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Transit-Oriented Inclusionary Mixed-Use Development

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Transit-Oriented Inclusionary Mixed-Use Development

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Transit-Oriented
Inclusionary
Mixed-Use
Development

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I N T R O D U C T I O N

TRANSIT-ORIENTED INCLUSIONARY MIXED USE DEVELOPMENT

The focus of this project is to resolve several lacking aspects that currently plague the city of Jackson. First and foremost, the city needs more affordable housing so that life and cash flow are infused back into the city. Secondly, downtown Jackson is a food desert. Current residents must travel miles in order to acquire basic necessities because there are no in-city grocers. And lastly, the lack of inner-city residents has made the current public transit system an underutilized financial burden. Through the creation of inclusionary housing units and an accessible grocery market, sited in close proximity to Jackson's Union Station, this designed edifice addresses all three stated issues.

Furthermore, this project aspires to be more than a direct and simple response to these problems. Rather, it inspires a higher standard of living for those previously priced out of such areas. The goal of every capstone project is to better the urban fabric and promote gentrification, but often time, this leaves those who carried the workload of revitalization unable to afford the amenities of their own city. The hope is that by investing in inclusionary housing programs and integrating the formation of community with the architecture of the building, this space may blur the segregational lines of age and income and promote the accessibility of opportunity to all of its occupants.

S I T U A T I O N

jackson, mississippi.

Downtown Jackson is brimming with opportunity. The historic urban fabric and established infrastructure lies awaiting revitalization, but consistently stays stagnant due to the lack of density. With minimal tenants residing in the city center, there is no consistent cash flow through the city's businesses. As a result, many have surrendered to boarding their windows.

Gentrification unarguably gives new life to cities, but often it leaves no place for those who worked hardest to revitalize it. The goal of this project is to resurrect the vitality of downtown Jackson without shunning those who carry the workload.

Traditional affordable housing does provide the marginalized opportunity to elevate their living conditions, but it often segregates communities by economic class, limiting communal and societal opportunity. Inclusionary housing bridges the economic divide that has become commonplace in American cities and promotes a diverse community.

Additionally, with special attention paid to the situation of the proposal in the city, this development will bring more attention and traffic to the Union Station transportation hub located across the street. With an increase of patrons on the existing transportation infrastructure, the additional income could then be used to improve its effectiveness and efficiency.

Alongside the current lack of housing options available, Jackson is also considered a food desert. For the few existing housing complexes, their residents must leave the downtown area to purchase essentials and groceries. By establishing a grocery market on the ground floor, this project will provide ease of life to downtown residents as well as create new jobs for the city.

jackson metro area.



LANDMARKS

1. Greenwood Cemetery
2. Mississippi State Capitol
3. Mississippi College School of Law
4. Governor's Mansion
5. Old Mississippi State Capitol
6. Jackson Convention Complex

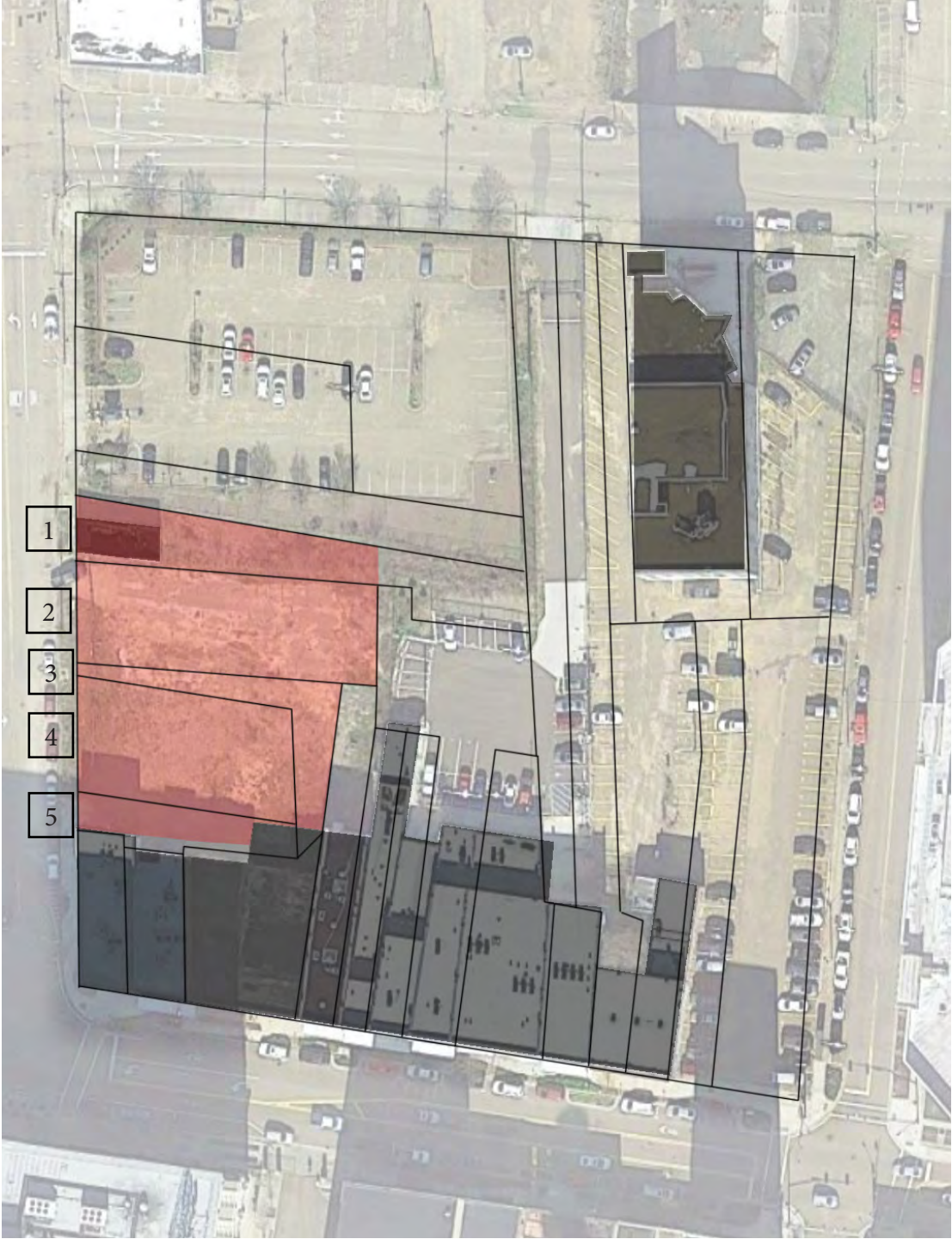
nine block section.



CONTEXT

1. Taxi Services
 2. Town Creek
 3. Harrison & Flowers Building
 4. Union Station
 5. The Crossroads Building
 6. Capitol Art Lofts
 7. Cowboys Saloon
 8. Dr. A. H. McCoy Federal Building
 9. Dear Cards
 10. Under Bridge Farmers Market
 11. Iron Horse Grill
 12. King Edward Inn
 13. Pruet Oil Company
 14. Downtown Snacks
 15. Standard Life Building
 16. Mayflower Cafe
 17. Parlor Market
 18. Jackson State University Downtown Campus
 19. State Bank
- *unlabeled buildings are unoccupied

site map.



PROPERTY

I propose acquiring five parcels of land. All five are privately owned. One has an existing building on the property, but it is in disrepair. Below is each parcel's assessed and appraised value.

1. Owner: Spann Albert M JR
Assessed Value: \$7065
Appraised Value: \$47100
2. Owner: Major Mortgage
Assessed Value: \$8391
Appraised Value: \$55940
3. Owner: Major Mortgage
Assessed Value: \$2274
Appraised Value: \$15160
4. Owner: Major Mortgage
Assessed Value: \$6273
Appraised Value: \$41820
5. Owner: Faulkner Thomas W
Assessed Value: \$1961
Appraised Value: \$13070

Total Assessed Value of Combined Parcels: \$25964

Total Appraised Value of Combined Parcels: \$173090

historical context.

EXCERPT FROM "NATIONAL REGISTER OF HISTORIC PLACES INVENTORY NOMINATION FORM"

"The West Capitol Street Historic District is primarily commercial in character, but includes as well a railroad depot, parking garage, and two office buildings. Almost all buildings are brick. Architectural styles include Queen Anne, Sullivanesque, Colonial Revival, Art Deco, and Spanish Colonial Revival. Party-wall commercial structures line the north side of West Capitol Street for one block and the south side for one-and-one-half blocks. The majority of buildings on the north side of Capitol Street which is the main, east-west thoroughfare in Jackson, were constructed by 1900 and form a unified row of low-scale structures in sharp contrast to the adjacent new Federal Building. Unique architectural features of these low-scale buildings include the Palladian facade treatment as well as the original storefront and interior of Bourgeois Jewelry Store at 220 W. Capitol St., the Queen Anne-style facade and original cast-iron columns of 218 W. Capitol St., the intact Colonial Revival facade with multipaned transom incorporating the Cohen Brothers store name at 224 W. Capitol St., and the pilastered facade treatment of three other buildings in the row. Buildings on the south side of Capitol Street were constructed later, the earliest ca. 1895 with the majority between 1904 and 1923. These structures retain a higher scale, ranging from three to twelve stories. Architecturally outstanding structures on this side of Capitol Street include the Dennery Building, with corbeled drip molds and Queen Anne style cornice, the Sullivanesque McClelland Hardware Building, and the Colonial Revival King Edward Hotel (entered on the National Register in 1976). Completing a square block on the south side of Capitol Street is the Standard Life Tower, a sixteen-story Art Deco skyscraper constructed in 1929, together with a one-story Art Deco commercial row and a two-story parking garage constructed in 1926. Extending north to Mill Street, the district includes several significant Colonial Revival-style buildings: the two-story train depot constructed in 1925, when the elevated railroad tracks which form the western boundary of the district were built, the Noble Hotel, ca. 1908, a three-story building located on Mill Street across from the depot, and a one-story commercial building, ca. 1915, originally constructed as a car showroom. Interesting street features of the district include three sidewalk decorations, a mosaic walkway with "Bon-Ton" spelled in tiles at 209-211 W. Capitol Strand two Art Deco sidewalk motifs in front of the two entrances to the Standard Life Tower, which match decorative panels of the building's exterior."

