# The MISSING NUSSING ty what affordable housing fails at



# The MISSING city

To my family - Thank you for your continued support and love for me throughout this journey. I am the man I am because of you. I love you.

Jonathan Bryer

### Committee

**Davi Xavier** Assistant Professor of the Practice Committee Chair



To those listed - Thank you for the time and effort put forth towards not only creating a better project, but a better architect overall. Livia Loureiro Lecturer Committee Member

Dan Leverett Professor of the Practice Committee Member

Brian Gibbs Assistant Professor of the Practice Studio Professor

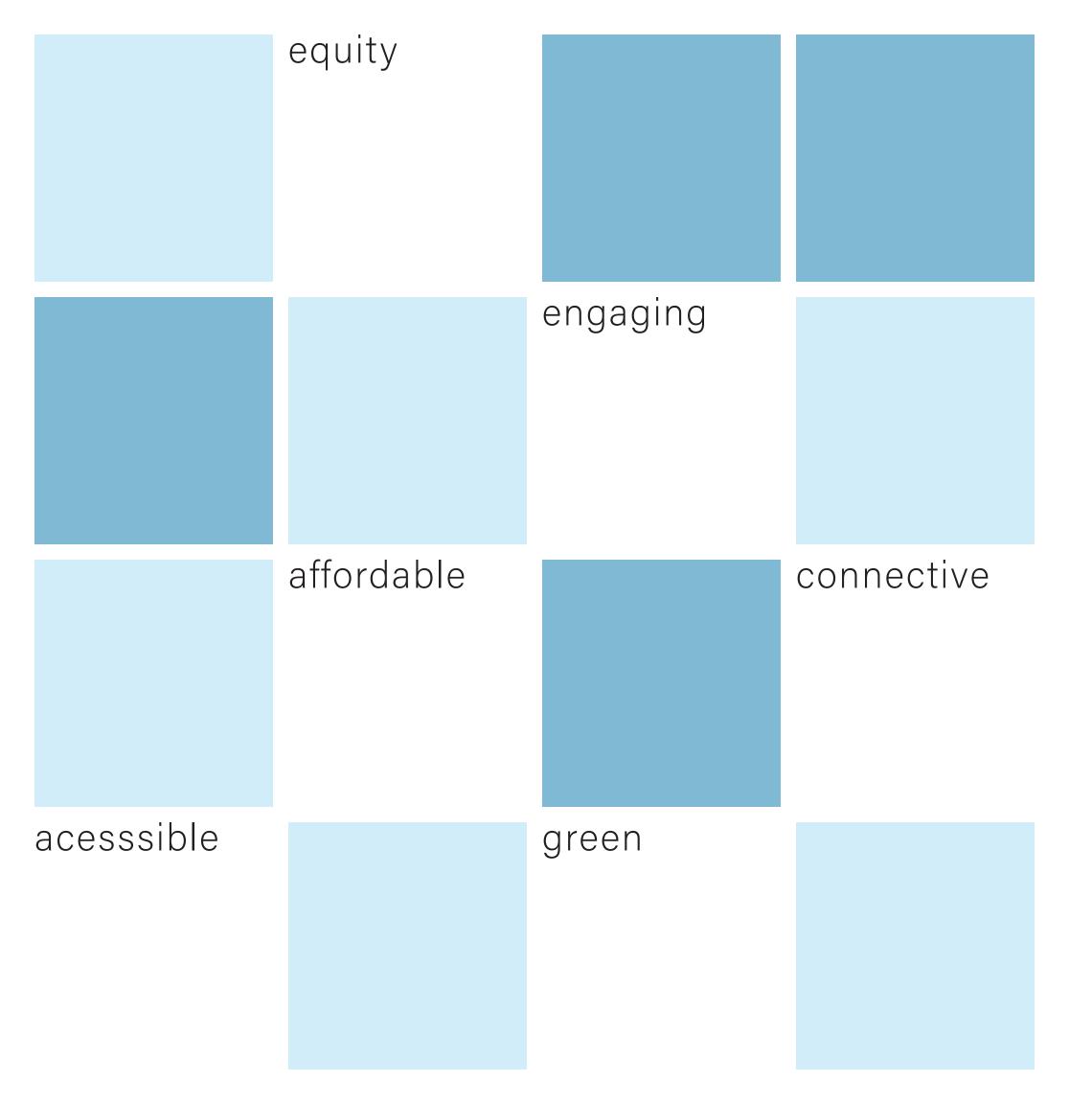






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### abstract

The Missing City is dedicated to addressing a specific challenge: the lack of affordable housing on a scale conducive to nurturing vibrant communities that promote enhanced well-being. To achieve this objective, the project is pioneering a new approach that incorporates two complementary building types, various affordable construction practices, unique resident ownership models, and strong integration between private and public spaces. Additio ally, the project leverages existing and theoretical financial mechanisms to establish long-term equity and improve the financial standing of both res dents and developers. Through these initiatives, The Missing City aims to build healthier and happier living environments for all.

The case study city for this project is Austin, Tx. However the issues found here are, at the time of this book, endemic to the rest of the United States.

# what is

affordable space

equitable space

engaging space

connective space

healthy space

# the **MISSING** city

the lack of a type of housing that is capable of nurturing vibrant communities. Valuable aspects about society that help to create stronger communities as well as provide necessary functions. It aims to create place without sacrificing person, putting the emphasis back on the human experience.

### affordable

While Austin is currently one of the view booming citiles in America that has amanged to maintain an overall housing surplus, there is an ever increasing lack of affordable housing. According to the Austin board of Realtors only 35.9% of austin Area Homeowners earn enough to qualify for a mortage for the median-priced home. Additionally, only 17.6% of Austin's renters earn enough to qualify for a mortgage within the first quartile sales price.

In real life terms this means that Austin is in a 66.5% deficit of affordable homes for 2-person households earning 120% or less of the Median Family Income, or an astounding **151,883 homes.** 



### creating affordable space

- 1. expedited construction processes
- 2. modular but durable construction, planning for a 100 year building.
- 3. taking advantage of allowances in the AHBP
- 4. leveraging benefits of retail cash flowing space to help subsidize affordable housing space, and creating a place with long term durability.
- 5. resident ownership and responsibility.

### affordale housing pre-req. for ownership units:

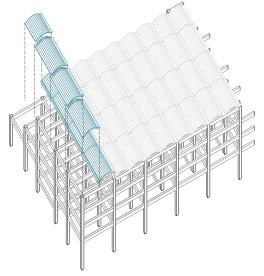
- at least half of the total units (not half of all conctructed sq ft) must be sold at prices affordable to households with incomes averaging up to 80% MFI. These units must be affordable for 99 years;
- 25 percent of the affordable units must include two or more bedrooms, or be used to provide supportive or elderly housing;

https://www.austintexas.gov/department/affordability-unlocked-develop*ment-bonus-program* 

hollow core slab on precast beams attached to concrete columns.

pre-fabricated structural components delivered by th uck

and assembled on site. Modular and simplistic.





## equitable

25 %

more synapses created in the brains of mice in an enriched evironment vs un-enriched.

Austin Affordable Building program doesn't adequately protect the quality of life that affects the resident health and self image.

Housing should strive for the well being of the individual in aspects like finances, health, self image, and accesibility for people acress various capabilities. The initiative's focus on longterm equity directly impacts residents on a personal level, offering them the opportunity to secure affordable housing while also gaining a stake in their community's future. By empowering residents with ownership and financial stability, The Missing City promotes a sense of pride, belonging, and investment in the well-being of the community. 30 %

increase in overall capacity for achievment for human participants in enriched empowering enviornments.

87 %

average amount of life spent indoors by the average american

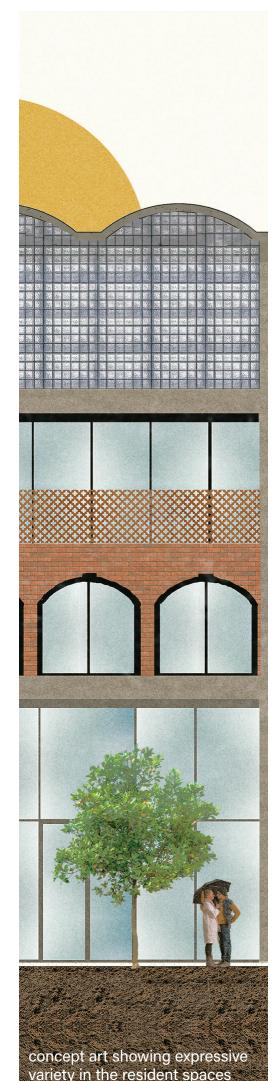
40 %

of the annual budget. What a government commonly spends on creating health. A shared cost on society

### aspects of equitable space

- 1. transactional relationships that allow for personal input or interaction.
- 2. biophilia intentional incorporation of green spaces, at various scales.
- 3. scale appropriate to the human experience.
- dignified space takes care of people. areas to retreat, be seen, collaborate, and encourages community.
- resident ownership and responsibility allowing people to take control of aspects of the project and its operation

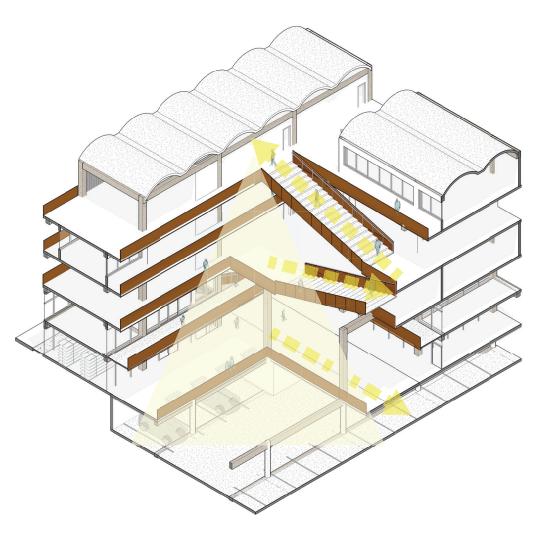
Intentionally generous architecture allows people, regardless of their individual backgrounds, to see and experience the many affordances a place offers. - Tye Farrow



## engaging

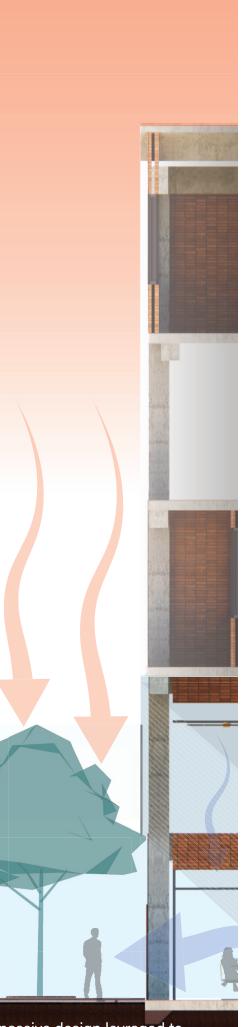
Along the interior of the retail spaces are areas that act as a hybrid between public and private. Visually these spaces tie to the residential levels, but on a deeper level, they create opportunities for important expressions of character and culture that help to identify the atmosphere of a space.

