A Home for the Modern Graduate Student

swell

LIVE/WORK/LEARN

Mixing the Education of a Grad Student with Opportunity for Social Interaction

H. Elizabeth Janica
Illinois Institute of Technology
Master's Project
May 2011

cover image:
http://commons.wikimedia.org/wiki/File:Desks_of_architecture_students_in_the_Yale_Art_and_Architecture_Building,_September_29,_2008.jpg

swell
Graduate Student Dwelling

project description

Project Title:
Graduate Student Dwelling

Elevator Statement:
The project will seek to create an environment for that fosters living, community, and learning for graduate students at Illinois Institute of Technology.

Case Statement:
As the economy has worsened, many people have chosen to return to school for an advanced degree. From 2006 to 2017, the U.S. Department of Education's National Center for Education Statistics (NCES) projects a rise of 10 percent in enrollments of people under 25, and a rise of 19 percent in enrollments of people 25 and over.

As many adults are returning to school, most choose to not live in the traditional student dorm, as it is associated with less privacy, poor conditions, small living quarters, etc. At Illinois Institute of Technology, on-campus living options for graduate students are not plentiful, and in turn are not the most popular choice of residences. Only 3% of IIT's current total enrollment are graduate residents (250 students). Undergraduate residents make up only 11% (850 students) of the total enrollment (7,774 students). (see fig.1)

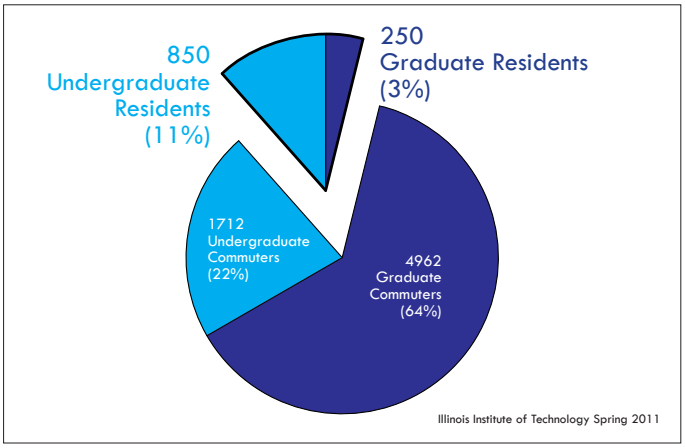


figure 1

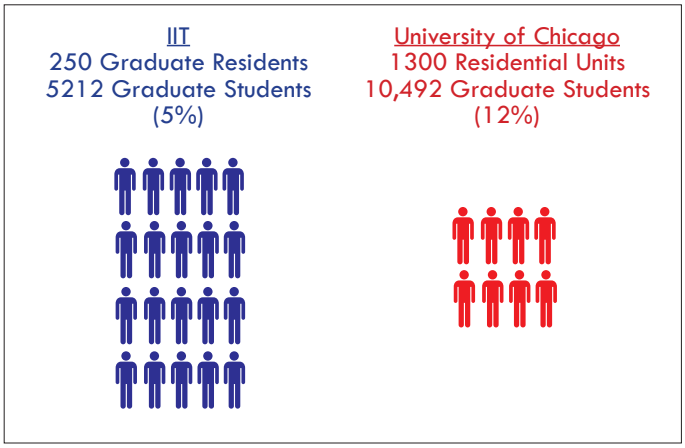


figure 2

In comparison to the University of Chicago, located similarly outside of downtown Chicago, IIT's student to residential unit ratio is quite low. Of the 5,212 graduate students enrolled at IIT, there are only 250 graduate residents (or 5%). This makes the student to unit ratio 20:1. At University of Chicago, there are 10,492 enrolled graduate students, and there are 1,300 graduate residential units available (or 12%). This makes the student to unit ratio 8:1. (see fig. 2)

Currently, Carman Hall is the only building solely dedicated to graduate students, and of the 96 units it contains, only 63 are available due to disrepair. It's occupancy (as of the spring semester of 2011) is only 104 students. Bailey and Cunningham Halls (identical in design to Carman) are both vacant. (see fig.5) There is not enough funding available to make the repairs needed for occupancy. This project will help serve as a catalyst to raise demand for on-campus living to enable the repair these buidings.

This project will seek to design a more appealing living option for graduate students on IIT's campus which will serve as a living vessel as well as a "think tank." The building itself will provide spaces that will encourage social interactions between its residents, as well as the other on-campus dwellers.

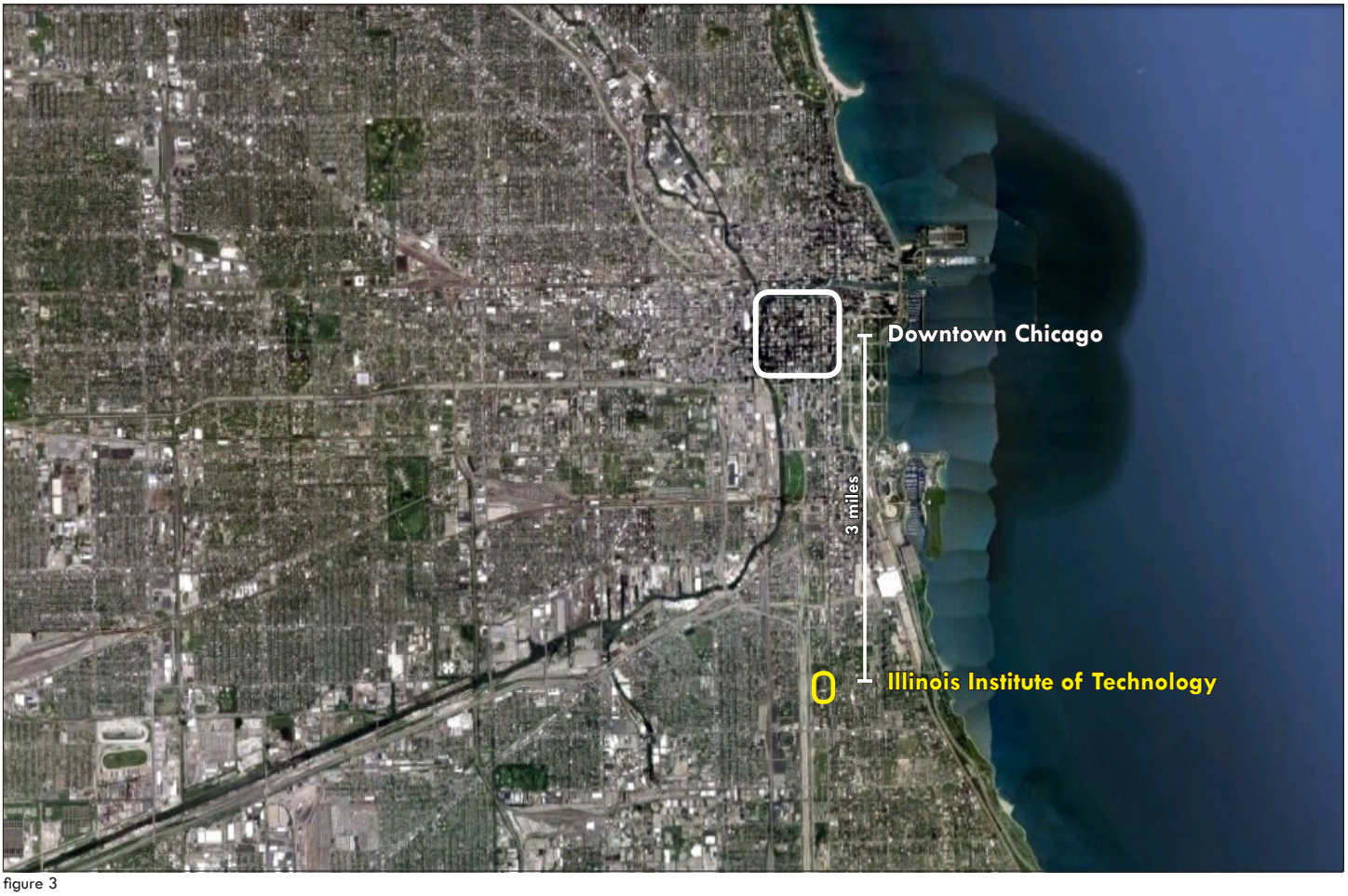


figure 3

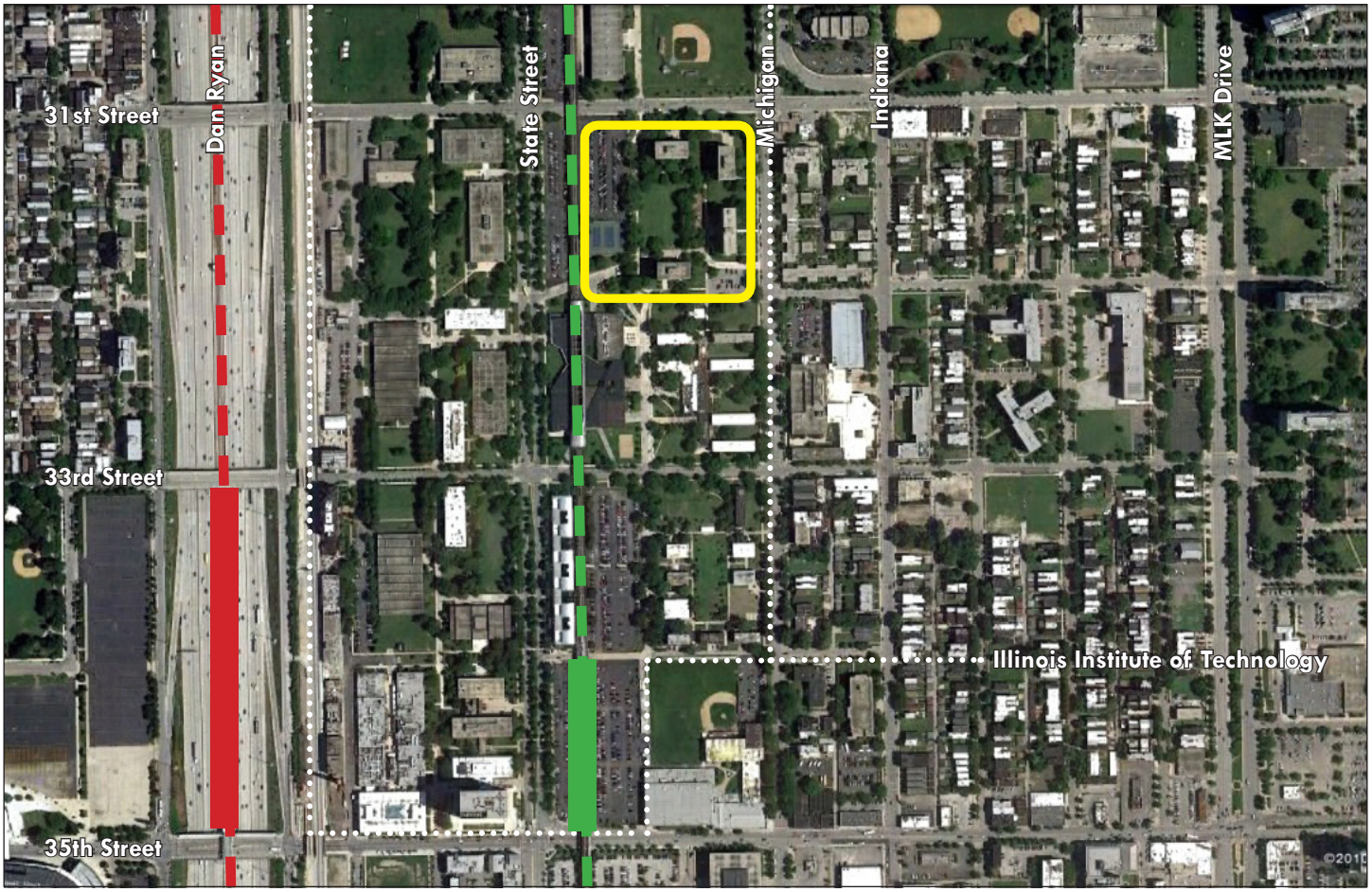


figure 4

The location of the site is on IIT's main campus, just three miles south of downtown Chicago, at 31st Street between State Street and Michigan Avenue. (see fig. 3&4) It is situated in an existing dormitory area, in the parking lot just west of the open field, bordered by the green line CTA train tracks to its immediate western edge. It is within walking distance of both the red and green line CTA stops, and is immediately north of the McCormick Tribune Campus Center and south of Keating Hall, the current athletic facilities.

To encourage occupancy in this new dorm, a fitness facility will be included for the use of all on-campus residents. This will allow Keating to be solely utilized as the training facilities for the IIT athletics department, which currently consists of baseball, cross country, soccer, swimming & diving, track & field, and volleyball.

Additionally, the program will include a planted terrace for the residents of the building. Each floor contains both study and social spaces to encourage interactions with students outside of the resident's field of study to enrich the graduate school experience. In Architectural Environment and Our Mental Health, Clifford Moller states "Individual identity is cherished and strengthened in periods of solitude and conditions. But this identity 'self-hood' is not achieved at all without an early and continuous interaction with other persons" (95).