“Prior to 1885 there was little commercial activity on West Capitol Street, the main business center being located near the Old Capitol on State Street and extending down East Capitol Street only as far as President Street. Only a few commercial establishments served the old railroad depot located where the present one stands, two hotels, a drug store, and a dry-goods store. Of these early commercial structures only the dry-goods store, at 232 W. Capitol St., retains a resemblance to its original appearance. By 1890 Jackson seemed to have recovered from the Reconstruction period. The population had increased and new houses were being built northwest and south of the old section of town. A newly established board of trade had begun to attract new industry to the city. In 1899 Jackson got its first electric street car. Thus new markets and improved transportation contributed to the new business activity on West Capitol Street so that by 1900 brick commercial blocks had been constructed on the north side of the street as far east as 214, and the 200 block entirely completed by 1925.”

KEY CONTRIBUTING FACTORS TO THE DEVELOPMENT OF THE SITE

- Before 1885, only four structures and the old railroad depot stood on the site.
- A new board of trade and the 1899 welcoming of the electric street car attracted new business to the area.
- By 1900, many of the low scale commercial buildings lined Capitol Street, each with unique architectural facades.
- The block was completed by 1925.

"The significant change in the city's commercial landscape during the first decade of the twentieth century was a shifting of the dominant commercial area from the north-south corridor along South State Street to the east-west corridor of West Capitol Street. The blocks immediately adjacent to Union Station in the heart of old West Jackson, as well as those buildings on East Capitol Street, were already developed with attached commercial buildings and large institutional buildings. South State Street had reached its peak, however, by the turn of the century, after this time, Capitol Street developed as the city's dominant commercial corridor.

Prior to the twentieth century, much of Capitol Street consisted of residential, wood-frame buildings with few sidewalks and vacant lots. The flood plain of Town Creek, between Farish and West Streets, was sparsely developed altogether due to the frequent flooding of the creek. In fact, the flooding of Town Creek was severe enough to preclude the development of South Lamar Street until the 1920s.

By the first years of the 20th century, the development of commerce along Capitol Street had intensified. The rapid expansion and subdivision of land on the west side of town, versus the relatively stable growth near the center city of Jackson due to the confines of the Pearl River, necessitated a convenient commercial district adjacent to West Jackson. The Clinton Road, a portion later renamed West Capitol Street, was the major connector to the subdivisions and industries that were rapidly developing in West Jackson. By the turn of the century, expansive mansions, modest one-story homes, commercial enterprises, and churches and other institutional buildings lined West Capitol Street out to the subdivision of Poindexter Park.

The 1902 paving of Capitol Street between the rail road depot and Farish Street spurred much optimism about the growth of the area. Newspaper accounts from 1902 reported that the paving caused much excitement and interest for people in the area: "Business practically at a stand still while city's business men, lawyers, capitalists, etc. watch the workmen begin on the street paving work."

“A corollary to the growth of Capitol Street was the significant commercial development of Pearl, Farish, and Mill Streets by 1910. These well-traveled streets were adjacent to the bustling Union Depot in West Jackson; accordingly, many of the commercial and retail activities targeted travelers, such as boarding houses, dry good stores, bakeries, restaurants, tailors, and photo shops. Some of the area’s boarding houses and hotels included the Edwards Hotel, Lawrence House, Vance House, Lemon Hotel, and Green Tree Hotel.¹⁸⁴ The commercial development of Farish and Mill Streets was also significant in the context of the growth of Jackson’s self-sufficient black community.

Black men and women worked as maids and porters or as seamstresses in nearly all the Capitol Street stores, but since they could not eat in the restaurants there, they walked to Farish Street at lunchtime. At one time all the letter carriers were black, and they too would eat on Farish Street. The King Edward Hotel on the corner of Mill and Capitol had a large number of black workers who walked to Farish Street, along with the red caps who worked at the Illinois Central station across the street.”

KEY CONTRIBUTING FACTORS TO THE DEVELOPMENT OF THE SITE

- West Capitol Street served as a major connector of the rapidly expanding subdivided portion of west Jackson to the city’s center.
- The paving of West Capitol Street between the railroad depot and Farish Street in 1902 sparked great interest in the site.
- The adjacency of the railroad offered the traffic of travelers which help support the residing businesses.
- The development of Farish, Pearl, and Mill Streets were parallel to that of Capitol due to African American establishments that were not welcomed on Capitol Street at the time.

sanborn map of 1890.



sanborn map of 1914.



18 situation

1890

The earliest found sanborn map of this site dates 1890. It is evident the surge in interest and construction in the site; in just five years, the north side of the Capitol went from four structures to the numerous ones indicated on the map. It is also quite evident the north side of Capitol such much more growth than that of the south side.

1914

This sanborn showcases the steady increase in growth. By 1914, the block was well on its way to completion, which was achieved by 1925.

WEST CAPITOL HISTORIC DISTRICT

Because of the significant history stowed in this site, the area became sanctified as the West Capitol Historic District in 1980. Only one building still stands with significant resemblance to its original structure circa 1885. The other buildings, constructed from 1900-1925, are predominately still standing today, in various conditions. The original character of their facades have remained consistent. The following pages offer a side by side comparison of the photos included in the document prepared for the nomination of the site for Historic Distric status in 1979 to photos of the site's current condition.

mill street.



1979.



20 situation

Since 1979, Mill Street has lost four structures, one being the historic Noble Hotel. The three other structures capped the corner of Mill and Amite Street. The vacant lots along this street have remained underutilized. Canopies are missing from the remaining two buildings. The small standalone brick building pictured on the top right has a failing roof.



2020.



capitol street.



1979.



22 situation

Much of the original character established in the 1920s still charms Capitol Street. As seen in these images, little has changed since 1979. Some signage is now missing, but overall, the facades are consistent. One building that capped the corner of Capitol and Roach Street has since been removed. The third facade from the corner of Mill and Capitol Street has a failing roof.



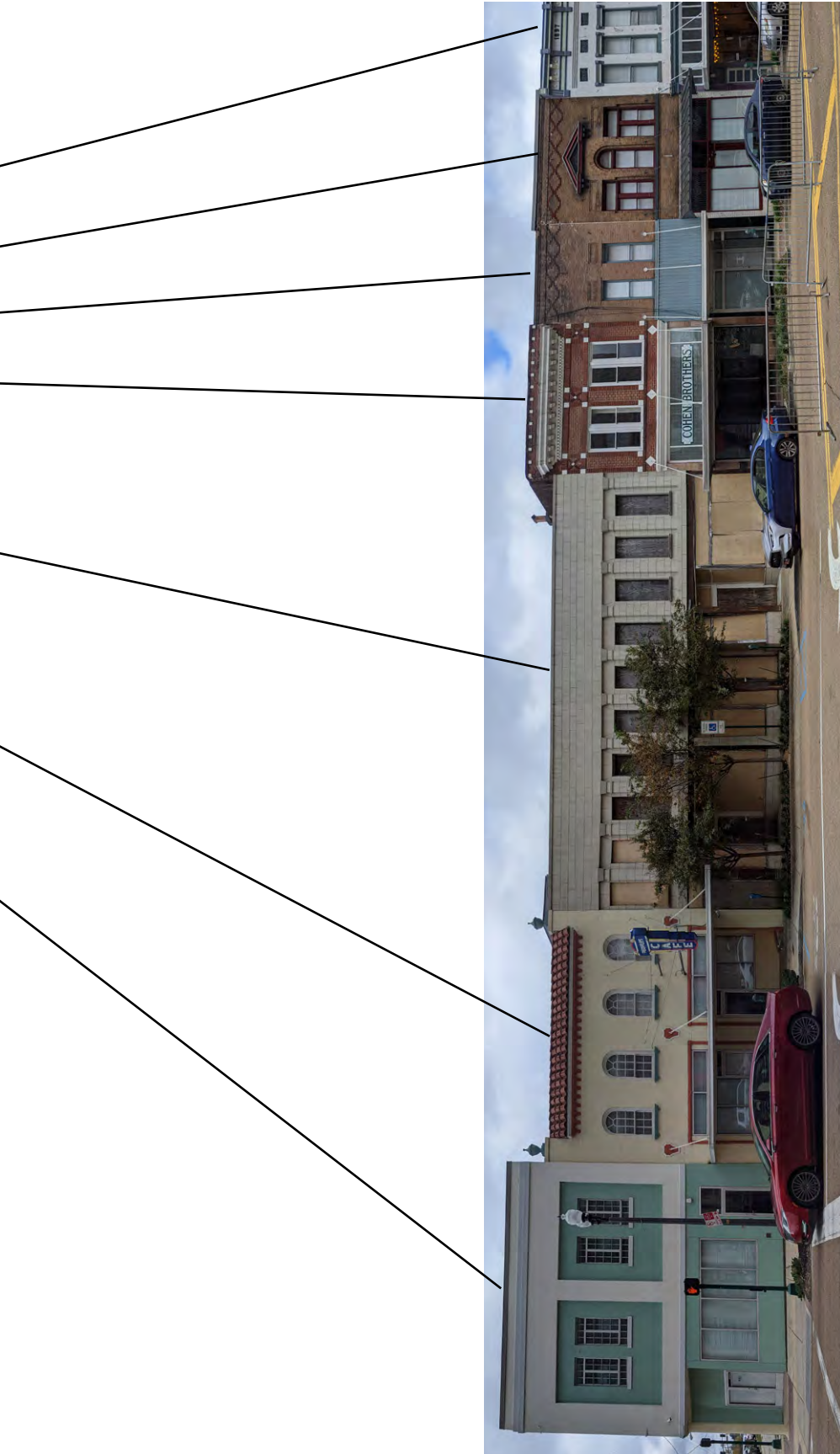
2020.



current site context.



mill street.



capitol street.

building program.

- P R E C E D E N T
- R U L E
- E L E M E N T
- C O S T E S T I M A T E
- F I N A L D R A W I N G S

P R E C E D E N T

program type research. programmed space standards.

The following information is gleaned from Time Saver Standards.

MULTIFAMILY HOUSING

programmed spaces.