The buildings modular system allows for the rapid interchanging of parts which encourages individual contributions from the owners of the spaces. Within certain parameters, it is up to the residents to determine how to finish out their spacers with to best express themselves. This increased participation leads to further community pride and involvement, ideally making a more enjoyable place to live.



### aspects of engaging space

- Connections across us types notably are three separate courtyards along the project's ground floor that create unique opportunities for interaction.
- 2. Appropriate density to sustain various use types and act as a catalyst ( approx 35du/acre) in this project.
- 3. Variety of uses that bring multiple types of people into the space.
- 4. Local architectural vernacular paying homage to the rich Latino culture in this area.

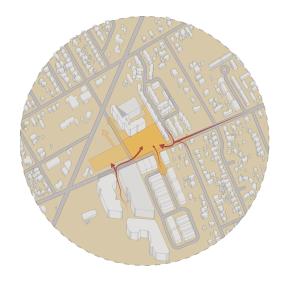


passive design levraged to create physical allure

### connective

The Missing City rests at the nexus of multiple projects and strives to act as a connecting fabric. Specific corridors are emphasized within the ground floor and through the building face, to capitalize upon pre-existing pathways. Additionally, upon doing a type usage and time analysis for the site and its surrounding areas the retail space has been tailored to provide additional services in critically lacking areas. While an individual building might strive to balance its interpersonal dynamics, if it is not considerate of its relationship to the system as a whole it will surely fail. In many new texts such as the Boston Complete Streets Design Guideline and articles posted by the U.S. Green Building Council, the importance of proximity to a large variety of basic services, and the actual connections between them are incredibly important to creating a usable community.

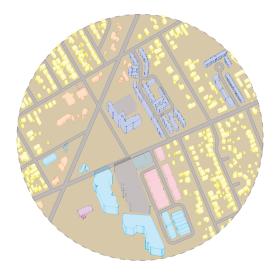




human flow of the site

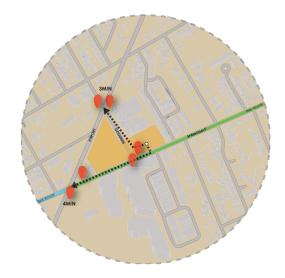
### aspects of connective space

- Strategics placement at the nexus of multiple new developments and key city plans.
   (pedestrian corridors, neighborhood plans, "upportunity" zones
- 2. Human scale at street level
- 3. Visual and circulatory connectivity between different programmed spaces
- 4. Inviting interior public spaces



variety of uses

The best way to plan a city is to connect it to the people who live and work there - Jane Jacobs (famed urban planner and journalist)



transportation

# healthy

A fundamental goal driving the project's ethos. As research continues to shed light on the intricate connections between the human mind and the spaces we inhabit, it becomes evident that certain design elements must be meticulously considered to foster positive rather than negative experiences. Key concepts such as biophilia, transactional relationships, scale, and the preservation of individual dignity. These elements collectively contribute to the creation of highperformance buildings geared towards enhancing human health.

Not only does the indivudal have the ability to define space, but inversely it has the power to define them.



### aspects of healthy spaces

- 1. The incorporation of green spaces or biophilia.
- 2. Enriched space that has the ability to activate not only the body but the mind as well.
- 3. Not just avoiding harm but promoting health
- Space that is generous in the transactions with the users, offering more than it takes from its transactions.
- 5. A sense of coherence- confidence an idvidual has in their comprehension of the space.

"What we build profoundly influences our experience of the world and can either support or undermine health," - Tye Farrow



# where is

# the **MISSING** city

smart growth and proper application is most significantly affected by first and foremost the site location. As with green design everything else can be right, but if location is wrong the project will be doomed from the start. So then what is the right place and how is it identified?

### how to find in need areas

Understanding how to find areas most in need, or most appropriate for this project type while also being financially viable is a simple but crucial process.

important considerations are.

- 1. city
- 2. future planning
- 3. demographics
- 4. density
- 5. use type mixture
- 6. societal/ecological concern

Collectively these factors can be looked at as a progressive checklist that if a potential site can fully satisfy indicates an appropriate site for application.

### **Vision** Neighborhood Plan East MLK

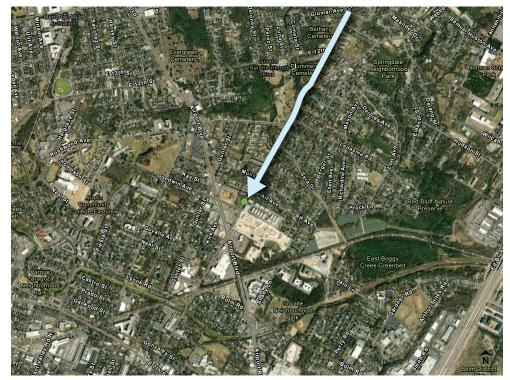
The East MLK Neighborhood is to be a diverse community that emphasizes traditional values, pride of ownership and a strong sense of community. The Neighborhood will be well balanced with residential and commercial uses, walkable shops, restaurants, cultural opportunities, parks and green spaces. East MLK is to be a safe, quiet, pedestrian oriented neighborhood with clean, well lit, tree lined streets, maintained yards, and accessible to public transportation.

#### financial feasibility



When looking for a location to build, a good place to start is with "development zones". These are areas that have already been identified as being in need of new investment, and as such as paired with financial incentives promoting growth.

#### future plan



Often there are pre-existing plans put forth by the city showing long term goals for specific neighborhoods. In this example, the neighborhood plan for East MLK indicates an intention to further develop springdale as pedestrian corridor.

#### neighborhood



After having identified a general area within a city, it is good to begin to know the area from the view of the exisitng residents. A mental map helps to show important features of the space, and identifies key areas that people spend time in.

density



Density mapping, helps to show areas that could act as new potential sites. This is particularly effective when overlaid with green spaces which are critical to healthy urban space. Proper minimum density is required for vibrant community.

# context for

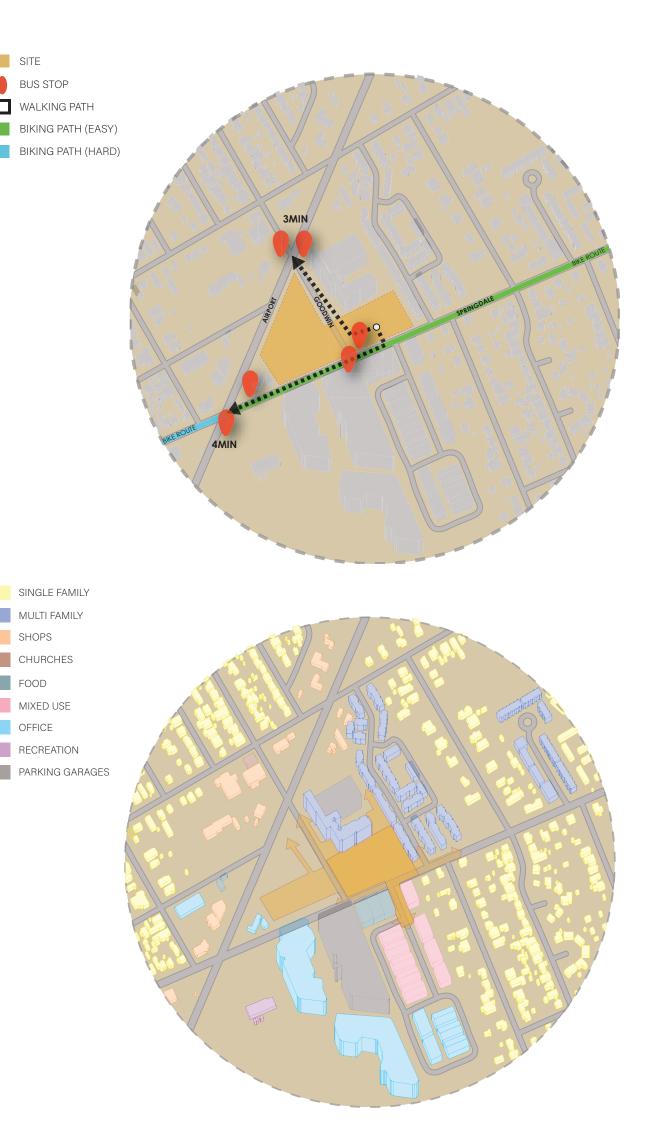
# the **MISSING** city

the in depth look at the site for the actual project includes an analysis of not only environmental concerns, but a careful consideration of the human components. Things like use, proximity, transportation, perception, and time usage.