Finally, the existing parking will be condensed into the base of the building to allow for a more appealing site surrounding the dormitory quad. Amenities such as a barbecue and picnic zone, as well as sand volleyball courts and a child play area will supplement the recreation of all students.

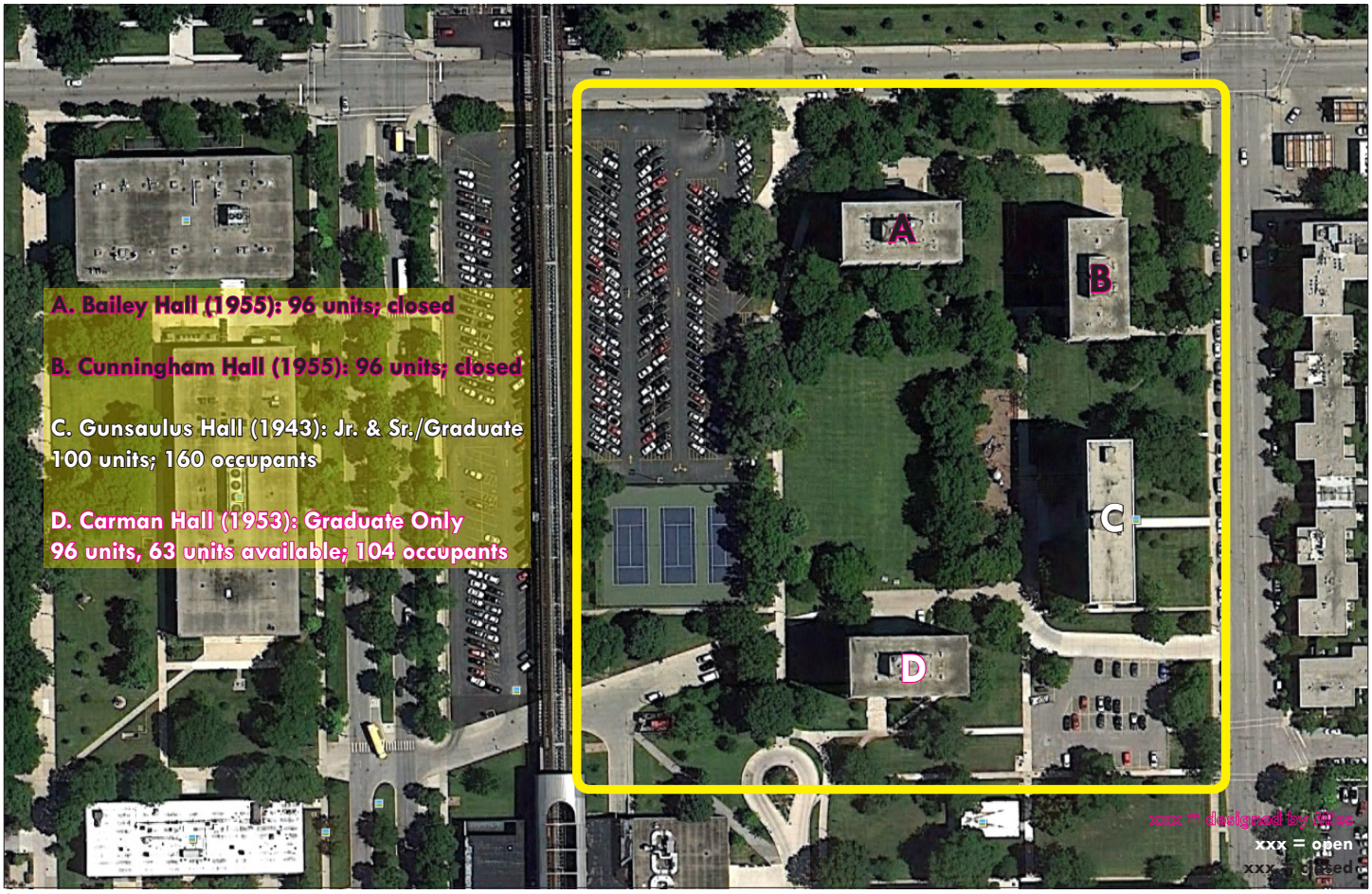


figure 5

goals
guiding principles

Goals:

- Create a living community that supports the education of a graduate student.
- Make living in a dormitory more appealing to adult students.

Guiding Principles:

- Create places of interaction to foster community.
- Encourage innovative thinking and problem solving.
- Maintain ample sense of privacy.

Potential Design Responses:

- modular configurations to allow for re-creation of interior spaces dependent on activity
- flexible room design to accommodate differing numbers of tenants
- communal studio space in house to enable school work to be done from “home”
- shared cooking/dining space for encouraged social interaction

qualitative parameters

http://www.westwoodcrc.org/belonging.decp
http://www.paulcarr.com/bifop-iv-the-long-fail/
http://farm1.static.flickr.com/7/12072395_645643d89f.jpg
http://www.coopfit.net/images/healtyLiving.jpg
http://4.bp.blogspot.com/_r4TzZPyyD-c/SmCCnHflqJI/AAAAAAAAAHQ/le1Cl-o8naA/s400/architect.jpg


sense of belonging


inspiring

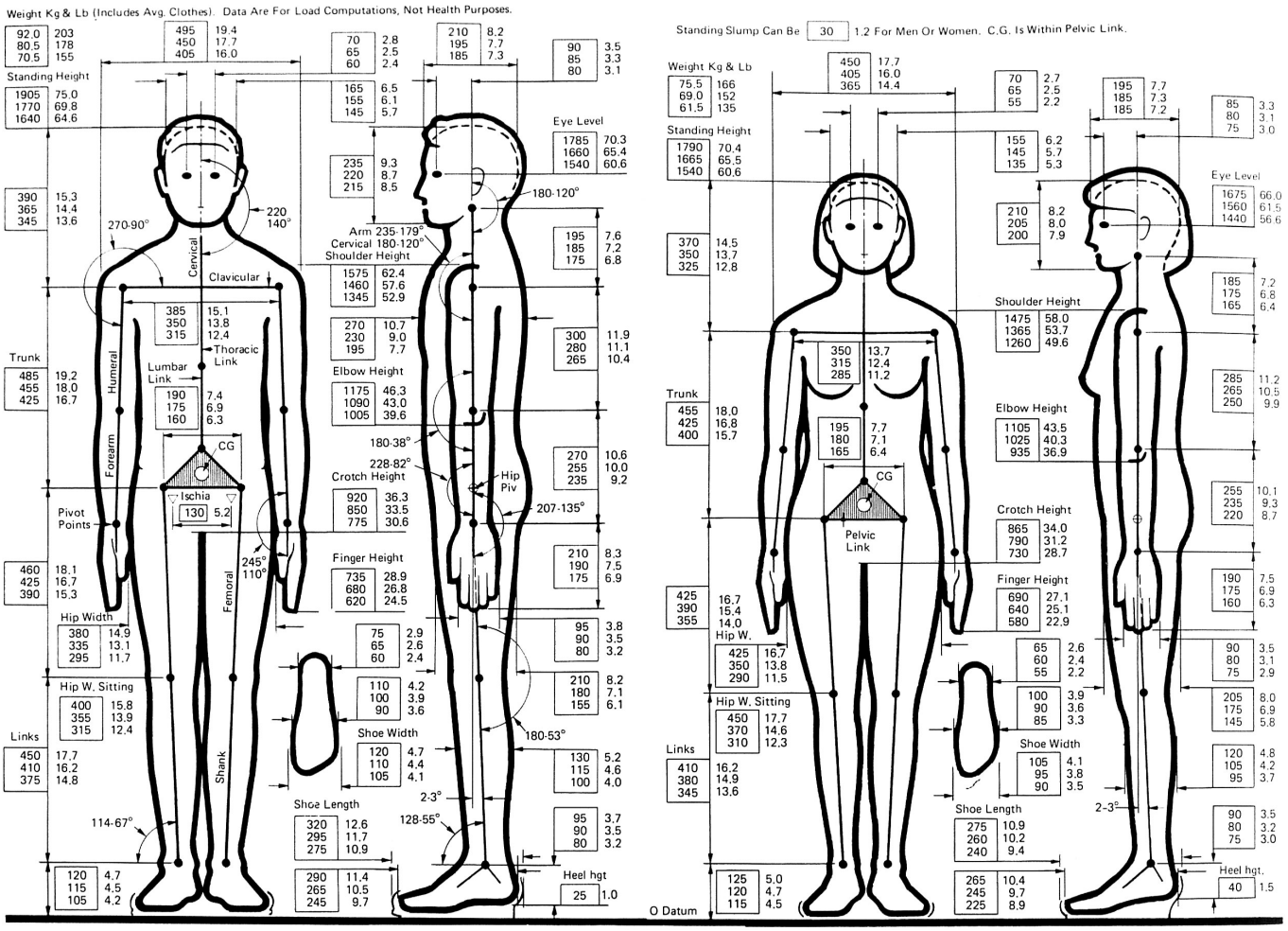

educational


healthy


collaborative

quantitative parameters

Action	Furniture/Space	Dimensions	Area (SF)
sleep	bed (twin x-long)	3’-0” x 6’-6” (mattress)	19.5
study/work	desk	5’-0” x 2’-6”	12.5
store	closet	2’-0” min. depth (x 3’)	6.0
	bookshelf	1’-0” min. depth (x 3’)	3.0
	dresser	3’-0” x 1’-8” x 4’-6” h	5.0
dress	private free space	3’-0” x 3’-0”	9.0
bathe	shower or bathtub	3’-0” x 3’-0”	9.0
relieve	toilet	2’-0” x 3’-0”	6.0
eat	table	1’-0” x 1’-6”	1.5
cook/store	microwave	2’-0” x 1’-6”	3.0
	oven	2’-0” x 3’-0”	6.0
	refrigerator	2’-0” x 2’-0” x 3’-0”	4.0
	pantry	1’-6” min. depth (x 3’)	4.5
			89.0



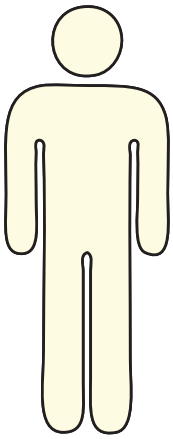
Niels Diffrient, Alvin R. Tilley; Henry Dreyfuss Associates; New York, New York

space has the ability to be shared

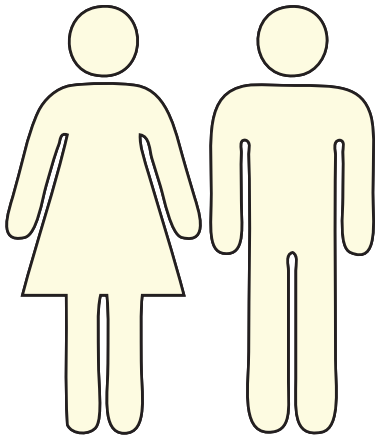
QUANTITATIVE PARAMETERS

Occupant Type/Function	Occupants	Net Area	Unit Amount	Total Area (SF)	Total Occupants
Single Bedroom Dwelling (sleep, eat, store, dress, bathe, relieve)	1–2	500	50	25,000	50–100
Double Bedroom Dwelling (sleep, eat, store, dress, bathe, relieve)	2–4	750	80	60,000	80–160
Floor Amenities (study/work, socialize, laundry)	21–42	2,000	10	20,000	130–260
Fitness Area (cardio, weights, locker rooms, offices)		9,500	1	9,500	
Lobby (lobby, mail room, etc.)		1,500	1	1,500	
Garage (parking, circulation, loading)	150 cars	40,000	3 levels	40,000	150 cars
Mechanical (equipment, etc.)		250	11	2,750	0
Net Total				158,750	
Gross Total (1.25)				198,500	130–260