Living room:

The living room should be conducive to general family life and should allow for group activities as well as individual relaxation: entertaining, reading, writing, listening to music, and watching television. The living room is the most impressive and largest of all rooms in the apartment which is why it is usually visible from the entry hall. To serve as a guide, the living room in the average middle-income 2-bedroom apartment is 260 to 300 square feet; combined living-dining room is about 400 square feet. When the living room is also used for dining, its proportions become critical. Typical square 20x20 foot living-dining rooms are far less efficient than the oblong 15x26 feet of the same square footage.

Furniture Includes:

- | | |
|----------------------|------------------------------------|
| • One couch | 3 feet by 6 feet 10 inches |
| • Two easy chairs | 2 feet 6 inches by 3 feet |
| • One desk | 1 foot 8 inches by 3 feet 6 inches |
| • One desk chair | 1 foot 6 inches by 1 foot 6 inches |
| • One television set | 1 foot 4 inches by 2 feet 8 inches |
| • One table | 1 foot 6 inches by 2 feet 6 inches |

Dining room:

A truly separate dining room can be afforded only in townhouses or luxury apartment housing. The most common arrangement takes the form of an alcove off the living room. Although this alcove can occupy an inner zone, a windowed area is preferable even though it creates a larger building perimeter and consequently increases costs. When a large group of diners is to be accommodated, the table can be expanded into the living room and space should be provided for it without having to move heavy furniture. In middle-income 2-bedroom apartments, an average dining alcove is 100 square feet and a separate dining room is 140 square feet.

Balcony:

There is some controversy about the need for balconies in apartment buildings. Besides the balcony's aesthetic factor (allowing for a strong exterior building articulation) and its symbolic significance (a visible indication of the presence of human beings), its functional role has pros and cons. Those who argue for it stress the delight of sitting outdoors when the weather is pleasant. Its proponents call attention to the visual extensions of the living space, to extra storage space, and to the opportunity to grow plants. Those who oppose balconies claim that they cut off daylight, that they are dirt catchers and hard to keep clean, and in many regions can be used only part of the year. Balconies must be wide enough for proper use (not less than 5 feet) and have adequate privacy.

Kitchen:

To provide for the most efficient food preparation, storage, and service, careful planning is required. Storage space normally provided in cabinets or utility closets can be expanded by the addition of shallow pantries: floor-to-ceiling shelving behind hinged doors. Unless the space is extremely tight, kitchens should be equipped with a small eating space to augment the regular dining room or alcove. When the kitchen is part of a combined kitchen-dining or kitchen-family room, the food preparation and cooking space should be screened from the dining or family area. When planning kitchens, the basic sequence of refrigerator-sink-stove, starting from the door and progressing toward the serving and eating areas, should be observed. The method of connecting with the dining room or alcove, pass-through or door, needs special attention. Well-planned kitchens in an inner zone should borrow daylight from the living or dining space to make working conditions in the kitchen more pleasant. In middle-income 2-bedroom apartments, an average kitchen with minimum eating space is about 100 square feet.

Bedroom:

Each bedroom should have enough space for double occupancy and provide for the following basic furniture

Furniture Includes:

- Two twin beds 3 feet 3 inches by 6 feet 10 inches
- One dresser 1 foot 6 inches by 4 feet 4 inches
- One chair 1 foot 6 inches by 1 foot 6 inches
- One crib 2 feet 6 inches by 4 feet 6 inches

It should be kept in mind that night tables must also be accommodated. Because the bedroom often serves as an extra work area, space for a computer is not a luxury. In middle-income 2-bedroom apartments, average bedroom sizes (exclusive of closets) are 150 square feet for secondary bedrooms and 180 square feet for master bedrooms.

Bathroom:

For the sake of economy, a back-to-back arrangement of bathrooms is preferred, either in the same apartment or with one that is adjacent. When there is only one bathroom, a tub and shower combination is standard equipment; when there are two, the second usually contains a stall shower. When the apartment has two or more bathrooms, one is customarily attached to the master bedroom; the others serve the remaining bedrooms. A powder room or lavatory is sometimes substituted for the second bathroom, although the savings are nominal compared with the convenience of having two baths. In luxury housing, compartmentalization is an advantage that allows simultaneous multiple use.

Closets:

Although overall apartment size is stated in a client's program, few clients pay attention in the early design stages to the amount and kind of closet space that is provided. It is generally accepted however, that it is never enough for the tenant or buyer.

Closet Sizes:	Depth	Length	
		HUD	Lux
• Guest closet	2 feet 3 inches	- 2 ft	- 5 ft
• Utility closet	2 feet 0 inches	- 2 ft	- 2 ft
• Pantry	8-10 inches	- 4 ft	- 4 ft
• Linen closet	1 foot 6 inches	- 3-4 ft	- 3-4 ft
• Master bedroom closet	2 feet 3 inches	-5 ft	- 12 ft
• Second bedroom closet	2 feet 3 inches	-3 ft	- 9 ft
• General storage closet	2 feet 0 inches		- 4 ft

Entry halls:

Certain building codes require that large apartments have two exits to the public corridor and that access be made easy to either one without having to pass through the bedrooms. The ideal location for the second exit is in the kitchen (though it may make its planning more difficult). In this case the connection between the regular entry hall and the kitchen may be eliminated. The second exit, depending on the local code, may also open directly onto the stair landing, though not when the stair is a smoke-proof tower.

Efficiency apartments:

It consists mainly of one large room combining living, eating, and sleeping activities. An alcove may be provided for a kitchenette it also provides a full bathroom. The essential design feature is the flexibility of the main space to be used alternatively. A critical problem is storage of clothes and a dressing area. Size: 200 to 500 sq ft. One way to add to the spaciousness of the apartment is to provide a terrace with an all-glass wall. Occupancy: Single persons, young married couples without children, or elderly couples.

Studio apartment:

Larger in size than an efficiency apartment (as much space for a one-bedroom apartment or more). Arranged as an efficiency apartment but with a feeling openness and spaciousness. This type of apartment is usually restricted to luxury-type housing, and has special appeal for artists and photographers.

One bedroom apartment:

It consists of a living-dining room, a kitchen area, a bedroom, a bathroom, an outdoor terrace (optional). The main object of a one-bedroom apartment is its compactness. Size: 400 to 600 sqft. This include a wide range of individuals, such

as young married couples with or without children, elderly persons, or unrelated single persons sharing an apartment. This type of apartment can be used as a transition between home ownership and relocation to a different community by elderly persons.

Two bedroom apartment:

It consists of two bedrooms, living room, dining area (usually part of the living room), full kitchen, bathroom, and possibly an outdoor terrace. In luxury apartments, and additional half bath, consisting of a water closet and washbasin, may be included. Considered the average size for a typical family with 1 or 2 children. The arrangement of rooms should be such as to permit a reasonable separation of living activities from sleeping activities. An outdoor terrace is important to add to the livability of the apartment. Size: 500 to 1000 sq ft. Occupancy: a family with 1 or 2 children. Often a third child or an older relative would be included.

Amenities:

Building Roof deck: Good for communal facilities such as party room, pool, sauna, laundry room, sitting area and greenhouse, viewing zones. Advantages: More private and secure, exposed to the sun throughout the day, constant wind speed, away from street noise. Disadvantages: Fewer access points, surveillance from other parts of the building is not possible, wind speed is higher, height may cause vertigo.

Management office:

Space provided for visitor reception, rental activities, and development administration. It should be located with direct physical, visual, and auditory accessibility to the main building entrance and lobby, to common facilities when they are on the main floor, and to the mail/package room. The management office should control the building entrance and lobby to discourage unwanted guests and add to the sense of security of the residents. It should overlook critical areas such as entrance drives, and it should include facilities for a manager and secretary.

Mail + package delivery:

Provide mail room for tenants with direct physical accessibility from the entrance lobby, and from horizontal and vertical circulation elements. They should also be directly accessible to the service entrance of the building.

layout types.

Grid layout:

This layout contains long pathways which are placed parallel to each other in a linear manner, thus creating a grid. Retailers are in favor of this layout style because it makes the entire sales process more efficient. Particularly, it optimizes spaces while guaranteeing a greater availability of products and a fast shopping experience. Another important advantage is given by the simplification of the logistic aspects, as it facilitates, for example, the supply for shelves and the control of the various products present. Other positive aspects regard the store flow and traffic between the various shelves. You can easily move and orientate yourself in the various departments, creating less disruption to the 'traffic' and reducing congestion. Aspects which, if badly managed, can compromise the image of the business and, therefore, reduce profits. However, this layout also has negative aspects that can affect sales or the customer flow. In fact, maximum spaces optimization determines that shelves are always organized in the same manner, with minimal variations over time. Shoppers become too familiar with this layout and tend to complete their planned purchases in less time, thus avoiding 'instinct purchases.' Another downside can be represented by the distribution monotony, that is due to logistical issues and which could make the consumer experience more frustrating, since the supply needs prevail over the demand.

Island layout:

This type of distribution involves the presentation of products arranged on platforms or on other supports located in different points of the supermarket. Generally, this model is common in small specialized shops, or in niche shops for displaying small-sized items and provide a personalized aspect to the business. The positive aspect of this model is the greater freedom for customers, who are provided with a free route that allows them to observe all the products arranged in homogeneous areas. This arrangement makes customers more motivated to visit the whole store and, with the products matching their type of needs, unplanned purchases are encouraged. In addition, this model truly values customers and fully satisfies their needs. Downsides are 1) less space optimization as compared to the grid layout, since with the same surface area it is possible to place fewer racks 2) higher logistics costs, especially in terms of shelves management and organization.

Racetrack layout:

This model is less common in a supermarket design. It consists of a main ring corridor that goes from the entrance to the cash desks, emphasizing a perimeter track and allowing customers to view all the departments. The main route occupies the entire surface of the store, while secondary routes are organized to avoid overcrowding in a few points.

Free flow layout:

Considered as the simplest type of store layout, free-flow systems combine different layouts and have many pros. There is no defined pattern, therefore this layout type affords you the most creativity, where typically the grid layout integrates to an innovative island layout and encourages shoppers to go in any direction while increasing impulsive buying. When designing a supermarket, a well-structured store layout can be advantageous for both consumer and retailer and will be crucial to the overall commercial activity performance, especially when considered together with correct sizing.