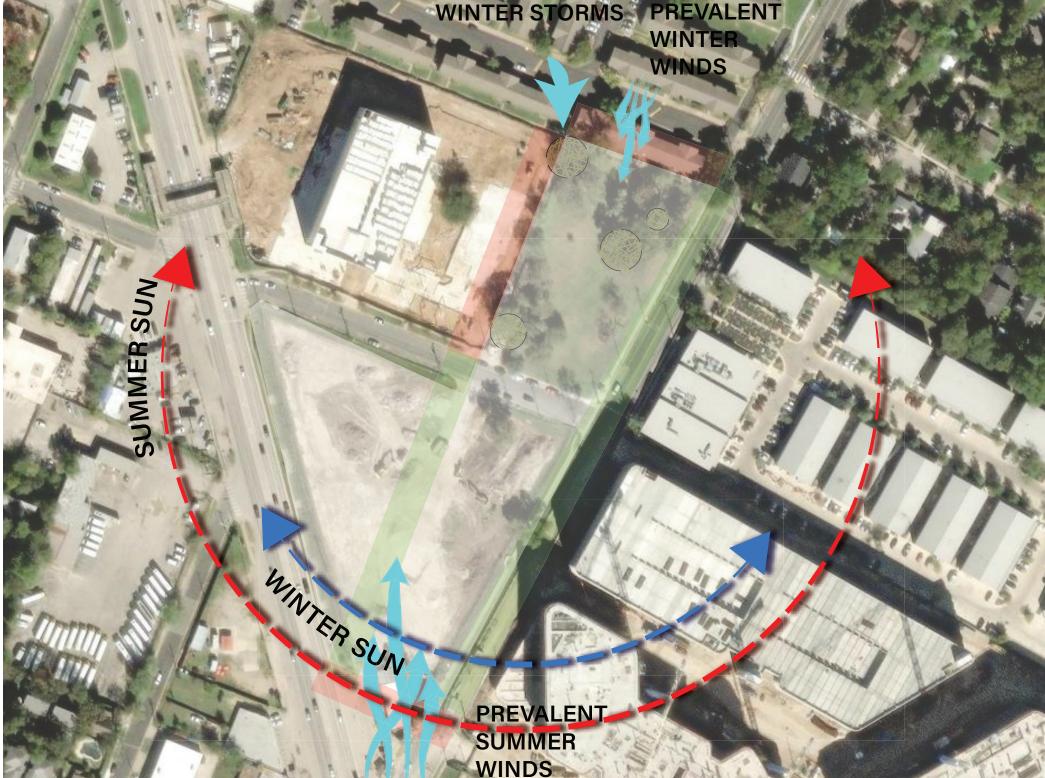
### use type variation

Careful consideration is give for the existing human conditions of the site. The Missing city intentionally places itself long several existing transportation systems, as well as continuing to develop the intended bike pathways which encourage healthier living.

The use analysis of the surrounding area show a lack of available high quality food and recreation establishments. Suitable supplementation include things like restaurants, cafes, grocery stores, and entertainment.

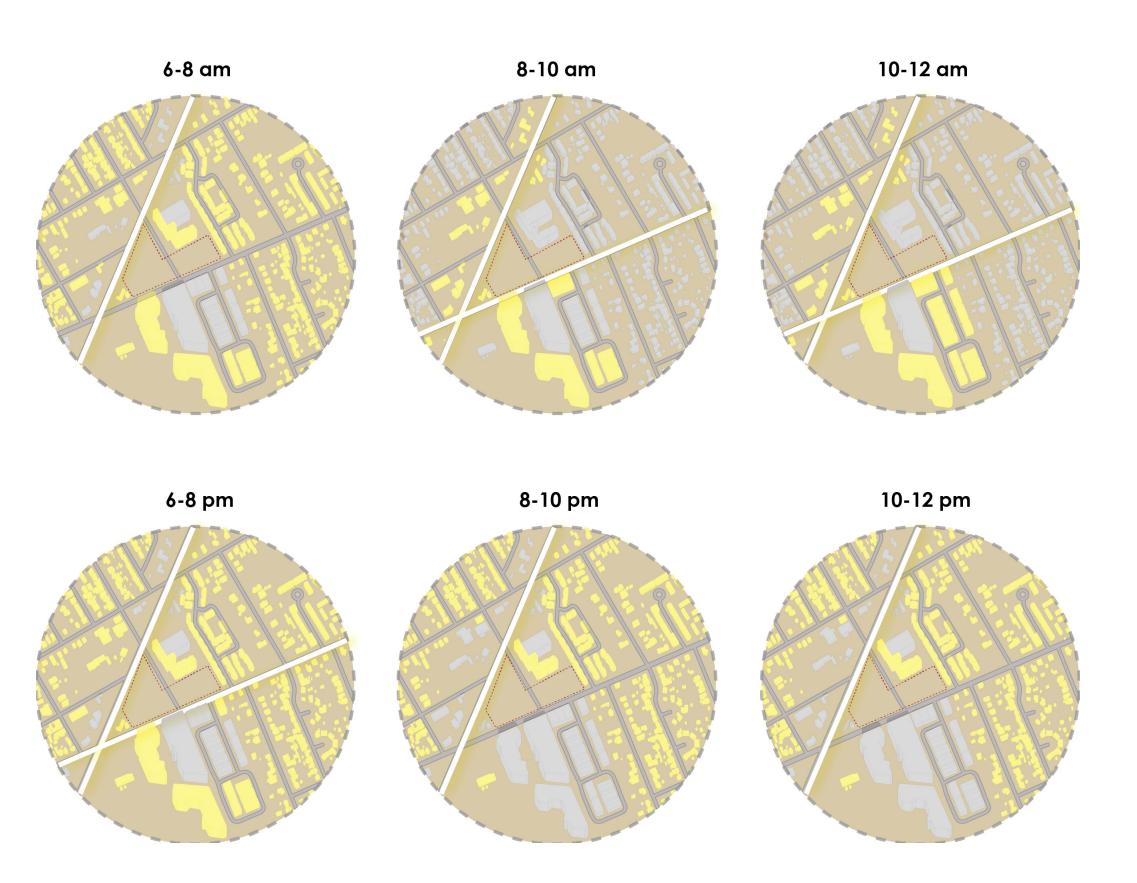


### site analysis

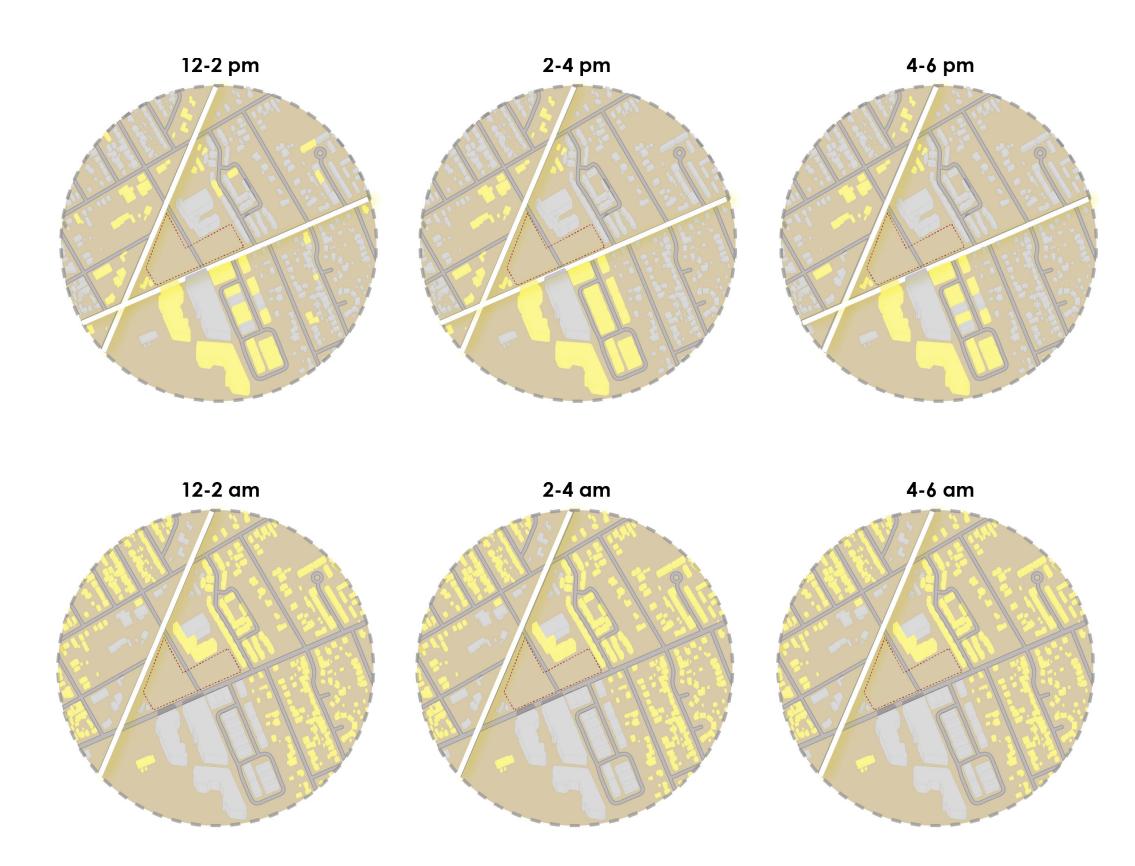


Half of the site is an undeveloped green space and the larger triangular-shaped site is currently a petrochemical trucking depot(an open gravel lot) that is in need of site remediation and beuatification.

Neighboring the site are a multitude of apartment complexes and two major developments. One is a new company hq and the other is a new office/retail park. It will be important to help tie together the various functions of the surrounding area while creating a space this thoughtful and considerate of the history and values of the area.



In order for a city to thrive it must feel safe and constantly activated, so by looking at times throughout the day that are empty throughout the day it helps to create an understanding of what types of projects could provide" eyes on the street" during different times of day.



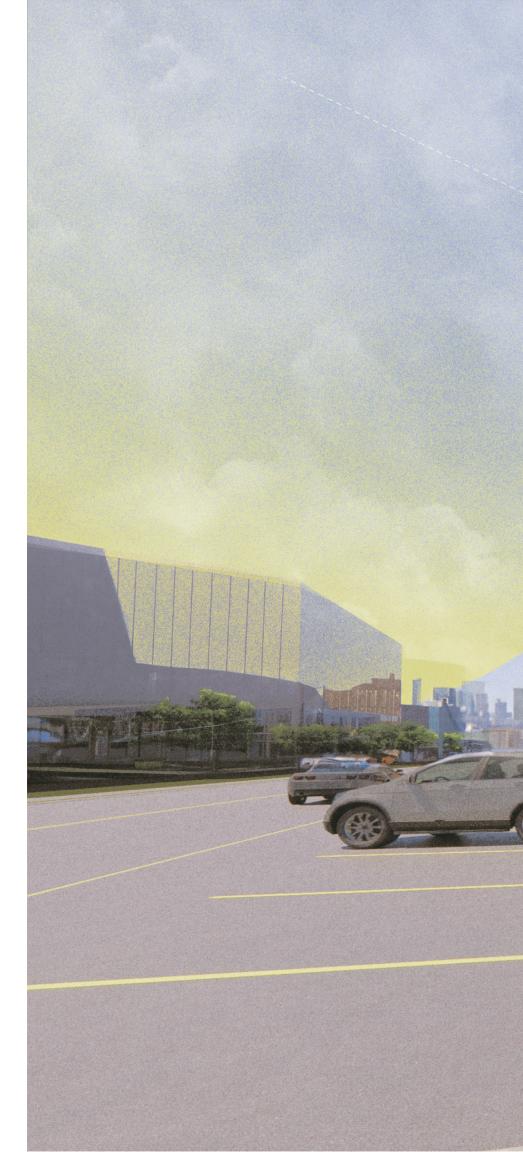
Diagrams show a high level of occupation in the single family housing surrounding the site from the hours 6pm to 8 am as might be expected given the work hours of most Americans. A concerning issue in this area is the lack of people in the area later into the day, reducing its viability as a thriving community and its overall safety.

