

# ACKNOWLEDGEMENT

First and foremost, I want to thank everyone who gave me strong support during this process. Thanks to my dear clients. I could not have finished without your help and support.

Thanks to my committee chair, Ray Pentecost, for your wise advice and support. You really helped me solve problems.

To my committee member, Xuemei Zhu, I want to say thanks for all your help with design and other classes. I feel grateful to you and your husband!

I appreciate Chang-shan, Huang. Your suggestions about site planning and landscape saved my project.

Brian, thanks for your patience. Your encouragement helped me get through those hard times and finally reach this point.

I also want to thank all of my friends. I will never forget the days we were together and solved so many problems!

And of course my parents, you always sacrifice for me and I can finally make you proud.

This amazing experience will stay with me forever. I will always work hard and never give up.

Thanks again to everyone who supported me these years!

Shiduo Lang

# COMMITTEE INFORMATION

Ray  
Pentecost      Committee Chair  
Department of Architecture

Xuemei  
Zhu      Committee Member  
Department of Architecture

Chang-shan  
Huang      Committee Member  
Department of Architecture  
Architecture and Urban Planning

Brian  
Gibbs      Studio Professor  
Department of Architecture

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# Introduction

## Background Information & Project Introduction

Location: Mueller, Austin, Texas

Design Period: 2019 Fall - 2020 Spring

Type: Mixed Use with Living & Community House

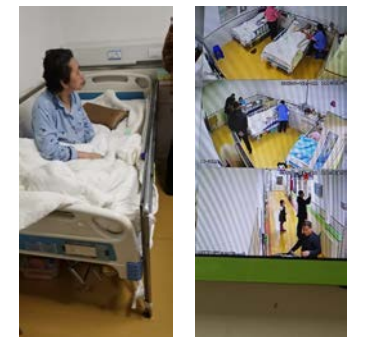
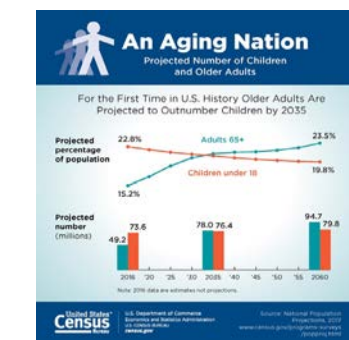
Area: 81376 ft<sup>2</sup>

# Mission Statement

Create, on 7.5 acres in Mueller, places that provide flexibility to adapt to changes in lifestyle, climate, transportation and employment. Define a prototype for the next 50 years. Make the space attractive, affordable, innovative and sustainable. Provide incubator space to experiment and test different models for living, creating and doing business. Provide a model that can be adapted to meet the challenges of any location in the world (ONEderment Central, Preston Tyree, 2019).

The 7.5 acres will be divided into four parts each with a different function to serve different generations, including, but not limited, to aging adults, children, and younger adults. The main focus of my project is an aging living facility, short term living, and a community house.

# Background Information



The trend of aging is unstoppable globally

My own grandmother is suffering

Age and living arrangement	Total		Males		Females	
	Number	Percent	Number	Percent	Number	Percent
65 and over	38,810	100.0	16,909	100.0	21,901	100.0
Alone	10,906	28.3	3,172	18.8	7,734	35.7
With spouse only	16,808	43.3	9,332	55.2	7,476	34.1
With spouse and other relatives or nonrelatives	5,174	13.3	2,831	16.6	2,344	11.6
With other relatives (no spouse)	4,520	11.6	1,122	6.6	3,398	15.5
With nonrelatives only	1,312	3.4	653	3.9	659	3.0
65 to 74	21,429	100.0	9,952	100.0	11,477	100.0
Alone	4,035	19.4	1,591	16.0	2,444	21.3
With spouse only	10,521	49.1	5,583	56.1	4,938	43.0
With spouse and other relatives or nonrelatives	2,256	10.5	1,242	12.4	1,014	8.8
With other relatives (no spouse)	2,212	10.3	604	6.1	1,608	14.0
With nonrelatives only	526	2.4	432	4.3	94	0.8
75 to 84	12,581	100.0	5,315	100.0	7,266	100.0
Alone	4,045	32.2	1,090	20.5	2,955	40.7
With spouse only	5,160	41.0	3,033	57.1	2,127	29.1
With spouse and other relatives or nonrelatives	1,440	11.4	705	13.3	735	10.1
With other relatives (no spouse)	1,055	8.4	357	6.7	698	9.6
With nonrelatives only	349	2.8	170	3.2	179	2.5
85 and over	4,800	100.0	1,642	100.0	3,158	100.0
Alone	2,315	48.2	520	31.7	1,795	56.9
With spouse only	1,095	22.8	726	44.2	369	11.7
With spouse and other relatives or nonrelatives	409	8.5	184	11.2	225	7.1
With other relatives (no spouse)	754	15.7	182	11.1	572	18.1
With nonrelatives only	197	4.1	50	3.0	147	4.6

Living with other relatives indicates no spouse was present; includes relatives other than spouse and possible nonrelatives.  
Source: U.S. Census Bureau, 2010 Census.



# Literature Review

Old people need access to nature, but there are several barriers. Policies, people's attitude, health conditions and accessibility issues related to building conditions. People benefit from interacting with nature, getting involved in physical activity and enjoying daylight. It helps with blood pressure, hormone balance, sleeping patterns, vitamin D absorption, attention restoration and social interaction.

It is necessary visually connect indoor and outdoor spaces for both mental and safety reasons. We could create transition zones with comfortable seating areas (furniture, material, green plants). The interface should be friendly to aging adults. Automatic doors are expensive but it help aging adults. Clean surface and flat thresholds help old people go outside. To make sure that the outdoor space as a garden could be used frequently, the location of it is critical. Entry garden is a great idea. We could place the outside area near the main entrance. It can't be cut off from the building. The front entrance is always obvious and more used compared with a backyard. Staff could see patients and aging adults easily through the windows in the main lobby. A good view of the entry garden should provide at least three views: A view of the outdoor garden, a view of indoor lobby, and a view of drop off area.

What can we do to enhance their outdoor experience? Greenery and interesting views are helpful. Trees, shrubs, and flowers can be smelled and touched. Interesting views including people. Roofs can be terraces and gardens. Walkway layout around the entrance should have comfortable seatings. Moveable chairs, non-glare material, non-skid paving is widely used. Outdoor micro climate could be changed by ceiling fans and heaters. Also, people could enjoy physical activities including gardening, horticultural therapy, exercise and stretching, special events, games and sports. Children and pets or other animals provide different social interaction which is also good for their health.

Roof gardens are popular recent years due to the continuous increase of population and long-term need of land. Xue-nong suggests that building roof garden can widen the green area and expand the green space effectively. They have ecological functions for improving the environment, beautification function for molding a person's sentiment and colorful practical function. They can promote the ecological balance of the city and optimize the environment for human residence to meet the needs of people to approach nature and return to nature (Xue-nong, 2002).

"THE GREEN HOUSE® model is a deinstitutionalization effort that restores individuals to a home in the community. It combines small homes with the full range of personal care and clinical services expected in high-quality nursing homes. Green House homes typically are licensed as nursing homes but may be created under assisted living or other residential care regulations under certain circumstances. The Green House model of elder care is a total re-envisioning of a skilled nursing home—it cannot be overlaid on an existing large facility. The program creates an intentional community to support the most positive elderhood and work life possible. To achieve these goals, the model changes the philosophy of care, staffing assumptions, organizational configuration, and architecture (The Green House Project Team, 2009)."

Team, The Green House Project. "Guide Book for Transforming Long -Term Care." [https://Blog.thegreenhouseproject.org/Wp-Content/Uploads/2011/12/THE-GREEN-HOUSE-Project-Guide-Book\\_April\\_100413.Pdf](https://Blog.thegreenhouseproject.org/Wp-Content/Uploads/2011/12/THE-GREEN-HOUSE-Project-Guide-Book_April_100413.Pdf), 2011

Sharkey, S. S., Hudak, S., Horn, S. D., James, B., & Howes, J. (2011). Frontline caregiver daily practices: a comparison study of traditional nursing homes and the green house project sites. *Journal of the American Geriatrics Society*, 59(1), 126-131.

Ulrich, R. S., Zimring, C., Zhu, X., DuBose, J., Seo, H.-B., Choi, Y.-S., . . . Joseph, A. (2008). A review of the research literature on evidence-based healthcare design. *HERD: Health Environments Research & Design Journal*, 1(3), 61-125.

Xue-nong, M. A. O. (2002). On the Design of Roof Garden [J]. *Journal of Chongqing Jianzhu University*, 3.

Michael, Y. L., Green, M. K., & Farquhar, S. A. (2006). Neighborhood design and active aging. *Health & place*, 12(4), 734-740.

# Case Study



## Arbor Oaks at Crestview

**Architect**  
PRDG  
**Location**  
Byran, Texas  
**Area**  
235000 ft²

- Access to nature
- Aging friendly living
- Most popular CCRC around
- Previous visit experience
- Residents satisfaction
- Similar climate
- Interior transportation



# Case Study



**Architect**  
Richard Beard Architects  
**Location**  
Kobe, Hyōgo Prefecture, Japan  
**Area**  
500000 ft<sup>2</sup>

- Muti-story aging living
- Mixed used aging facility
- Intergeneration living pattern
- Chaos around site in city
- Connection with city
- Awarded project
- Micro climate

# Project Introduction

## Big Picture

Build a place that provides the Mueller/East Austin community with access to housing, transportation and healthcare and creates a neighborhood that works together to practice We Are All ONE!

