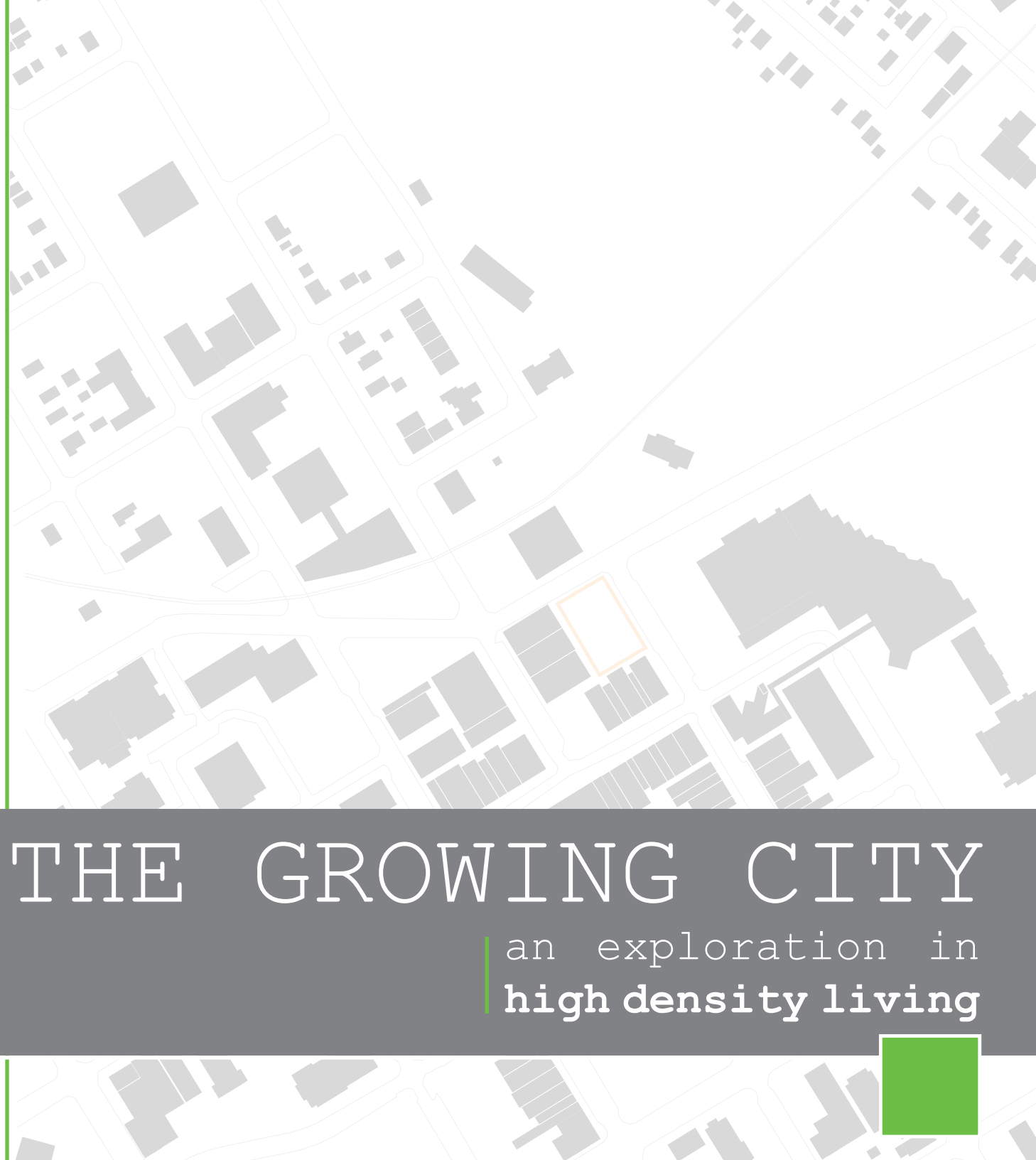


THE GROWING CITY

an exploration in
high density living

problem statement

how does a regions density contribute to the needs of the city and residents?

project typology

residential mixed-use complex

claim

a city's housing development is based on the density of people in a given area, the success of those developments is how that density is accommodated

conclusion

based on a cities housing needs, new designs need to take action to accommodate for the growing number of people to live and work comfortably. new housing will not only give residents opportunities to flourish within the city, but also for the city through economic growth

The Proposal

This thesis is an exploration in high density living within a city. Based on a city's density and expansion, housing options are normally a necessity. One issue with new housing developments, I have noticed is that new housing complexs are almost never in ideal locations. Cost, location, and quality are always the driving factor for individuals looking for a new place to live. My proposal is to give the residents or new residents of St. Cloud more options.

Building within the city, in locations under utilized, will bring people into the heart of the city where they can become a part of the city's community. This will not only strengthen the city economically, but also uplift the residents living there. The question is though, how do you get middle class people (which make up most of the population) into the city where they can strive. These individuals or families can not afford the astronomical prices people pay to live within a city.

My answer would be a housing complex, designed and built in a way that quality is not lost. This will be accomplished through a design that gives each individual user options into what they need specifically. Architecture is able to accommodate new ways of living, giving people a more enjoyable life with the comfort of feeling truly at home.

user

The residents living and working in the metropolitan region of St. Cloud. Ideal candidates would be families, couples, or single individuals. The age of residents would have a wide range due to the fact that different generations would utilize the city life in different ways.

owner

This building will be privately owned and controlled.

The Program

Residential Units

Room units will vary based on how many units a potential buyer needs or wants. The base size for each unit is 10'x10'x40' with 63 space holders for single units within the structure. These units can be arranged to be combined either side by side or up and down based on what is needed. Hallway cutouts or stairs will make these combinations possible, so the outcome for how many units are in the final out come of the building depend on the needs of the residents.

Retail/Commercial

Ground level will consist of four areas for shops and a bigger area allocated for a resturant/bar. The reason for this is because in a downtown area, most people would not want to live on ground level and in order for the building to be more profitable it can rent out valuable on street shopping to vendors looking for a location in already successful retail area.

Resident Amenities

Each resident will also have access to a workout facility and a lounge area. The ease of having these types of areas within a building would have be an attractive to most buyers.

Rooftop Terrace

In order to utilize the entire building, a rooftop community space will be created. This space will be exclusive to residents. This space will give the residents a private place to enjoy the outdoors without having to leave the building.

Parking Garage

Downtown parking is obviously always and issue. To compensate for this, a parking structure will be constructed in conjunction with the building to allow residents the ease of returning and leaving the building.

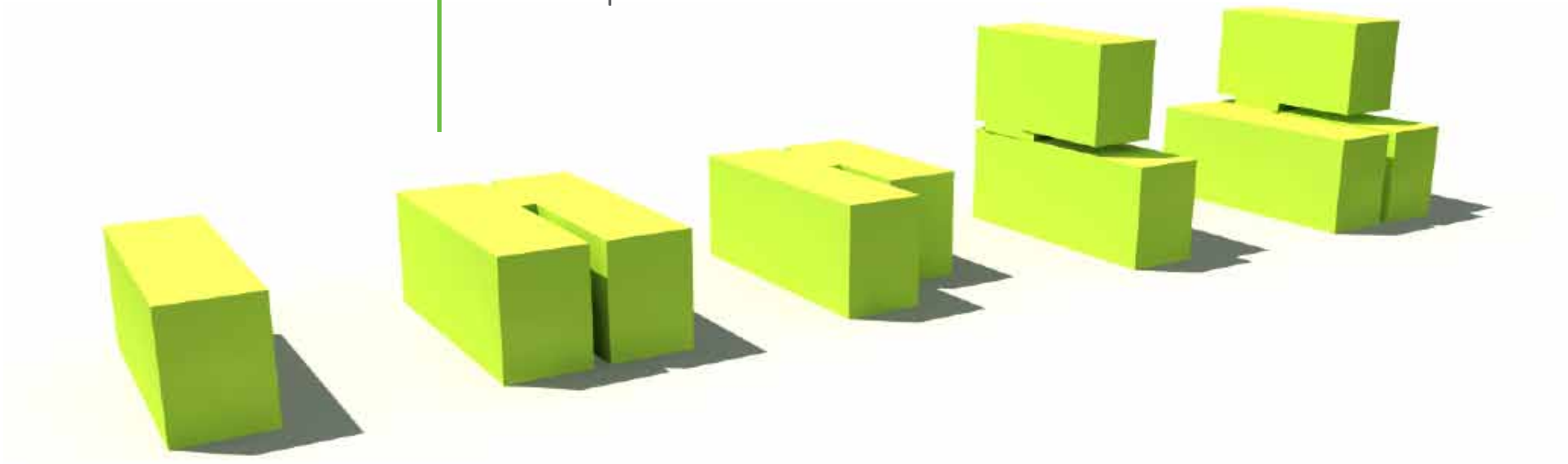
the units

units will be prefabricated off site

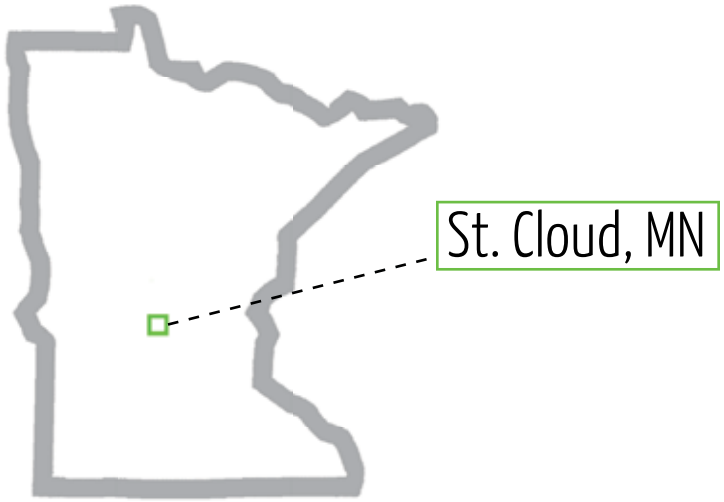
- -waste reduction
- -quicker construction
- -cost savings

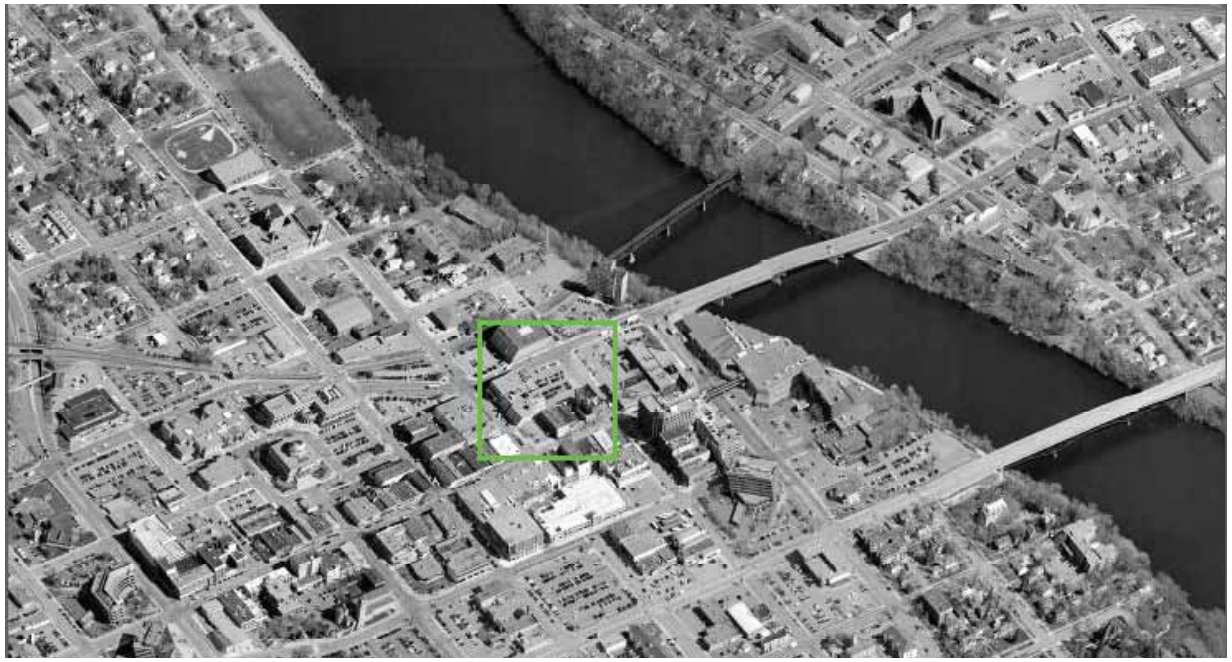
multiple varieties of unit configuration

- -responds to residents needs & wants



The Site





The site is located in the downtown area of St. Cloud Minnesota on the corner of 1st St. N and 5th Ave N. Currently, the site is being used as a parking lot, but with multiple parking lots near by the extinction of this parking lot will hold little complications.