### first glance

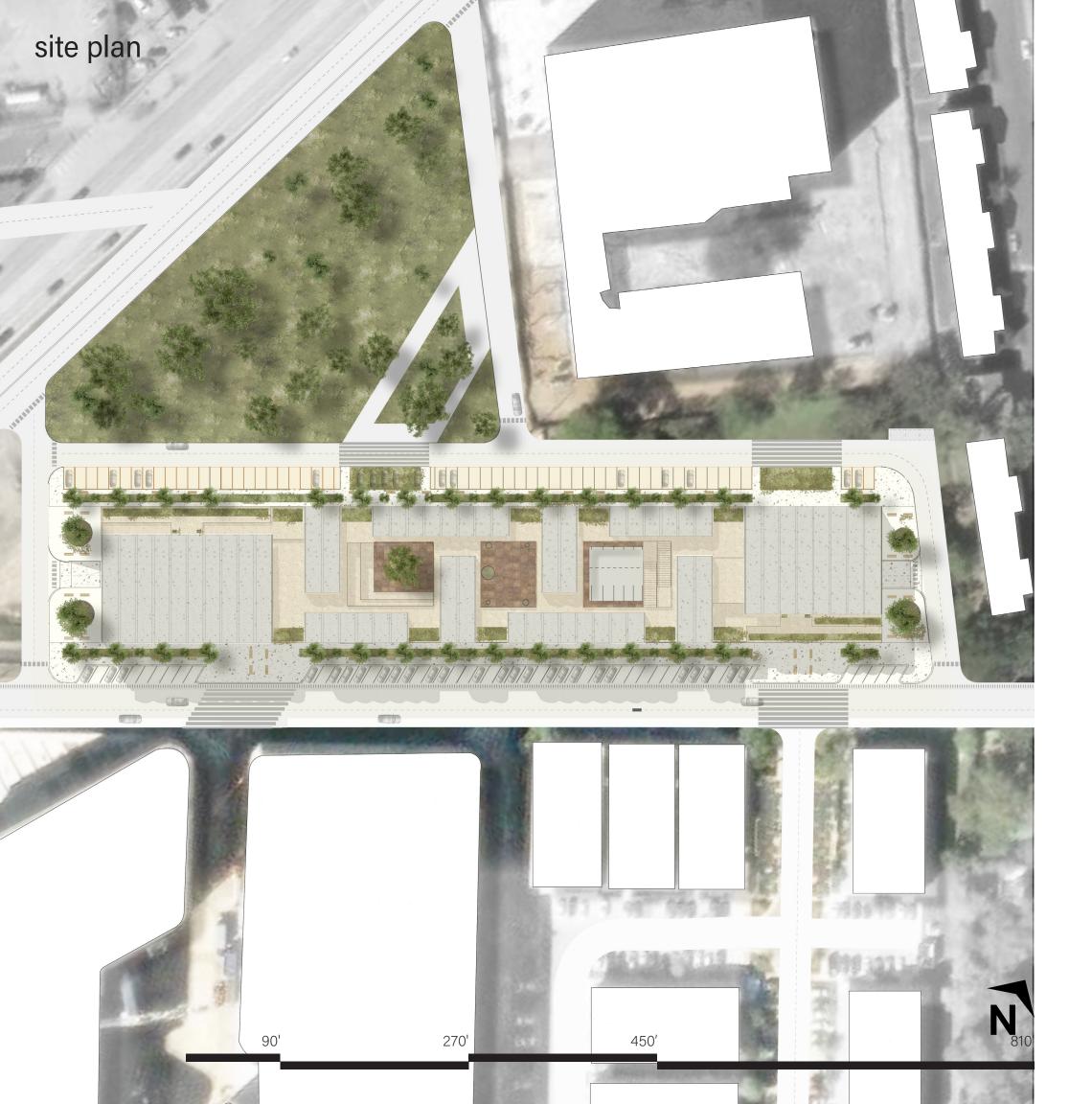
The Missing City" is a testament to the symbiotic relationship between architecture and community identity, embodying a unique narrative woven by its residents. Inspired by the rich tapestry of the local area, this project transcends mere construction; it becomes a canvas onto which inhabitants paint their stories, shaping its identity with each stroke of their experiences.

Drawing from the cultural heritage and architectural motifs of its locale, the project emerges as a living homage to its roots, fostering a sense of belonging and pride among its residents.

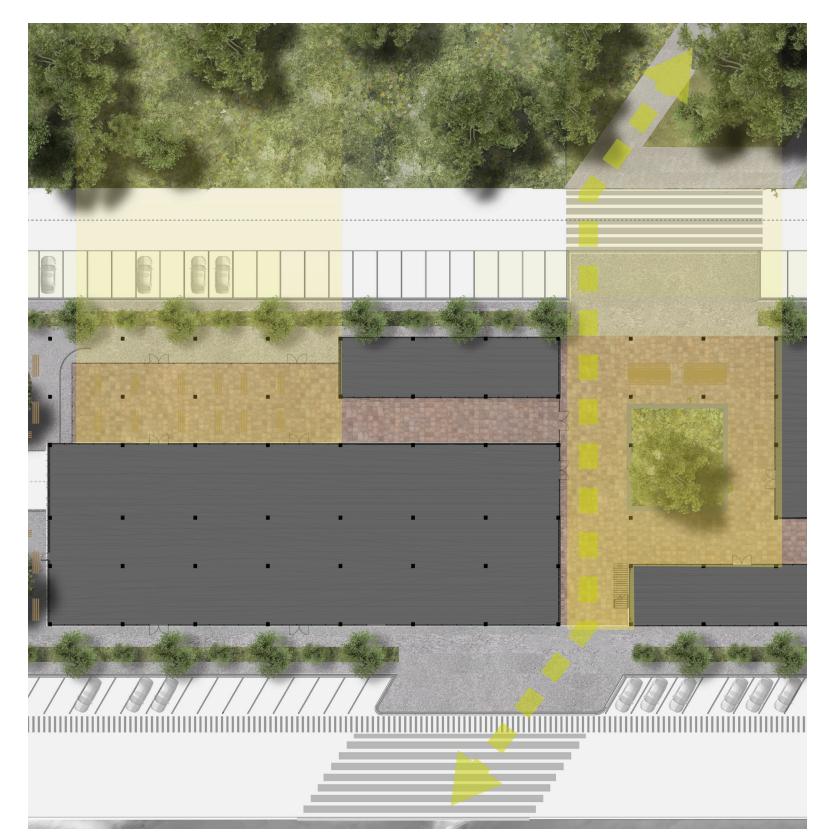
Central to its ethos is the provision of affordable housing, achieved through innovative construction methods and financial mechanisms, such as utilizing the financial benefits of the retail space to subsidize the affordable units. It takes adavantage of expedited construction techniques and creative financing models, "The Lost City" stands as a beacon of hope in addressing the pressing issue of housing affordability.







## connecting paths



The internal circulation pathways take advantage of existing common paths from the surrounding site to connect that flow into the newly created adjacent park. Parks are widely considered to have the capacity to act as a connecting fabric for a community, and as such this project emphasizes those connections in order to promote further community vitality.

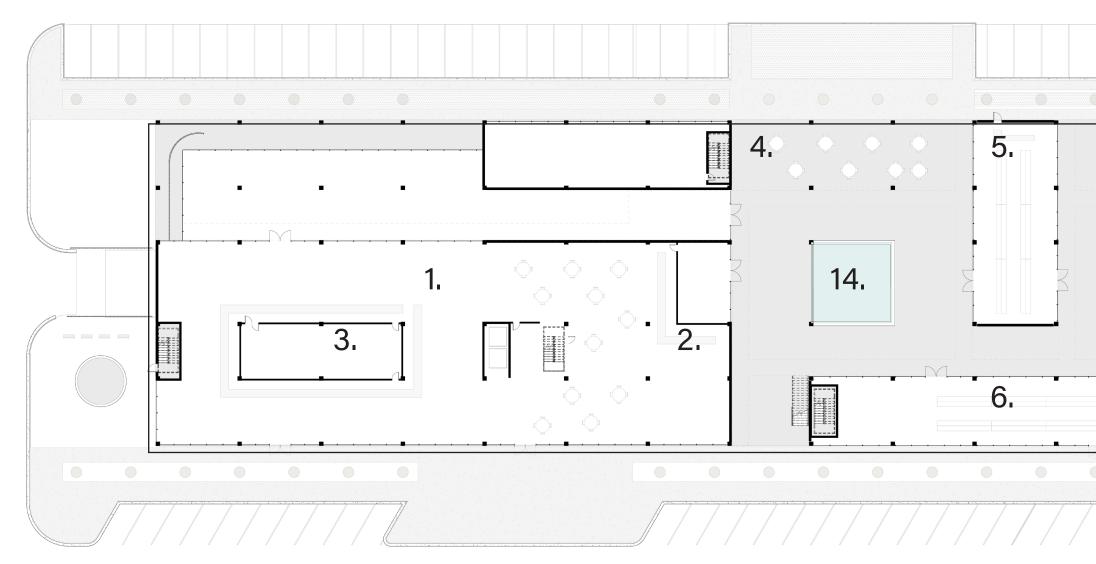
150'