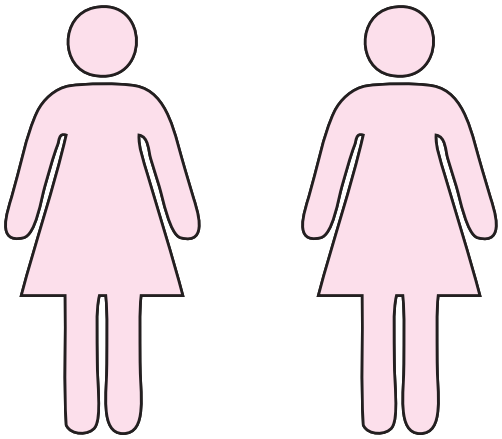
Potential User Groups



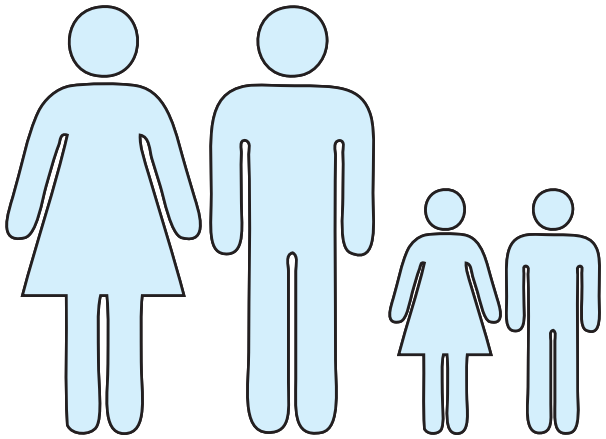
Single



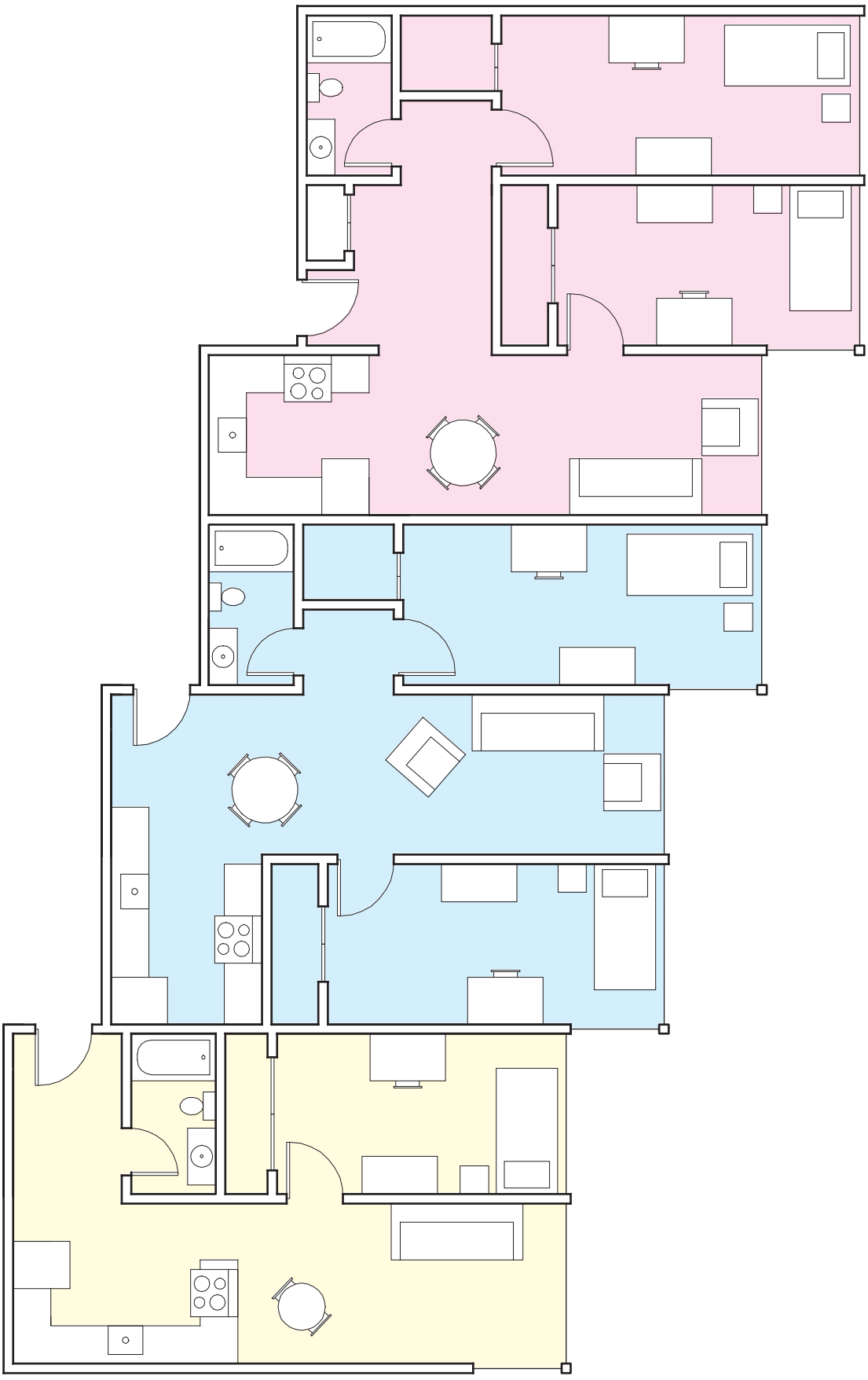
Couple



2 Singles



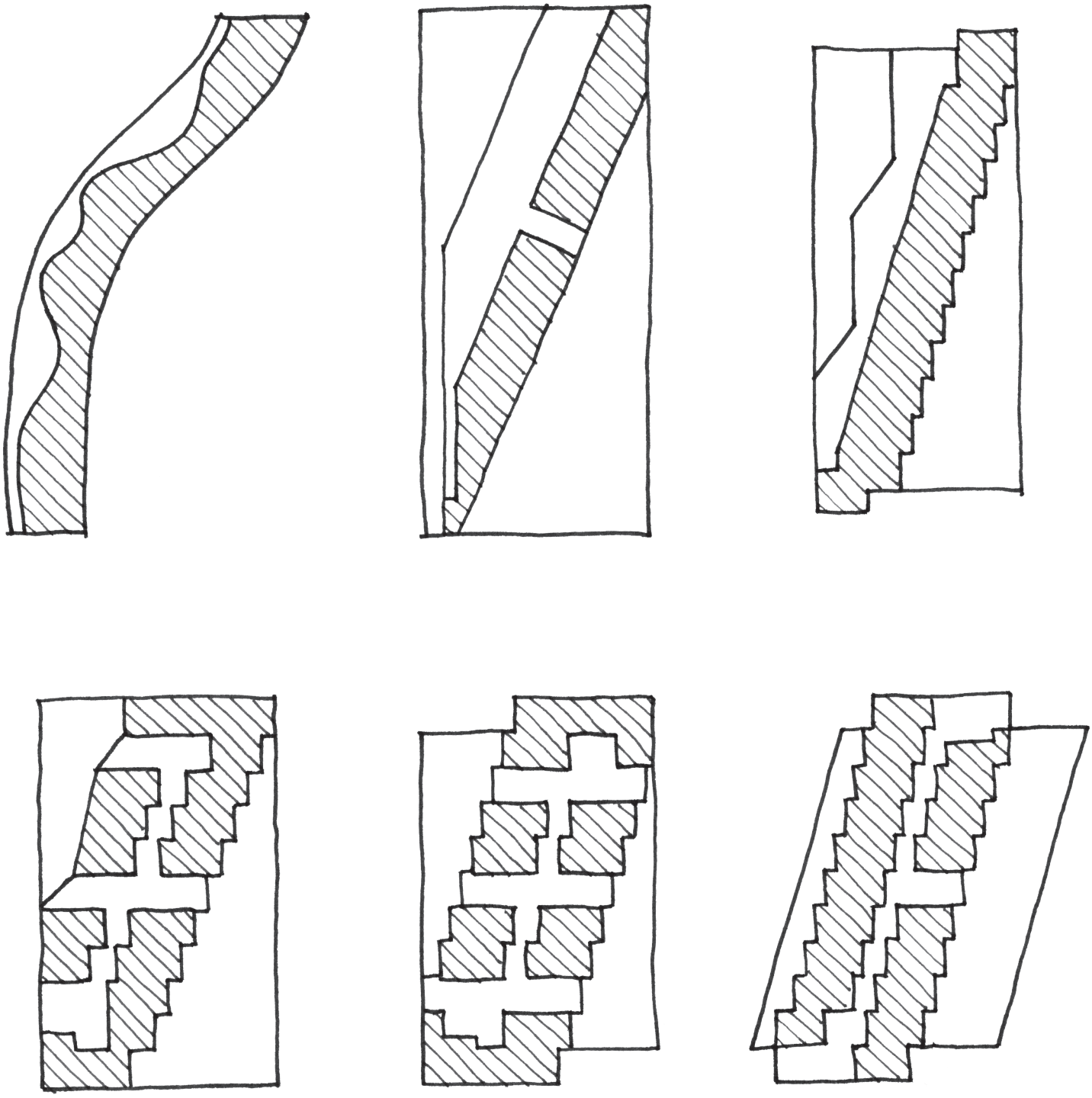
Family



Room Types

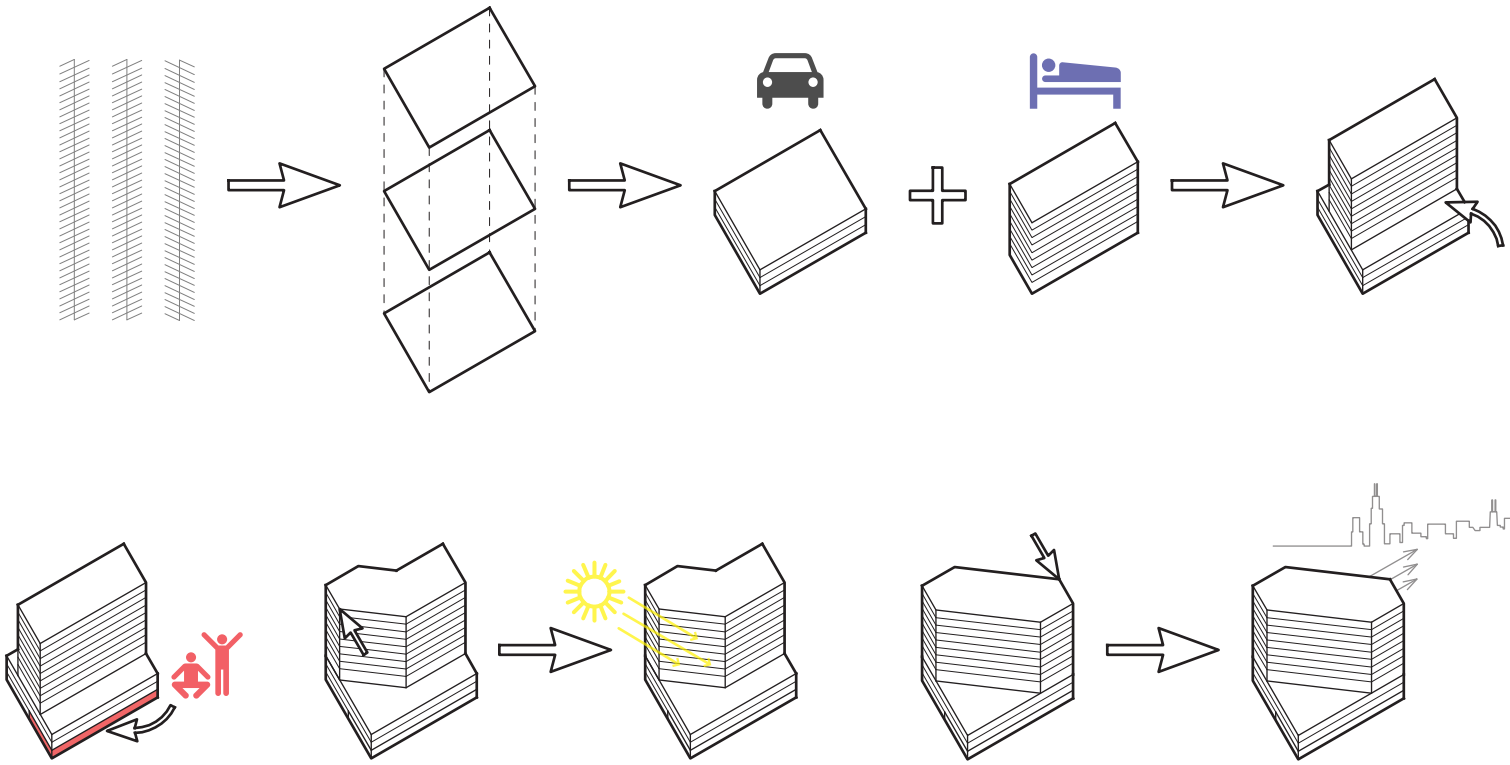
Scale : 1/8" = 1'-0"