This site holds particular value because of its downtown location. It also is within walking distance or a short commute to the financial and shopping districts in the city. Another aspect of this site is its proximity to the Mississippi River which is just a short walking distance away.


1ST ST N

Site Analysis

views

The views as it is now is for the most part other buildings. The most optimal views would be to the north. The reasoning is because all other views would be blocked by buildings. Although the buildings are blocking views, they still are visually interesting to the NE and SE.

site character

The site has a typical downtown feel at a smaller scale due to the size of St. Cloud. There is a constant activity of traffic, buses, and pedestrians. The site itself is a parking lot used and owned by the city. The parking lot it self has been used for quite some time so there are several areas of distress due to vehicular usage. The business around the site are still currently being occupied.

west

north

south

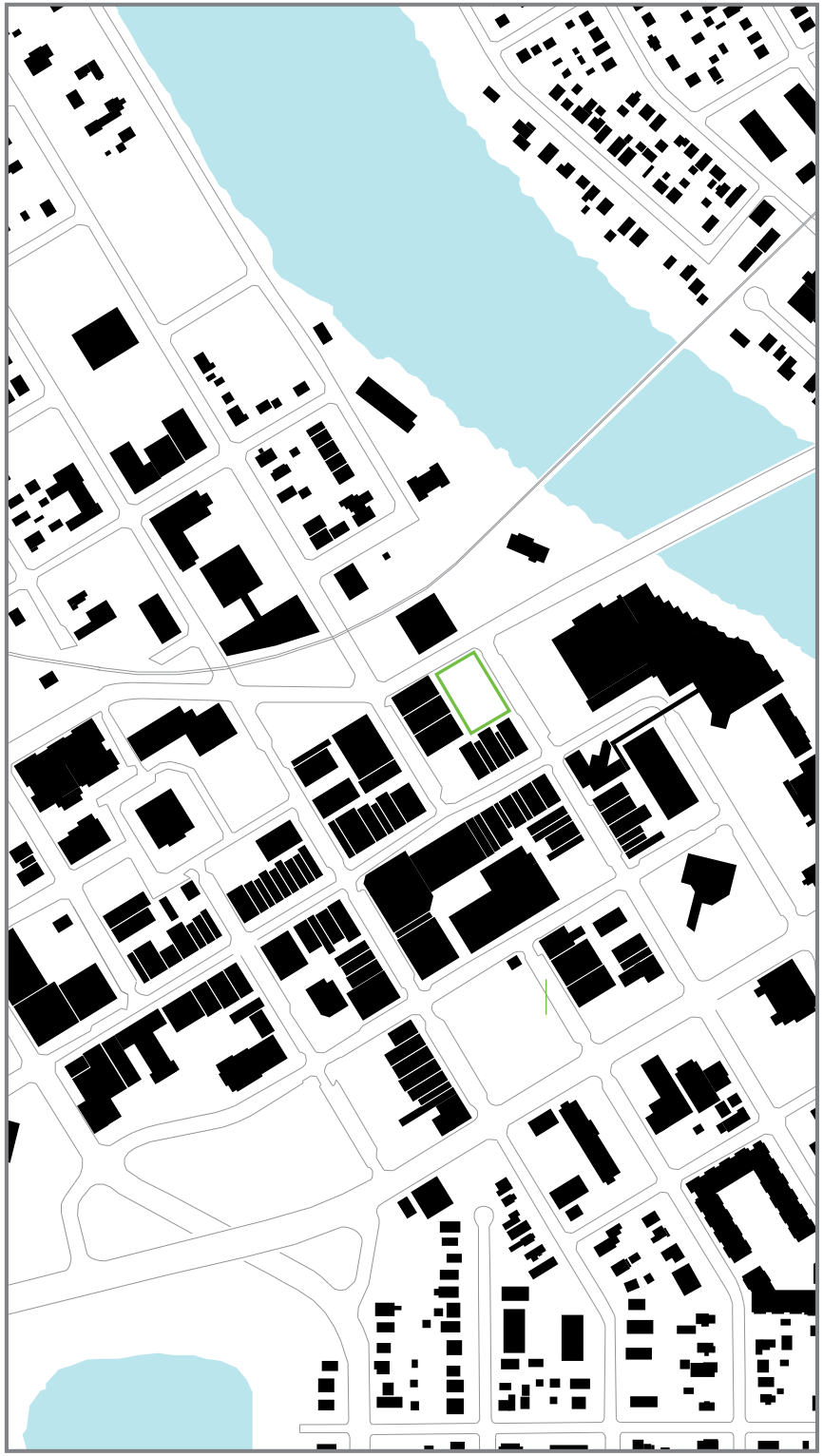
east

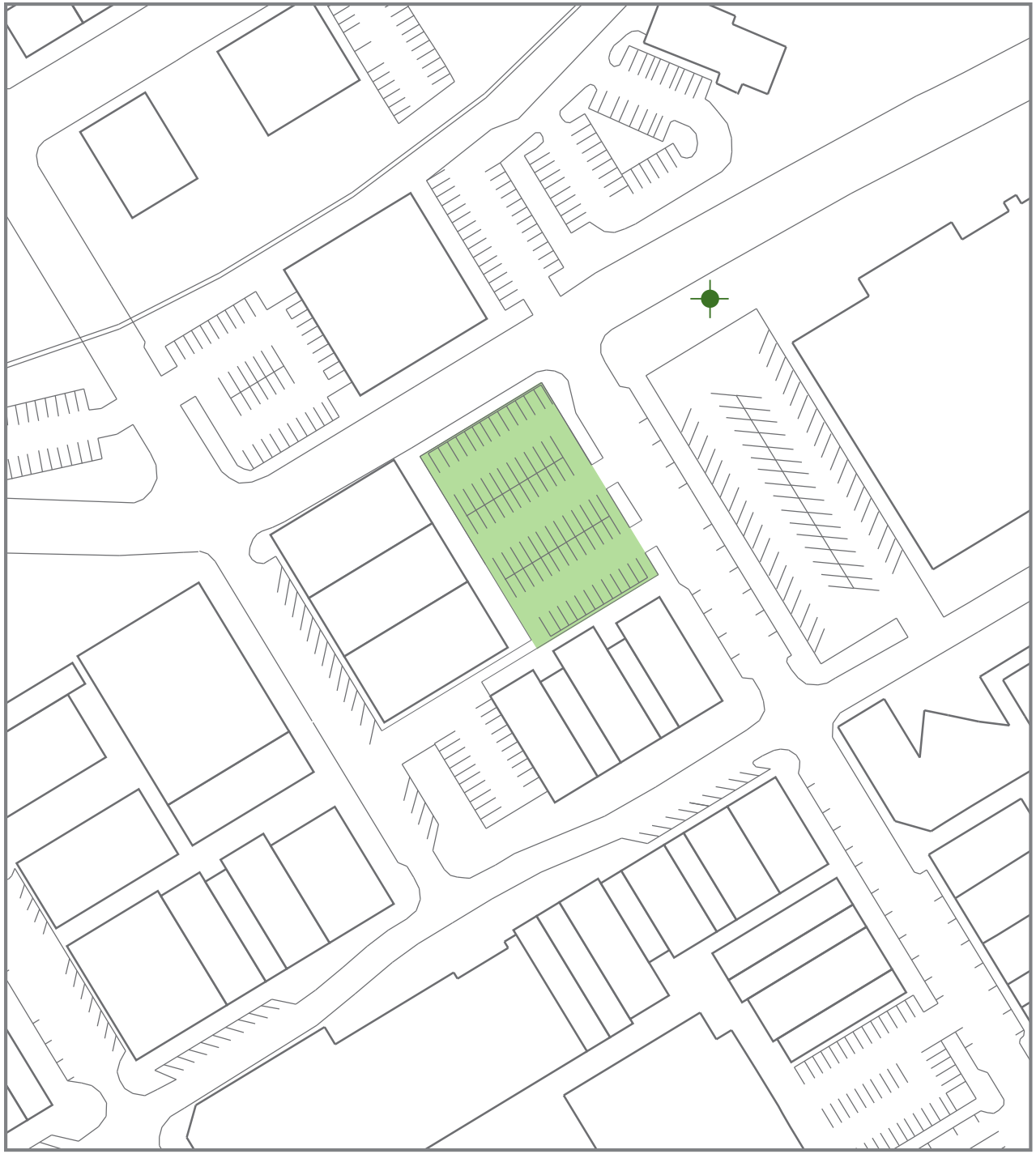
grids

The downtown area of St. Cloud follows a normal city block-like grid. The grid itself is orientated in a way that it is parallel with the Mississippi river. The downtown area grid is unique to St. Cloud because most other commercial or retail areas are much more spread out. This is the one spot in St. Cloud where an individual can park once and walk comfortably from each destination.

water

The Mississippi river is the main water feature in the St. Cloud area. The river itself though is at a much lower elevation so views of the river from the site are not possible at ground level. The river itself is an attractive view which makes the site more desired. Walking paths and bridges make the river easy for individuals to enjoy the river from this location. A short distance away, just south of the site, Lake George is another public attraction with a vast park surrounding the water.





wind

The site is protected on almost all sides by already existing buildings. Wind would not be very noticeable until three stories higher than ground level. The strongest winds in the area come out of the north or northwest with slight breezes coming from the other directions.

light quality

The light quality of the area is different throughout the day. Because there are some substantially large buildings in the area, shadows are always present. The site gets substantial sunlight in the middle portion of the day when the sun is not obstructed by other buildings.

vehicular traffic

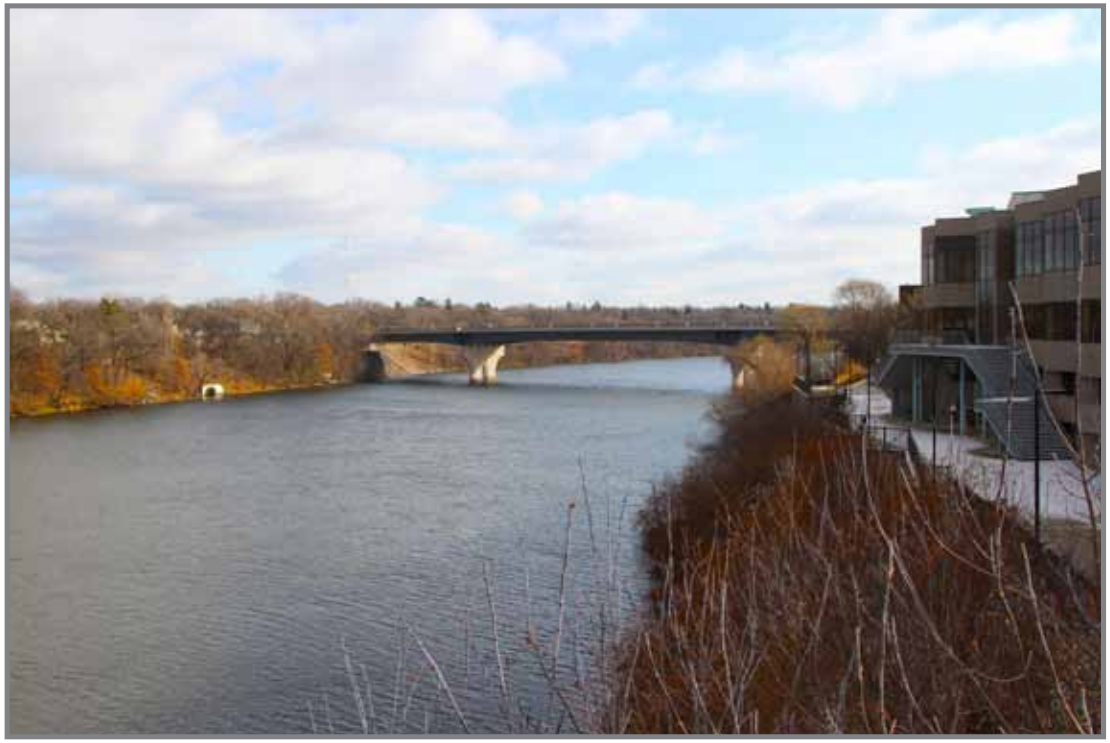
Vehicles are always present in the downtown area. Travel is kept at a reasonable speed with a mixture of traffic lights and four-way stops. Bus travel is used in the area with a bus stop and shelter just across the street from the site.