We envision ONEderment Central, (located on the four city-block/ 7.5 acre site in Mueller, at the SW corner of Berkman at 51st), as a welcoming place for people living in neighborhoods surrounding Mueller as well as within Mueller.

## Outdoor Spacing

Open courtyards in each block with innovative shade treatments. This is the space where people mingle.

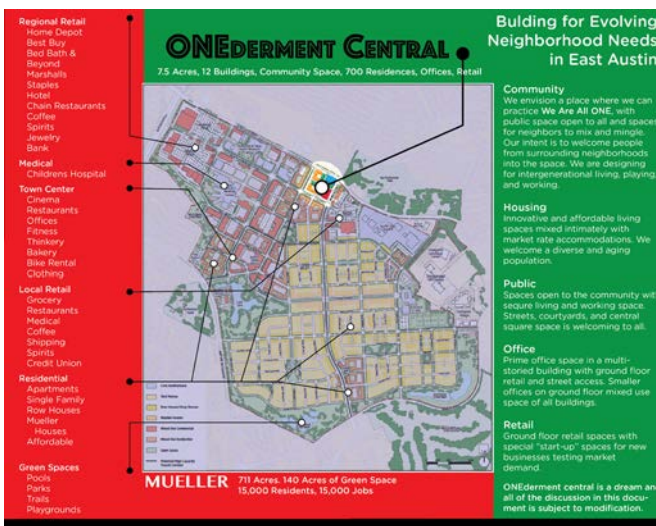
Central courtyard in each block that are open to the public.

- Sidewalks expansive enough to share tables, walking, and riding.
- Fountain Plaza with permeable surfaces including natural turf

## Community House

The ONEderment Community House is designed to be an inviting gateway to all and to meet unmet needs for community space.

We are visualizing an option to include short-term residential above the two floors of the community house. In addition, there will be an opportunity for shared space and facilities with the ONEderment Community Center: workout space, banquet/large meeting room, and more intimate spaces for small groups.