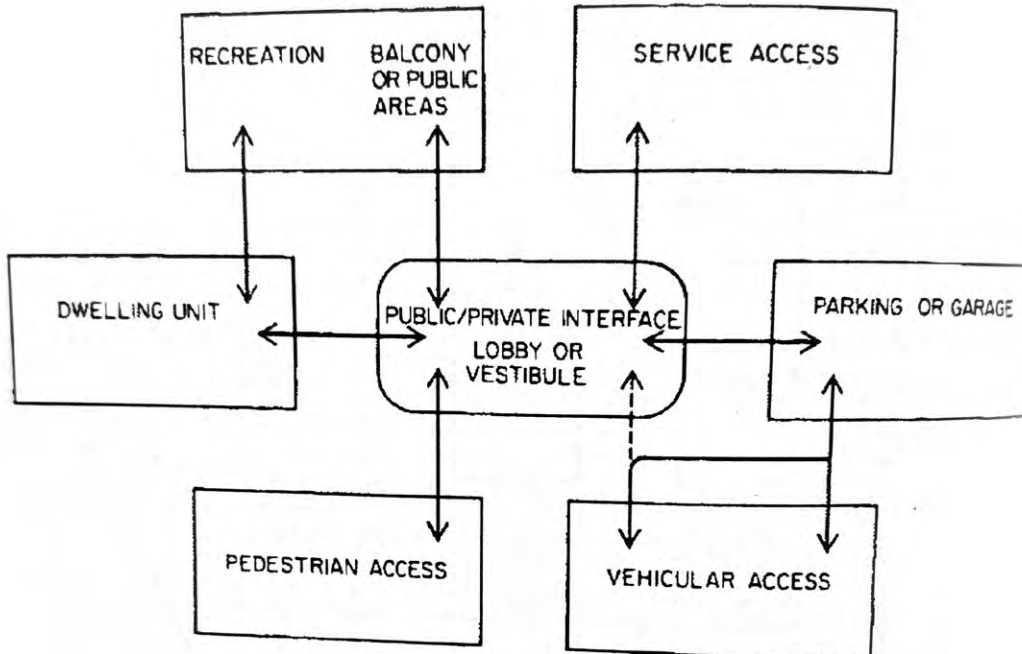
shopper + furnishing dimensions.

- shopper walking in the aisle – 23.5 - 35.5 inches
- shopper standing in front of shelves – 29.5 - 35.5 inches
- shopper with cart – 29.5 - 35.5 inches
- person in wheelchair ≤ 35.5 inches
- display rack width – 31.5 inches
- chiller cabinet width – 35.5 inches
- refrigerator unit width – 55 inches
- deli counter width – 47.25 – 55 inches
- shelving width – 31.5 inches

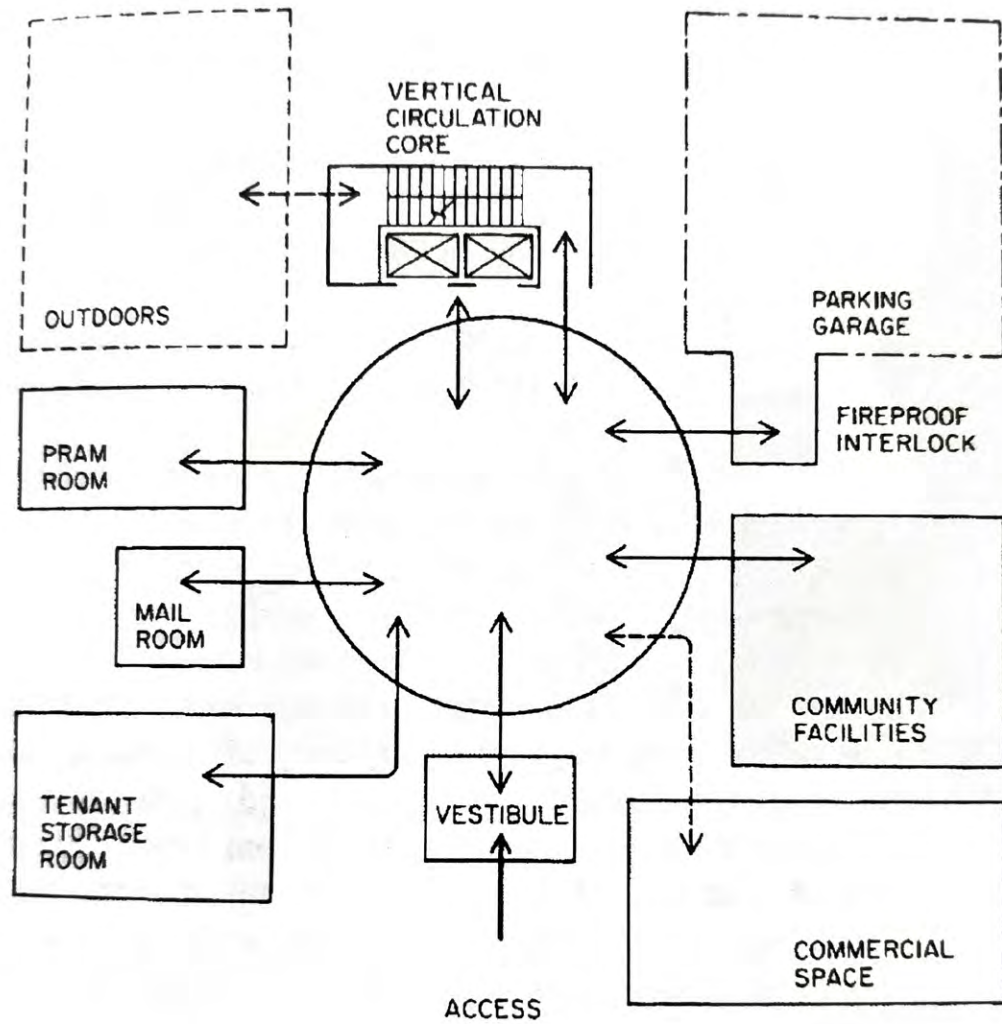
program type research. diagrammatic drawings.

MULTIFAMILY HOUSING

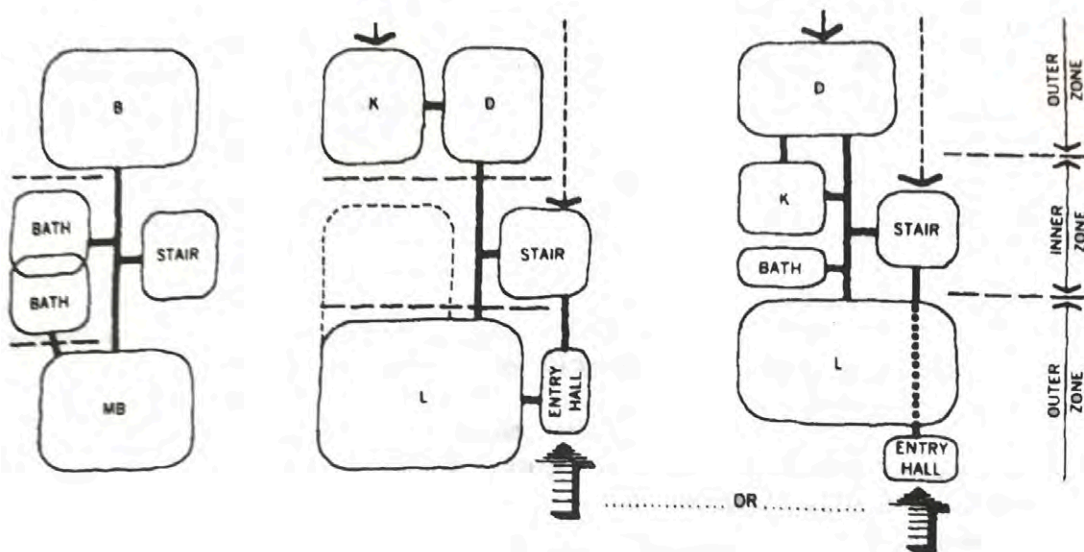
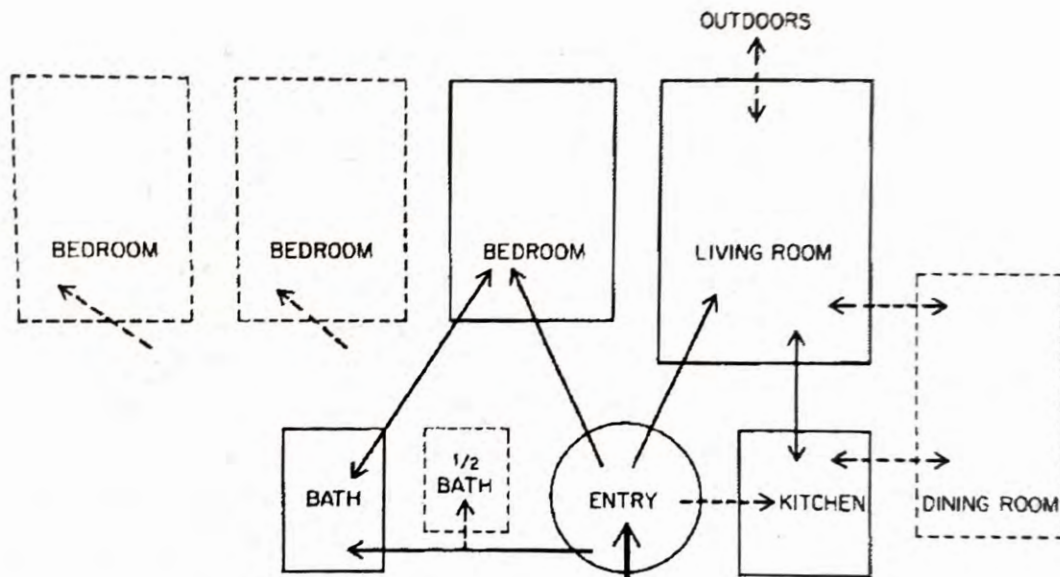
site element diagram.