pedestrian traffic

The high density of establishments in the downtown area enables residents and visitors to easily move about the area by foot. Sidewalks are wide and kept in good shape and there are also crosswalks present at all intersections.

human characteristics

The area is used by people at all times of the day. In the morning people are heading to work. In the afternoon people are shopping or going somewhere to have lunch. In the evening hours there is a wide variety of bars and nightclubs in close proximity.



vegetation

The downtown area does not have much for plants or trees due to that most of the environment has been built on. There are some landscaped areas along sidewalks but not many. The main areas of vegetation would be along the river, and in the north and south residential areas.

distress

There are not many areas of great distress in the area, but it is an older district so many of the buildings are older.

parking

Parking is a major aspect in this area. During the day hours there isn't any free parking, the only options are by either meter or parking garage. There is an abundance of available parking options including on-street, parking lots, and two parking garages located within a block of the site.

built features

There are a wide variety of building types around the site. There are numerous commercial, retail, and dining facilities. There is also a newly constructed public convention center just to the east of the site. Most buildings are around two or three stories tall, with the exception of a multi-story hotel and assisted living complex.

utilities

The main visible utilities from the site are traffic lights, light poles, and electrical power lines that follow the train tracks. There are no fire hydrants on the proposed site itself.

textures

The textures of the buildings that occupy two sides of the site are unique. The color range of the reds, blues, and yellows brings a noticeable presence to the site. The materiality of these building are for the most part masonry or refurbished masonry. An interesting fact about these buildings is that none of the visible facades in the photo are actually the main entrances to the building.

Historical Context

St. Cloud Minnesota is located in the center of Minnesota along the Mississippi River. Historically, the city used to split into three different sections; upper, middle, and lower towns. The cities main purpose upon founding was a center where people from around the agriculture area could trade and process their goods they had harvested. The name was after Saint-Cloud, France which is near Paris. The city saw it's first large increase in economic and population growth with the installation of the railway. The main purpose of this was because of a large deposit of granite within the city. The granite quarries are so abundant that the city itself is nicknamed "the Granite City." People began to migrate to the site in aspirations of new job opportunities and economic stability. Neighborhoods began to develop around the cities main downtown area and today St. Cloud is one of the biggest cities in Minnesota. The city of St. Cloud was founded by German immigrants, this is why today almost half of the occupants living on the city are of a German ancestry. The population is 65,842 people, third largest city in Minnesota, and is still growing today.

The location that the thesis is to be constructed is in a growing downtown. It is the central business district area of the city that occupies all major corporate and governmental buildings. There has been a plan to instill more life into the downtown area. A few of the future plans are to embrace the historical values of the area and further the walkability and inviting nature. The plan is to not so much change, but to advertise the vast multitudes of reasons to be in the downtown area; work, live, walk, and shop.

Prefabrication of homes and buildings is not a new concept, it started becoming popular early in the 20th century and after World War II. The soldiers were coming back from overseas and the need for housing was high. Although the type of modular homes are not architecturally pleasing, they did serve their purpose and proves the short amount of time and efficiency prefabrication is. Prefabrication recently as become much more sophisticated with major parts of homes and buildings being constructed and pieced together on site. The ability to customize homes or parts of homes has also increased. Homeowners interested can meet with designers and have their own custom design created using modular techniques.

With the downtown St. Cloud in the shape that it is, there is no reason why there cannot be more comfortable living complexes. With the future goals of the city in mind, it is a perfect environment to bring more people into the city and to be part of the city. Many people do not see the downtown area as a place of interest, or maybe only go there every once and awhile. Bringing a high density building, that is affordable to many, could boost the amount of people in the downtown area. More people living downtown would mean more people visiting these individuals which will result in a more alive downtown at all hours of the day. More frequent activity will result in a economic boost for the city itself. The idea of a high density prefabricated building is also a new concept to the St. Cloud area. Arousing a new interest in this type of design for the area could be beneficial economically as well. More structures could be built, big or small, at rapid rate. The beauty of prefabrication, is that units could be built only as the need for them is present. This eliminates vacant units almost completely. Also, if more structures were built similar to this, moving from strucutre to structure would be easily done.

Research Results

Designing with a sense of size is one aspect that can effect the success of projects of this type. Designing smaller uses not only less overall material, but also can open opportunities of creating more units in a smaller footprint. Comfortable living does not have to mean wide open spaces, a clean simple design that is a lesser square footage can have similar effects to a spacious or luxurious residency design. Designing for a family is a different concern though.

An apartment may feel cramped for a larger number of people living in one unit. Design could compensate for this, taking multiple units and turning them into one unit. So although it would take more real estate, it can be done.

Modular and prefabricated construction can have many benefits. The first is a construction schedule. For individuals or contractors using prefabrication, it was found that a project may be completed up to a month earlier than if normal construction would have taken place. Secondly, cost decrease to the budget is a very common attribute when using prefabrication. Less time building, means less time paying workers to construct a given project.

Also, a project that is built in a more timely manner can begin functioning sooner resulting in revenue to the owner or owners of the project. Another advantage is site safety. Workers doing regular construction are often put into unsafe conditions, but because the job needs to get done, most of the time safety is put on a secondary level. When using prefabrication, workers are not exposed to the elements, which is a common cause of personal injury in the construction field. (McGraw-Hill Construction)

Obviously, the American dream is to have ownership of their own house in a comfortable neighborhood. But more commonly today, this is becoming a string of suburban out spurts. Is this really what the dream is today? Today it is more of a social normality for younger generations to not own a typical house but instead own or rent in a high density complex.

In summary, high density living is a common form of living all around the world. This type of living can meet the needs of all demographics if designed correctly. People who want to live in an urban environment, or have to due to employment, should have options of living. Urban living is usually associated with high priced condos or run down complexes. New complexes that are reasonably priced can be constructed to fit the needs of these individuals.

Designing for a condense city does not have to be impossible. Unused parking lots are a great place were high-density complexes can be established. Just because the word high-density is used though doesn't mean it has to be uncomfortable or compact living quarters. Design by means of prefabrication to suite the buyer can be accomplished. Simple designs utilizing space to it's maximum and giving the buyer a say in the design can be an option for individuals looking to purchase a home.

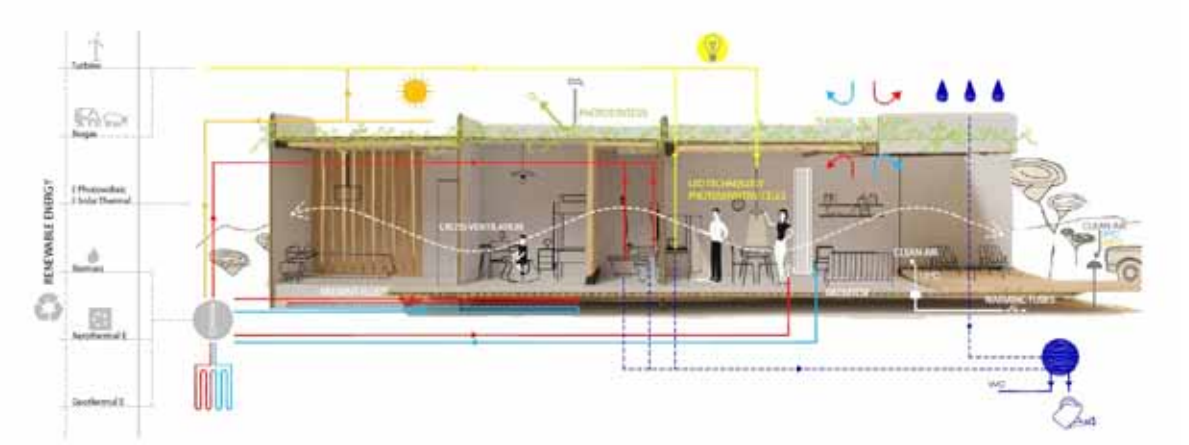
Case Study

Seven Modular Housing

Salgado E Linares Architects
Ames, Spain

This project is an exploration of new kinds personal residential housing. The idea is to make building and designing more simple and cost effective. This idea is not as popular though because the way of constructing buildings has been the same way for so many years. It takes a whole new process to construct and design in this fashion.

plan



section

Seven Modular Housing

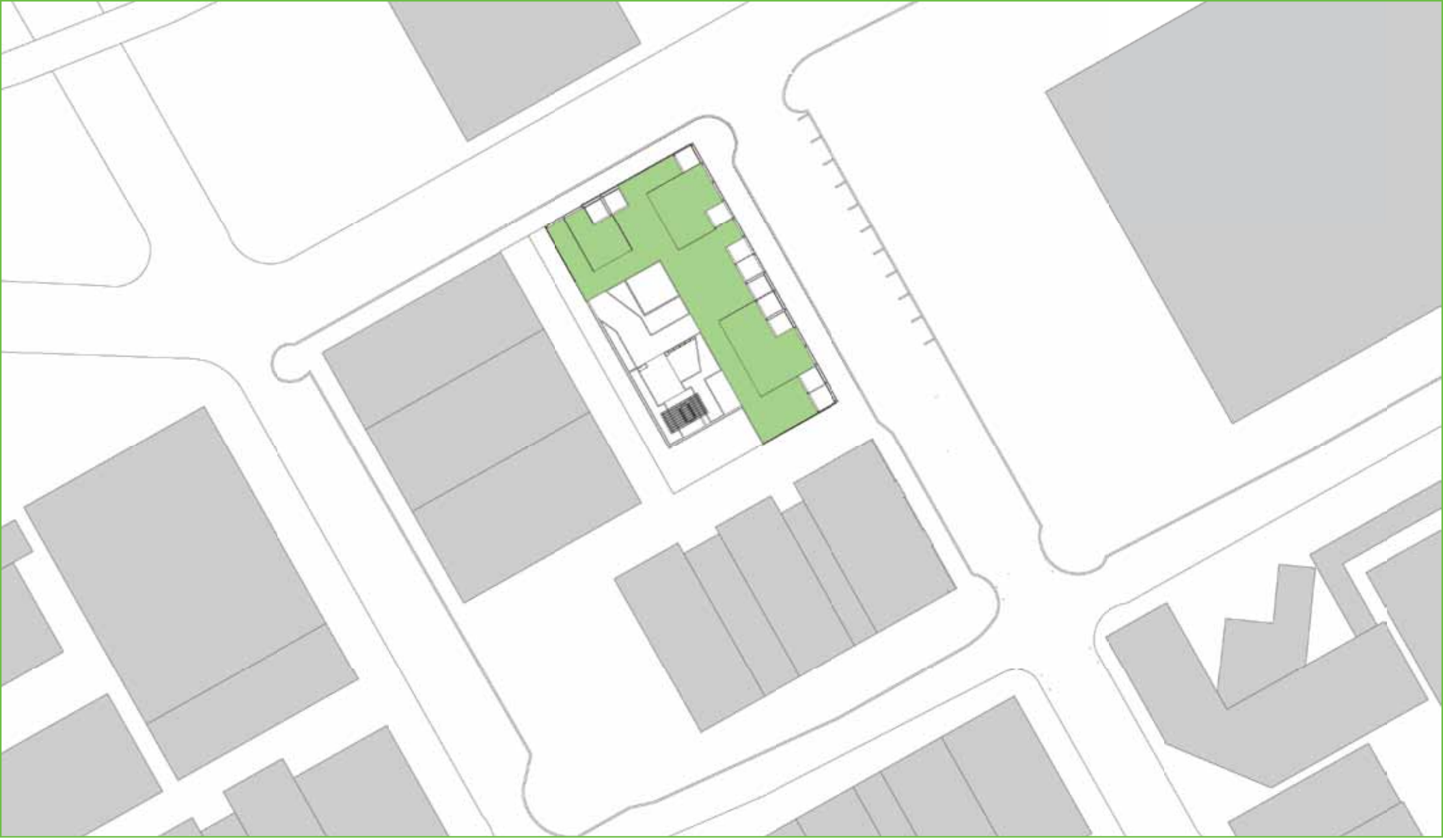
Salgado E Linares Architects
Ames, Spain