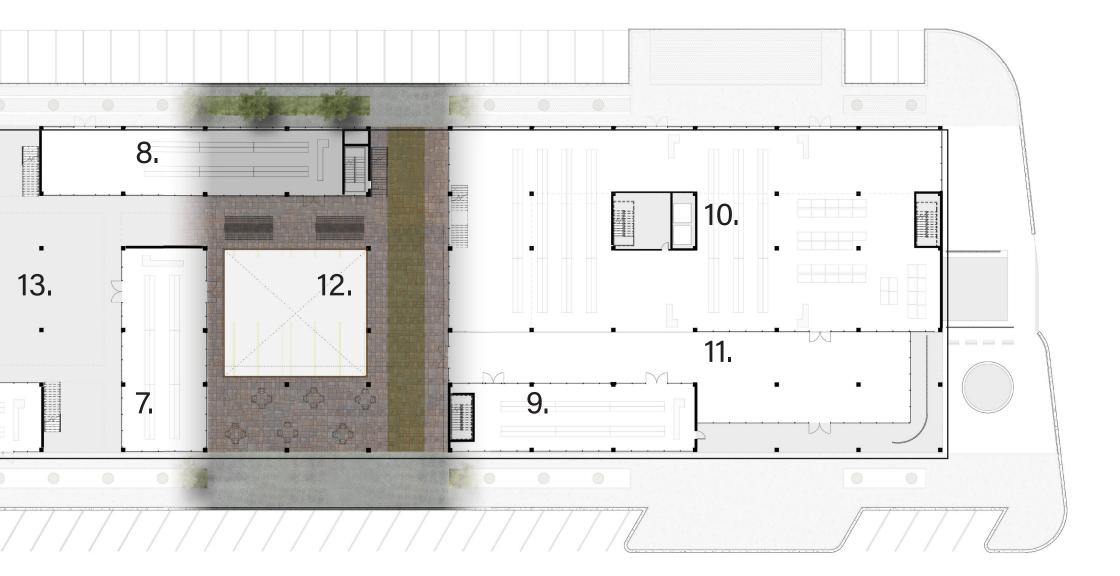
30'

90'

# ground floor



 cafe 2. kitchen restaurant 3. kitchen cafe 4. small store 5. small store 6. small store 7. small store
 8. small store 9. small store 10. grocery store 11. dining hall 12. courtyard 13. courtyard 14. courtyard



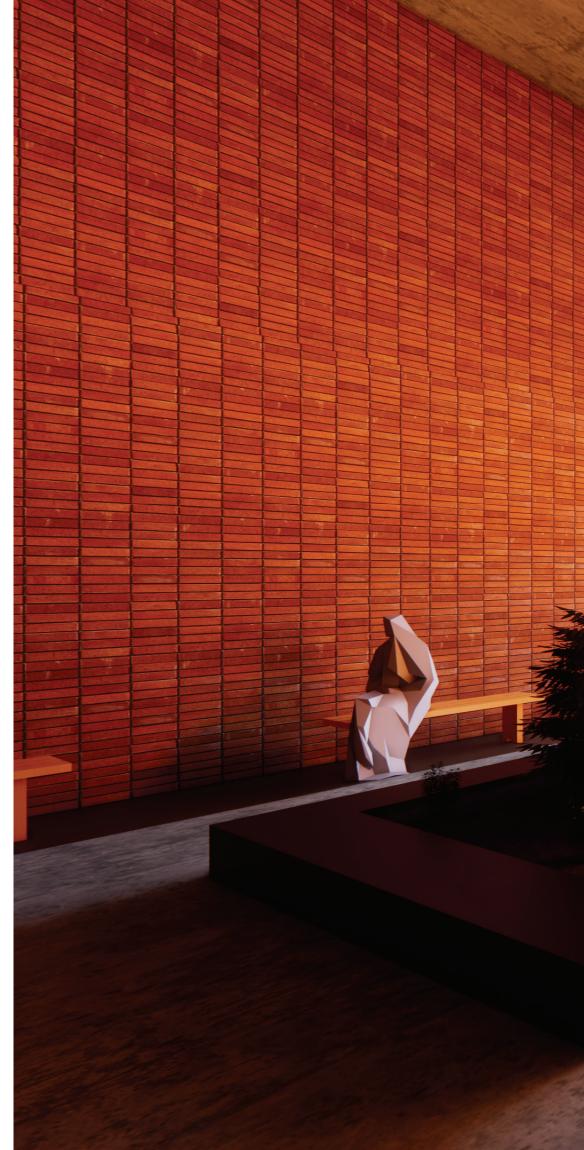


150′

30'

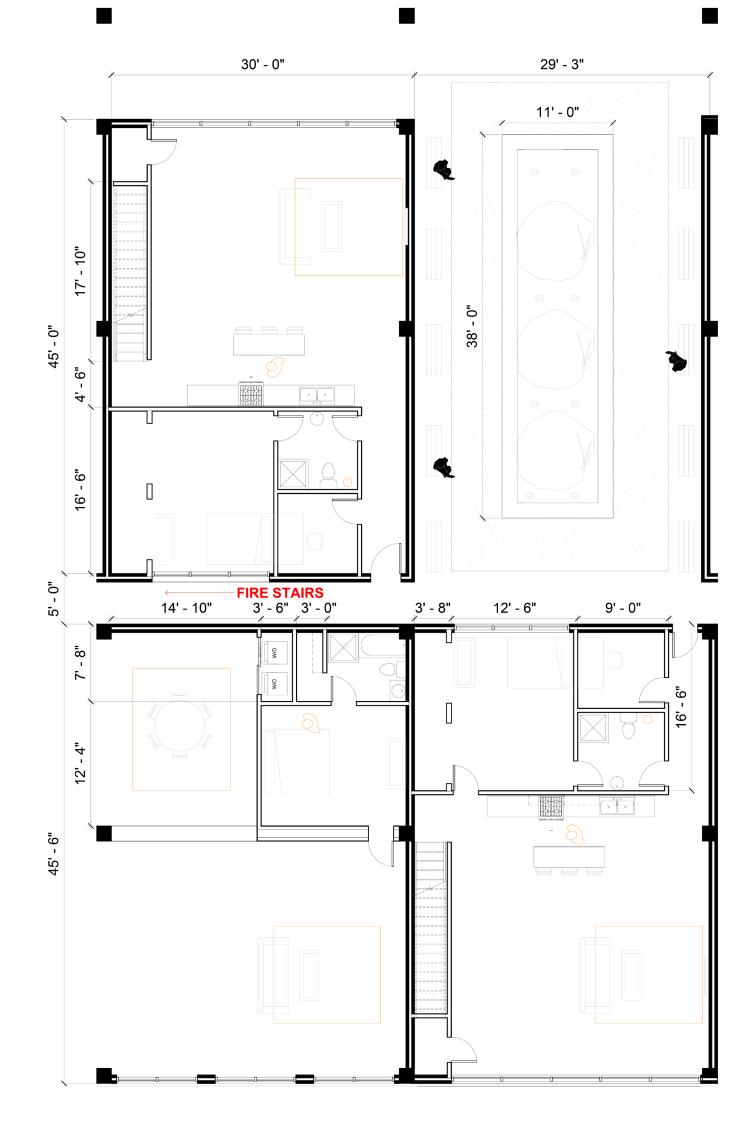
## residential garden

An important consideration in the project throughout it entire span is the preservation and promotion of health. Residents need space to enjoy the world at there own comfort, in spaces that prioritize dignity, solitude, and the inclusion of natural elements.