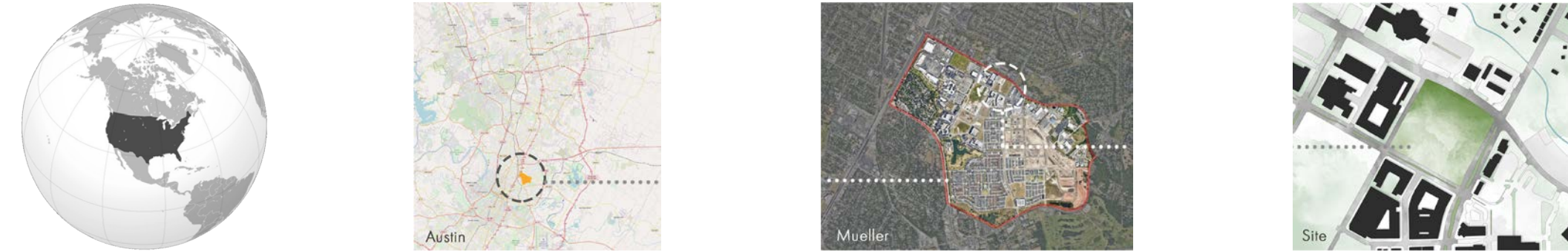




# Site Development

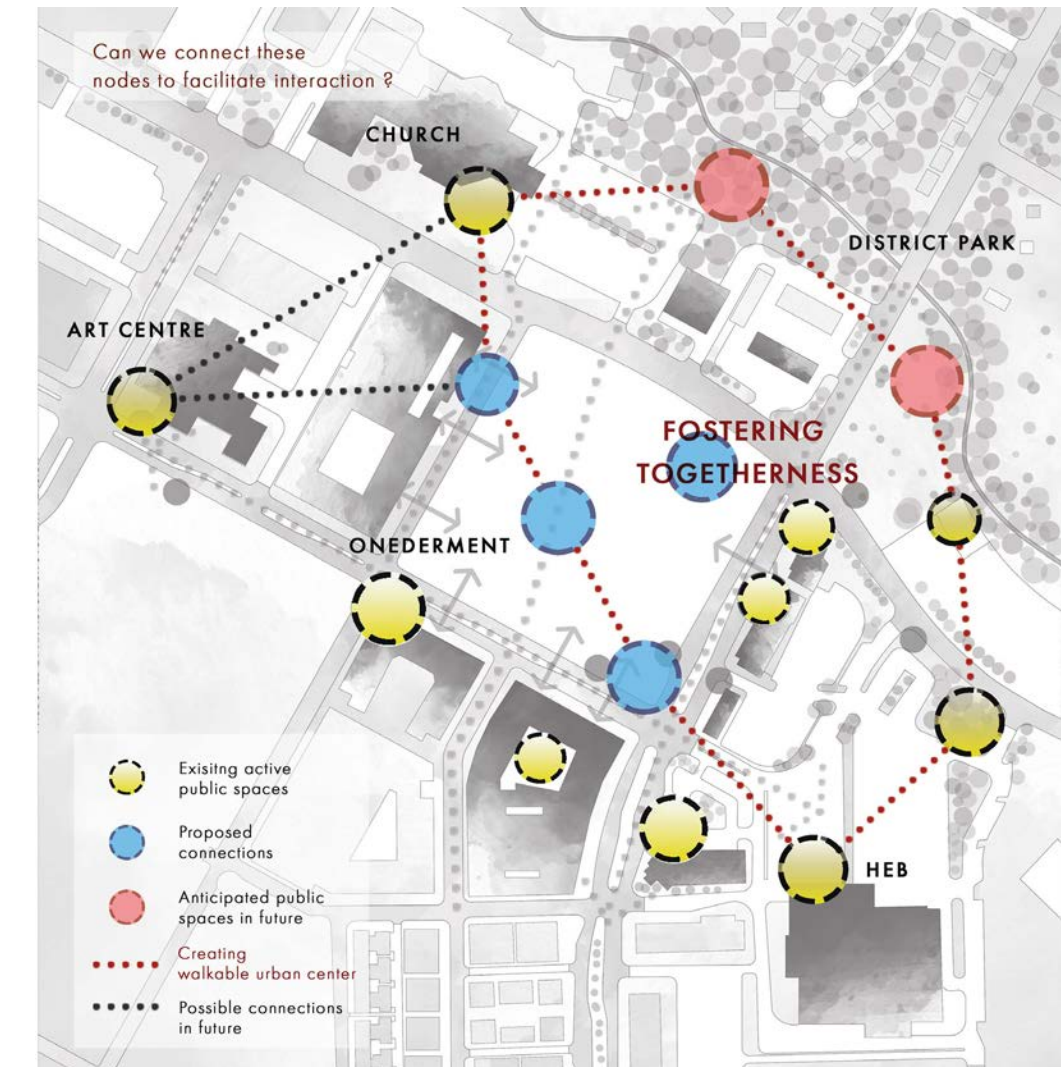
Site Planning & Planning Analysis

## Site Location



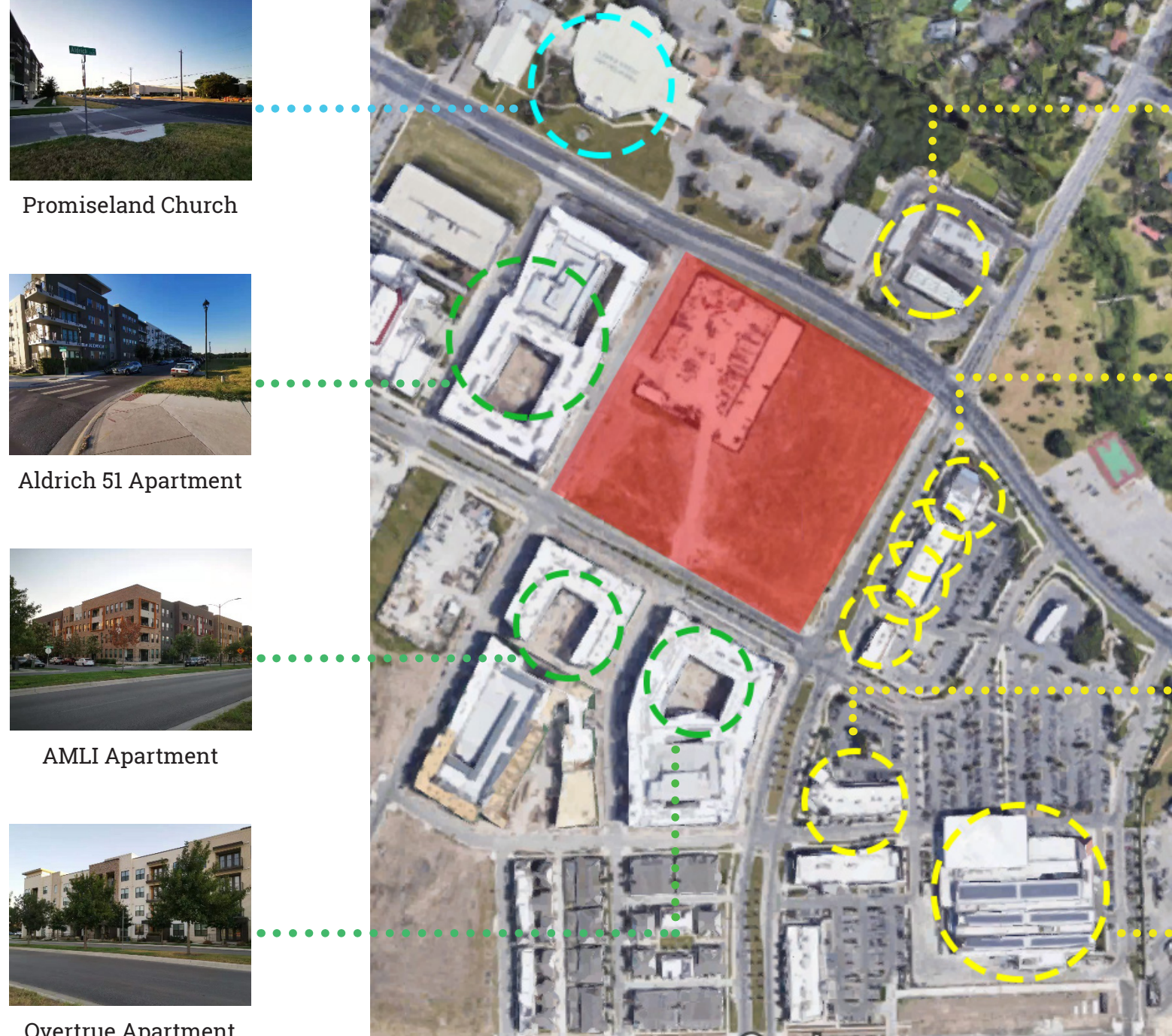
## Surrounding Interaction

Concept:	Green Space
Activity::	Planting & Education
Type:	Planters & Pavilion
Purpose:	Intergenerational Activities