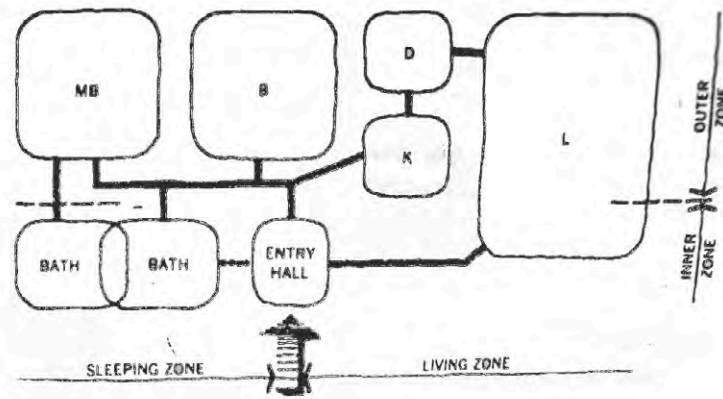
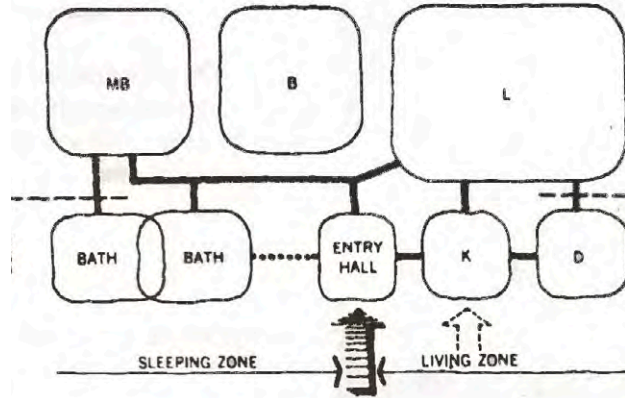
ground floor diagram.



dwelling unit diagram - double exposure.

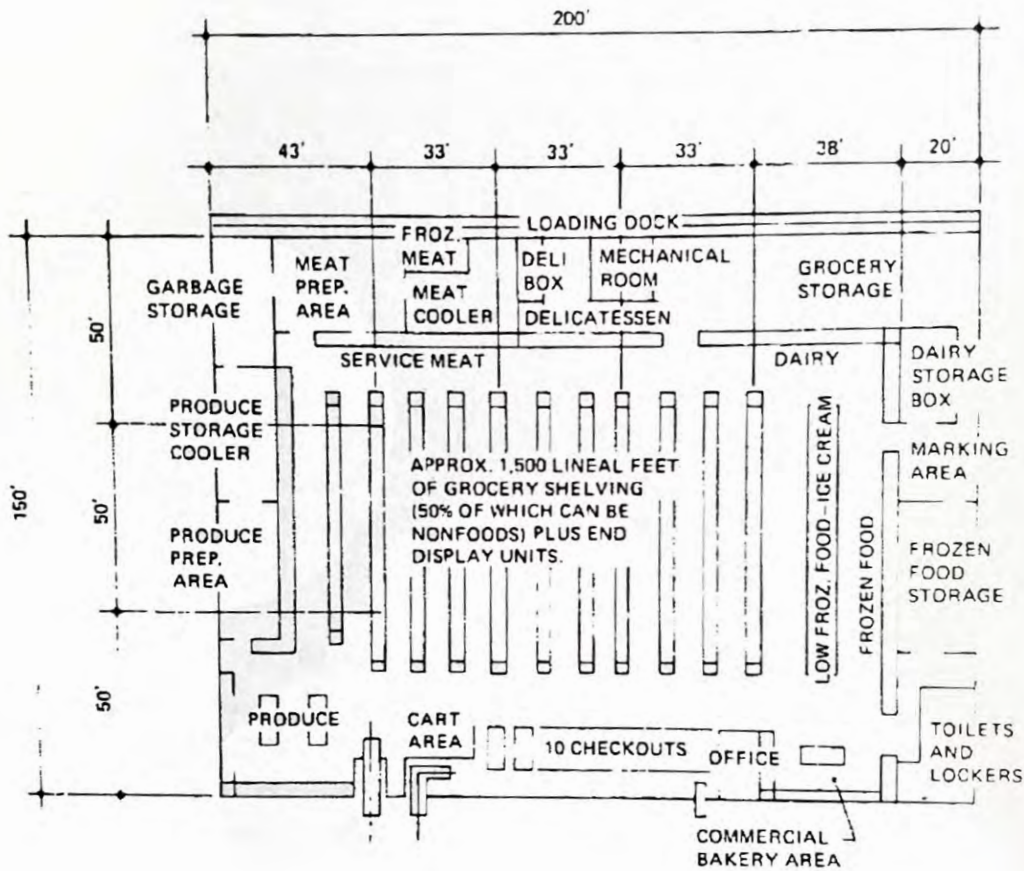


dwelling unit diagram - single exposure.

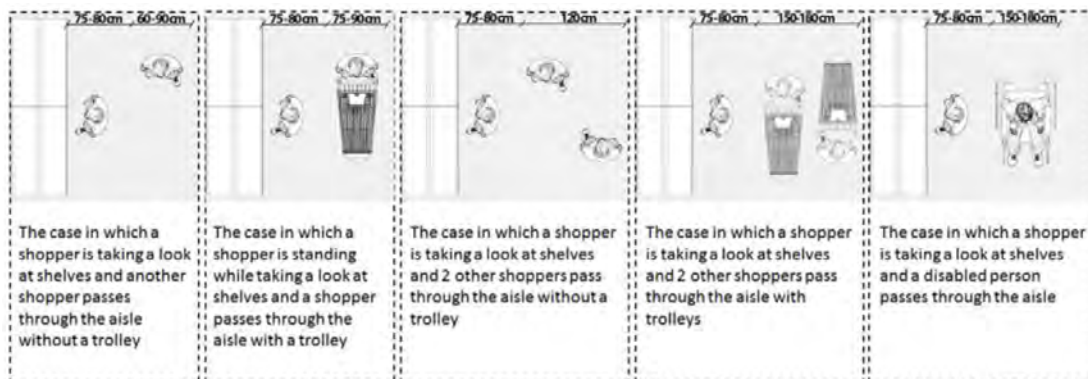


GROCERY MARKET

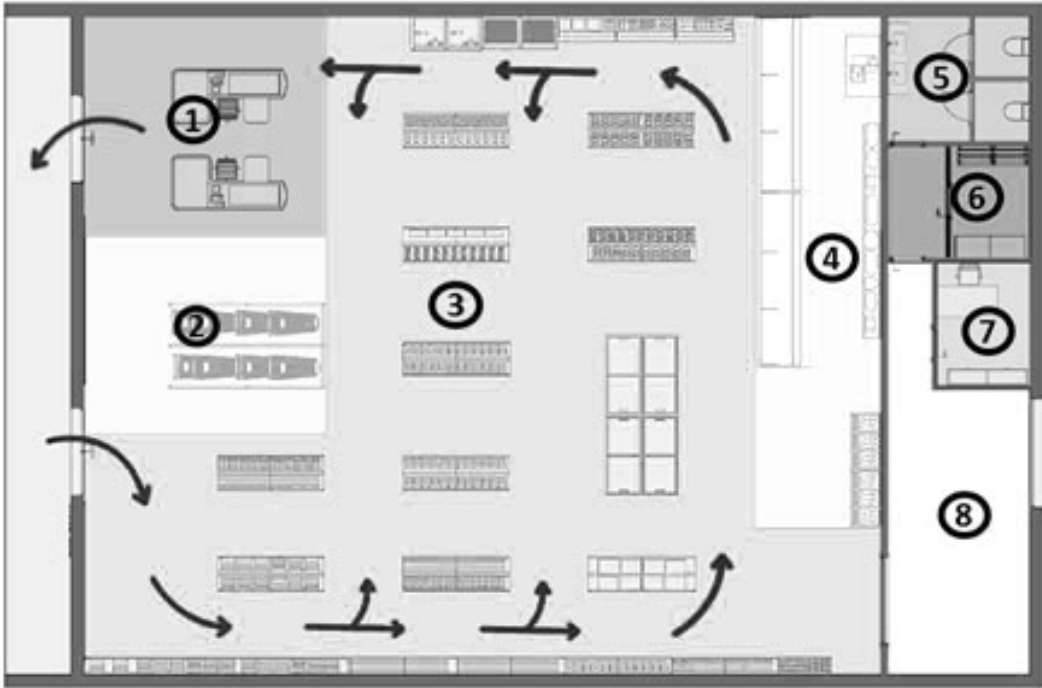
typical freestanding super market plan.



aisle dimensions.



typical floor plan showing customers' route.



Legend:

- 1. Cash desks
- 2. Cart pick up + return
- 3. Selling floor
- 4. Customer service
- 5. Restrooms
- 6. Changing room
- 7. Office
- 8. Stockroom

program type research. historical research.

NATIONAL HISTORY OF AFFORDABLE MULTIFAMILY HOUSING

The first boom of the multifamily housing type occurred during the industrial revolution, when factory workers surged into new cities. This new boom in density was in need of more compact housing than what was commonplace in the rural extents. Business owners saw this need and jumped to capitalize on their workers. Tenements were created so that workers could live not far from their workplace, but often time, in horrible conditions. Sickness and disease were common due to overcrowding and lack of basic utilities. Workers withstood these horrific conditions until the invention of the automobile, allowing the average worker the opportunity to live outside of the city and commute to work. But those who choose to stay or could not afford to leave were still left in awful living conditions. It was not until 1867 when the first tenement-law regulation in America was enacted in New York City to ban the construction of rooms without ventilators and apartments without fire escapes.

In 1923, Milwaukee completes America's first public-housing project under the direction of Socialist Mayor Daniel Hoan. Then in 1935, the Public Works Administration constructed Techwood Homes in Atlanta, becoming the first federal multifamily public housing project. The project evicted hundreds of black families to create a 604-unit, whites-only neighborhood. Techwood was intended to eliminate the slums that the poor had been living in, but eventually became one itself.

By the continual rising need of safe, affordable housing in the country, federal action is taken and the National Housing Act is passed in 1937. This and programs that preceded are what made possible low down payments and longterm mortgages that are commonplace today. The "Brooke Amendment" denoted what a resident could be expected to pay in rent at a public housing complex, setting the standard of 30% of one's income, a standard we still use today.

