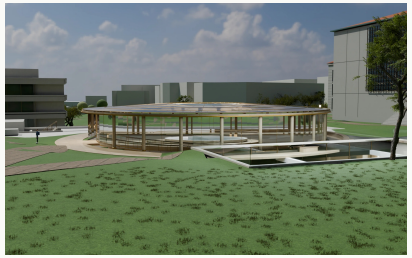
Earlier design reference for the mixture of social and focused library environments.

Stanford / Cubberley Education Library reopening

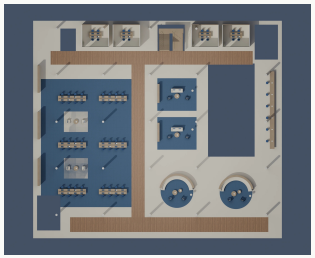
Earlier reference for library renewal. No reference photographs are republished in this portfolio.

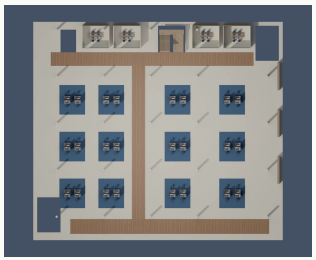
Reference access checked or inherited from the dated project source ledgers, September 2026. Harvard presentation guidance is a reference, not a template, academic affiliation or admissions endorsement.

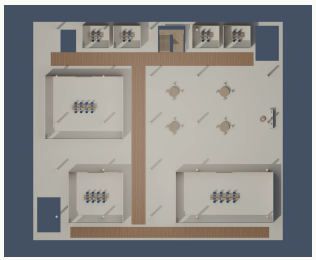
Images, drawings and an editable spatial model.











The website brings together the complete 165-item architectural graphics record, organized by current interiors, retained exterior studies, campus context, diagrams and design evolution. Original graphics and GLB model resources are downloadable; selected images form the narrative in this document.

www.jc-zhao.com/projects/underground-library
V6 governs current interiors. Older versions remain visible as process, not as the final layout.