process

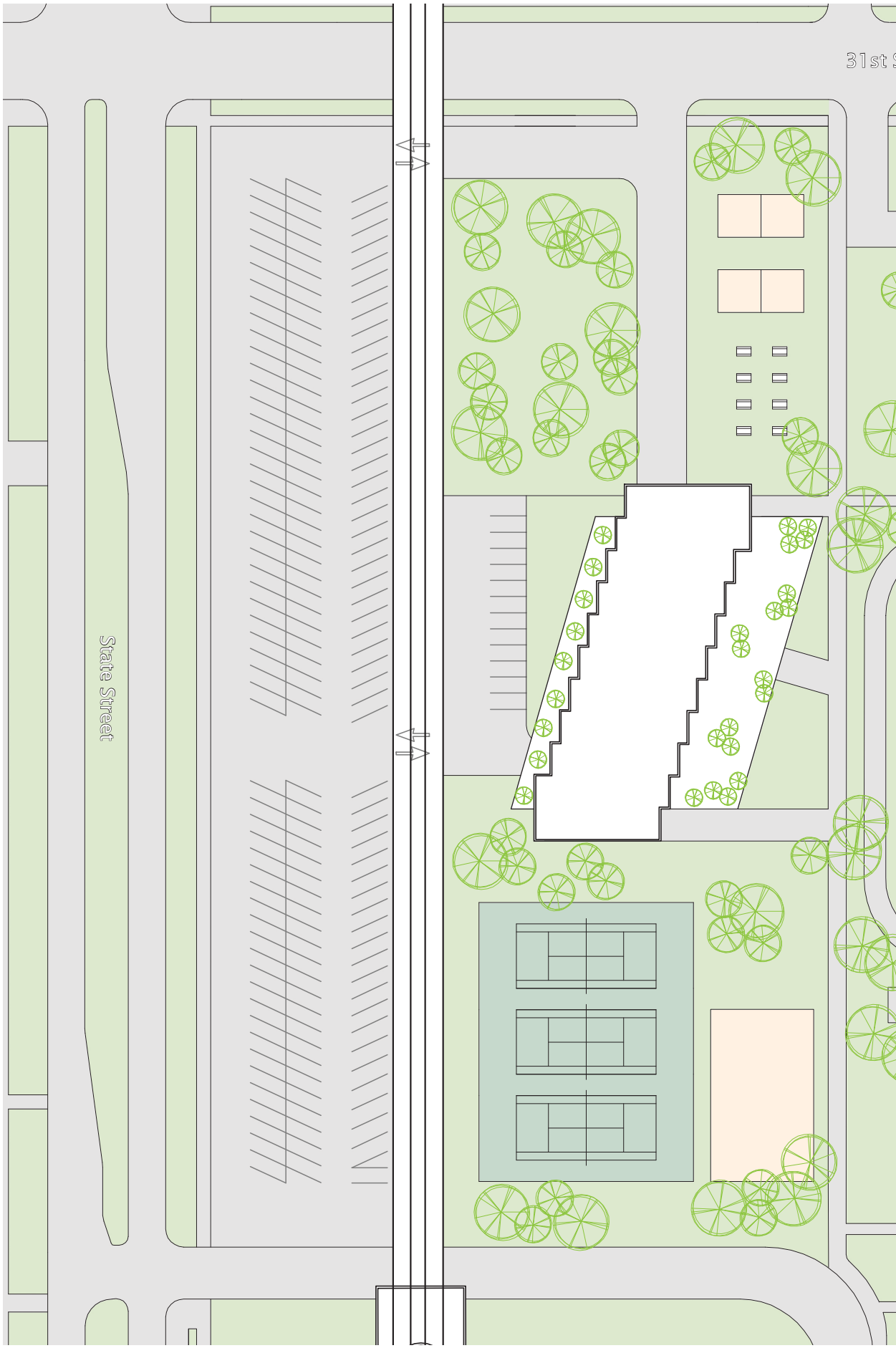


Iterations

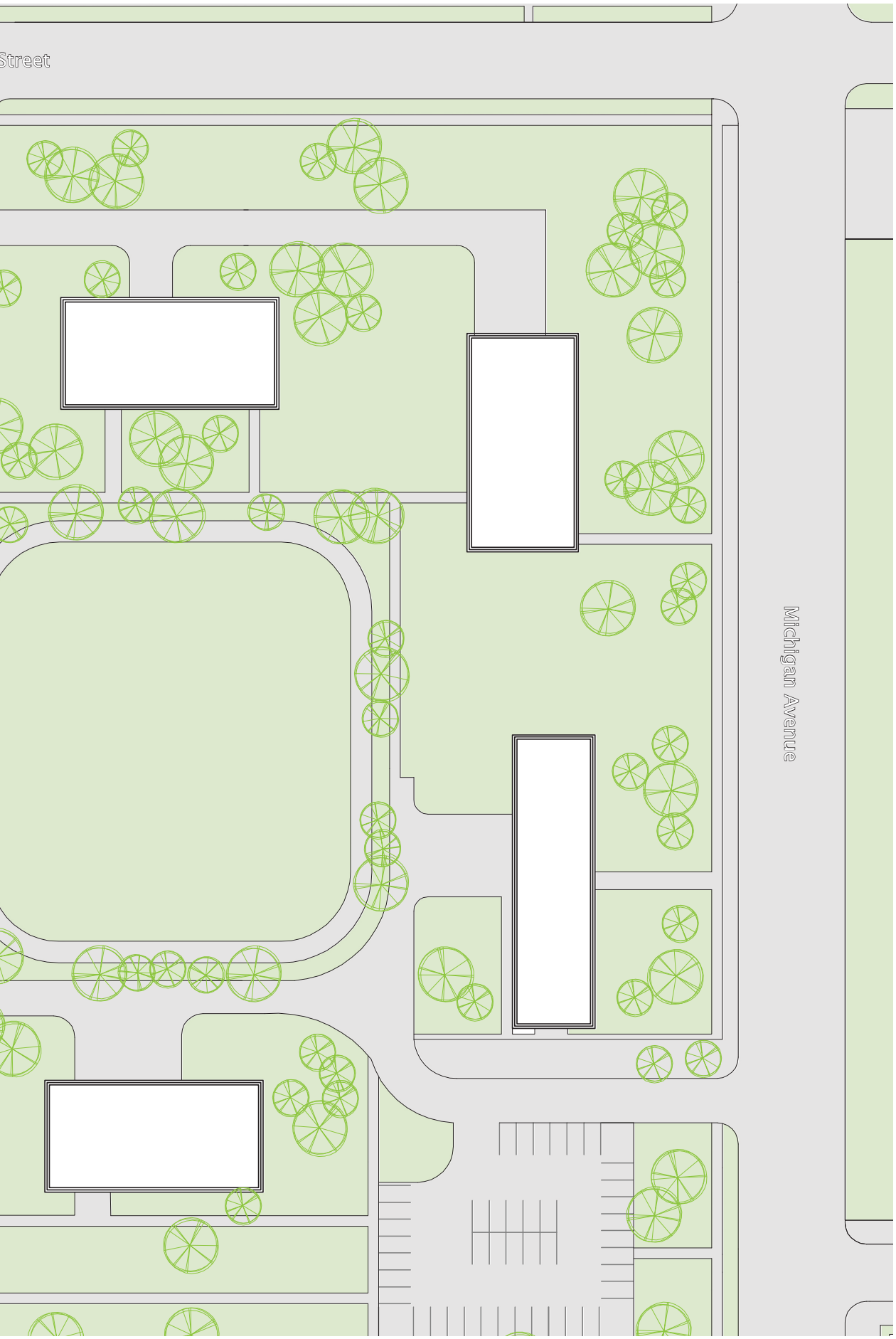
conclusion

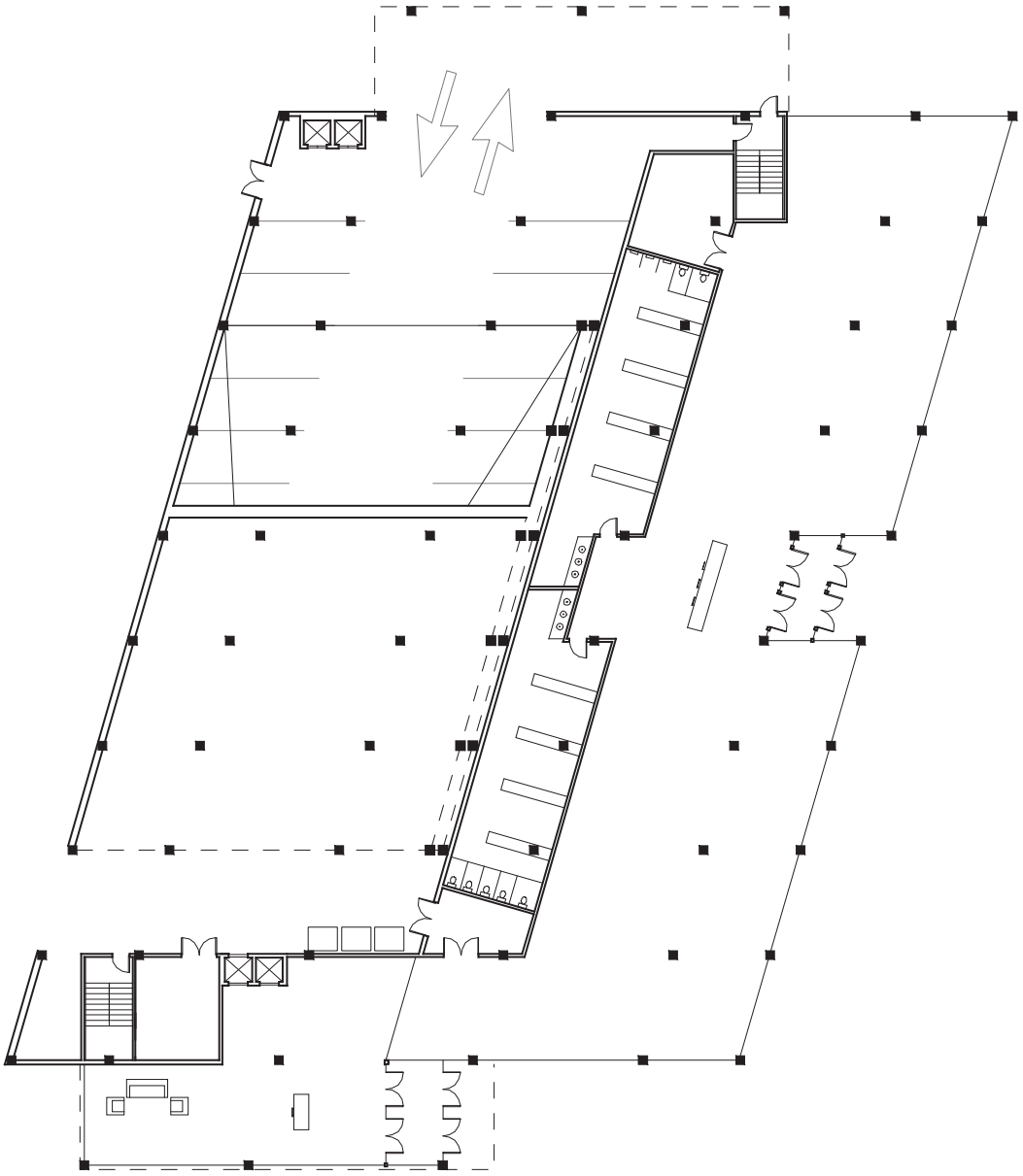


Formal Logic



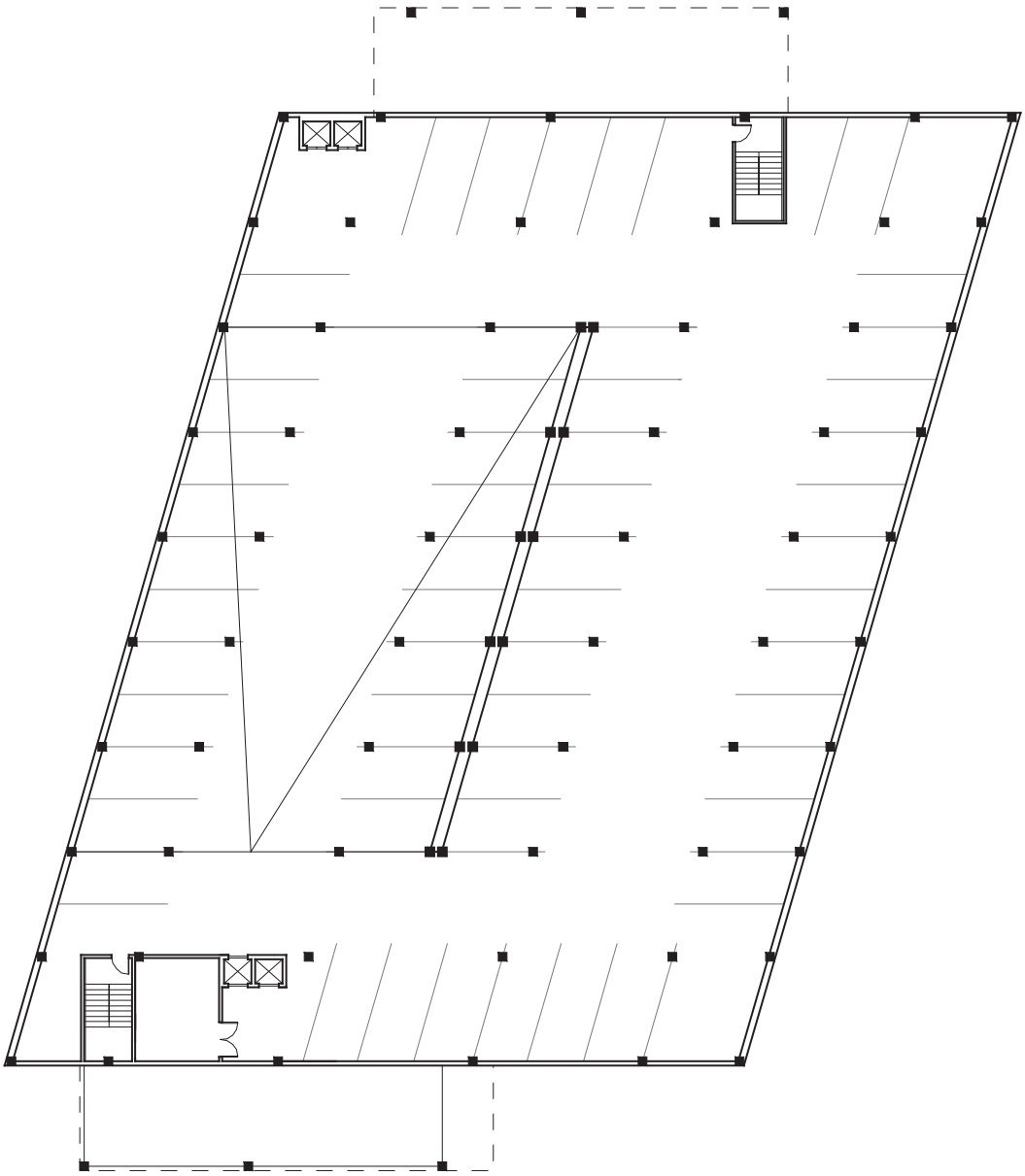
Site Plan


Street
Michigan Avenue



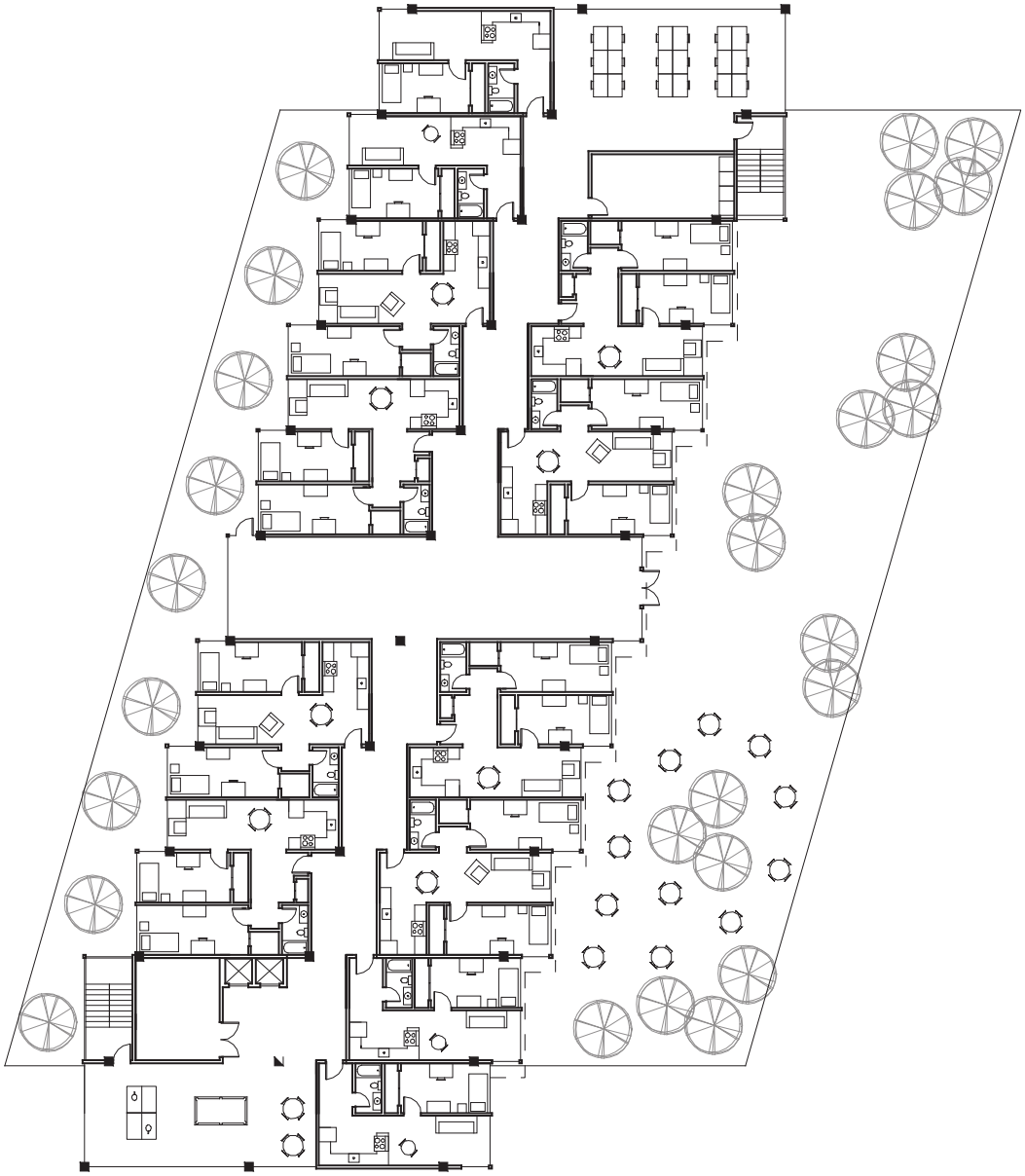