Unfortunately, NLIHC studies show that recent federal investment in housing has not increased at pace with the overall increase in the federal budget. Though those in rental housing are those with the greatest needs, federal expenditures on housing overwhelmingly go to homeownership instead.

LOCAL HISTORY OF AFFORDABLE MULTIFAMILY HOUSING

Established in 1969, the Housing Authority of the City of Jackson, MS (JHA) currently operates 34 single-family units of low-income Public Housing, 188 Project Based Vouchers, and 835 Housing Choice Vouchers. But, just like the problematic federal approach, most services are dedicated to homeownership, not renting. Here, in a more rural society where more properties are available for owning, is more suitable for these types of programs than in a dense, urban spot such as New York City. JHA also provides a housing counselor who offers unbiased advice to those in need. It is actually the only HUD approved counselor in the entire state.

PROGRAM TYPE SUCCESS OF AFFORDABLE MULTIFAMILY HOUSING

The need for affordable, multiunit housing is quite intuitive; the rise in population and decrease in land availability combined with the inadequate funds earned by minimum wage jobs has created a need for a safe, dense living style that allows a resident to reside within a close commute to their work. This type of building also allows for the establishment of community between residents and the reduction of resources by creating one building entity instead of several.

HISTORY OF INCLUSIONARY ZONING

The first inclusionary zoning policy was drafted in 1971 by Fairfax County, Virginia. Though struck down by the state courts as unconstitutional, its principles resurfaced in subsequent policies that were upheld in other parts of the country. In 1974, Montgomery County, Maryland enacted the first legally defensible IZ policy. Today more than 200 localities have similar statutes. Inclusionary zoning ordinances can be applied at the local, county and state levels. California has statewide legislation that applies to all redevelopment areas requiring private developers to set-aside fifteen percent and public agencies to set-aside thirty percent of units for affordable housing. Nearly every municipality in New Jersey has an inclusionary zoning ordinance due to the state's Supreme Court ruling that all municipalities have a constitutional obligation to provide a fair share of current and prospective housing needs to low and moderate income families. In Minnesota, the state legislature created a voluntary inclusionary zoning program which provides developers gap financing and regulatory relief if ten to fifteen percent of units are set-aside as affordable to low income households. According to building permit calculations by the Campaign for Sensible Growth, if in 1974 the Chicago region had instituted the same policy as Montgomery County to only half of its new structures, 136,000 units would have been created by 1999. In Chicago alone, 19,675 would have been created.

Much of the research on IZ analyzes the variations between policies in terms of both variables and impacts. All these policies share the same objective: to set-aside a proportion of housing units as affordable for a specific income group. Likewise, the over-arching goals of inclusionary zoning policies are typically similar in that they strive to preserve and improve the availability of affordable housing and encourage mixed-income communities. Finally, the impetus for most IZ policy formation is driven by either market conditions or exclusionary zoning regulations discouraging the development of affordable housing. Beyond these similarities, inclusionary zoning policies typically break down into many components with many variations. Adding to this complexity is the tendency for an ordinance to define a single variable in multiple ways. For example, the IZ policy in Cambridge, Massachusetts defines the affordable unit set-aside requirement as either 15 percent of units or 15 percent of square footage.

The key variables to be determined in an inclusionary zoning policy include:

- Set-aside: the percent of the development that will be affordable.
- Development size threshold: the triggering point at which the ordinance is required, typically the number of units in a development.
- Type of development: new, rehab, for-rent, for-sale, multi-unit, subdivision, conversion, etc.
- Income targeting: defines the income group the units will be affordable. For example: the units created through IZ will be made available to only those that earn 30-50% of the Area Median Income.
- Developer incentives: mechanisms that help off-set lost income to the developer, including density bonuses, tax breaks, fee waivers, etc.
- Alternatives to meeting the set-aside requirement: fee-in-lieu, off-site development, etc.
- Voluntary vs. mandatory: whether or not the set-asides are optional or mandatory for projects meeting the development threshold
- Affordability control periods: length of time the units must remain affordable

Clarence Saunders' Piggly Wiggly stores, established in Memphis in 1916, are widely credited with introducing America to self-service shopping. Self-service stores came to be known as "grocceterias" due to the fact that they were reminiscent of the cafeteria-style eateries that were gaining popularity at the time. It was not until the 1920s that chain stores started to become a really dominant force in American food retailing. Small regional chains such as Kroger and others began covering more and more territory, operating over 10,000 of its "economy stores" by the end of the decade. Most of these stores remained small, counter service stores, often staffed by only two or three employees, with no meat nor produce departments. Some still offered delivery and charge accounts, although most chain stores had abandoned these practices.

While Piggly Wiggly in Memphis is accredited with the fame, Jackson holds claim to the innovation as well. In 1912, brothers Judson McCarty Holman and William Henry Holman and their cousin William Bonner McCarty founded a grocery store named Jitney Jungle. The store opened on East Capitol Street in April of 1919 and the three men filed for a patent on the concept. Piggly Wiggly filed an infringement lawsuit, but the case was ruled in Jitney Jungle's favor once it was proved that additional concepts had been created in out west as well.

In 1930, Michael Cullen, a former executive of both Kroger and A&P, opened his first King Kullen store, widely cited as America's first supermarket. King Kullen was located in a warehouse on the fringes of New York City, and offered ample free parking and additional concessions in a bazaar-like atmosphere. Merchandise was sold out of packing cartons and little attention was paid to décor. The emphasis was on volume, with this one store projected to do the volume of up to one hundred conventional chain stores. The volume and the no frills approach resulted in considerably lower prices.

The supermarket, as it came to be known, was initially a phenomenon of independents and small, regional chains. Eventually, the large chains caught on as well, and they refined the concept, adding a level of sophistication that had been lacking from the spartan stores of the early 1930s. In the late 1930s, A&P began consolidating its thousands of small service stores into larger supermarkets, often replacing as many as five or six stores with one large, new one. By 1940, A&P's store count had been reduced by half, but its sales were up. Similar transformations occurred among all the "majors"; in fact, most national chains of the time saw their store counts peak around 1935 and then decline sharply through consolidation. Most chains operated both supermarkets and some old-style stores simultaneously for the next decade or so, either under the same name or under different banners.

case study. 2700 university.

ANALYSIS

2700 University, located in Saint Paul, Minnesota, is an inclusionary transit-oriented housing complex. Sited between downtown Minneapolis and the University of Minnesota, the Green Line light rail allows easy access between the two; providing a mixed-income development near a Green Line stop served as key motivation to undertake this project by both the developer and the city.

Showcasing many high-end amenities and a LEED Silver certification, the 2700 project is designed to attract middle to upper income renters. 80% of units are rented at market rate (~\$1.91 per sqft) while 20% are rented at affordable pricing to those who earn 50% of the area median income or below. These affordable units are scattered throughout the complex so that low income residents did not feel alienated. This enforced the notion to truly have a diverse, interspersed community, but created a number of legal and cost ramifications. The complex offers 19 various unit floor plans.

To offset some costs of renting below market rate, incentives such as increased density and reduced parking are given. The 2700 project incorporated many challenging policy goals in order to fuse transit-oriented development, mixed income development, and mixed-use development all into one singular project. Despite the complexity and higher overall project costs, the 2700 project turned out a lower per unit cost than other smaller scale 100% affordable transit-oriented developments in the area.



front facade + green line rail.

USER GROUPS

- 80% Mid to upper income residents in market rate unit
- 20% Low income residents (<50% area median) in affordable units
- Managerial Staff
- Janitorial Staff

EQUIPMENT

Private:

- 100% LED Lighting
- Nest Thermostats
- Energy Star Appliances
- Oversized Energy Efficient Windows

Public:

- High-Speed WiFi
- Matrix Fitness Equipment
- Indoor Lounging Furniture
- Office Furniture
- Saltwater Pool
- Hot Tub with Heated Deck
- Fire Pits
- Commercial Grade Grills
- Outdoor Furniture
- Dog Water Station and Waste Area
- Bicycle Repair Tools, Stands, and Pumps

PROGRAMMED SPACES

Public:

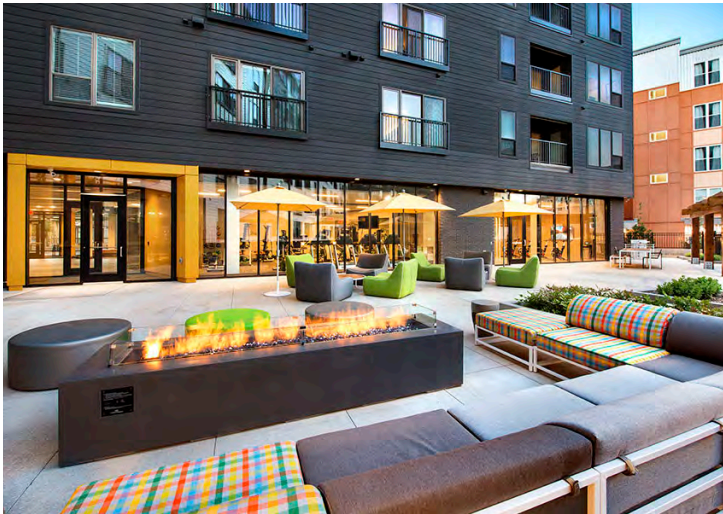
- Lobby with Coffee, Bar, Community Lounge, Kitchen, and Workspace
- State-of-the-Art 1,400 sqft Fitness Center
- Yoga Studio
- Cycling Studio
- Resort-Style Swimming Area
- 20,000 sqft Courtyard
- Outdoor Living Room
- 1,600 sqft Dog Park and Course
- Bike Storage
- Underground Parking



site plan.



indoor community kitchen.



outdoor living room.



swimming area.



fitness center.



unit kitchen + dining.