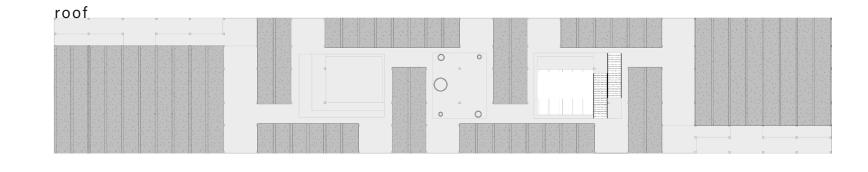


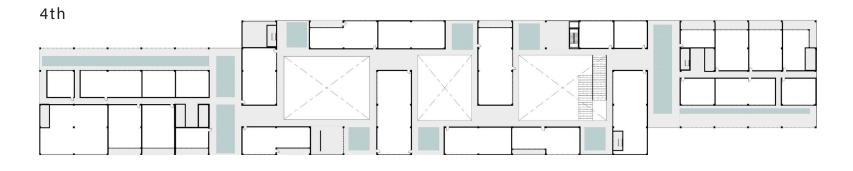


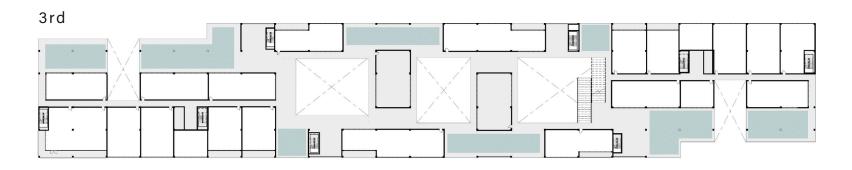
#### callout 2nd floor

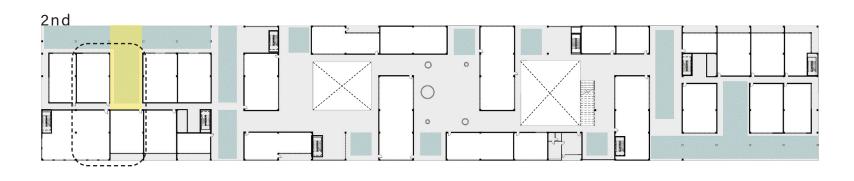


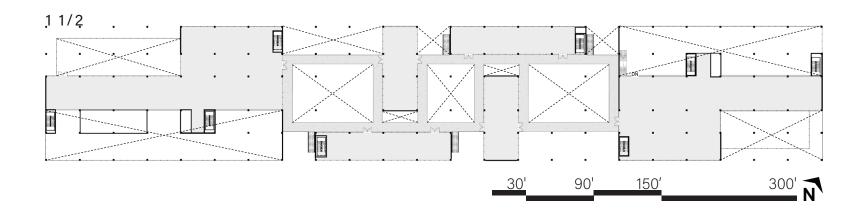
#### floors







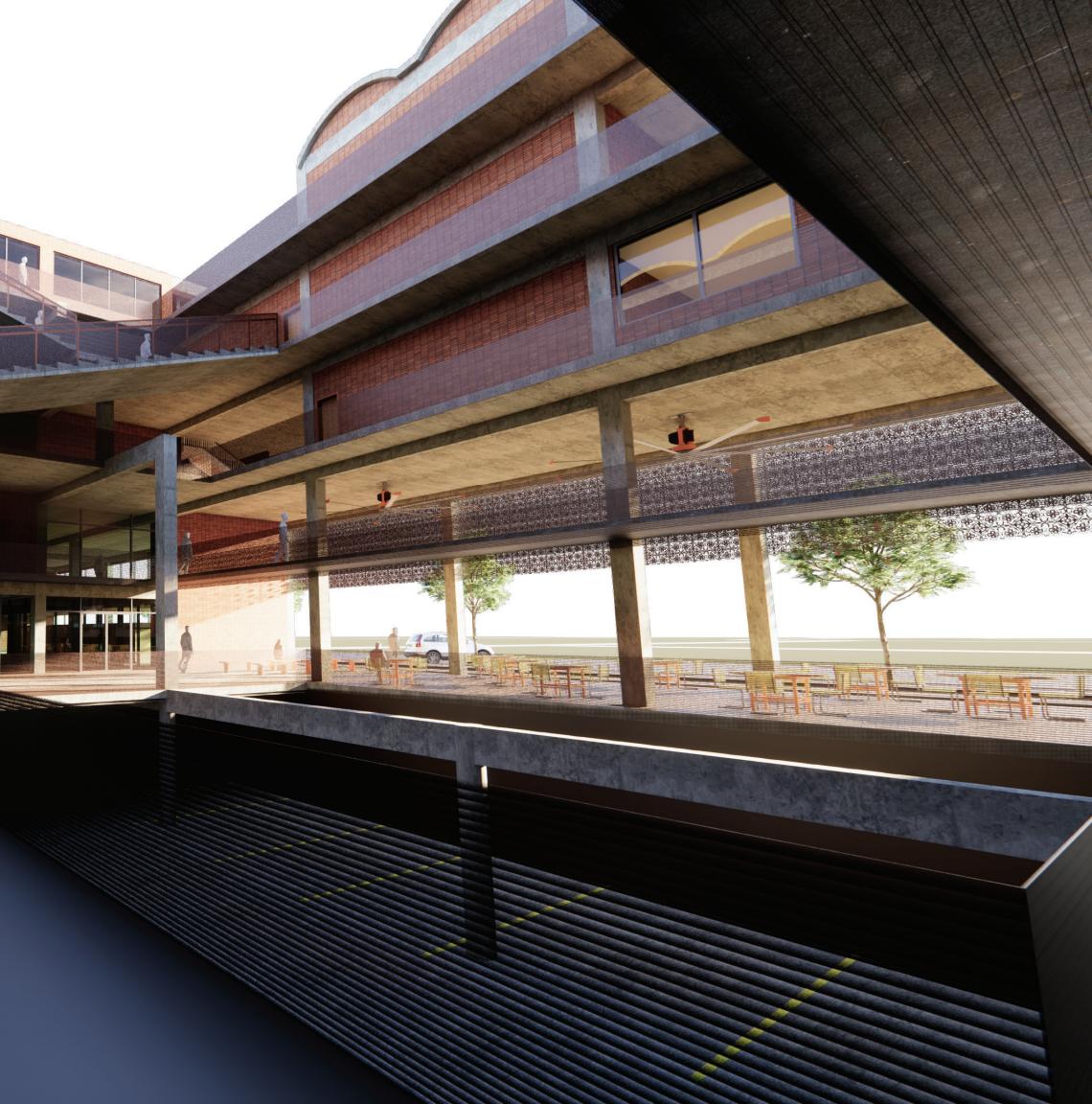




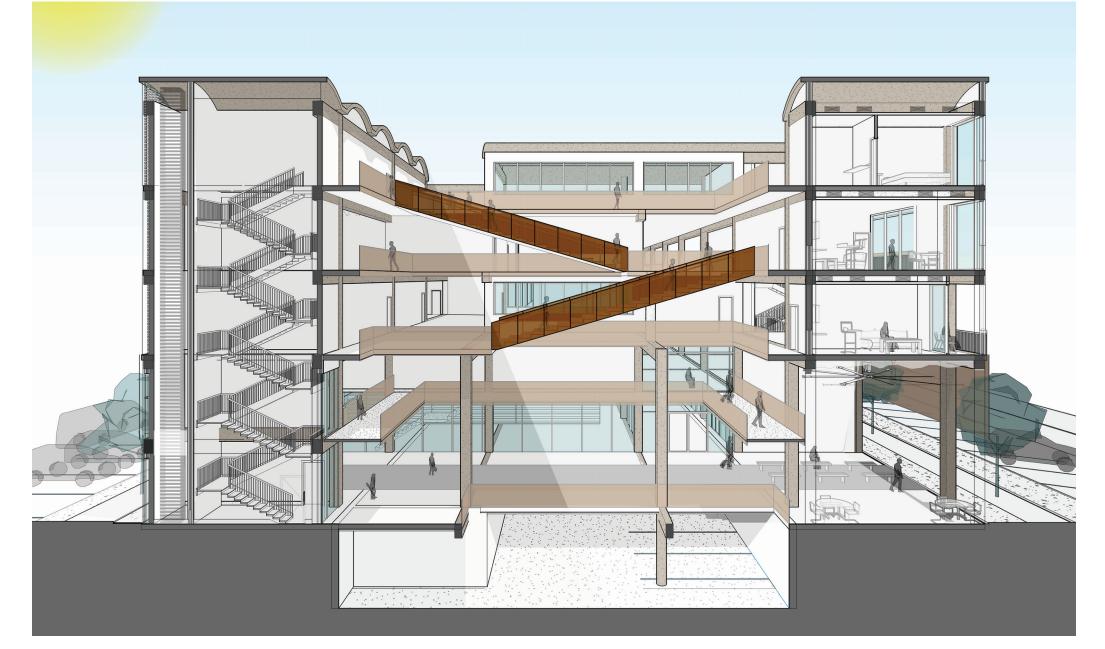
#### courtyard

The courtyards provide indication on proximity within the space. visual and physical attributes transform these spaces into an area that is both private and public. fostering a relationship between the two to create a thriving place to be.



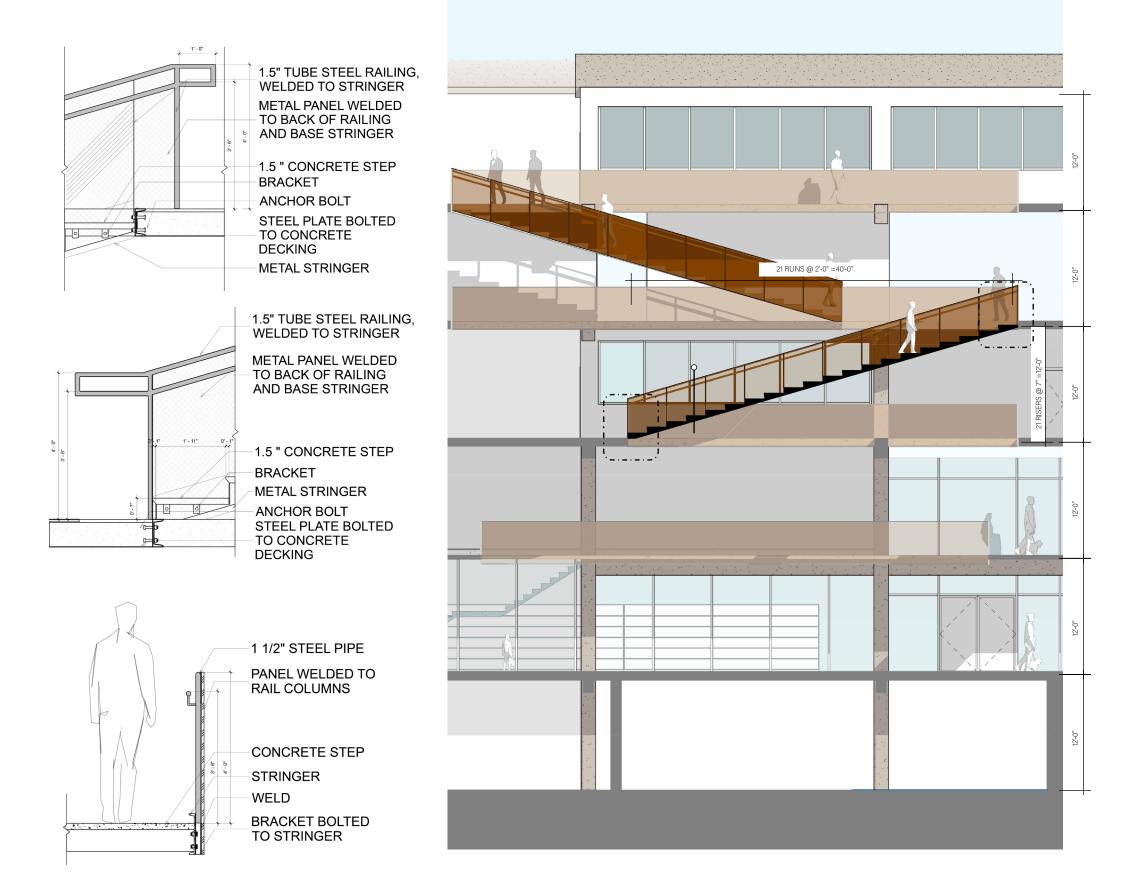


#### section e



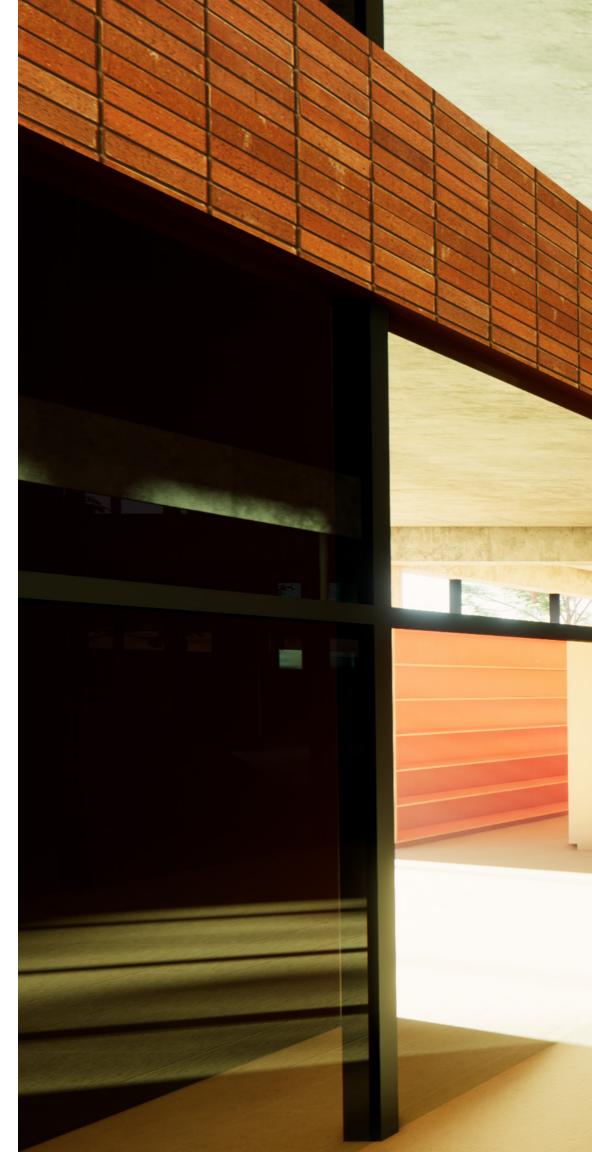
Along the path of the internal retail space are three distinct courtyards to indicate one location within the project. This courtyard features a full visual connection from the garage to the highest level, as well as a grand staircase that serves to connect the residential levels both visually and through circulation.