**View around Site**



Promiseland Church

Aldrich 51 Apartment

AMLI Apartment

Overtrue Apartment



Gas Station



Restaurant

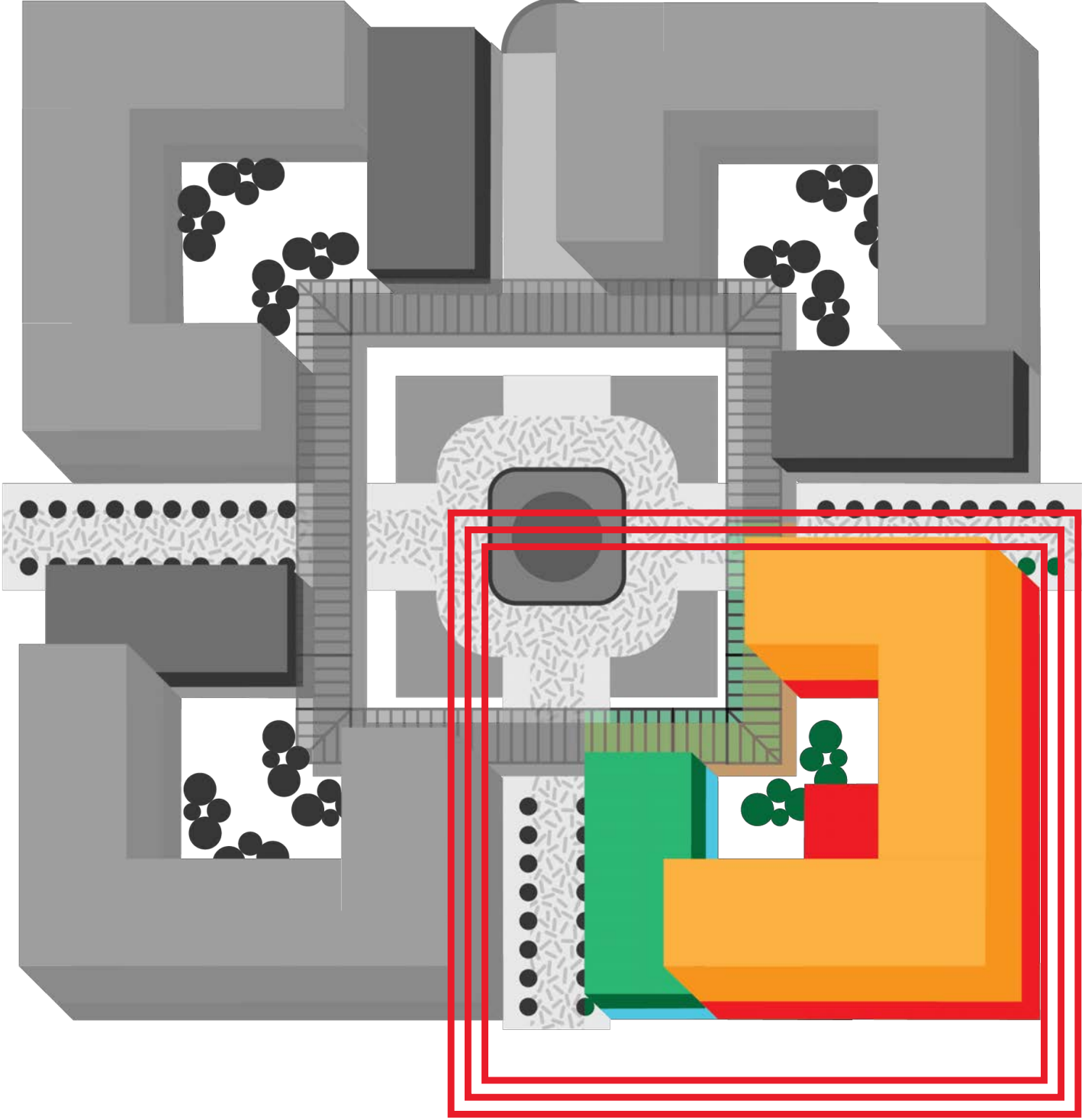


Retail Space



H.E.B

**Client Intention & Aging Living**



Commerical

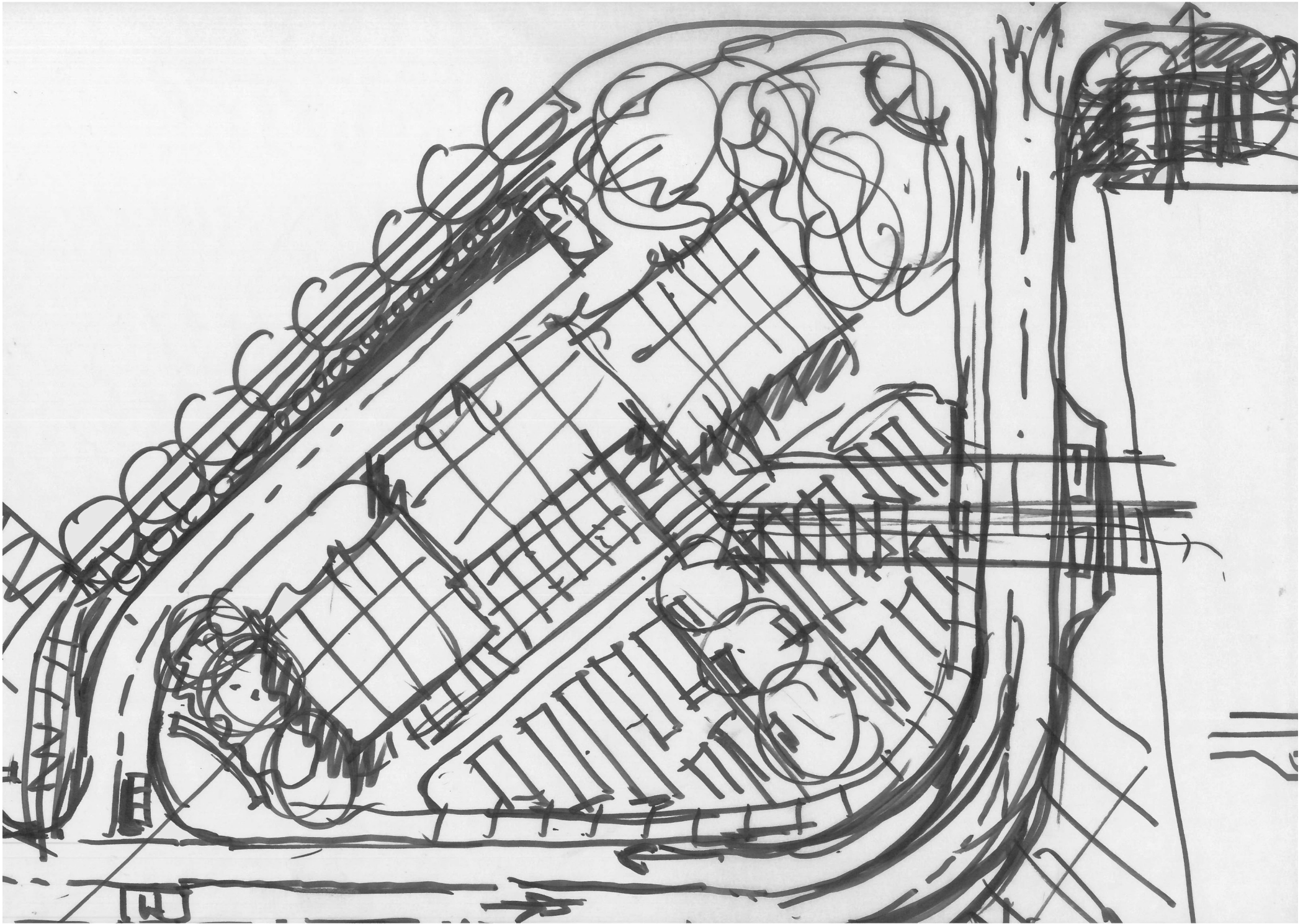
Residential

Community House

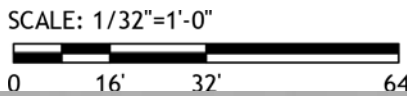
Green House



Site Plan Draft



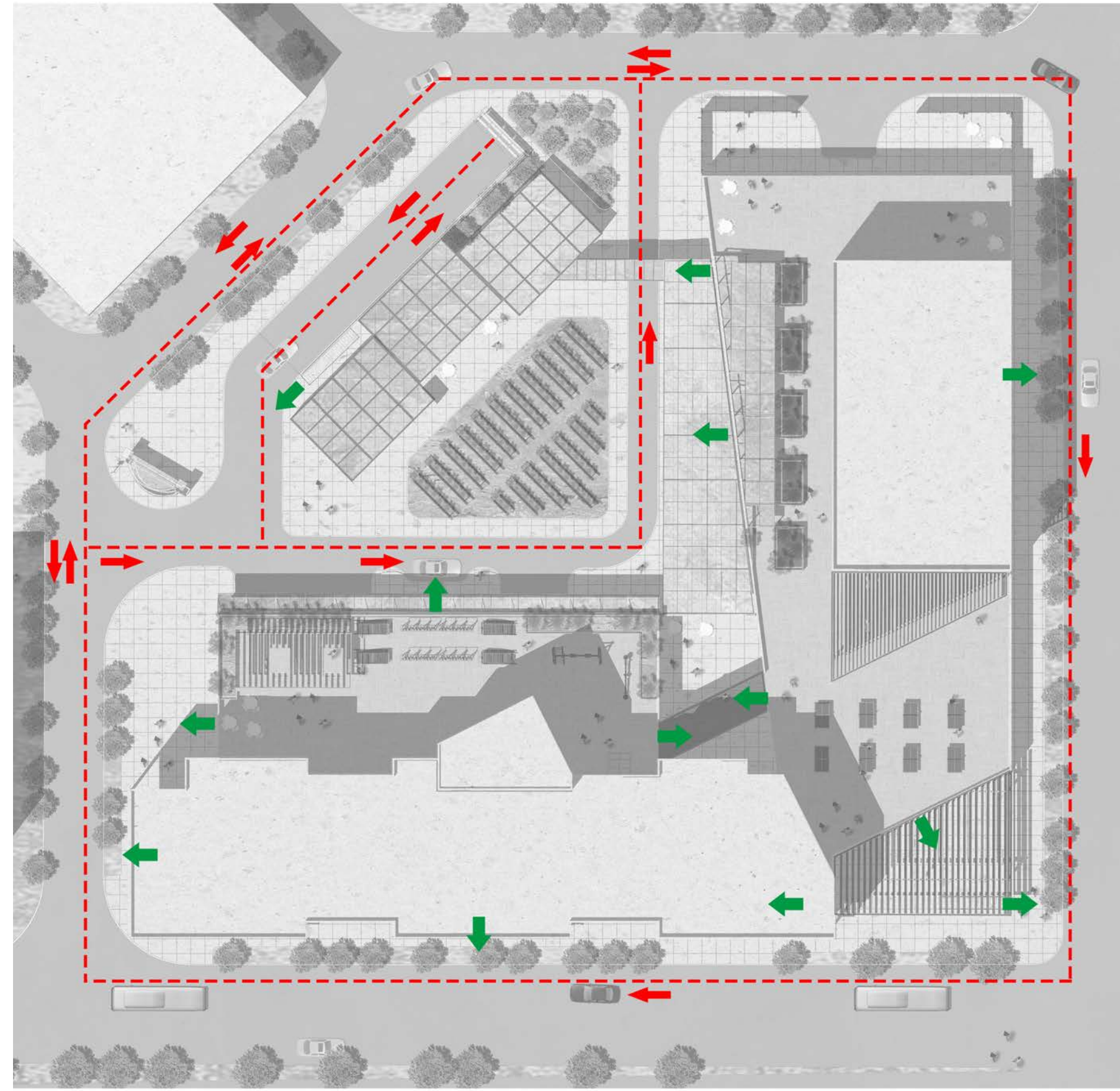
Refined Site Plan Section



- 1 Site entrance
- 2 Pavilion
- 3 Garage entrance
- 4 Farming Garden
- 5 Tunnel
- 6 Roof Garden
- 7 Logistic Place
- 8 Activity Space

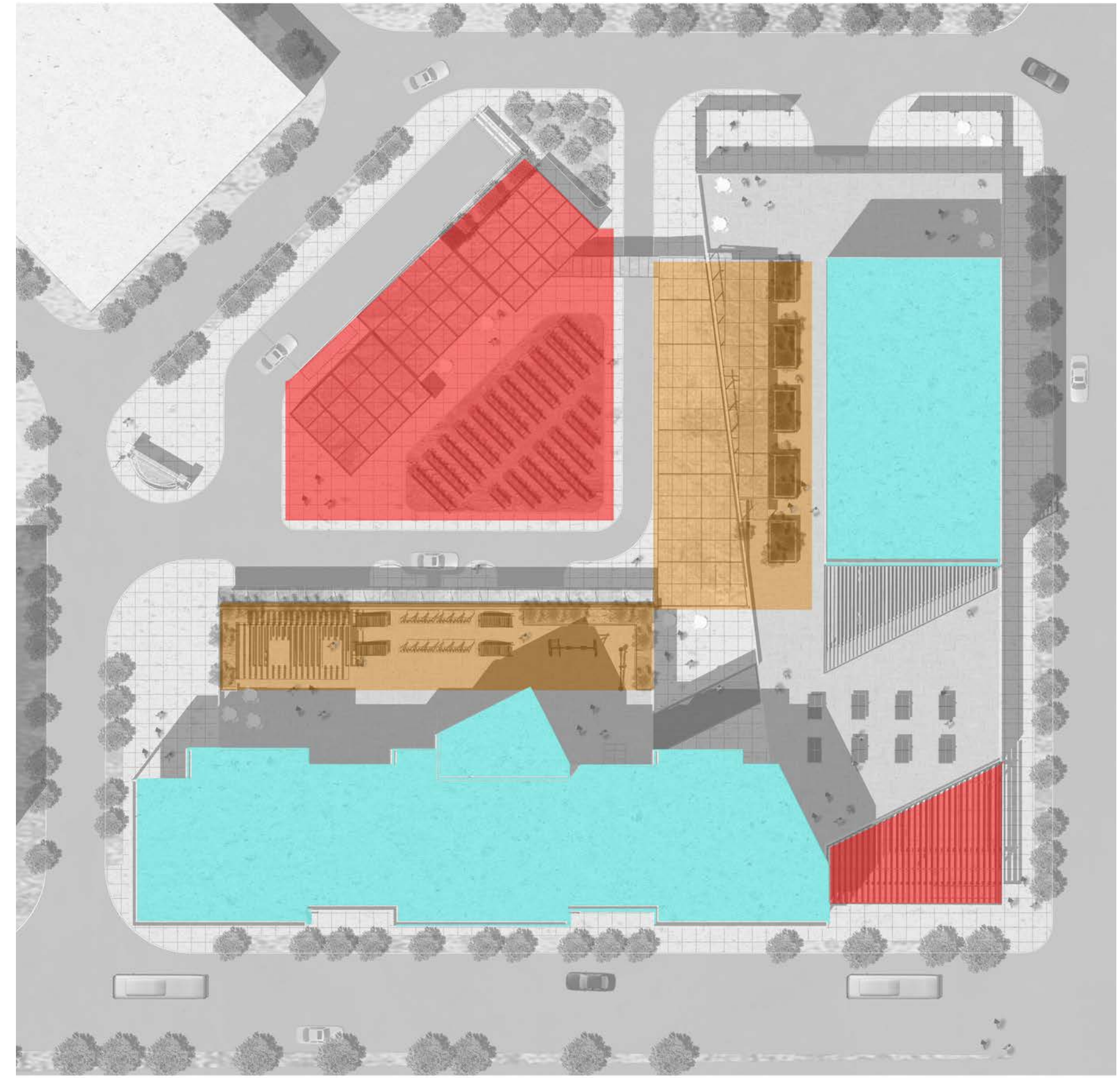


# Traffic Analysis



--- Vehicle Circulation      → Vehicle Navigation      → Access

# Activity Pattern



Public Space      Semi-Public      Private



# Indoor Activities

## Floor Plans & Function Analysis

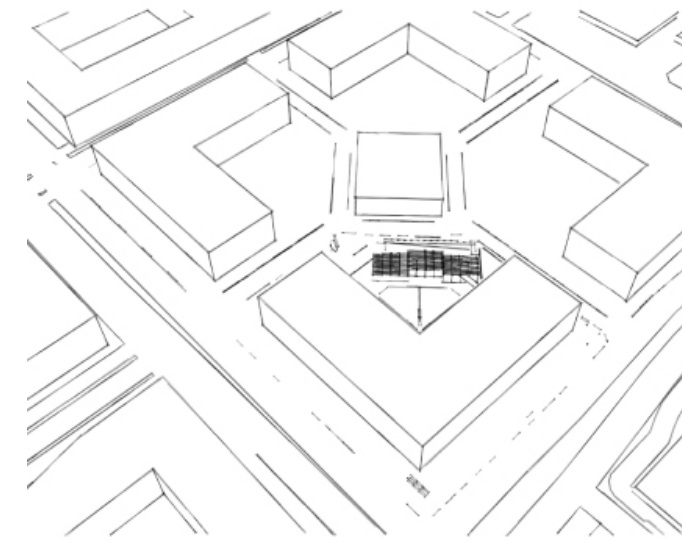
Location: First floor, 3rd floor & 4th floor