Level 1 : Garage Entrance, Fitness Level, Residence Lobby

Scale : 1/32" = 1'-0"



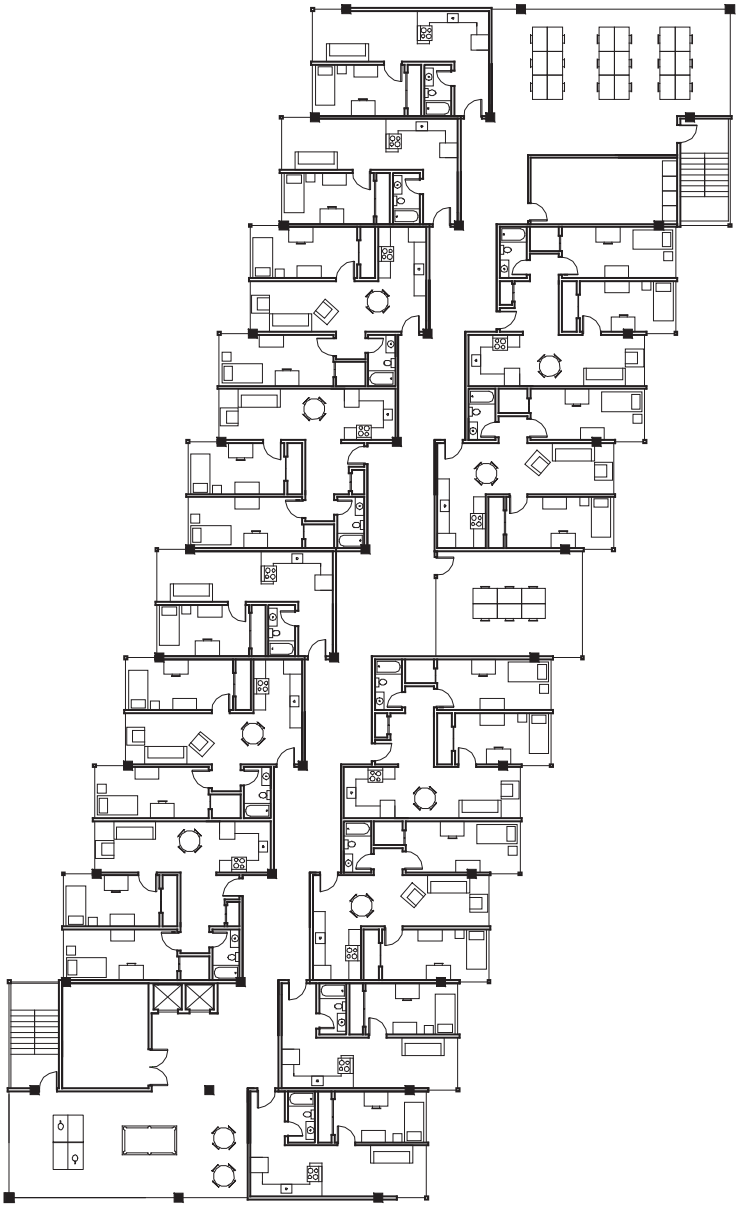
Levels 2-3 : Garage

Scale : 1/32" = 1'-0"



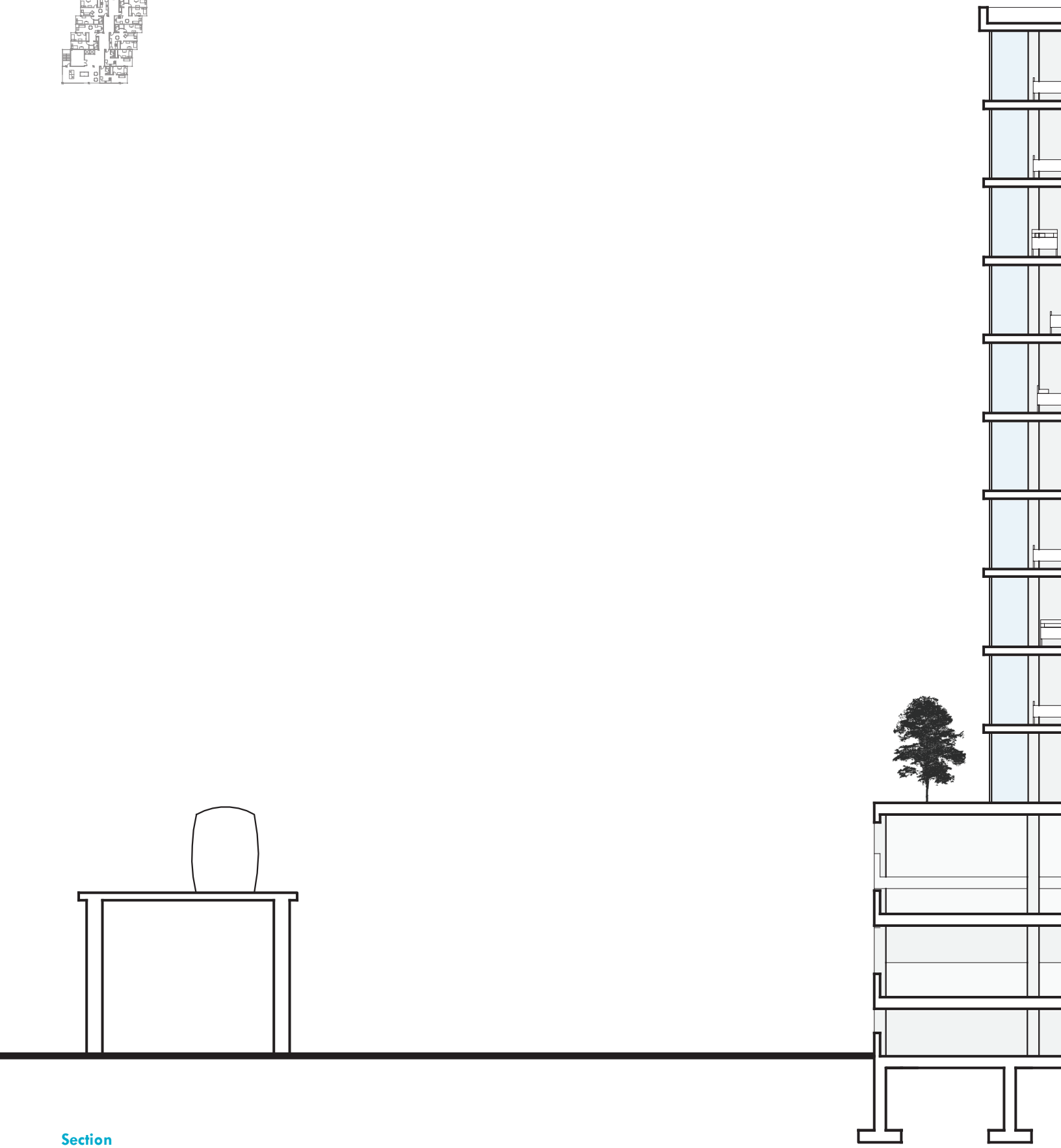
Level 4 : Residences and Roof Terrace

Scale : 1/32" = 1'-0"