#### details



#### entry to courtyard

The interior of the space is inended to encourage connection across a multitude of components. Whether that be vertically, connection to ligth and nature, or the clear pathways through the space.

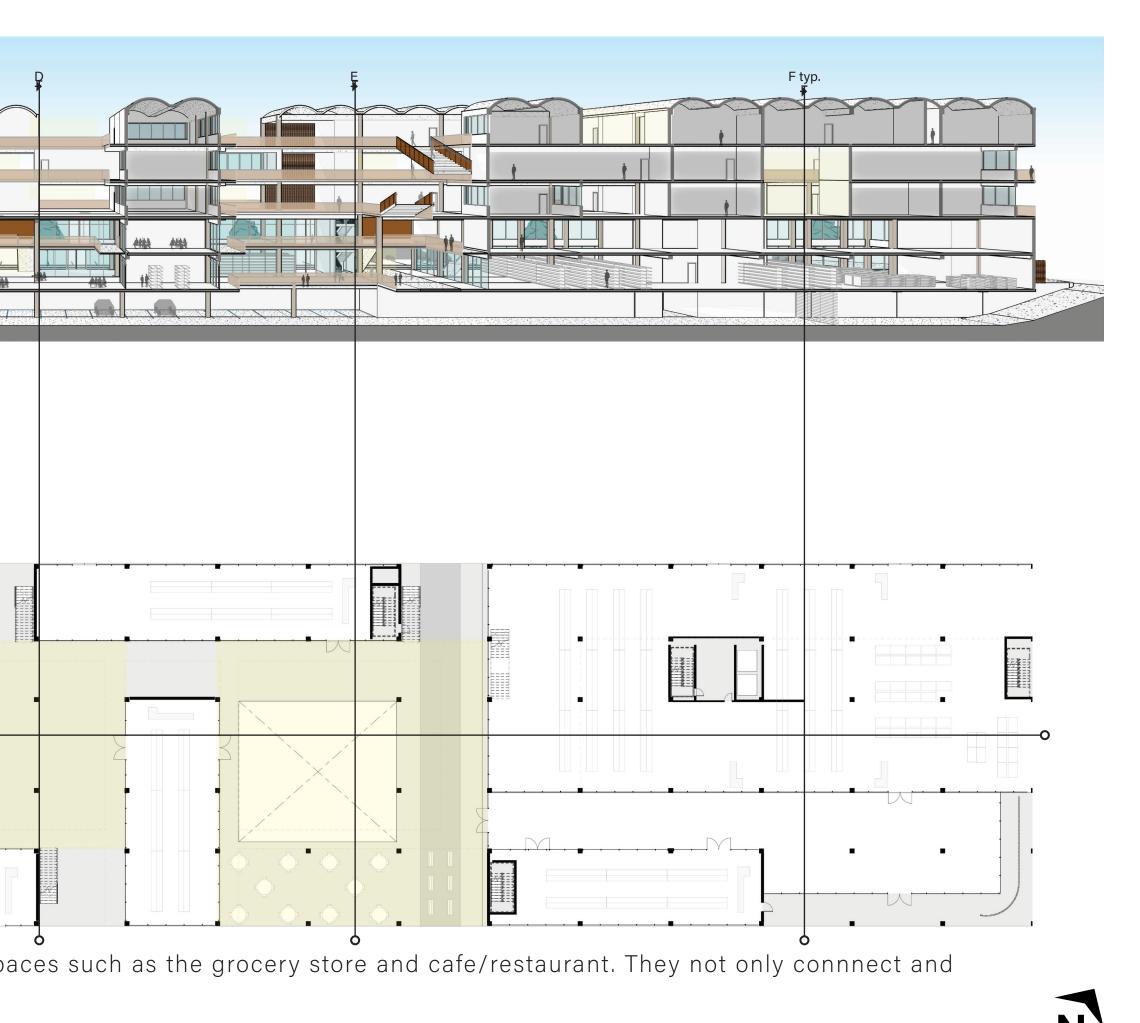




#### courtyard sections



The courtyards provide the interstitial space between the larger preprogrammed retail sp provide relief within the retail space, but provide connection between public and private.



90'

150′

300'

#### section c



Tiered balconies cascade into the the retail space below the residential floors. This creates plenty of space for residential green space while maintaining lighting and visual connectivity.

#### section d



A courtyard for just the residents. This starts with the residential floors, and other than some key light portals to the retails space below, is a space completely set apart for just the residents.

60'

#### section f



Double height spaces are placed along the path to break up the repetition and provide a common outdoor space for residents to congregate.

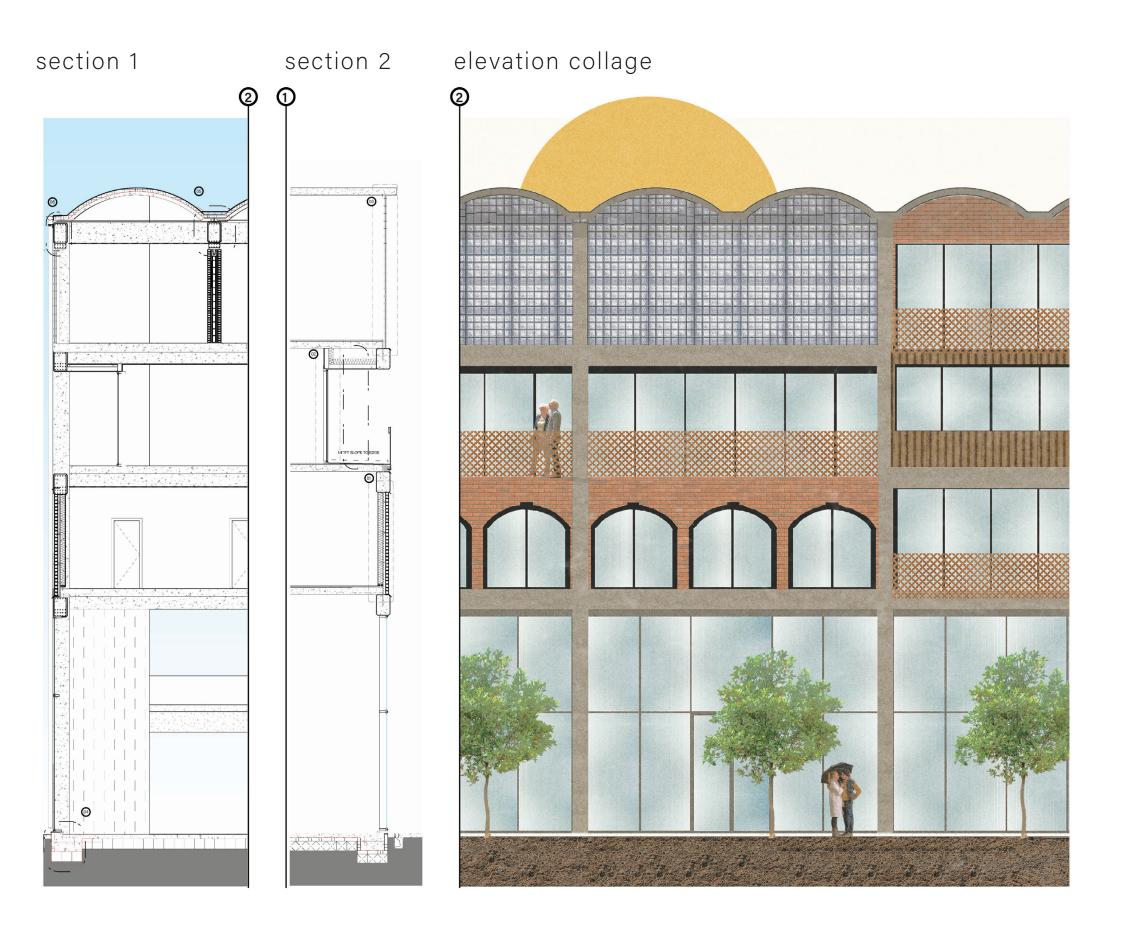
#### section g



Floors have a similar but alternating unit plan that creates pockets for various usages and visual pathways to the outdoors.

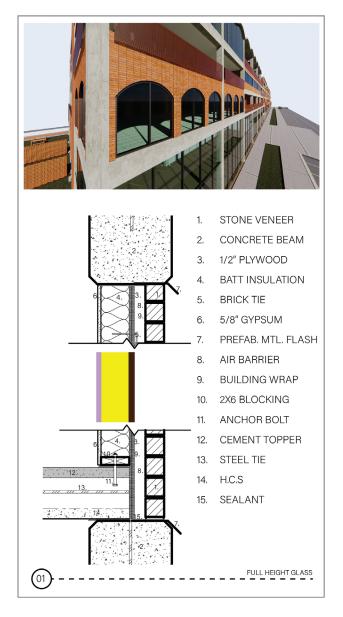
30'

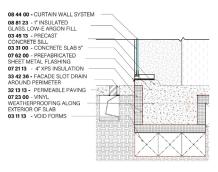
#### wall composition



#### wall composition

#### arch



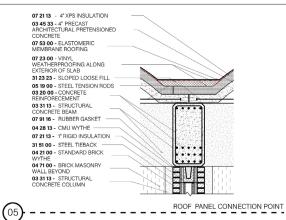


(04)

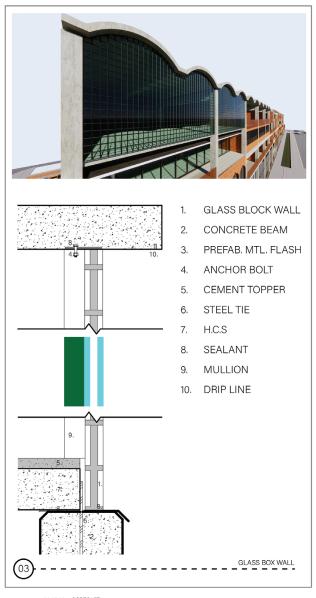
CURTAIN WALL BASE

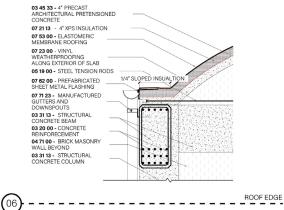
#### recessed





#### glass bricks





#### entry to courtyard

At several points throughout the project, the entry to the space is adorned by materials meant to reference local culture and create a unique identity. Additionally stairways to the second retail floor are immediately available. Reminding people about the multitude of possible pathways that they could embark upon.