The idea is to treat housing as if it is something you can order online. Individuals can find a design they like and that design can be shipped and delivered. Home owners options can be endless because of the simplicity of the design, changes will not alter the structure of the building. Modification and uniqueness, at low costs, is not something that is common in the design field. Prefabrication does not have to be just for small scale residential structures though. Pieces of large scale buildings can be prefabricated, delivered the site, and pieced together.

L41 Prefabricated Homes

Michael Katz, Vancouver British Colombia

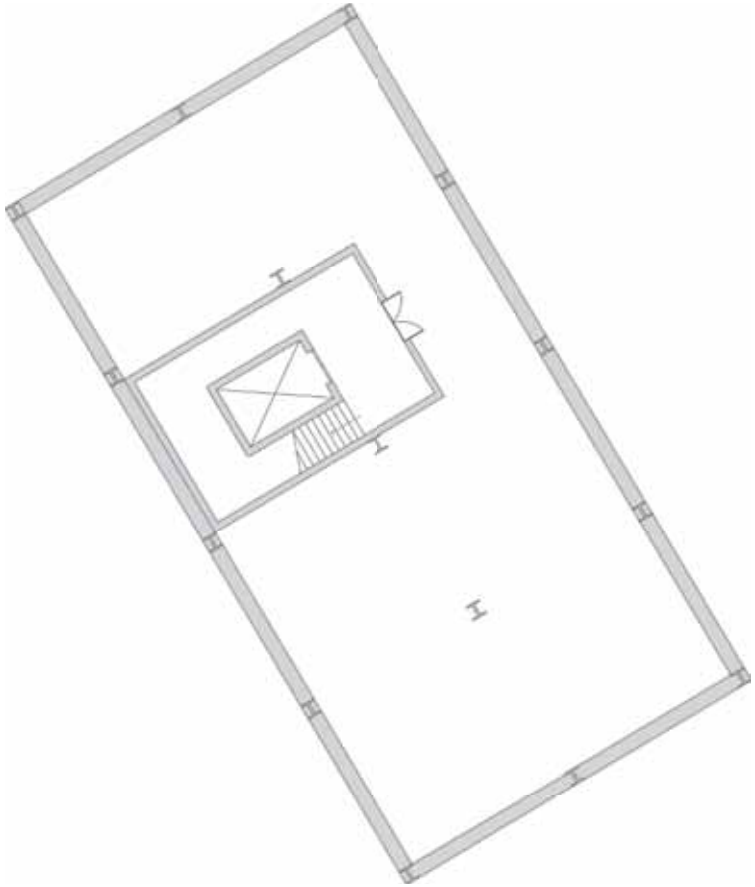
This type of home design projects are based on mass-producing houses so affordable that it is claimed before the end of the century all the people in the world could have proper shelter. The models are expandable and stackable to create three different home varieties, a 220 sq ft studio, a 290 sq ft one bedroom, and a 360 sq ft two bedroom unit. The units can be combined or stand alone based on what is needed.