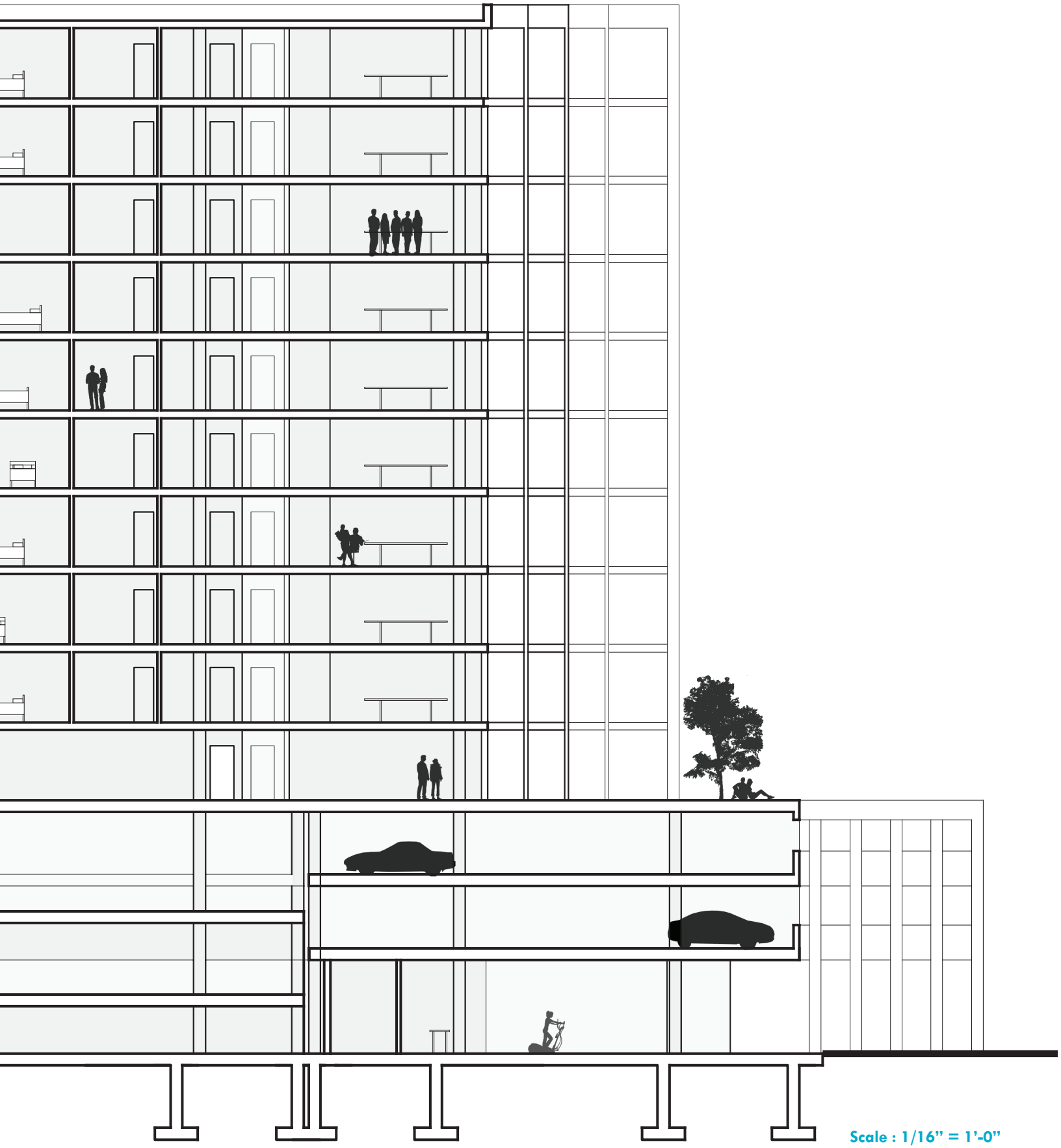


Levels 5-13 : Residences with Social and Study Spaces

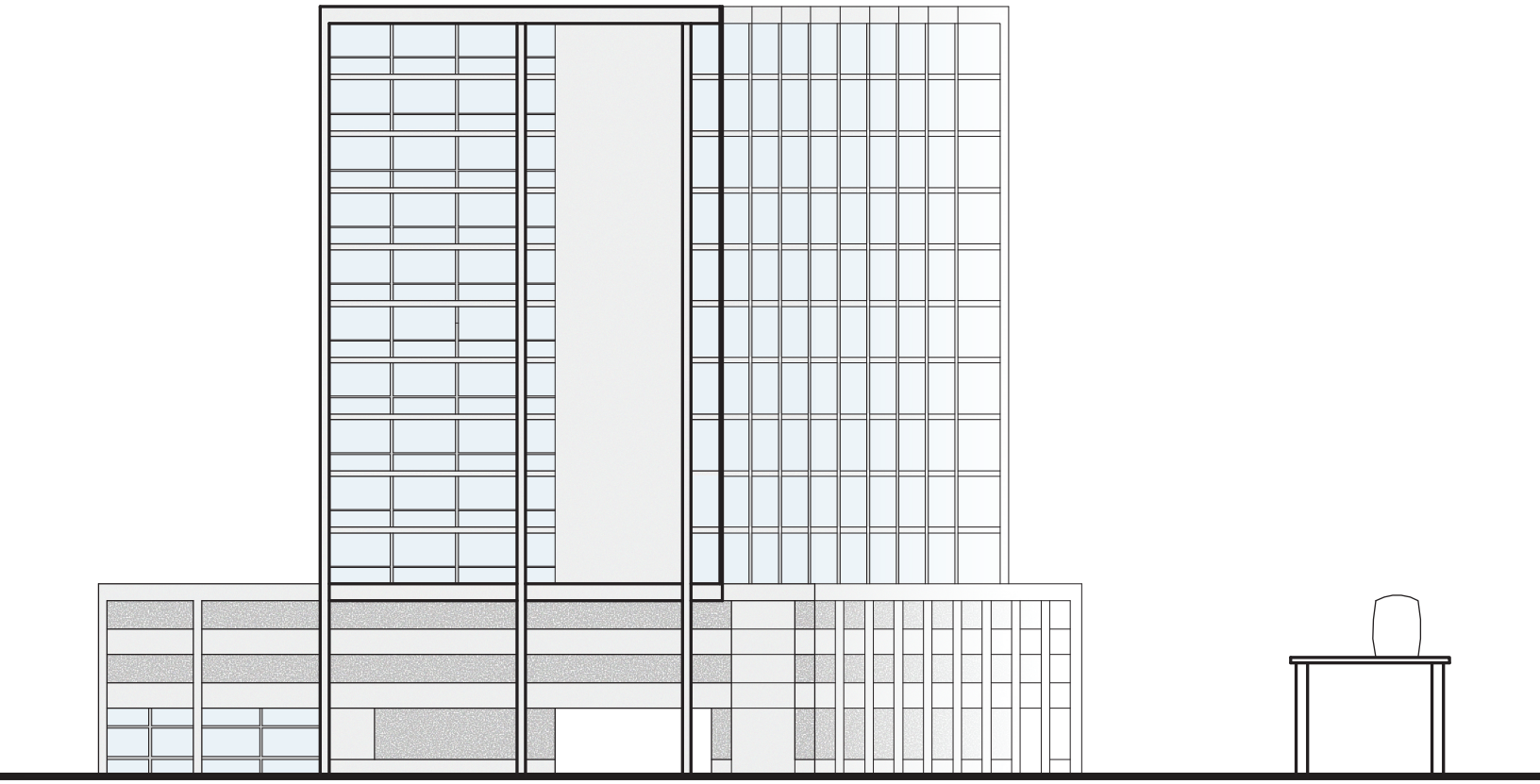
Scale : 1/32" = 1'-0"



Section

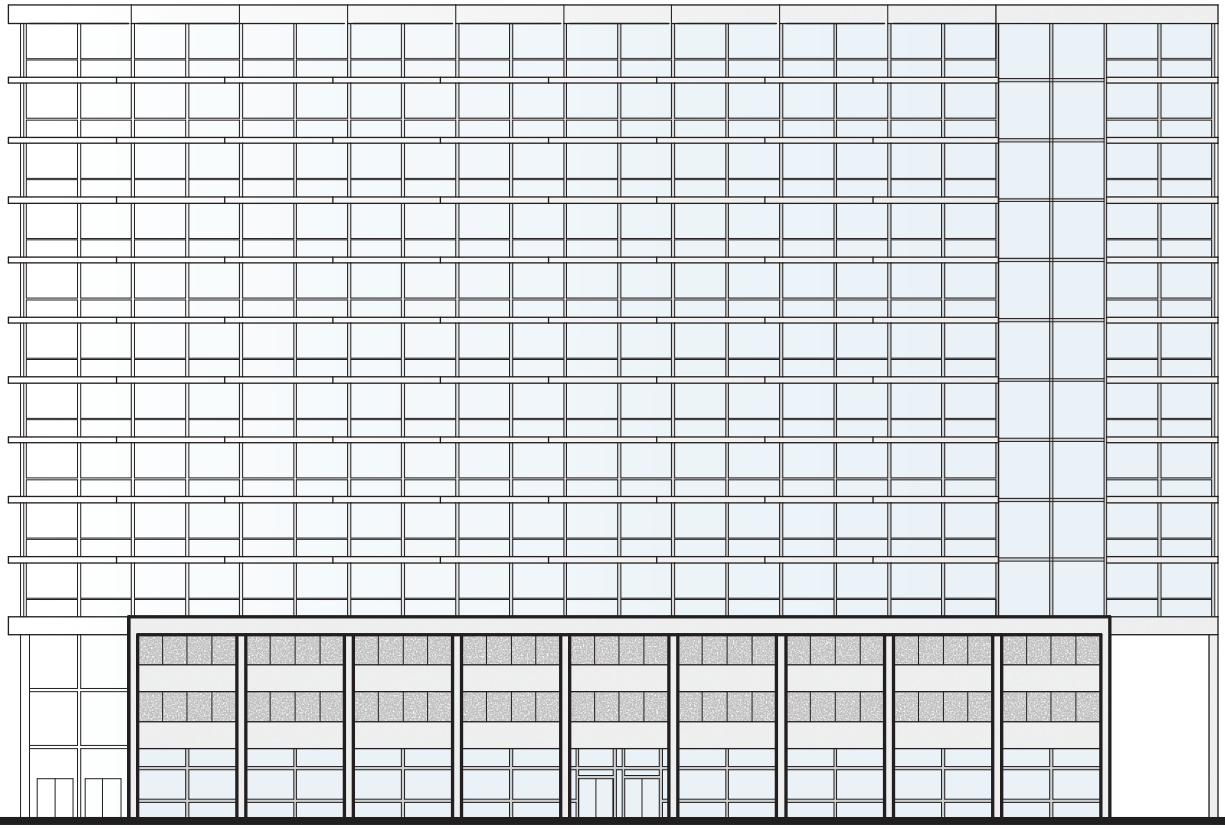


Scale : 1/16” = 1’-0”



North Elevation (typical)

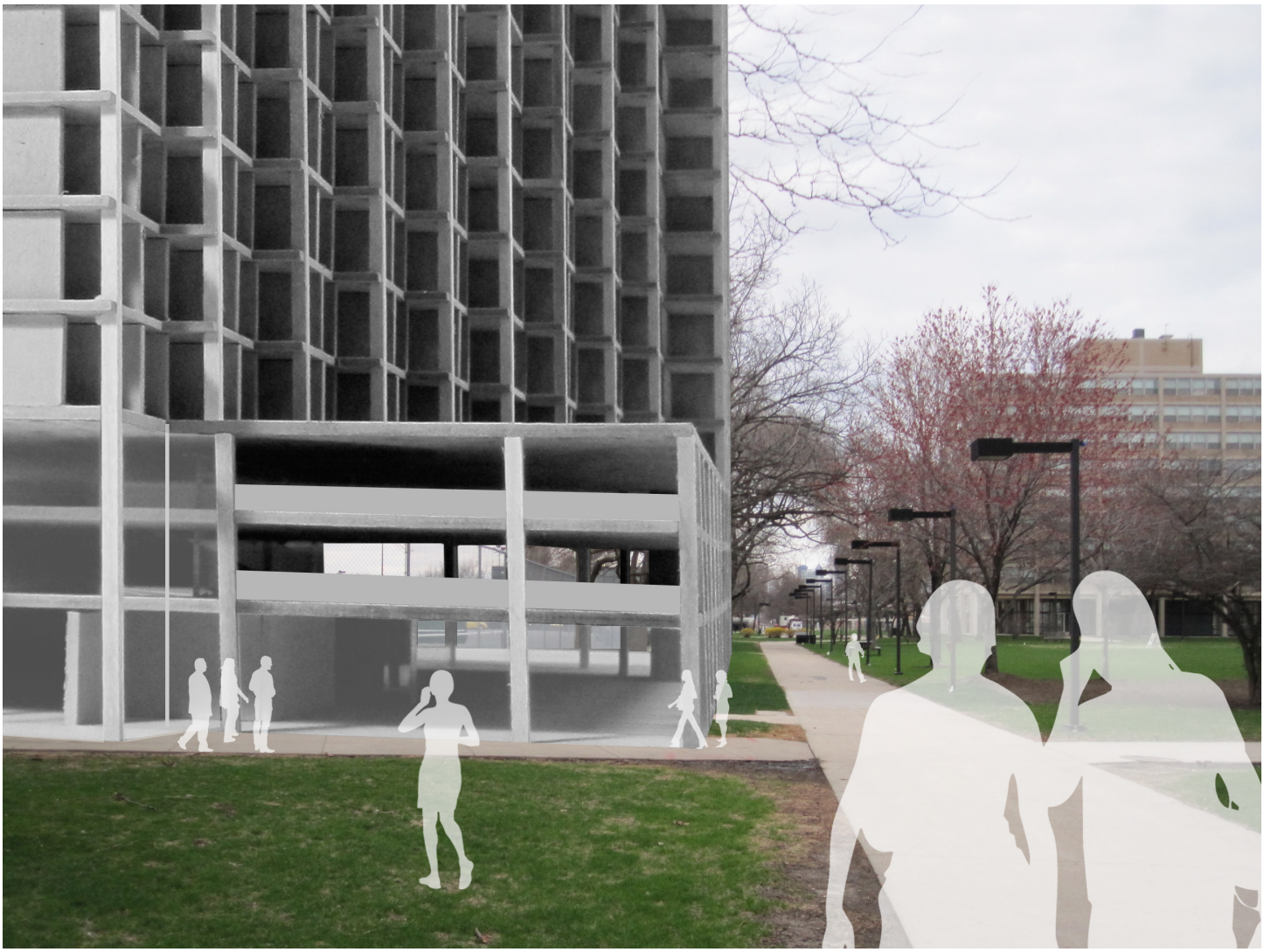
Scale : 1/32" = 1'-0"