Activity: Living & Entertaining

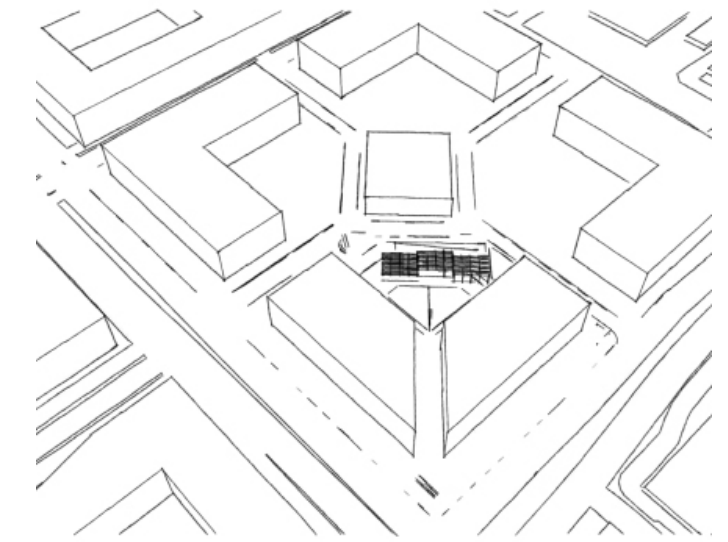
User: Aging and others

Purpose: Intergenerational Activities

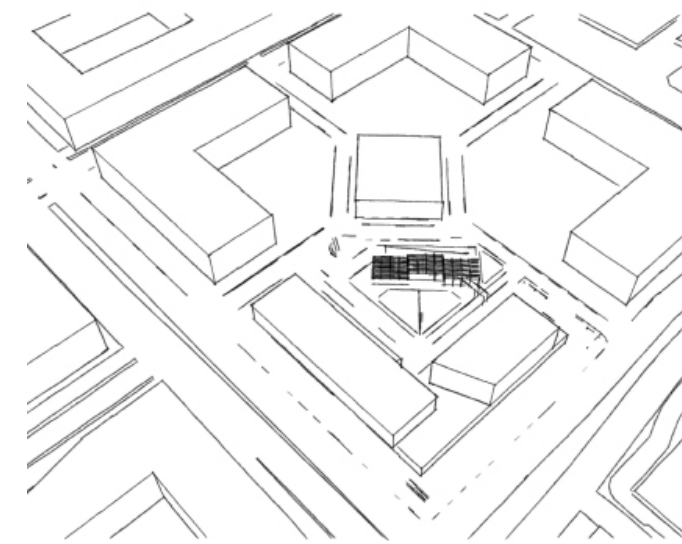
## Parti Development



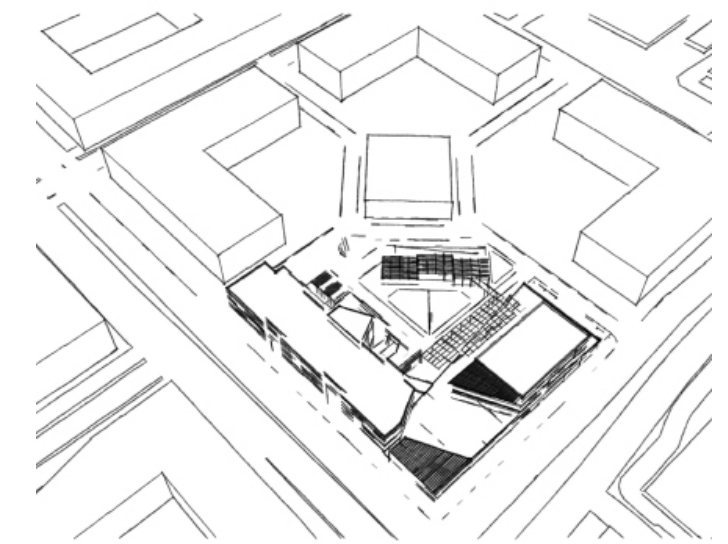
Four L-shaped building create a partially enclosed intergenerational community, with a shared central community building



Diagonal path divided the building into two parts: aging living and short term living. The path is a connection between the site and the H.E.B commercial zone.



Outdoor space on the site was prioritized. Two towers on larger plinths below provide roof gardens for more outdoor opportunities.

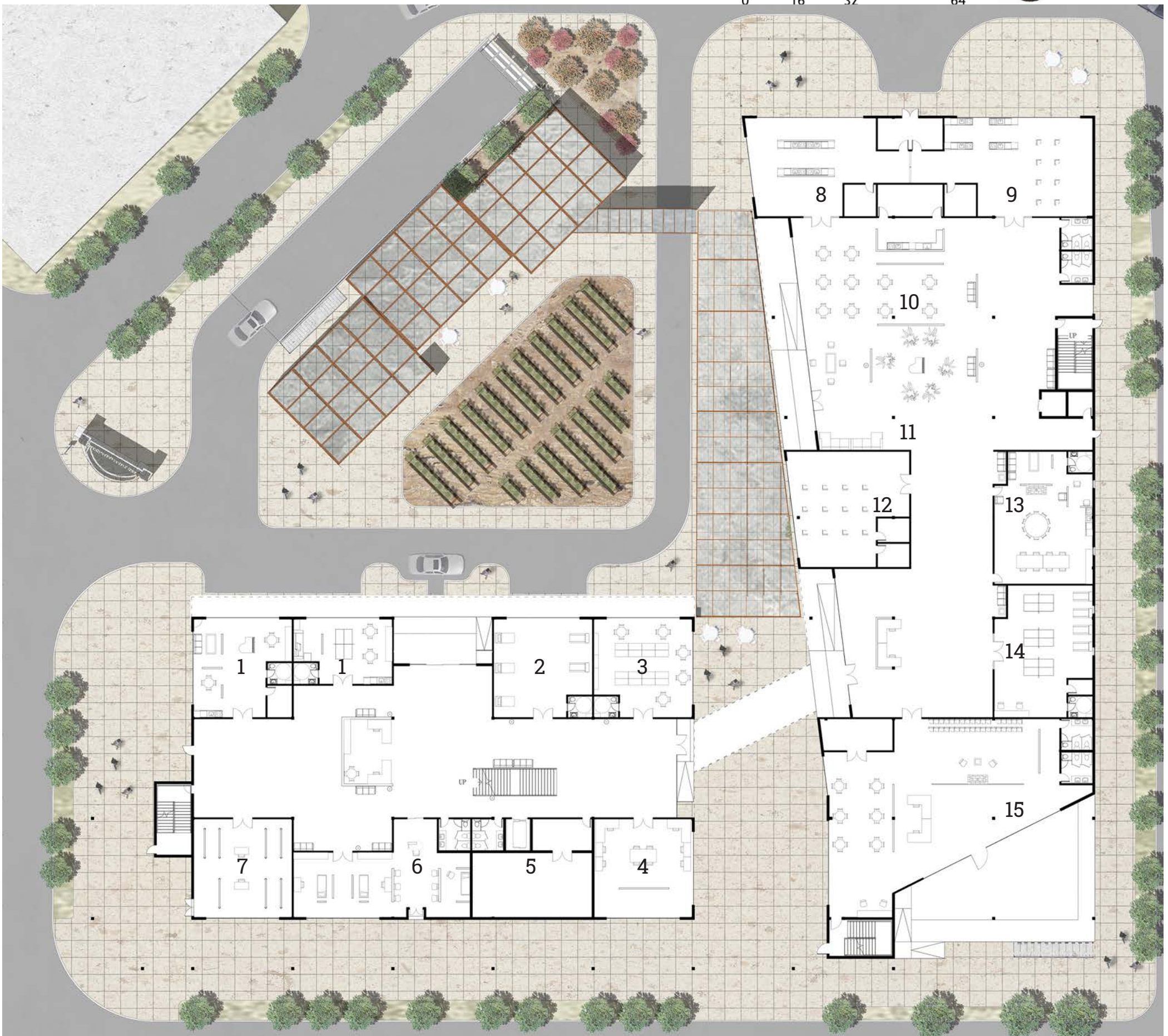


A outdoor pavilion is connected to the building with a shaded walking path.