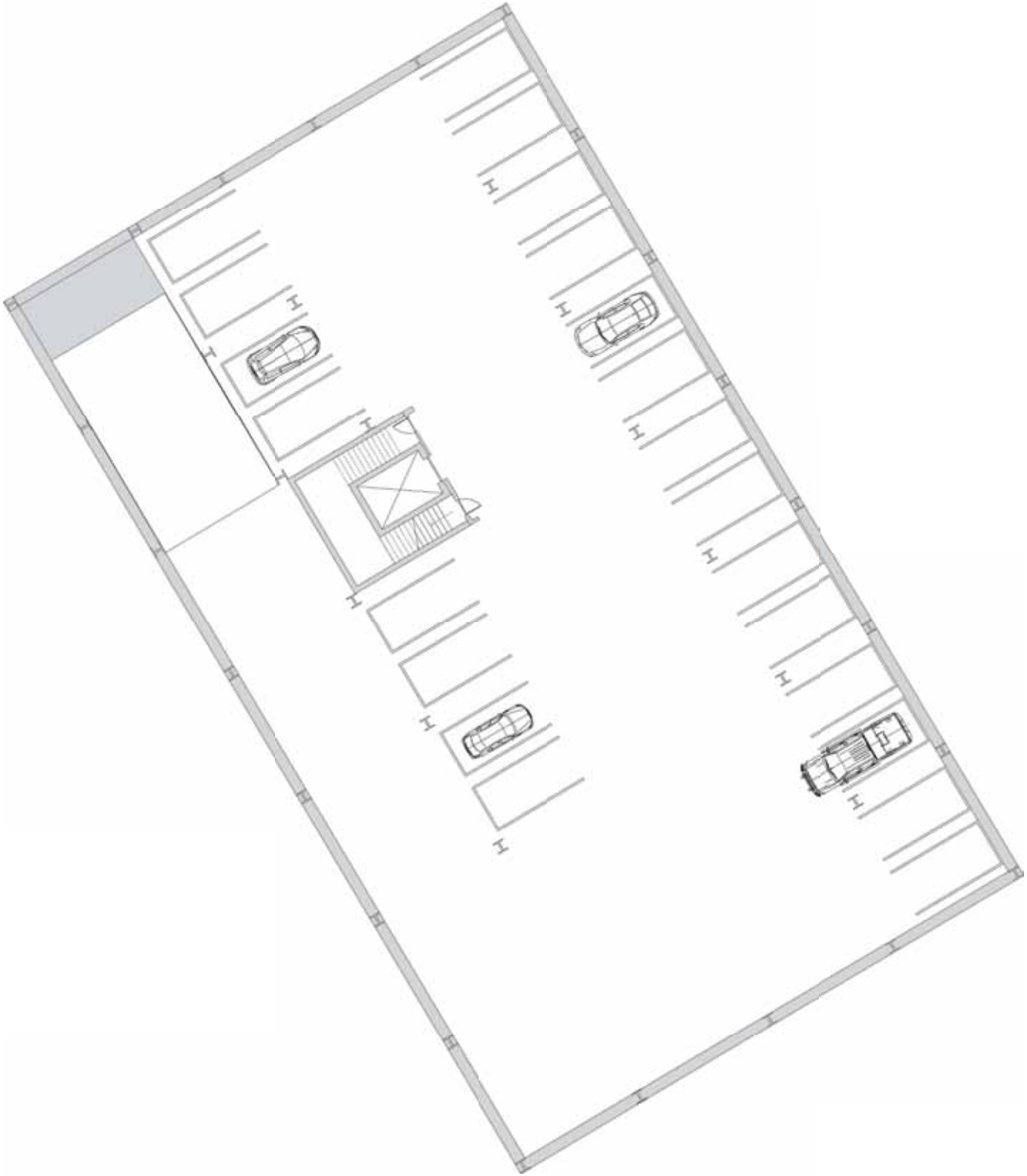


Floor Plans

Mechanical

5,775 sq ft





Parking

19,475 sq ft

Ground Level

14,165 sq ft

retail shops
restaurant/pub
parking

Ground Level

4-small rental store fronts
1,200 sq ft each

Ground Level

resturant/pub area
3,800 sq ft each

Ground Level

ramp access to
undergroud parking

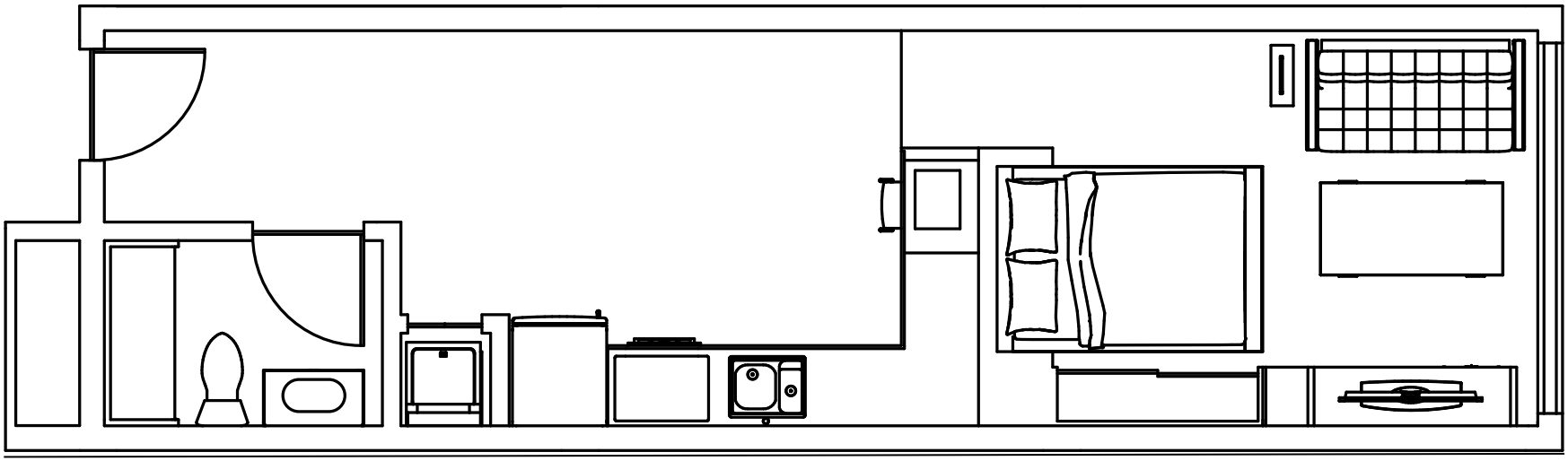
Ground Level

Cirrculation on ground level
Secured entrances

Ground Level

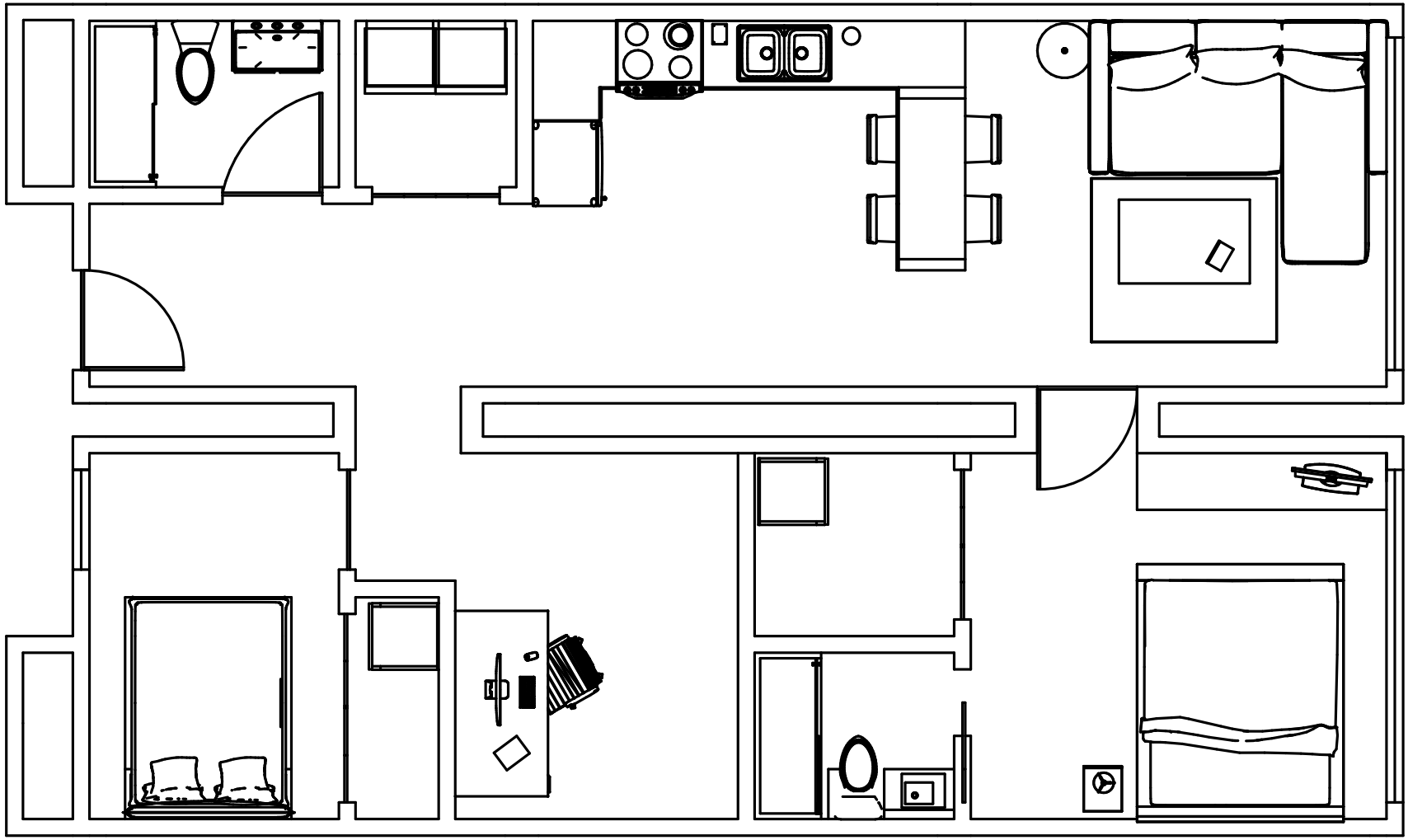
Service Area
Loading/Unloading area

Unit Protoype 1



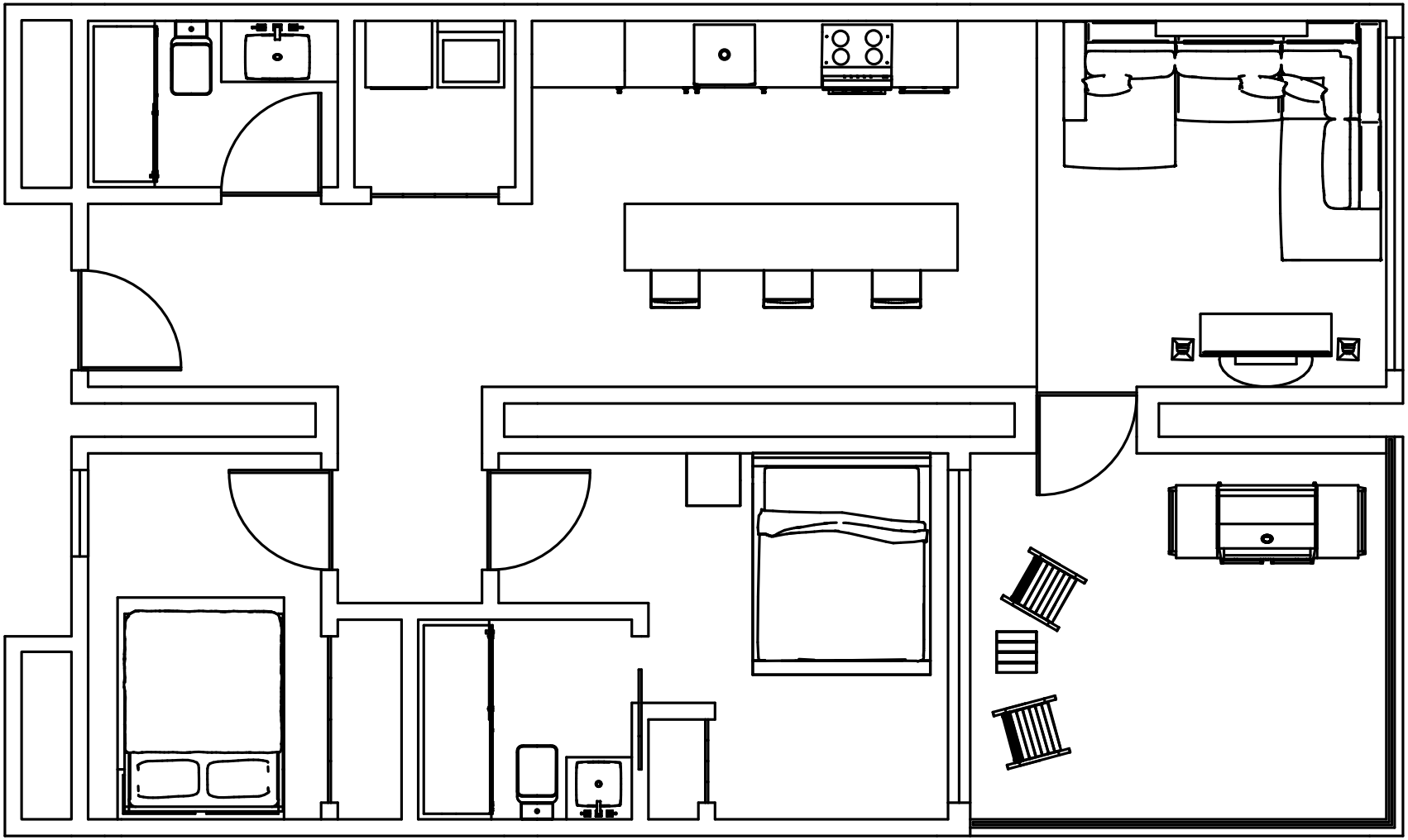