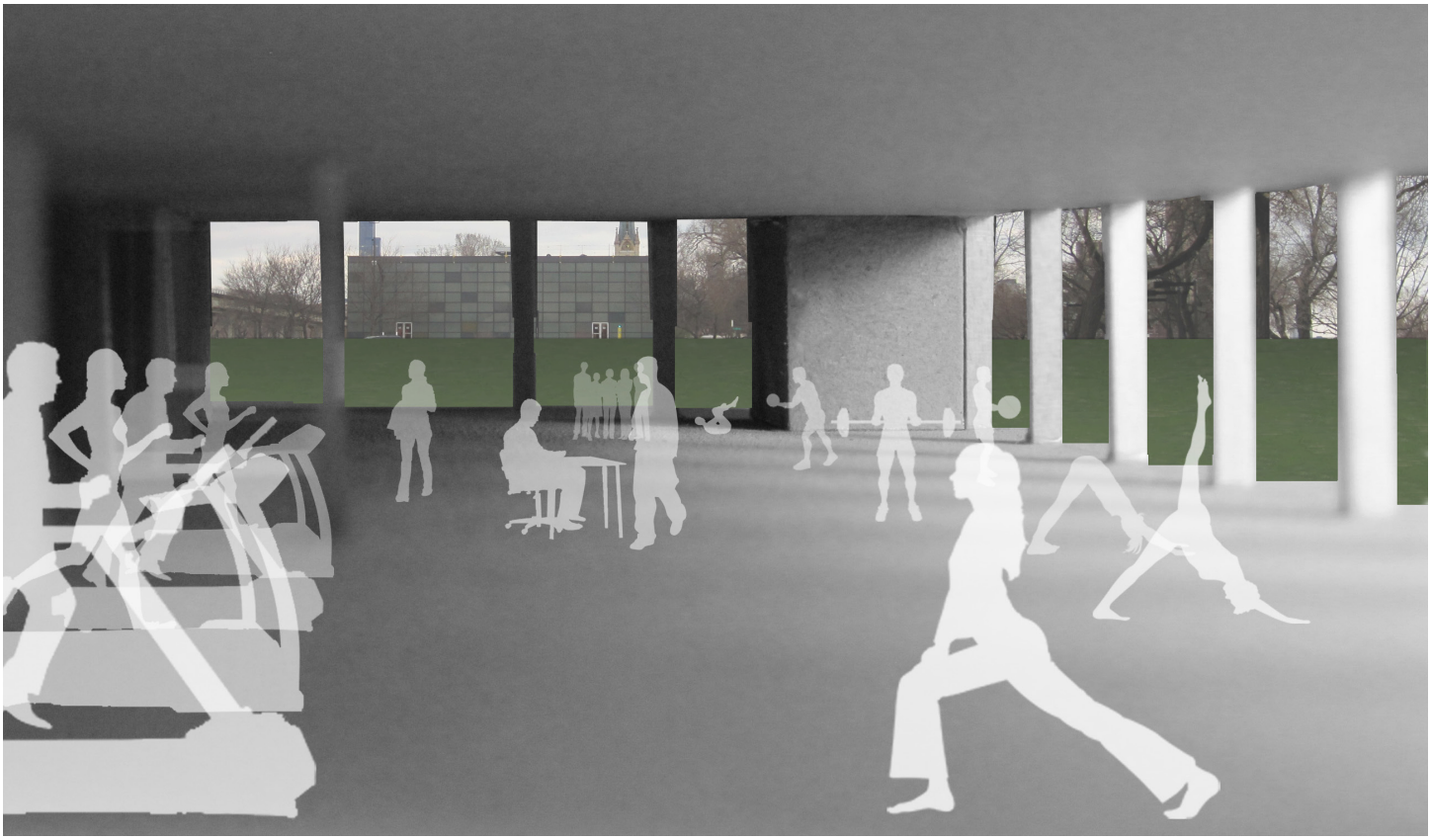
East Elevation (typical)

Scale : 1/32" = 1'-0"

View from East



View from South



Fitness Center

Social Recreation Space

references

precedents

Tietgen Dormitory,
Copenhagen, Denmark

Simmons Hall,
Cambridge, Massachusetts

State Street Village,
Chicago, Illinois

University of Toronto Graduate Student Housing,
Toronto, Ontario

Baker House,
Cambridge, Massachusetts

One Western Avenue,
Allston, Massachusetts

Project Title:
Tietgen Dormitory

Location:
Copenhagen, Denmark

Architect:
Lundgaard & Tranberg Arkitekter

Year Completed:
2006

Size:
288,472 sf

Capacity:
360 flats

Notes:
The principle inspiration for the project is the meeting of the collective and the individual, a characteristic inherent to the dormitory building type. The simple circular form of the Tietgen Dormitory is an urban response to the context, providing a bold architectural statement in the newly planned area. The building's circular form – symbol of equality and the communal – is contrasted by projecting volumes expressing the individual residences. The upper levels are organized with 360 residence units along the perimeter and the communal functions are oriented toward the inner courtyard. Facilities common to the entire dormitory are grouped at ground level. The apartments are set at differing depths in an alternating rhythm, which expresses the individual's unique identity through its form and gives the exterior form of the building it's characteristic, crystalline expression and neutralizes the possibly monumental shape of the cylindrical space.
The apartment groups' communal spaces are formed correspondingly. They stand out as dramatically protruding building masses that face the middle of the courtyard – the centre-point of the entire form.
The dormitory's facade of copper alloy panels is complemented by a glass partition and sliding screen profile system of oiled American oak. The building's interior is characterized by an exposed concrete structure and plywood clad partitions. Poured magnesia flooring and acoustic ceilings of expanded metal are used throughout the dormitory.

Source:
http://architecturelab.net/08/tietgen-dormitory-denmark-by-lundgaard-tranberg-arkitektfirma/


16

Project Title:
Simmons Hall

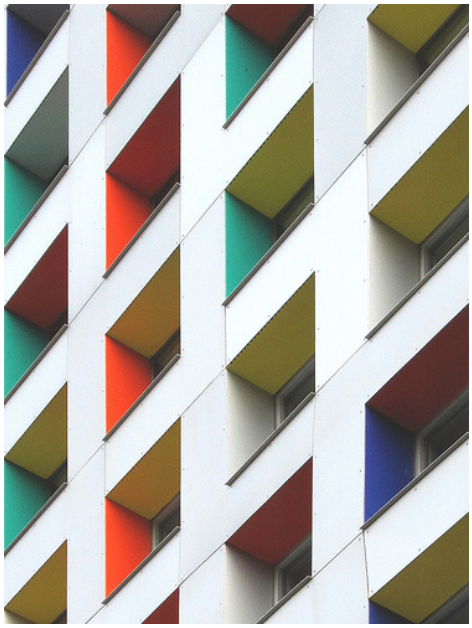
Location:
MIT – Cambridge, Massachusetts

Architect:
Steven Holl Architects

Year Completed:
2002

Size:
196,000 gsf

Capacity:
350 students and faculty



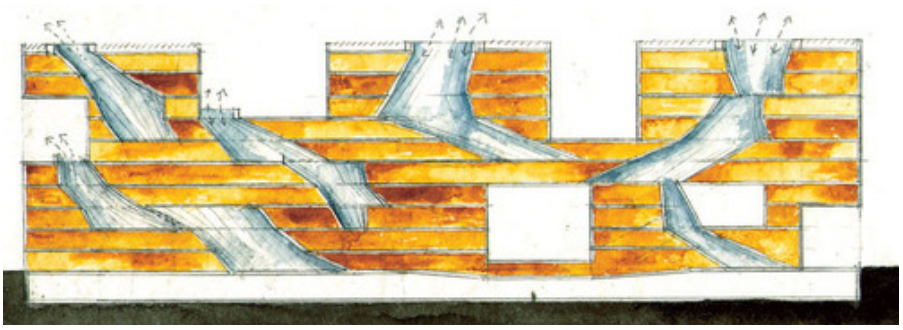
Notes:
The urban concept provides amenities to students within the dormitory such as a 125 seat theater, as well as a night cafe. House dining is on street level, like a street front restaurant with a special awning and outdoor tables. The corridors connecting the rooms are like streets which happen upon urban experiences.

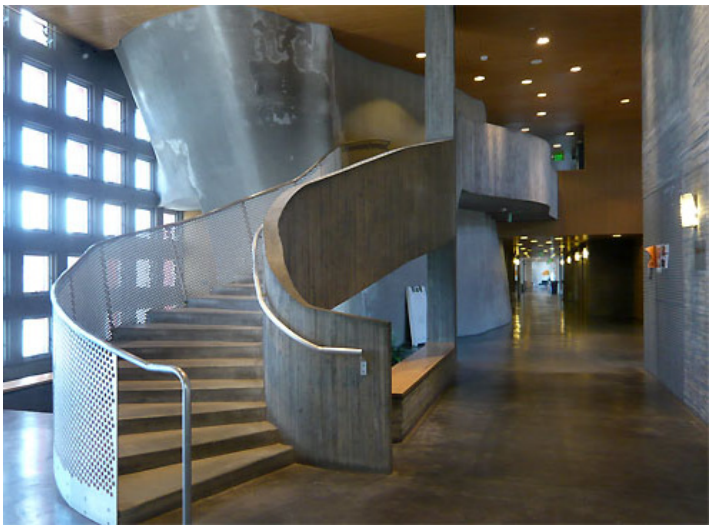
The 'perfcon' structure is a unique design, allowing for maximum flexibility and interaction. The overall building mass has five large scale openings. These roughly correspond to main entrances, view corridors, and the main outdoor activity terraces of the dormitory connected to programs such as the gymnasium.

Each of the dormitory's single rooms has nine operable windows. The depth of the wall naturally shades out the summer sun, while allowing the low angled winter sun in to help heat the building. In the deep setting of the numerous windows color is applied to the head and jamb creating identity for each of the ten 'houses' within the overall building. The night light from the 9-window rooms is magical and exciting.

The facade of the M.I.T. dorm was partly inspired, Holl has said, by the sponge he was bathing with one morning. "A sponge can absorb several times its weight in liquid without changing its appearance. Cast glass seems to trap light within its material. Its translucency or transparency maintains a glow of reflected light, refracted light or the light dispersed on adjacent surfaces. This intermeshing of material properties and optic phenomena opens a field for exploration," Holl says. The sponge concept for the new undergraduate residence hall transforms a porous building morphology via a series of programmatic and bio-technical functions.

Sources:
http://www.designboom.com/portrait/holl_simmonshall.html
http://web.mit.edu/facilities/construction/completed/simmons.html





Project Title:
State Street Village

Location:
IIT – Chicago, Illinois

Architect:
Murphy/Jahn, Inc.

Year Completed:
2003

Size:
110,000 sf

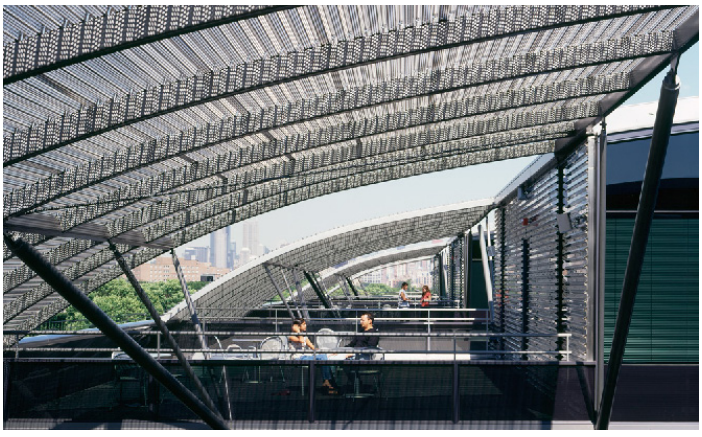
Capacity:
367 beds

Notes:
Designed by Helmut Jahn of Murphy-Jahn Associates, the dormitory is IIT's newest, completed in 2003. Although it appears that SSV (as it is commonly referred to by students) is a single continuous building, SSV is actually three different buildings built next to each other, sharing the same facade; they are commonly referred to as "north", "middle", and "south". Each building consists of five stories, with dorms on the "north" and "south" sides of the building and an elevator and common area splitting the two sections in the middle. Suites themselves usually consist of two double rooms that are connected by a central bathroom.

State Street Village also has kitchens and laundry rooms on all floors, with a lounge and open deck located on the top floor of each of the three separate buildings. Apartments and suites are insulated from direct exposure to the sound of the L by a corridor of stairways, utility rooms, and student lounges. The back wall for the corridor is made of concrete and generous expanses of specially designed glass. "Sound is best reduced with a lot of mass," explains Jahn. "Normally in an insulating glass, you have two panes of the same thickness of glass." Here, however, one pane is thicker than the other, "which adds more mass, and it has a considerable sound reduction."