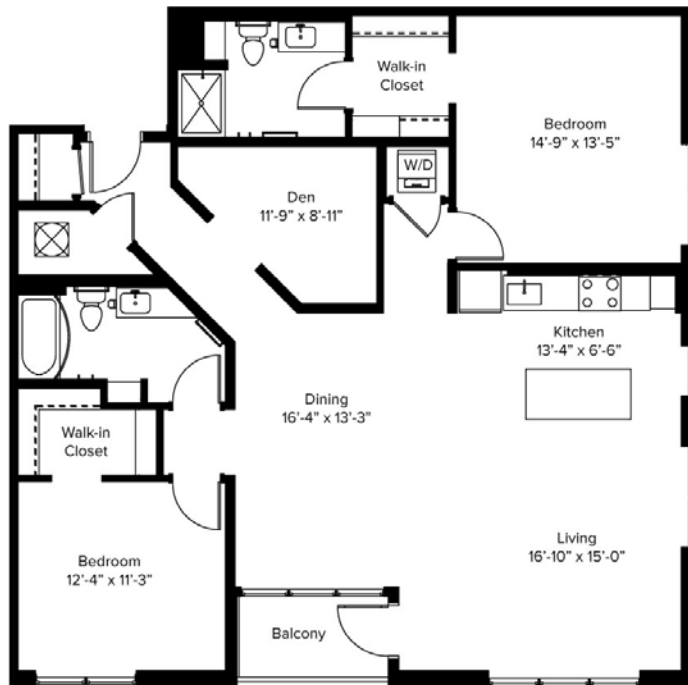


unit living area.

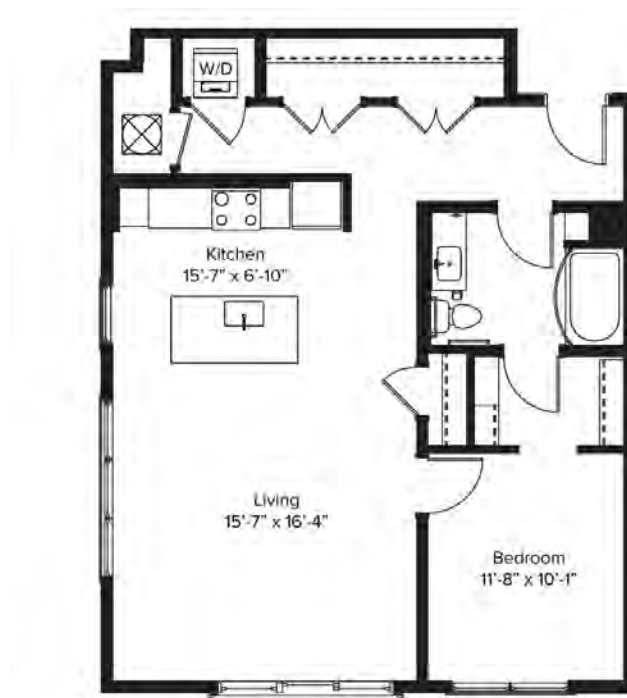


unit bedroom.

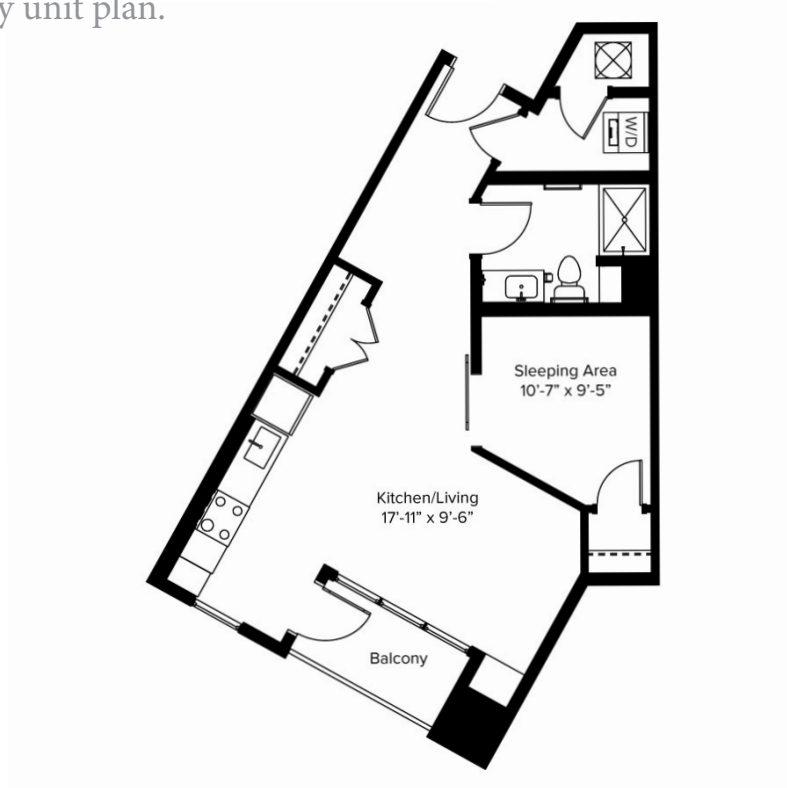
two bedroom unit plan.



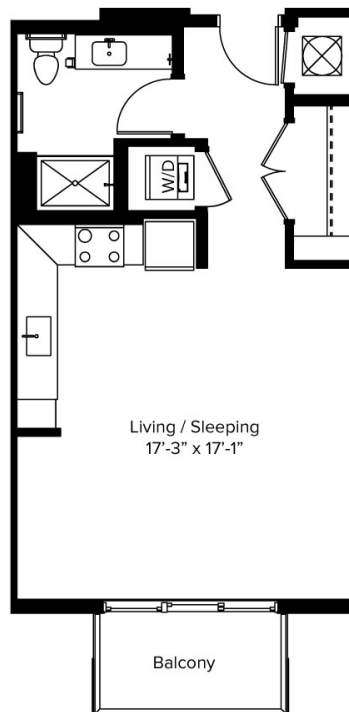
one bedroom unit plan.



efficiency unit plan.



studio unit plan.



inclusionary housing statistics.

PROJECT SUMMARY			
PROGRAM SUMMARY- NEW CONSTRUCTION			
Affordability profile			
Land Area (Acres)			1.80
Number of Parking Stalls			207
	Market Rate	Affordable	Total
Number of Units	198	50	248
Units per Acre			1.20
Average Unit Size (SF)	860	804	
Total Housing (Gross SF)	170,213	40,210	210,423
Total Retail (Gross SF)	3,000	-	3,000
Total SF	173,213	40,210	213,423
UNIT MIX			
	Number	Number	
	Market Rate	Affordable	Total
Studios			15
1 BR	155		180
2 BR	43		53
TOTAL UNITS	198	50	248
PERCENTAGE OF TOTAL	80%	20%	100%

PROJECT COST SUMMARY					
	Market Rate	Affordable	Total	Cost/Unit	
Acquisition	\$ 2,695,000.00	\$ 805,000	\$ 3,500,000	\$ 14,113	
Hard Costs	\$ 28,157,552.00	\$ 9,121,871	\$ 37,279,423	\$ 150,320	
Soft Costs	\$ 7,420,647.00	\$ 5,294,664	\$ 12,715,311	\$ 51,271	
Financing Costs	\$ -	\$ -	\$ 354,648	\$ 1,430	
Total Project Costs	\$ 38,273,199.00	\$ 15,221,535	\$ 53,494,733	\$ 215,705	
USE OF FUNDS					
Acquisition	\$ 2,695,000	\$ 805,000	\$ 3,500,000		
Architecture & Engineering	\$ 1,270,000	\$ 280,000	\$ 1,550,000		
Construction Period Costs					
Real Estate Attorney	\$ 277,000	\$ 59,000	\$ 336,000		
Title, Recording & Lender					
Inspections	\$ 139,120	\$ 41,685	\$ 180,805		
Construction Interest	\$ 1,034,697	\$ 214,619	\$ 1,249,316		
TIF Interest	-	\$ 958,136	\$ 958,136		
Bond Cost	-	\$ 427,100	\$ 427,100		
Finance Fee	-	\$ 41,271	\$ 41,271		
Furnishings and Equipment	\$ 354,648	\$ -	\$ 354,648		
Other Period Costs	\$ 1,342,519	\$ 382,136	\$ 1,725,355		
Development Contingency	\$ 780,130	\$ 456,094	\$ 1,236,223		
ODR/TIF Reserve	-	\$ 695,204	\$ 695,204		
TOTAL USES	\$ 38,273,199	\$ 15,221,535	\$ 53,494,733		

SOURCES OF FUNDS					
		Market Rate	Affordable	TOTAL	
Tax Exempt Bonds	12.49%	\$ -	\$ 6,680,000	\$ 6,680,000	
Construction Loan/Market	52.34%	\$ 28,000,000	\$ -	\$ 28,000,000	
Construction Loan / Perm Affc	3.07%	\$ -	\$ 1,640,000	\$ 1,640,000	
Tax Credit Equity	8.68%	\$ -	\$ 4,645,373	\$ 4,645,373	
LISC (Mezzanine Debt Loan)	9.35%	\$ 5,000,000	\$ -	\$ 5,000,000	
HOME FUNDS (City of St. Paul)	1.87%	\$ -	\$ 1,000,000	\$ 1,000,000	
Met Council LCDA TOD grant	3.64%	\$ 1,944,774	\$ -	\$ 1,944,774	
General Partner Loan	1.75%	\$ -	\$ 938,617	\$ 938,617	
Developer Cash Contribution	2.80%	\$ 1,500,000	\$ -	\$ 1,500,000	
Deferred Sources	4.01%	\$ 1,828,425	\$ 317,545	\$ 2,145,970	
Total Sources	100%	\$ 38,273,199	\$ 15,221,535	\$ 53,494,734	
Mezzanine Interest Revenue		\$ 1,260,000			
Average TDC/UNIT	\$215,704.57				

Total Effective Income					
		Market	Affordable		Annual
Parking Income		\$ 179,100			\$ 179,100
Retail Space Income					\$ 77,700
Miscellaneous		\$ 181,437	\$ 3,030		\$ 184,467
Effective Other Income					\$ 346,967
Total Effective Income		\$ 3,761,135	\$ 416,452		\$ 4,177,587
Net Operating Income		\$ 2,472,620			
Economic Value Calculation					
Total Operating Expenses		\$ 1,652,867			
Net Operating Income		\$ 2,472,620			
Market Capitalization Rate			5.20%		
Income Based Value		\$ 47,550,386			

R U L E

external rules.

The following information is gleaned from the 2015 International Building Code.

BUILDING CODE ANALYSIS

occupancy types.