1 bedroom
1 bath
400 sq ft

Unit Protoype 2



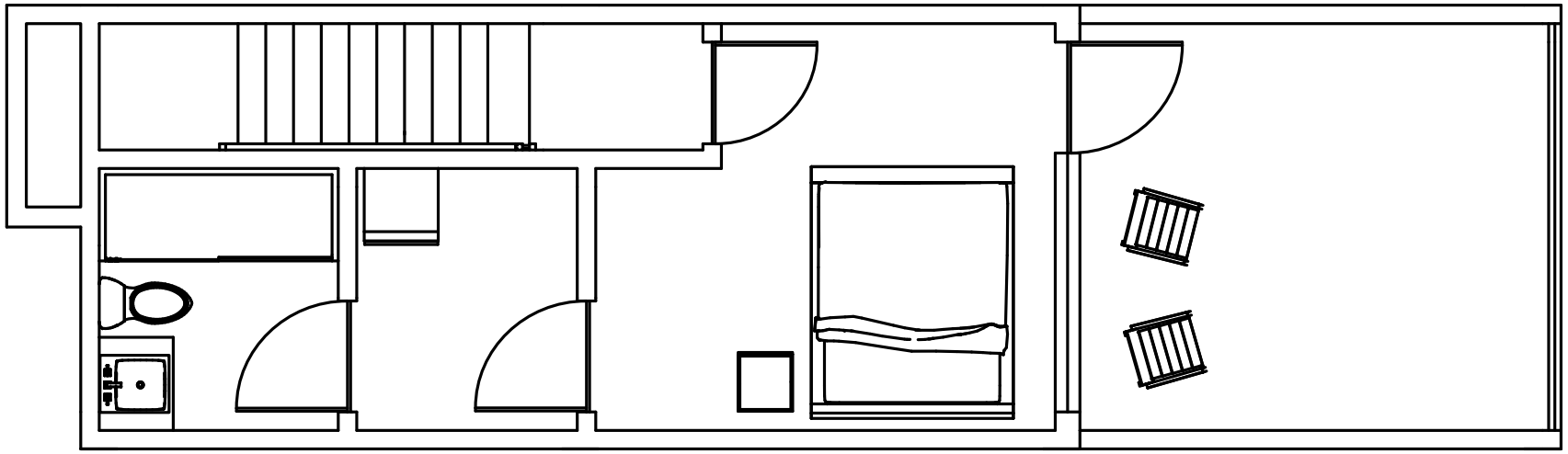
2 bedroom
2 bath
flex room
800 sq ft

Unit Protoype 3

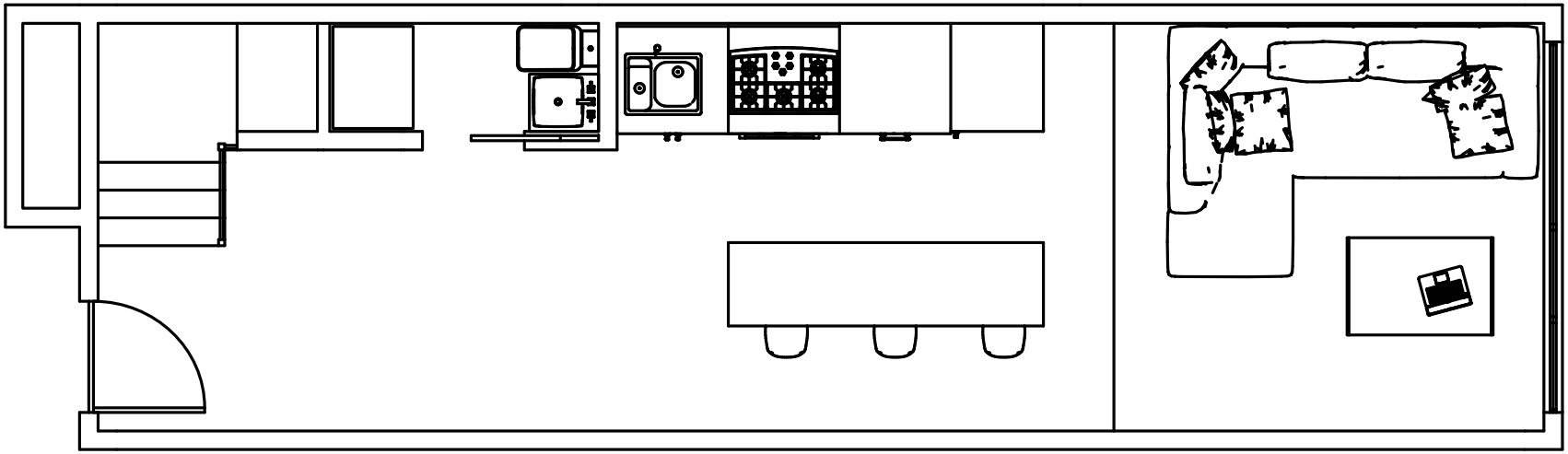


2 bedroom
2 bath
exterior patio
800 sq ft

Unit Protoype 4

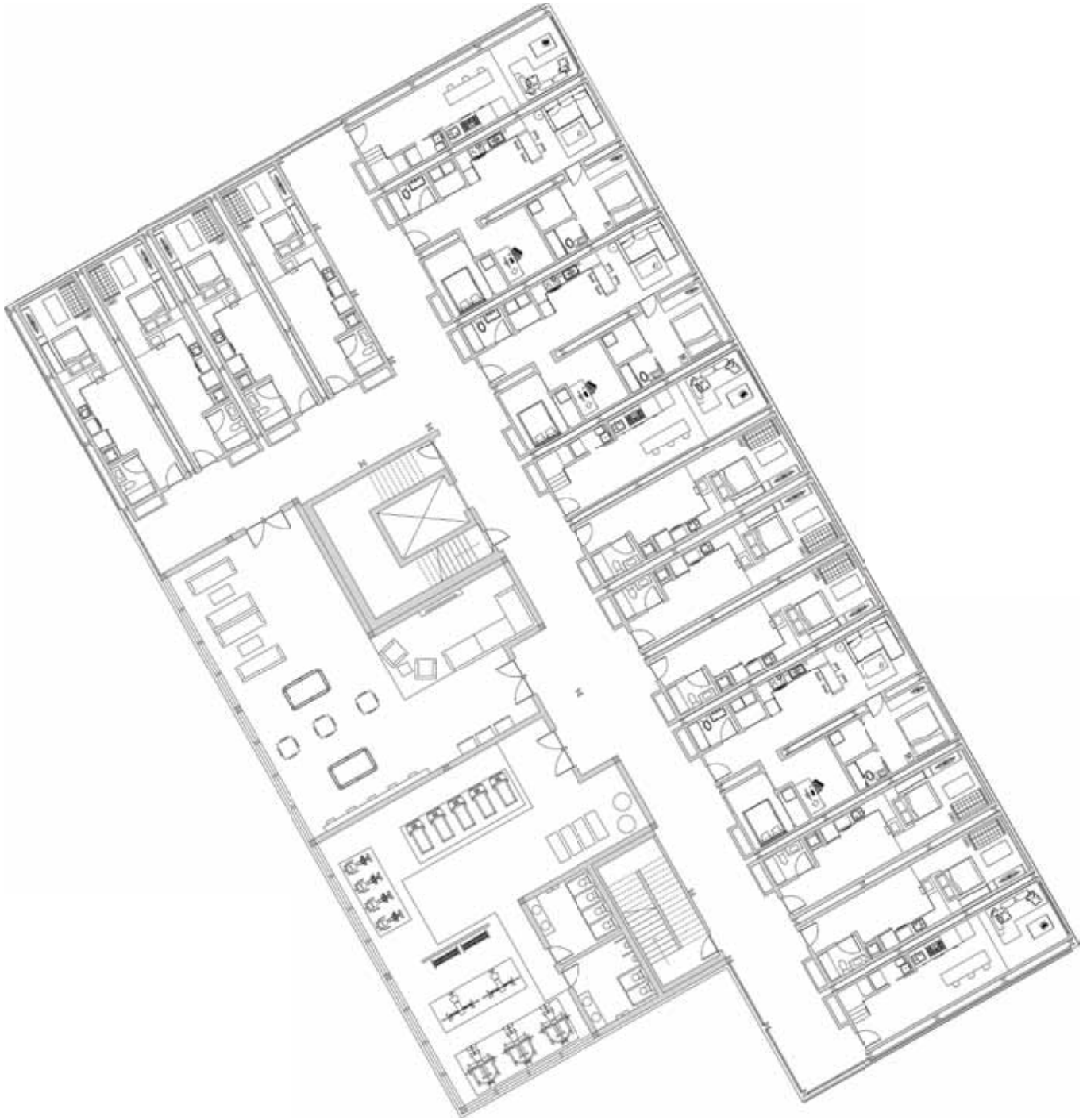


Level 2



Level 1

1 bedroom
2 bath
exterior patio
800 sq ft



Level 1

16,050 sq ft

residential units
workout facility
lounge

Level 1

Resident Amenities
Lounge Area
1,725 sq ft

Level 1

Resident Amenities
Workout Facility
2,000 sq ft

Level 1

Main Circulation