**Ground Floor Plan**

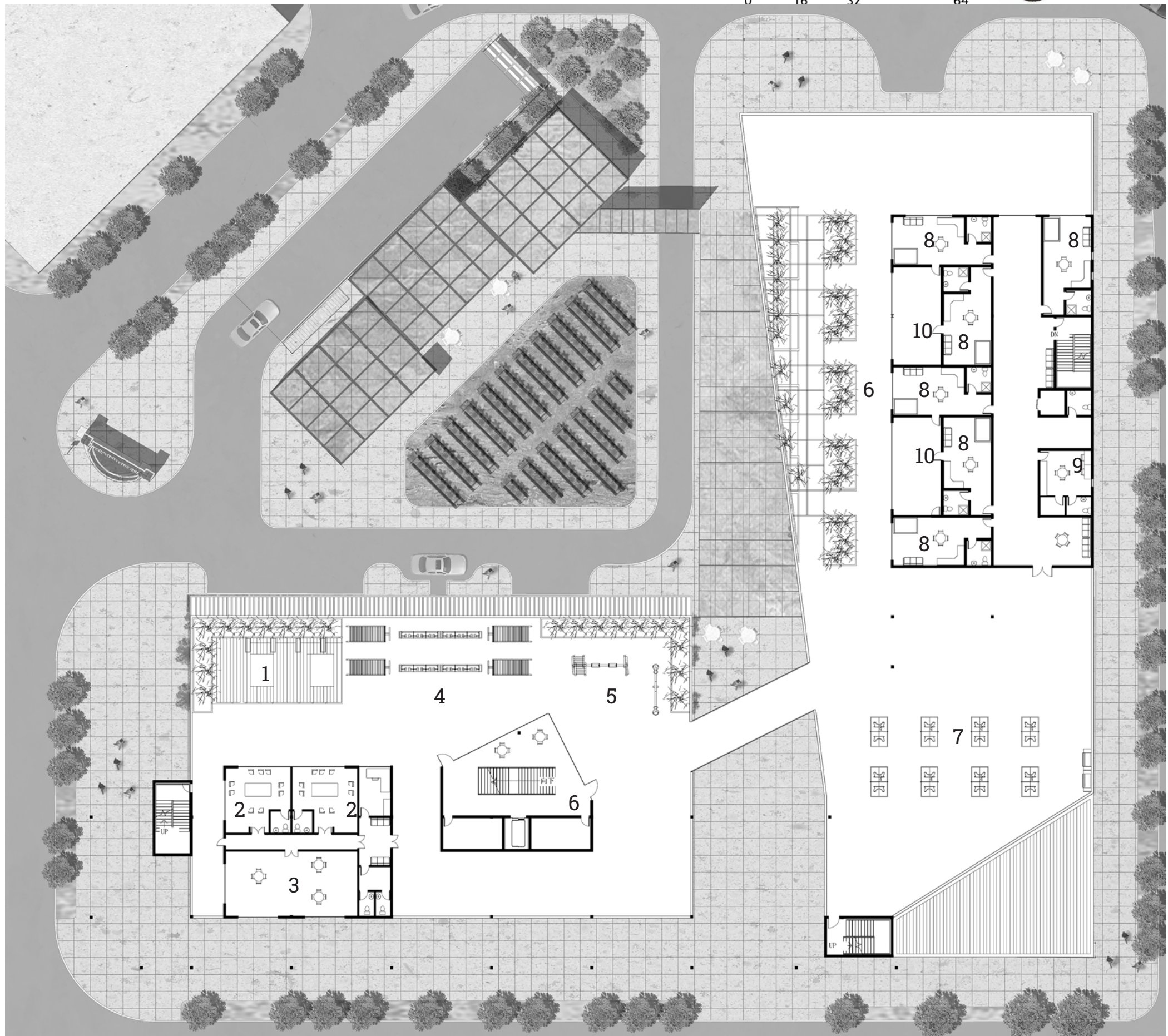
SCALE: 1/32"=1'-0"  
 0 16' 32' 64'



- 1 Family Meeting
- 5 Mechanic Room
- 8 Commerical Kitchen
- 12 Art Class
- 2 Rehabilitation Gym
- 6 Dental Clinic
- 9 Cooking Class
- 13 Senior Activity
- 3 Senior Library
- 7 Work Hub
- 10 Cafe
- 14 Fitness Room
- 4 Office Space
- 11 Music Hall
- 15 Meeting Space

**Second Floor Plan**

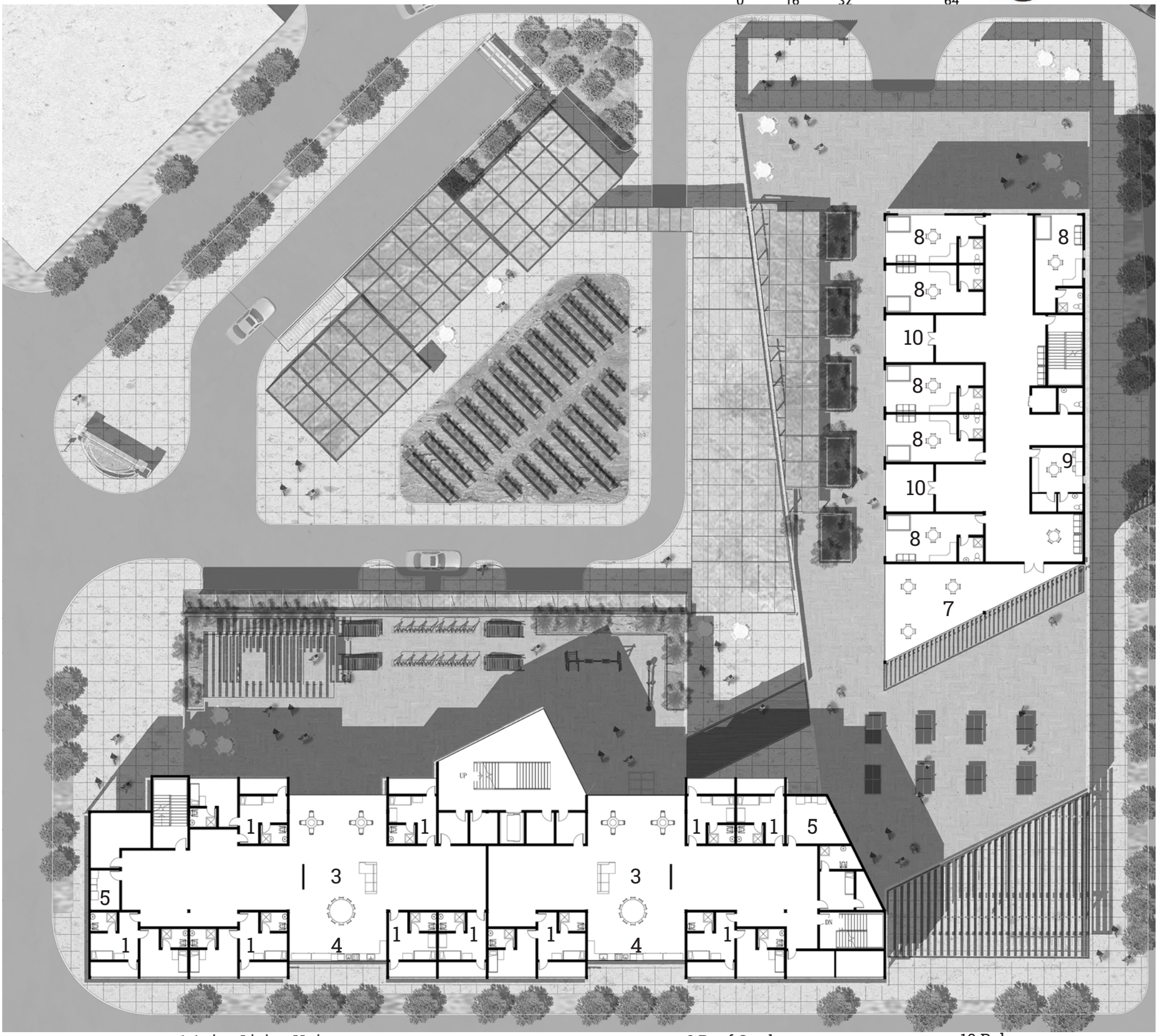
SCALE: 1/32"=1'-0"  
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- 1 Roof Garden
- 5 Children Activity
- 6 Roof Garden
- 10 Balcony
- 2 Daycare Classroom
- 2 Daycare Classroom
- 7 Outdoor Activity
- 8 Living Unit
- 3 Indoor Activity
- 3 Indoor Activity
- 9 Office Space
- 4 Outdoor Activity
- 4 Office Space