Most buildings start out with grand ambitions, only to have them compromised with cheaper materials and lesser amenities as costs inevitably rise above estimates. At State Street Village, Jahn started out with what was, for him, a fairly tight budget. He met its constraints by eliminating the added cost of the usual applied finishes, keeping the building as raw as possible. "Look around here," Jahn says, "everything you see is what's needed on the building, whether it's the façade, whether it's the screen, whether it's the steel or concrete. Everything is left only as much as it needs to be. Because these are the things we need in a building, these are the most expensive things in a building, and often buildings cover them up, only to resort to cheap ceilings, to paint, to drywall -all the things which don't look good, don't wear well, don't stand up over time." So, within the dorms, the concrete beams and ceilings are left exposed. Floors are concrete covered in a simply epoxy. Fixtures are stainless steel. The elevators and their mechanical workings are exposed in clear glass shafts.

Sources:
http://www.murphyjahn.com/IIT.html
http://www.iit.edu/housing/choices/state_street_village.shtml
http://www.lynnbecker.com/repeat/Jahn/jahn.htm



Project Title:
University of Toronto Graduate Student Housing

Location:
Toronto, Ontario

Architect:
Morphosis + Teeple Architects

Year Completed:
2000

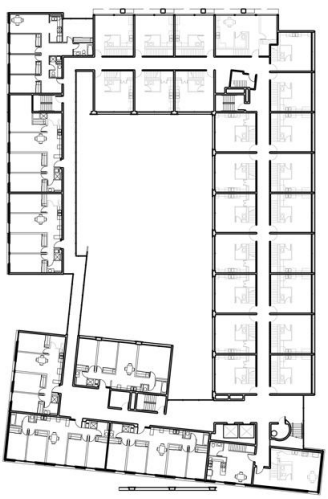
Size:
248,000 sf

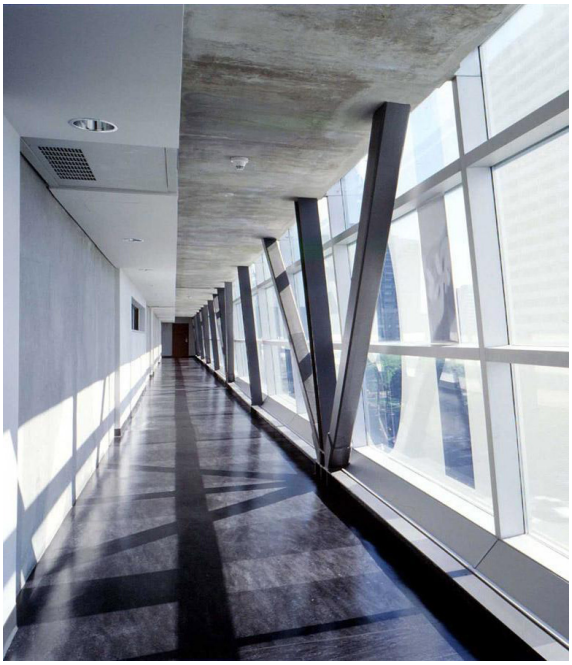
Capacity:
475 students

Notes:
The massing and exterior articulation responds to both contingent site characteristics and to intense programmatic needs. Organized around an open central courtyard, each of the building elements corresponds to the scale of its adjacencies. The two main components, a ten-story block on the eastern edge of the site and a seven-story block along the western edge, wrap and engage one another. Skip-stop elevator configurations allow for a higher density within the building envelope than would a standard double-loaded corridor, while also providing additional space for student rooms that benefit from through-ventilation via windows that overlook both city and courtyard. At street level there are retail spaces that form an urban node to augment public activity and connect this campus entry point with the surrounding city.

Along the top floors of the western wing, a glazed light bar, visible for miles, projects beyond the building's edge to terminate at the halfway point across Harbord Street, forty five feet above ground- level. The final steel "O" of the glazed corridor's "UNIVERSITY OF TORONT_" sign dangles from the end, registering a shift from two dimensions to three and from ground to figure. The trajectory of this elevated, human-scaled cornice breaks through the boundary between private and public, defining a threshold that may stimulates further consideration of the University's civic role and of the boundaries between institution and city.

Sources:
http://morphopedia.com/projects/university-of-toronto-graduate-student-h
http://www.galinsky.com/buildings/graduatehouse/index.htm





Project Title:
Baker Dormitory

Location:
Cambridge, Massachusetts

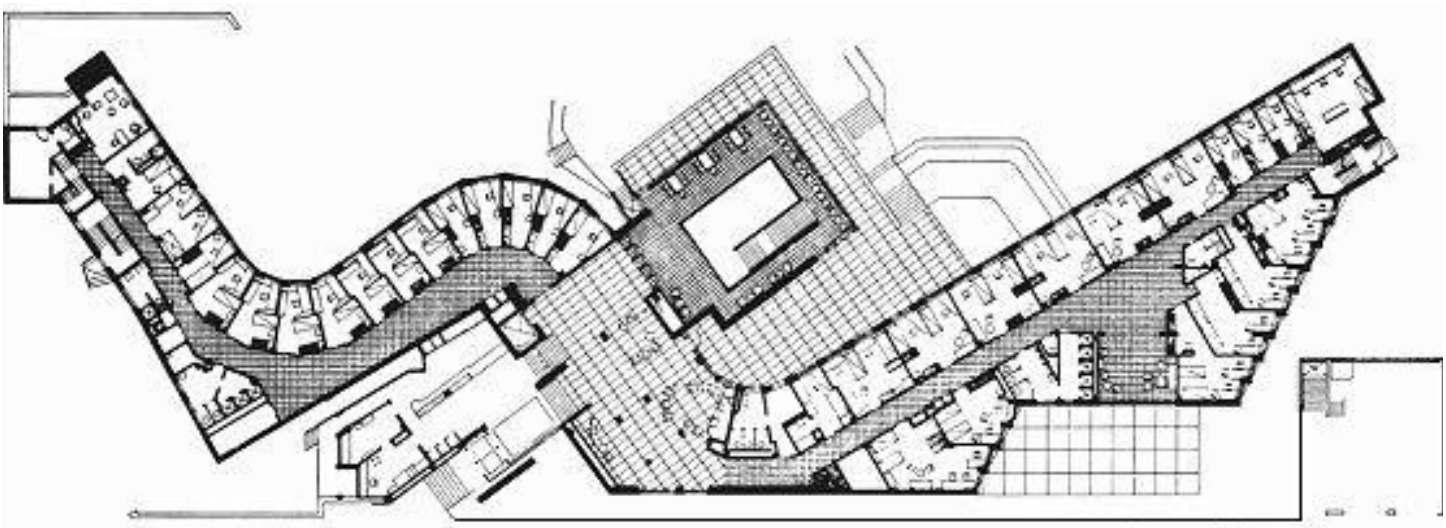
Architect:
Alvar Aalto

Year Completed:
1948

Capacity:
318 students

Notes:
"The site is located on a heavily-trafficked street along the Charles River. In order to avoid as much as possible the disturbing view out onto this street, a curving plan form was chosen. By this means, no room was oriented at right angles to the street and its traffic. It is well known how much more tranquil it is to look, for example, from a diagonal line of sight out of the windows of a moving train at the passing landscape. An attempt to make use of this phenomenon was made with the form of the building: the windows face diagonally to the passing automobiles and thus afford a quieter environment for the person within the room. The stairway system is housed in a paneled structure rising up the north side of the building which allows an unobstructed view along its entire length from the lowest landing."

Sources:
http://www.greatbuildings.com/buildings/Baker_Dormitory.html
Karl Fleig, ed. Alvar Aalto. Scarsdale, N.Y.: Wittenborn and Company, 1963. p134.
http://www.archdaily.com/61752/ad-classics-mit-baker-house-dormitory-alvar-aalto/
http://www.dwell.com/articles/i-live-in-an-alvar-aalto.html



Project Title:
One Western Avenue

Location:
Allston, Massachusetts (Harvard)

Architect:
Machado and Silvetti Associates

Year Completed:
2003

Size:
233,000 sf

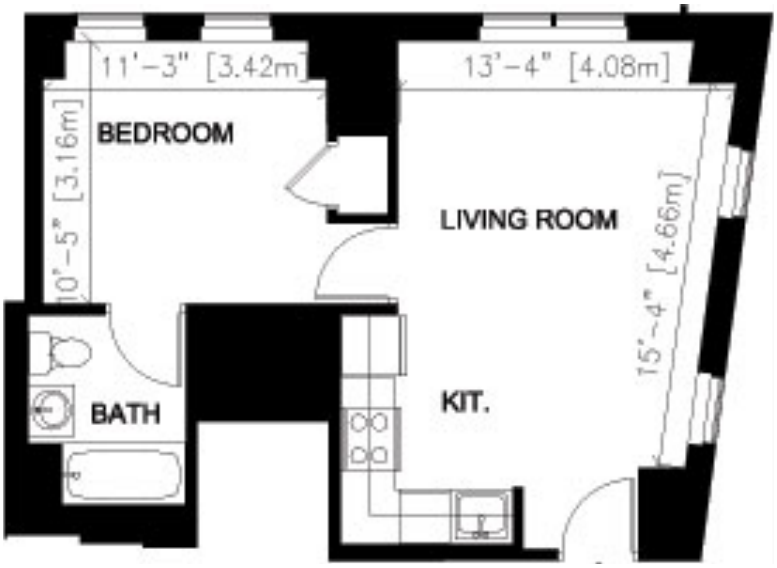
Capacity:
365 students

Notes:
"One Western Avenue occupies a prominent site at the southeast corner of the Harvard Business School, adjacent to the Charles River, where Western Avenue crosses Soldiers Field Road. The site marks arrival to Harvard's campus from downtown Boston and areas south. The building's configuration and image are based on interpretations of its physical context — the early-twentieth-century, five-story, brick-clad, U-shaped neo-Georgian courtyard houses and the mid-twentieth-century, twenty-story, concrete paneled modern towers.

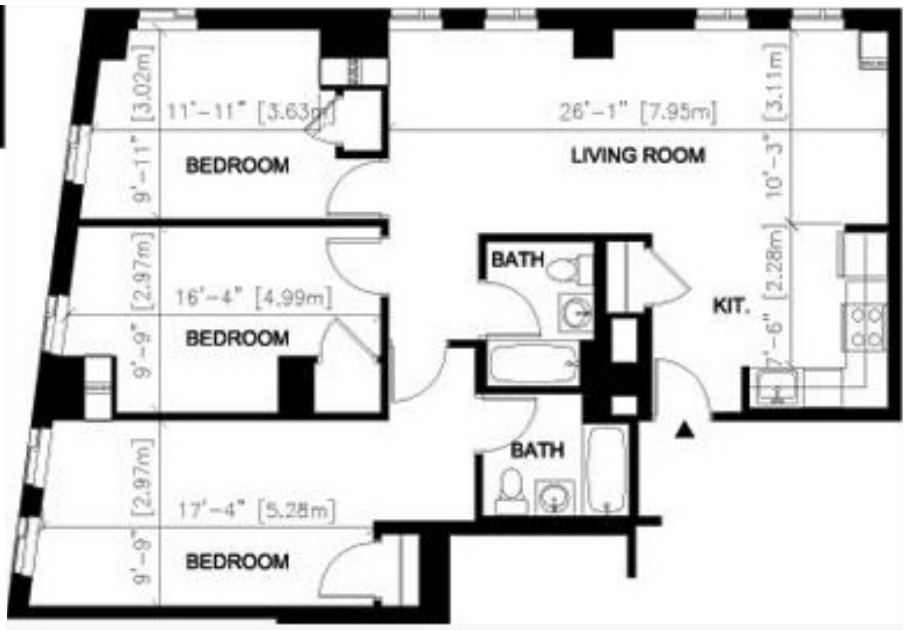
While One Western Avenue combines these two emblematic types, it adds something else, a three-story bridge raised four levels above the ground and spanning 180 feet. This volume divides the main central void into two contrasting spaces, a courtyard (with framed views to the river) and a front lawn. It creates a large covered terrace, furnished with a wooden platform intended for everyday use as well as special occasions. This configuration produces desirable conditions that normally exclude one another: a courtyard open to the river and three stories of apartments occupying the same riverfront situation.

The low-rise is wrapped in two brick patterns, one for the exterior walls and the other for the interior walls. These overlap in the entry passageway, producing a third pattern. The mid-rise and the bridge are clad in cast stone blocks, but used differently from one another. The surface treatment of all of the volumes is designed to allow the ideal prismatic geometry of the various building masses to register on the façade planes. One of the first buildings designed to fulfill a new sustainability initiative at Harvard, known as "The Greening of the Crimson," the project has recently received a silver LEED rating."

Sources:
http://www.machado-silvetti.com/projects/harvard/index.php
http://www.huhousing.harvard.edu/OneWesternAvenueMA/Index.aspx


11'-3" [3.42m]
13'-4" [4.08m]
BEDROOM
10'-5" [3.16m]
LIVING ROOM
15'-4" [4.66m]
BATH
KIT.


BATH
LIVING ROOM
/ BEDROOM
15'-6" [4.72m]
13'-2" [4.02m]
KIT.


9'-11" [3.02m]
11'-11" [3.63m]
BEDROOM
26'-1" [7.95m]
LIVING ROOM
10'-3" [3.11m]
9'-9" [2.97m]
16'-4" [4.99m]
BEDROOM
BATH
KIT.
7'-6" [2.28m]
BATH
9'-9" [2.97m]
17'-4" [5.28m]
BEDROOM

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