#### elevations



#### south







#### west elevation



#### east elevation



30'

15'

60′

## pro-forma

# the **MISSING** city

PROJECT PROFORMA BASED ON PUBLISHED DATA FROM THE CITY OF AUSTIN	
SITE FACTS	
NET TOTAL ACREAGE (ESTIMATED DEVELOPED SITE AREA)	2.15
FAR (FLOOR TO AREA RATIO)	1
AHBP(AFFORDABLE HOUSING BONUS PROGRAM)	1+
TOTAL ALLOWABLE CONSTRUCTION	404,237
MAX DU/ACRE	36
MAX DU/ACRE + AHBP	64
AUSTIN AVE COST SQ FT.(CONDO) https://www.hotaustincondos	\$482.00
AVE. RENT/SQ FT OF RETAIL SPACE	\$3.73
INCOME STATISTICS	
50% MFI	\$54,529.50
60 % MFI	\$65,435.40
80 % MFI	\$87,247.20
MEDIAN FAMILY INCOME AUSTIN	\$109,059.00
AUSTIN AVE MORTGAGE MONTHLY	\$2,299.00
SITE ACQUISITION COSTS	
3716 GOODWIN AVE, AUSTIN, TX 78721	
APPRAISAL VALUE OF 3716 GOODWIN AVE (2023)	\$2,026,050.00
APPRAISAL VALUE OF 3716 GOODWIN AVE (2022)	\$1,013,025.00
APPRAISAL VALUE OF 3716 GOODWIN AVE (2021)	\$675,350.00
APPRAISAL VALUE OF 3716 GOODWIN AVE (2013)	\$74,270.00
LEGALACREAGE	1.55
PRIMARY SITE ACQUISITION COST (TRENDING EST.)	\$3,039,075.00
3707 GOODWIN AVE, AUSTIN, TX 78721	
APPRAISAL VALUE OF 3707 GOODWIN AVE (2023)	\$4,715,000.00
LEGALACREAGE	3.09
REMEDIATION AND BEAUTIFICATION/ SQ. FT	\$5.00
REMEDIATION AND BEAUTIFICATION COST	\$673,002.00
EPA LAND CLEAN UP GRANT (MAX)	\$2,000,000.00
SECONDARY SITE ACQUISITION (TRENDING EST.)	\$5,186,500.00
SECONDARY SITE ACQUISITION (W/ REMEDIATION COST)	\$5,859,502.00
TOTAL LAND COST (-SITE REMEDIATION)	\$8,225,575.00
TOTAL UNITS AND SALE COST (FOR AFFORDABLE UNITS)	

PLANNED DU/ACRE	35
PLANNED UNITS (BASED ON ESTIMATED DU/ACRE)	75
EXTIMATED SALES COST SQ/FT OPTION A	\$225.00
EXTIMATED SALES COST SQ/FT OPTION B	\$275.00
OPTION A	
SQ FT	1200
% OF AVERAGE AUSTIN CONDO COST	46.68%
AVE. SALE COST / UNIT	\$270,000.00
OPTION B	
SQ FT	600
% OF AVERAGE AUSTIN CONDO COST	46.68%
AVE. SALE COST / UNIT	\$165,000.00
PROJECTED CLIENT MORTAGE INFO	
OPTION A	
AVERAGE MORTAGE AFTER DOWNPAY.	\$219,375.00
PROJ. AVERAGE MORTGAGE PAYMENT IND.	\$1,628.70
PROJ. REQ. PRE TAX SALARY TO PURCHASE UNIT	\$81,434.98
RATIO TO MEDIAN (AFFORDABLE MUST BE < 80% MFI)	74.67%
OPTION 5	
AVERAGE MORTAGE AFTER DOWNPAY.	\$134,062.50
PROJ. AVERAGE MORTGAGE PAYMENT IND.	\$995.32
PROJ. REQ. PRE TAX SALARY TO PURCHASE UNIT	\$49,765.82
RATIO TO MEDIAN (AFFORDABLE MUST BE < 80% MFI)	45.63%
UNIT VALUES	
AFFORDABLE UNIT SALES	
SALE COST SQ/FT OPTION A	\$225.00
SALE COST SQ/FT OPTION B	\$275.00
HALF OF THE UNITS MUST BE AFFORDABLE BUT NOT HALF OF THE SQ FT	
SQ FT X # OF UNITS	
# OF UNITS	20
UNIT SIZE SQ FT	1200
TOTAL	24000
# OF UNITS	17.5
UNIT SIZE SQ FT	600
TOTAL	10500

SQ FT	34,500.00
AFFORDABLE HOUSING UNITS VALUE	\$8,287,500.00
MARKET RATE UNIT SALES	
% OF MARKET RATE	92.50%
SALE COST SQ/FT	\$445.85
SQ FT	67,088
MARKET RATE UNITS VALUE	\$29,910,961.88
ALL UNITS TOTAL VALUE	\$38,198,461.88
CONSTRUCTION COSTS	
CONSTRUCTION COSTS RESIDENTIAL	
SQ FT./ UNIT(AVE.)	1350
TOTAL UNIT SQ FT	101,588
CIRCULATION FACTOR %	115.00%
RES. CIRCULATION	15,238
TOTAL RES SQ FT	116,825.63
COST/ SQ FT(CONST) (EST)	\$250.00
~TOTAL RES COST~	\$29,206,406.25
CONSTRUCTION COSTS RETAIL	
STORE SQ FT	81,000
CIRCULATION FACTOR %	1
TOTAL STORE SQ FT	81,000
COST/ SQ FT (CONST) (EST)	\$165.00
~TOTAL RETAIL COST~	\$13,365,000.00
TOTAL SQ FT	197,825.63
PARKING COST	
COST/ U.GROUND SPOT	\$27,500.00
SURFACE PARKING	\$2,500.00
# OF RES SPOTS 1 PER UNIT + 10 EXTRA	85
# OF STORE SPOTS	118
SURFACE PARKING	116
TOTAL UNDERGROUND SPOTS	87
TOTAL SPOTS	203
PARKING TOTAL AVE COST	\$2,686,733.08

TOTAL CONSTRUCTION COSTS	
DGSF FACTOR	1.15
COMBINED COST	\$53,483,714.33
GRAND TOTAL X DGSF	\$61,506,271.48
LOAN DETAILS	
LTV %	90.00%
DOWNPAYMENT	
LTV (TO COST)	\$3,476,441.43 <b>\$55,355,644.33</b>
INTEREST RATE= SOFR+75 BPS(AS OF 9/20)	6.05%
MONTHLY INTEREST RATE	0.50%
LOAN TERM (YRS)	40
LOAN TERM (MONTHS)	480
ALLOWED CONSTRUCTION PERIOD (YEARS)	3
LTV - SALE COST OF RESIDENTIAL UNITS	\$17,157,182.46
ADDITIONAL FINANCING (ANYTHING ABOVE 90%)	
LTV %	5.00%
LTV	\$2,674,185.72
INTEREST RATE	14.00%
MONTHLY INTEREST RATE	1.17%
LOAN TERM (YRS)	40
LOAN TERM (MONTHS)	480
MONTHLY LOAN PAYMENT	-\$31,318.46
	-\$15,032,860.93
AGGREGATE LOAN PAYMENTS	
MONTHLY LOAN PAYMENT	-\$126,318.31
LIFETIME PAYMENTS	-\$60,632,790.30
INCOME AND PROFIT (ON THE SALE OF THE PROPERTY) RETAIL SPACE OCCPANCY %	100.00%
MONTHLY INCOME ON RETAIL SPACE	\$302,130.00
HOA FEES/MONTH	\$250.00
TOTAL HOA FEES FOR BUILDING/ MONTH	\$18,812.50
PARKING RATE INCOME / DAY / SPOT	\$10.00
TOTAL PARKING INCOME/ DAY	\$1,179.04

PARKING RATE INCOME/MONTH	\$35,371.18
TOTAL INCOME/MONTH	\$356,313.68
PROFIT	
INCOME MINUS MORTGAGE	\$229,995.37
DEBT TO INCOME RATIO (BELOW 36 NOT MORE THAN 40%)	35.45%
NOI(ESTIMATED 65% OF TOTAL INCOME)	\$231,603.89
ANNUAL NOI	\$2,779,246.70
ESTIMATED CAP RATE ON RETAIL SPACE AT ITS ASSET CLAS	9.00%
VALUE	\$30,880,519
CAPITAL GAINS TAX (CANCELLED BY OPP. ZONE)	15.00%
OPPURTUNITY ZONE POTENTIAL SAVINGS	\$1,135,906
PROFIT	\$7,572,709
ROI	217.83%

#### conclusions

- Resident in austin need to make \$149,267
   in order to comfortably afford a mortage
   for an average priced home in austin. Thats
   approximately \$40,000 more than the MFI.
- 2. Higher density equals more profit, the minimum density for a vibrant community is thought to be around 27-35 du/acre.
- Reducing parking reduces cost of construction, however parking can be used as a cash flow asset to support the viability of the building.
- 4. Retail should be no less than a 50% of the total building sq ft.. More retail equal more cash flow, which means that the end product will be more valuable, allowing the developer to subsidize the cost of the housing further.
- Models based on renting rather than buying do not work towards creating long term equity for residents.
- Efficiency units (600 sq ft) are good at reducing the upfront cost of purchasing a home, however the reduced space would be dignified for occupants greater than (1-2)

#### possible code changes

- 1. Pre-sale of a portion of the retail spaces to the Governing Resident Commission at preferential terms (zero or minimal interest rates, discounted price/sq ft, gathering or event spaces that are run by or for the residents, waived fees, etc)
- 2. Or could provide long-term favorable leases for resident businesses
- 3. Building type and scale restrictions rather than, density and height restrictions
- Further incorporation of "healthy" design principles aimed at creating spaces that promote happiness and dignity for the resident.
- Duration warranty of properties, design for the 100-year building rather than 50-years
- 6. Green space percentages
- And more, settling for the bare minimum doesn't create healthy people.

# references for the **MISSING** city

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