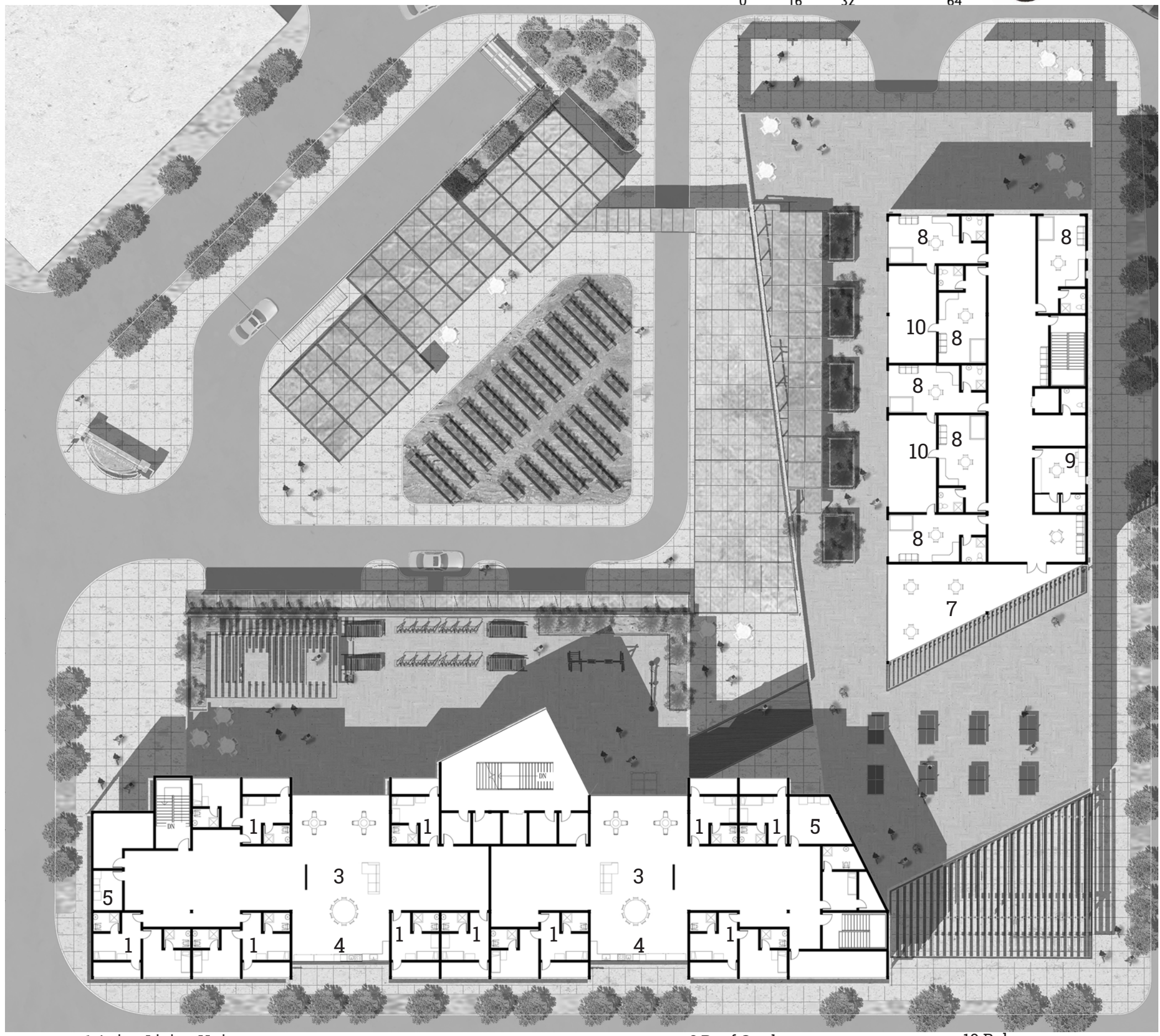


**3rd Floor Plan**



- 1 Aging Living Unit
- 2 Gathering Space
- 3 Dining Space
- 4 Kitchen
- 5 Laundry
- 6 Roof Garden
- 7 Outdoor Activity
- 8 Living Unit
- 9 Office Space
- 10 Balcony

**4th Floor Plan**



- 1 Aging Living Unit
- 2 Gathering Space
- 3 Dining Space
- 4 Kitchen
- 5 Laundry
- 6 Roof Garden
- 7 Outdoor Activity
- 8 Living Unit
- 9 Office Space
- 10 Balcony







# Outdoor Activities

## Roof Garden & Pavilion

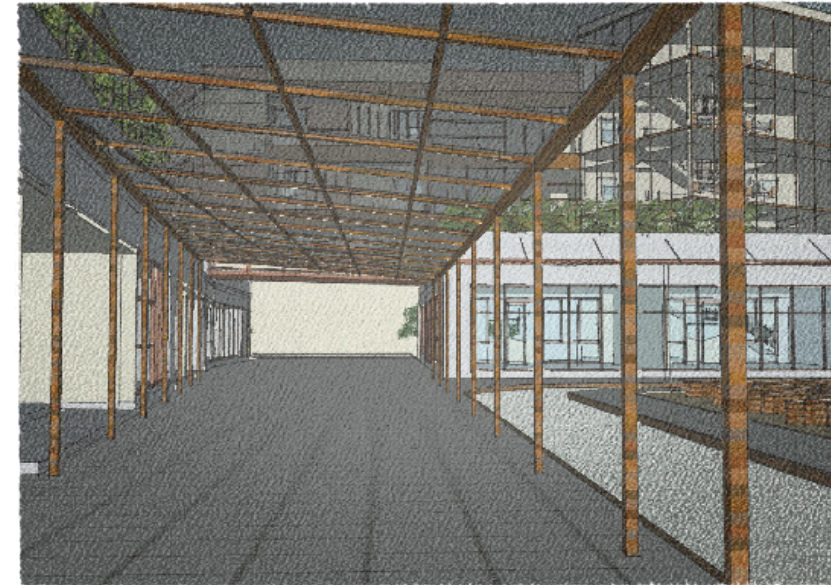
Location: Second floor & Ground level

Activity:: Dining & Relax

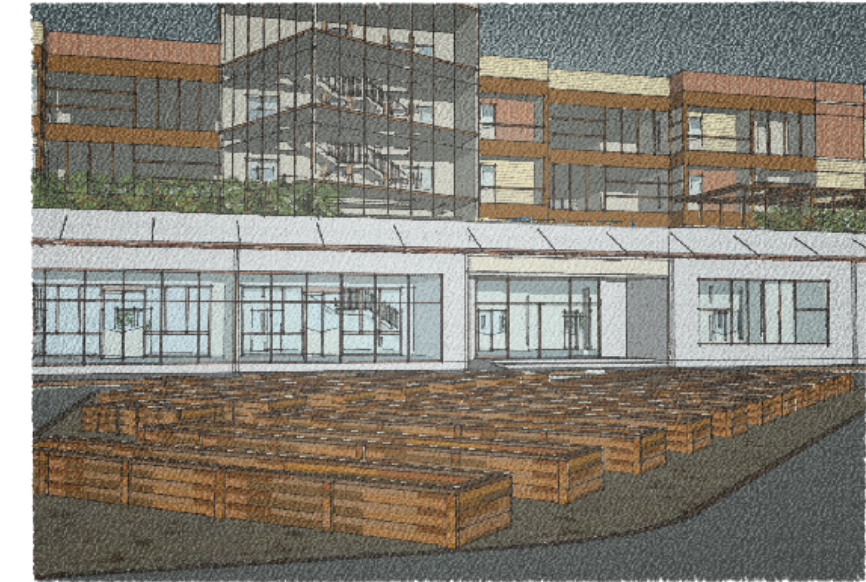
User: Aging and others

Purpose: Access to nature

## Outdoor Activity Analysis



A covered walkway provides shading and articulates the path from the site to the commercial zone.



The farming garden is an active place for both aging people and young children. Plants are put in planters to make gardening a more accessible activity.



The roof terrace has an exercise area for seniors and a playground for children.



Dinning space is not only located in community house but also in the outdoor pavilion. The garden is next to it so residents can plant their own food and enjoy!







# Building Appearance

## Facade Design & Elevations

- Inspiration: Traditional Fabric
- Reason: Flexible Home Style Pattern
- Material: Metal Frame Glazing System
- Purpose: Enough sunlight in living unit

## Facade Analysis



Well organized pattern from traditional fabric



Flexible openings and safety from railings to protect senior

## Section Perspective 1

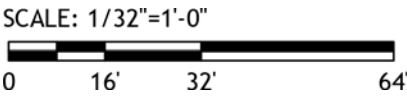


Big glazing facade not only provide sunlight for residents, but also makes the public space on the ground floor attractive by visual connection.





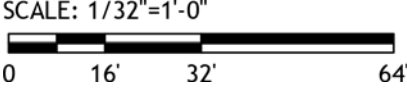
**North Elevation**



Combination of stone panel and wood panel divides the building into two parts: public space and residential area.



**South Elevation**

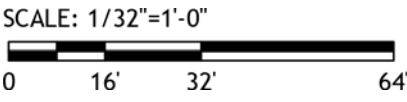


The street view is warm with home style facade. Visual connection between outdoor meeting space and the H.E.B commerical zone attracts people to come.