12,000 sq ft

Level 2

16,300 sq ft

residential units

rooftop terrace

Level 2

Rooftop Terrace
4,000 sq ft

Level 3

11,515 sq ft

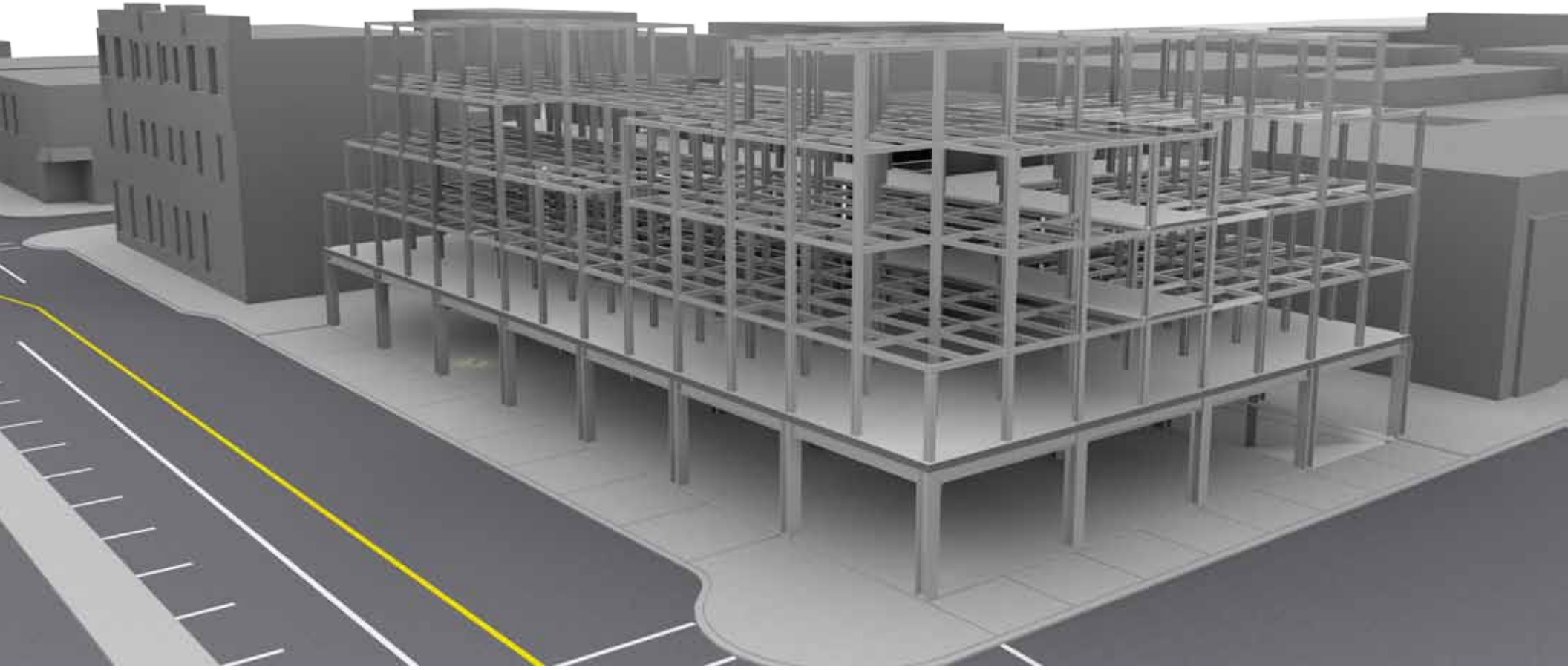
residential units

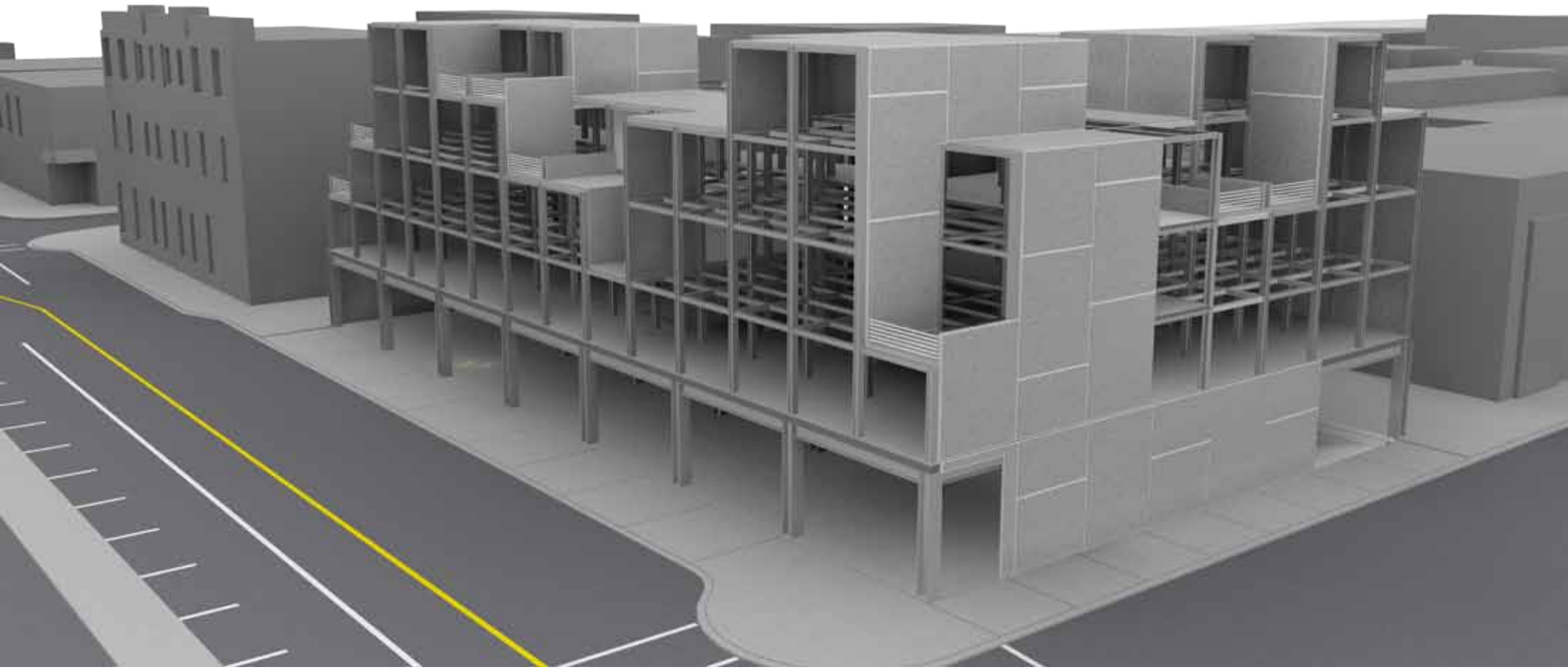
Level 4

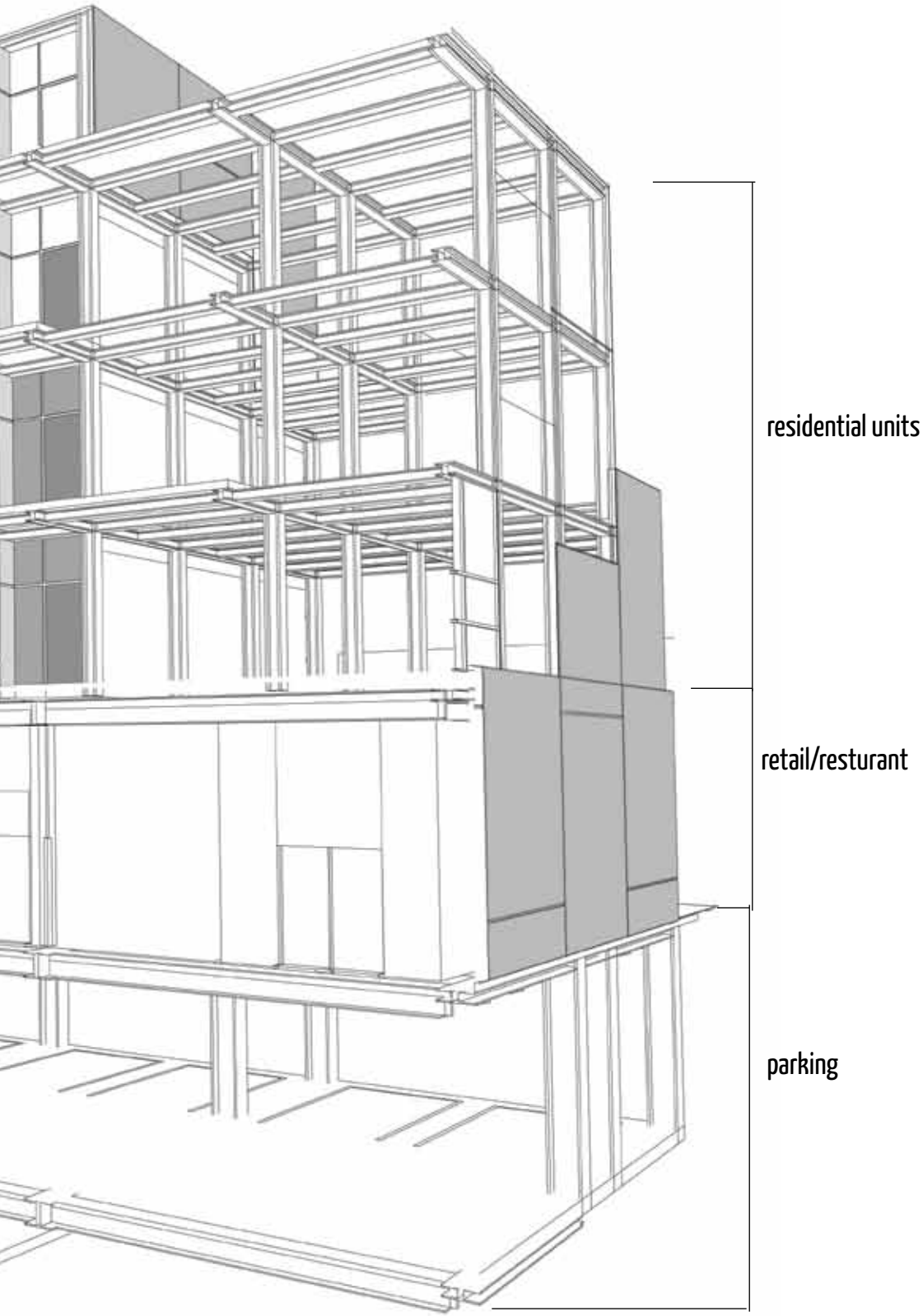
3,900 sq ft

residential units

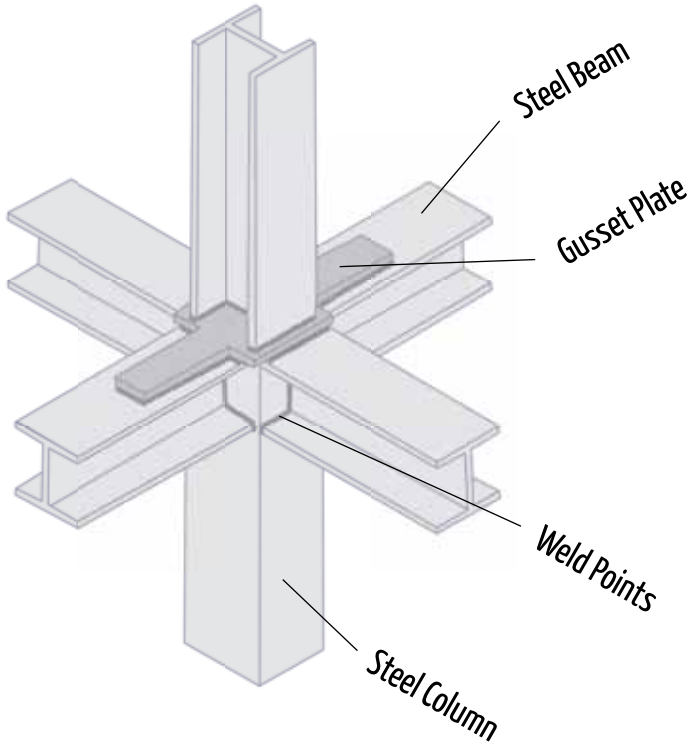
Structure



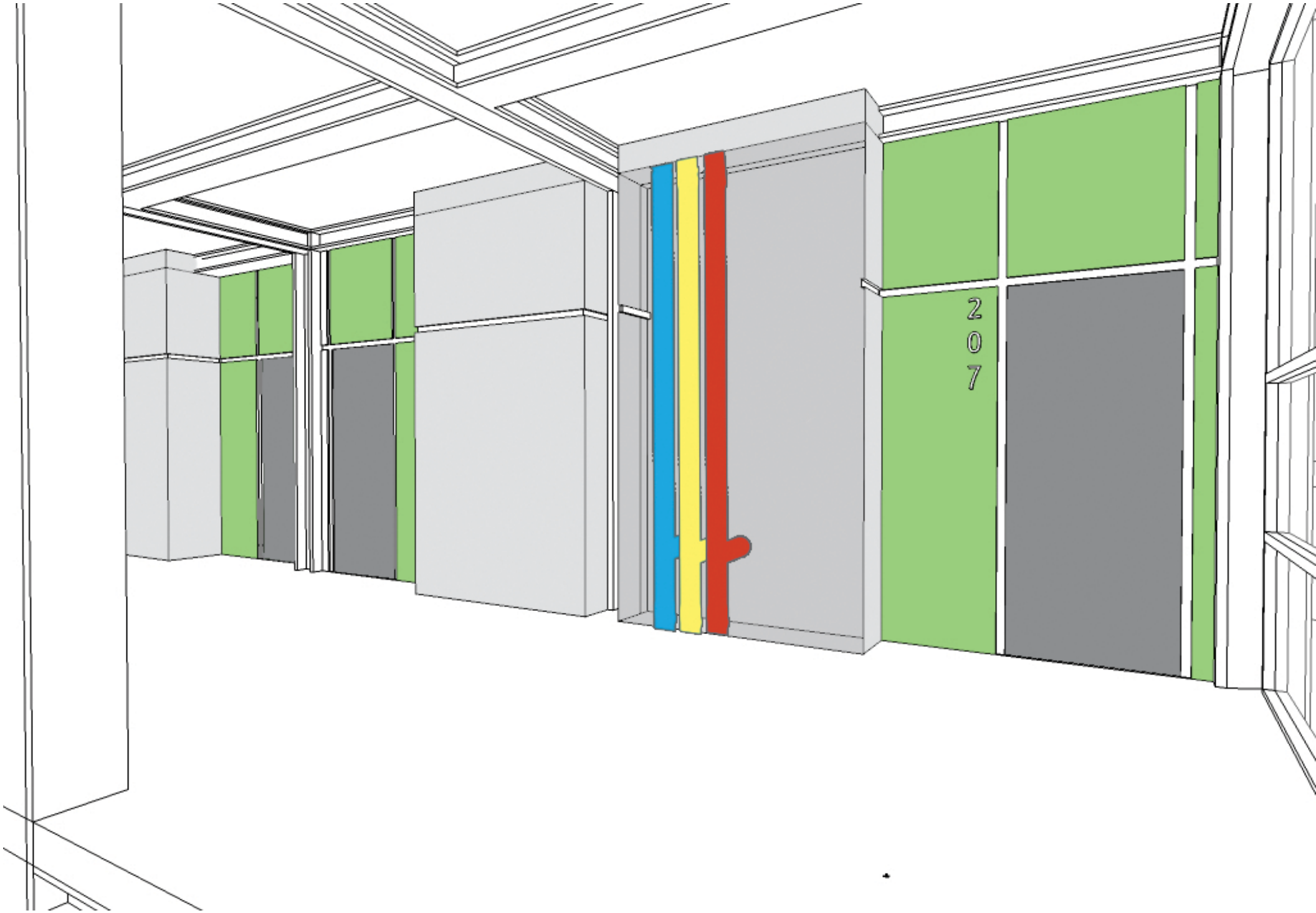




Steel Connection



Mechanical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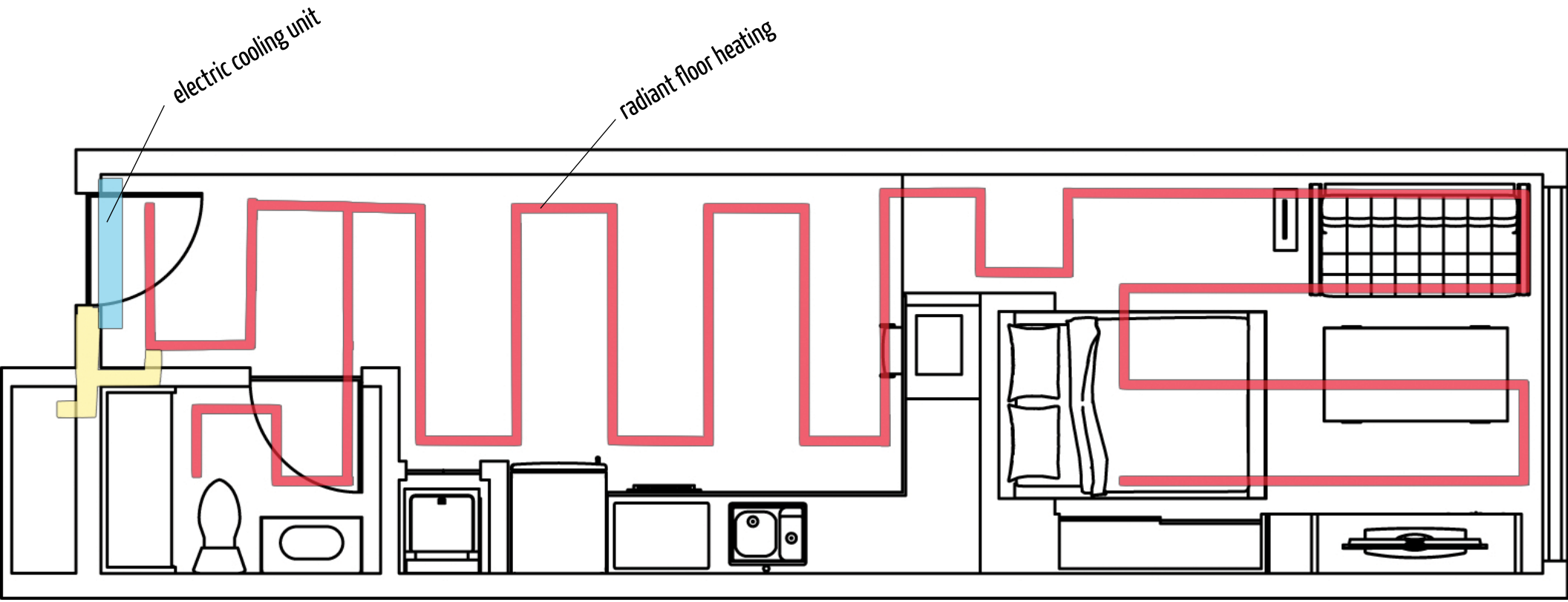
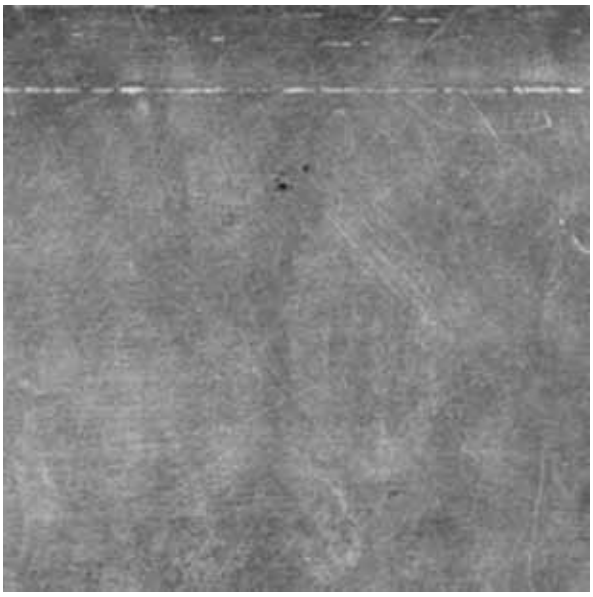


HVAC

Materials

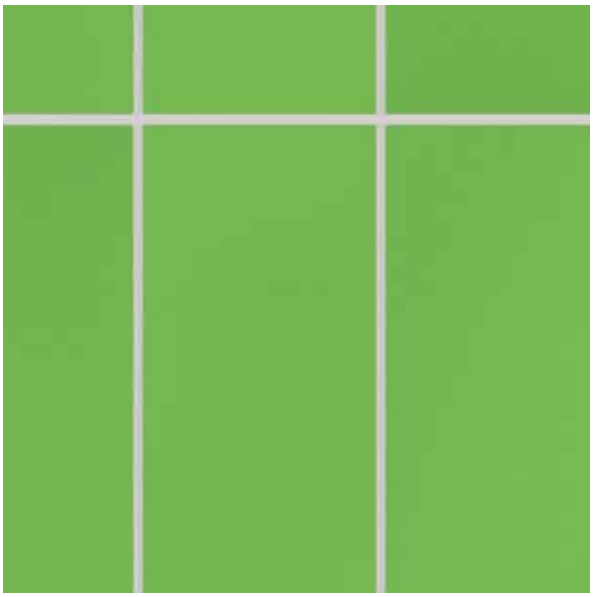
zinc paneling

steel sheets



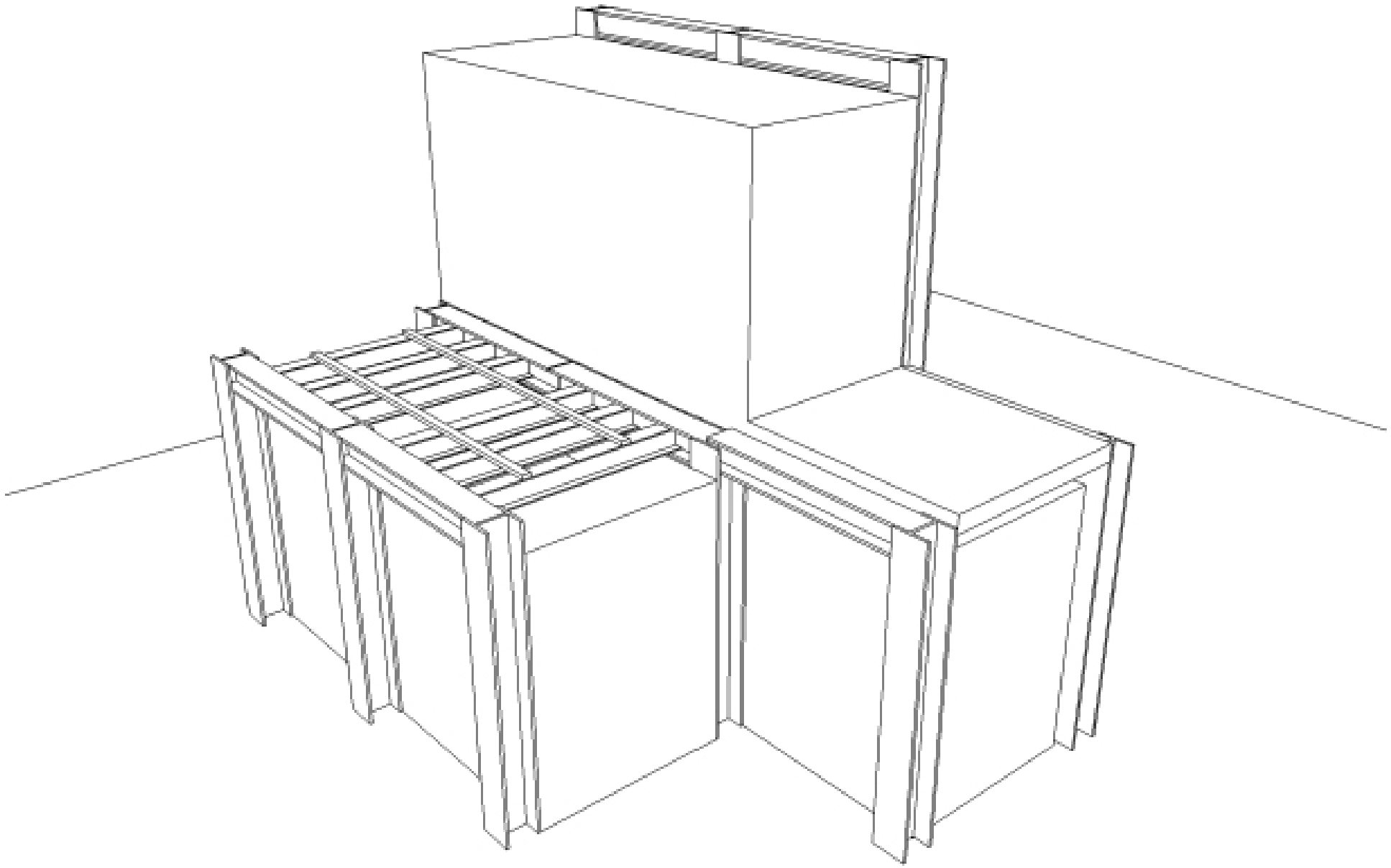
corrogated steel

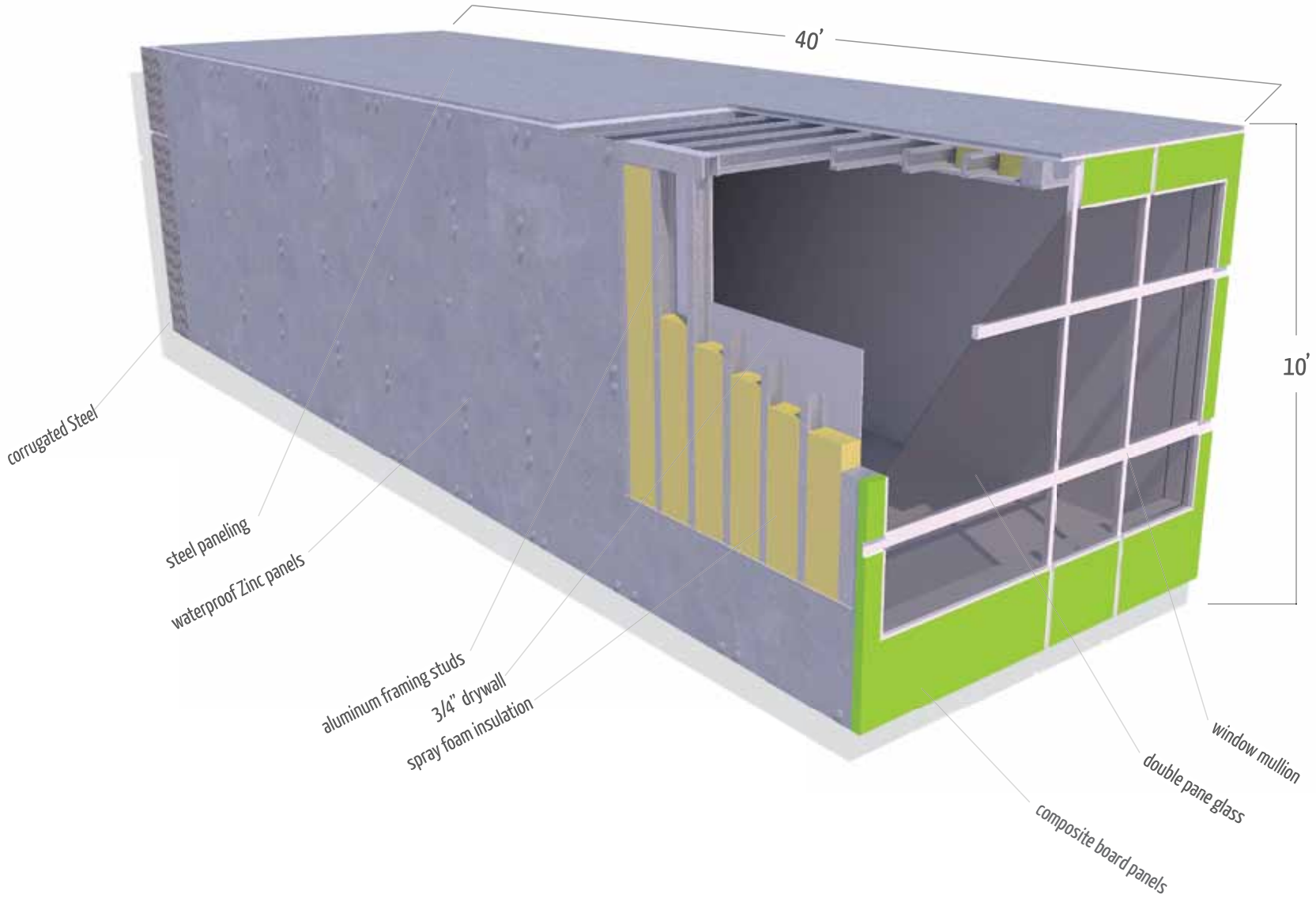
composite board paneling



Installation Process


SCANIA
VB



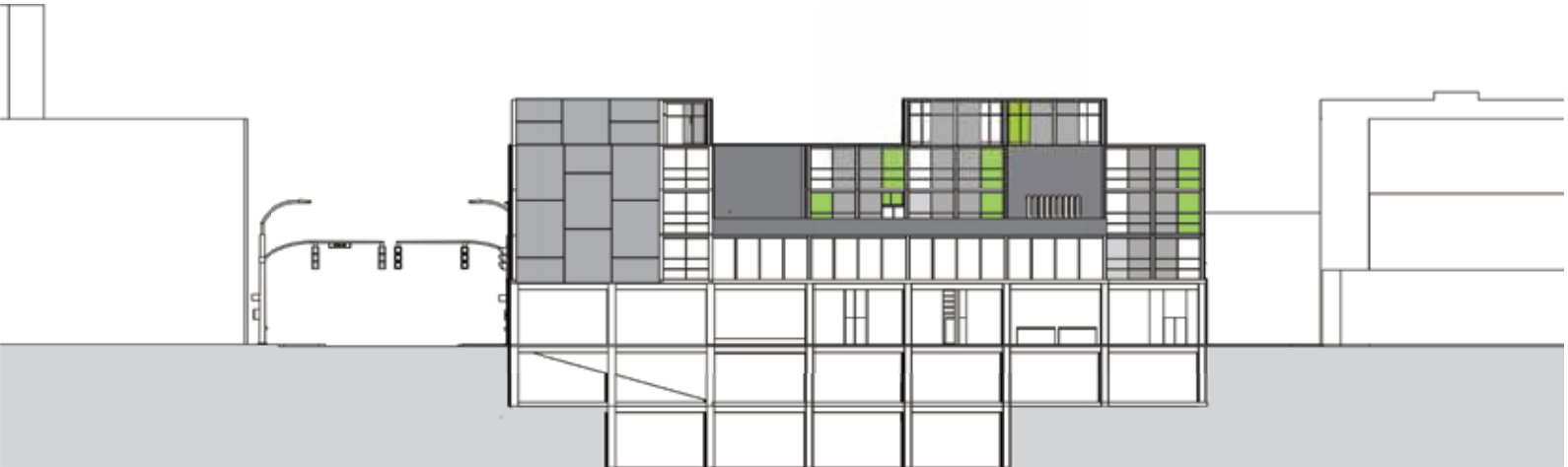

40’
10’
corrugated Steel
steel paneling
waterproof Zinc panels
aluminum framing studs
3/4” drywall
spray foam insulation
composite board panels
double pane glass
window mullion

Elevations

01 6 32 64

South West

South East



North East

North West