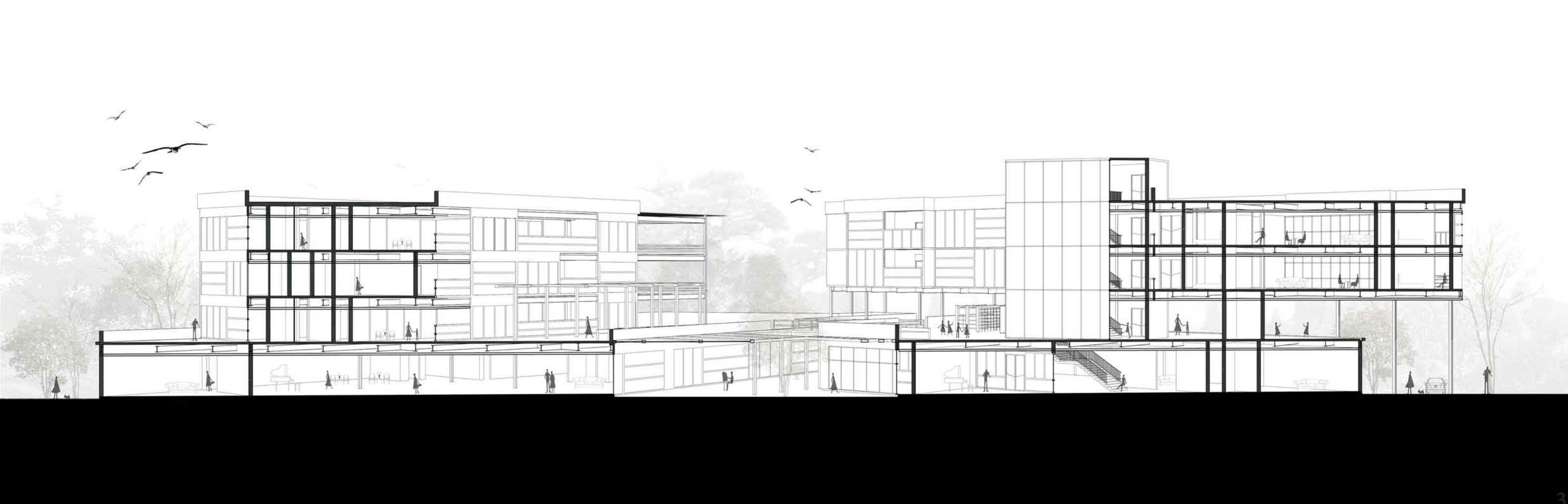
# West Elevation



Dinning pavilion and farming garden is the core of the site. Outdoor public space could be seen from all other sections.



# Section Perspicive 2







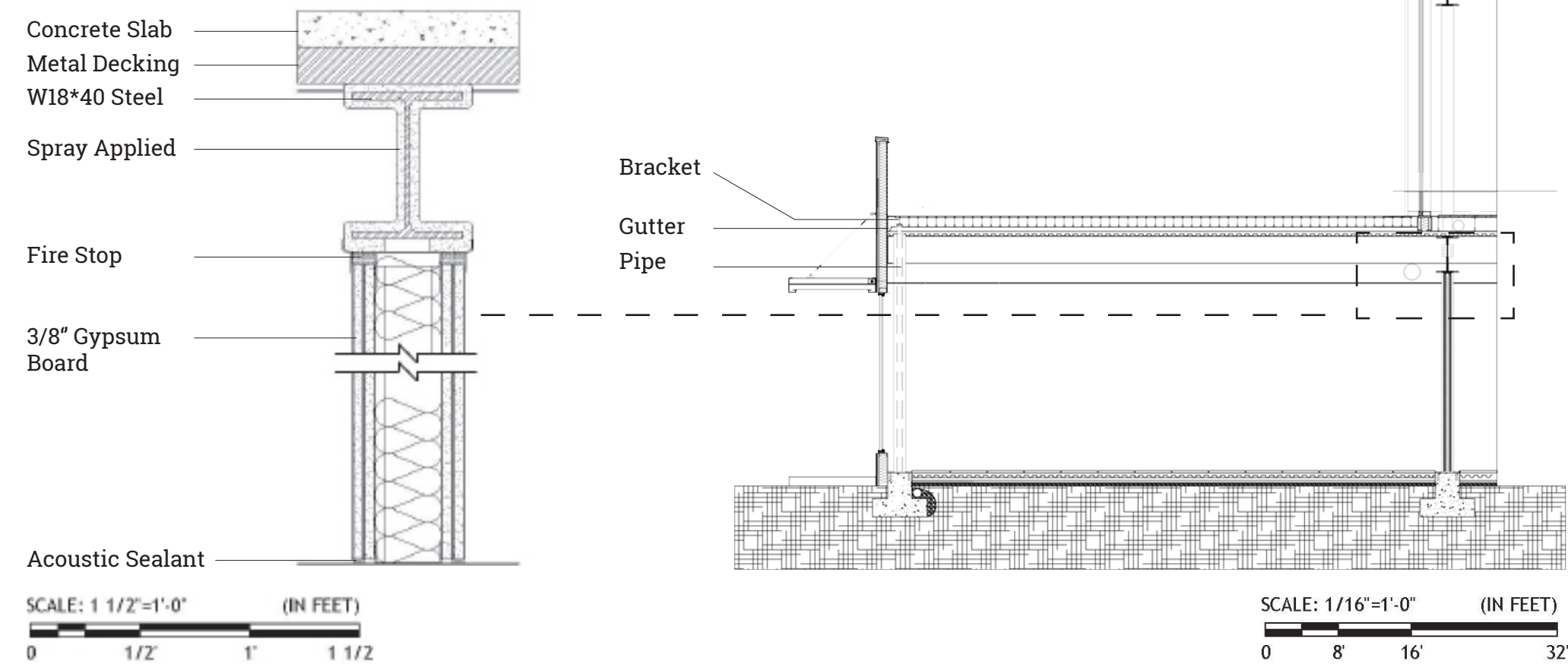
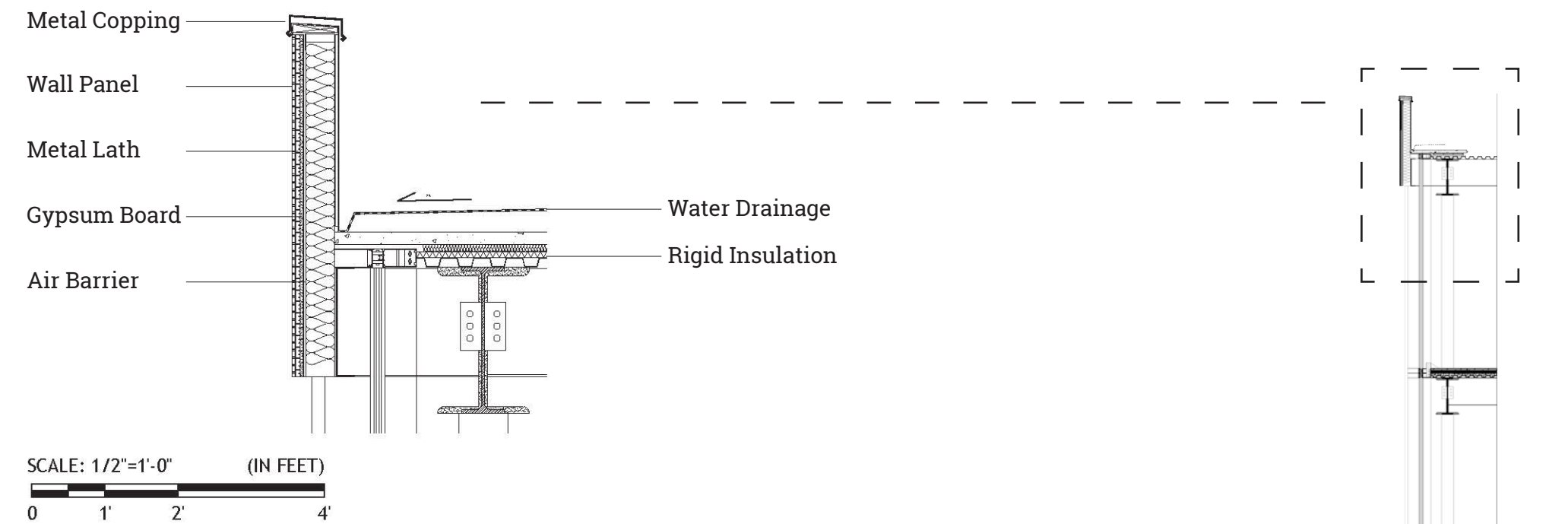


# Project Performance

## Section & Construction Detail



### Wall Section





# SHIDUO LANG

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301, Southwest PKWY, TX, 77840  
979-422-2885  
Shiduo9207@gmail.com

## EDUCATION

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### TEXAS A&M UNIVERSITY

**Master of Architecture Candidate** GPA: 3.5/4.0      08/2017 - Current

- Intention to earn the Certificate in Health Systems and Design
- Courses: Architectural Design I & II, Health Design & Research, Health Lecture Seminar, Applied Architecture Structure, Morphology, Applied Architecture Systems, Art & Architectural History, Advanced Professional Practice & Ethic, Special Topic: Design for Aging

### Changchun Institute of Technology

**Bachelor of Architecture** GPA: 3.22/4.0      09/2011 - 07/2016

- Concentrations: Architectural Design, Computering, Graphic Expression, Hand drawing

## INTERNSHIP

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### THE FIFTH BRANCH IN JILIN PROVINCE URBAN & RURAL PLANNING DESIGN INSTITUTE

**Reseacher & Draftman**      09/2015 - 06/2016

- Rendered drawings according to the practical measurement results. Planning and Visualization

### JILIN PROVINCE JIGUI URBAN DESIGN, LLC

**Assistant Engineer**      09/2016 - 07/2017

- Project participated:
- Huinan County First Vocational High School
- Jilin Zuoqia Ecological Culture Comprehensive Economic Demonstration Zone and the Development Strategy of Zuoqia Characteristic Towns
- Planning and design of the welcoming area project of the characteristic town of Liaoheyuan