The residence, specifically the private dwelling units, are classified as Residential:

310.1 Residential Group R

Residential Group R includes the use of a building or structure for sleeping purposes when not classified as an Institutional Group I or when not regulated by the International Residential Code.

310.3 Residential Group R-2

Residential Group R-2 occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature.

The communal spaces within the residence such as the lobby, conference room, outdoor lounge area, etc., are classified as Assembly:

303.1 Assembly Group A

Assembly Group A occupancy includes the use of a building for the gathering of persons for the purposes such as civic, social, or religious functions; recreation, food or drink consumption or awaiting transportation.

303.4 Assembly Group A-3

Group A-3 occupancy includes assembly uses intended for worship, recreation, or amusement and other assembly uses not classified elsewhere.

The grocery market is classified as Mercantile:

309.1 Mercantile Group M

Mercantile Group M occupancy includes the use of a building for the display and sale of merchandise, and involves the stocks of goods, wares, or merchandise incidental to such purposes and accessible to the public.

construction type, maximum height, + allowable area.

TABLE 503
ALLOWABLE BUILDING HEIGHTS AND AREAS*
 Building height limitations shown in feet above grade plane. Story limitations shown as stories above grade plane.
 Building area limitations shown in square feet, as determined by the definition of "Area, building," per story

GROUP		TYPE OF CONSTRUCTION									
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V		
		A	B	A	B	A	B	HT	A	B	
HEIGHT(feet)	UL	160	65	55	65	55	65	50	40		
		STORIES(S) AREA (A)									
A-3	S	UL	11	3	2	3	2	3	2	1	
	A	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000	
M	S	UL	11	4	2	4	2	4	3	1	
	A	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000	
R-2	S	UL	11	4	4	4	4	4	3	2	
	A	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000	

With regards to Chapter 5, the allowable building heights and areas for Type I construction are unlimited, regardless of occupancy type:

503.1.3 Type I Construction

Buildings of Type I construction are permitted to be of unlimited tabular building heights and area are not subject to the special requirements that allow unlimited area buildings in Section 507 or unlimited building height in Section 503.1.1 and 504.3 or building heights and areas for other types of construction.

occupant load.

**TABLE 1004.1.2
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR^a
Assembly without fixed seats	
Concentrated (chairs only—not fixed)	7 net 5 net
Standing space Unconcentrated (tables and chairs)	15 net
Mercantile	60 gross
Residential	200 gross

According to Table 1004.1.2, maximum floor area allowances per occupant for Group R-2, A-3, and M are as follow:

Occupancy:	Occupant Load Factor:	Allowable Occupants:
Assembly	15 net	290 persons
Mercantile	60 gross	146 persons
Residential	200 gross	452 persons

plumbing fixtures.

[P] TABLE 2902.1
 MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES^a(See Sections 2902.1.1 and 2902.2)

OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE INTERNATIONAL PLUMBING CODE)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE INTERNATIONAL PLUMBING CODE)	OTHER
		Male	Female	Male	Female			
A-3 ^d	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
	Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
	Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service sink ^e
R-2	Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units

According to Table 2902.1, the minimum number of required plumbing fixtures are as follows:

Occupancy:	Gender Ratio:	Required Fixtures:
A-3 (290 persons)	Male- 1 per 125 Female- 1 per 65	2 male water closets 3 female water closets
M (146 persons)	Male/ Female- 1 per 500	1 water closet
R-2 (452 persons)	1 per dwelling unit	60 water closets

According to the Hinds County Zoning Ordinance, all parcels of land in the selected site's block are zoned for the following:

c-4 central business district.

The purpose of this district is to preserve and perpetuate an intensive and cohesive downtown urban core characterized as the center for employment and as the focus of commercial, governmental, and cultural activities. The intent of this district is to develop a strong sense of place by extending the duration of downtown's activities by improving the pedestrian environment and creating mutually supportive land uses such as cultural arts, education, entertainment, housing, business, other commerce and government.

uses permitted.

- Mixed use buildings which contain offices, retail, restaurants, residential and related services.
- Residential uses to include condominiums, cooperatives, multifamily, two-family attached and townhouses.
- Parking garages if needed.

regulations.

- Minimum lot area, minimum lot width, minimum front yard depth, minimum side yard width, minimum rear yard depth, and maximum lot coverage are not regulated.
- Maximum height: 150 feet, unless specified otherwise in overlay districts.
- Maximum front yard depth: At least 60% of the building wall must be located within 5 feet of the property line; however, the front façade may recede from the street wall by as much as 15 feet to allow for columns or other architectural elements. Recesses on the ground floor to accommodate entry ways, display windows, planters, or similar features shall not be considered as setbacks provided the upper stories have been built to the street wall. Corner lots within the CBD shall maintain a zero foot setback from the street wall for at least 50 feet from the intersection along each street, or the width of the lot, whichever is less.

parking.

- Parking lots shall be located in the rear or side yard of the principal building it serves. Side yard parking lots shall account for no more than 25% of required parking. Buildings in the CBD are exempt from off-street parking requirements.
- Multifamily housing with 3 or more dwelling units must provide 2 off-street parking spaces per dwelling unit.
- One per every eight parking spaces must be made accessible.

HISTORIC DISTRICT GUIDELINES

All parcels of land in the selected site's block are included in the West Capitol Historic District. No guidelines for the Historic District have been found at this time, but an excerpt from the Downtown Plan of 1982 states the following:

“Because this district is primarily a residential one of moderate to good quality—a valuable asset in the city—efforts should be made to maintain the integrity, scale, and character of the district. Specific recommendations, by subdistrict include:

West Capitol:

- Demolish substandard housing that does not meet code and replace at similar scale
- Rehabilitate and renovate existing housing in need of repair
- Discourage interior commercial uses; concentrate commercial demand along Robinson Street
- Encourage any new multifamily housing to locate along West Capitol Street, Robinson Street, and Ellis Avenue”

internal rules.

MULTIFAMILY HOUSING

Entering the Apartment:

In inclement weather outer clothing should be taken off at the entrance and put away; umbrellas and boots should be stored to prevent dirtying the floors of other rooms; space should be provided to accommodate packages.

Entering with Groceries / Leaving with Garbage:

Connection between entrance and kitchen should be as direct as possible; preferably through the entry hall and not the living space. A secondary entrance directly into the kitchen solves this problem ideally.

Children Coming In From Play:

Children should be able to reach the bathroom or their own rooms without crossing the living space.

Deliveries:

Packages should be taken without having the delivery person enter the living space.

Passing from Bedroom to Bathroom / Kitchen to Bathroom:

It should not be necessary to cross the living space. Ideally, one should not be seen at all.

Serving from Kitchen to Dining Room:

Service should be as direct as possible without crossing any other space (except occasionally the entry hall).

Store size:

- Parking ratio: 3.6 sq. ft. to 1 sq ft. of total store area
- 75-80% of total store sq. ft. = selling space
- 20-25% of total store sq. ft. = service areas
 - › Service areas: storage coolers, prepackaging areas, grocery storage
- 50% of equipment and investment is into refrigeration systems
- The remaining 50% is on grocery stock

Layout:

- Rectangular in shape; narrow in width, long in length.
- The back will be enclosed for services; selling space becomes square
- Keep columns out of aisle circulation
- 7' aisles, 4' shelves, 11' spaced columns
- Refrigerated units should be against walls
- Refrigerated units should be near their associated work/storage rooms
- Checkout counters should be grouped together and near entry
- One checkout stand should be provided for every \$10,000 of projected weekly income with one additional for expansion

Display:

- Top shelves should not be over 5'3" high
- Angle of view should not exceed 15 degrees
- Easy to reach zone begins 15" above floor (minimum height for shelf)
- Super islands should be no more than 9' in length
- Shelf supports should be at every 2.5' but should not interrupt appearance of merchandise

E L E M E N T

user groups.

INCLUSIONARY HOUSING

- Residents- Residents will vary widely in income levels and age. The complex will allow for any type of person to reside there, whether they are young couples, single professionals, seniors, or small families. They will all have access to communal amenities.

Required Spaces: private living quarters, public gathering spaces

- Managerial Staff- The property manager will be responsible for being a point of contact for all tenants and overseeing all upkeep. Additional workers to aid with these responsibilities may be needed.

Required Spaces: office space with additional storage for filing paperwork

- Janitorial Staff- The maintenance worker will be responsible for the overall maintenance of the building and the upkeep of the communal spaces. Additional workers to aid with these responsibilities may be needed.

Required Spaces: storage closets to house cleaning supplies and equipment.

- Security- The security guard will be responsible for overseeing the complex's security system and patrolling the entry and communal spaces.

Required Spaces: office that houses security monitoring equipment.

GROCERY MARKET

- Owner/Manager- The general manager will be responsible for supervising all employees and day to day operations.

Required Spaces: office space with additional storage for filing paperwork

- Staff- The staff will assist the manager by operating as cashiers, merchandise stockers, customer service, and store upkeep.

Required Spaces: storage room to house additional stock, cashier desk

- Customer- The customers will be the purchasers of the merchandise and will be served by the staff.

Required Spaces: general product showroom that allows easy access to needed groceries, baskets to aid in gathering groceries, cashier desk to purchase items

equipment.

INCLUSIONARY HOUSING

private units.

- Lavatories
- Water closets
- Bathtub / shower
- Kitchen sink
- Dishwasher
- Microwave
- Oven / stove
- Range hood
- Refrigerator
- Washer / dryer
- Water heater

communal areas.

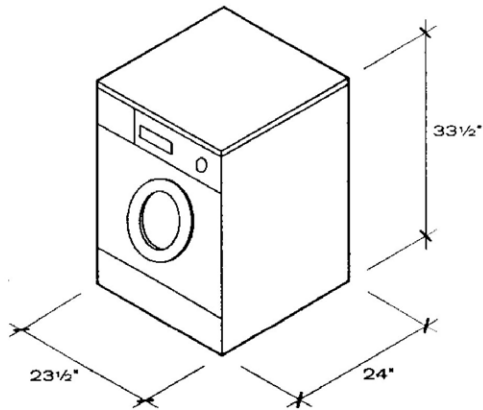
- Elevators
- Servers for WiFi projection
- Security system- cameras, monitors, entry scanners
- Exercise equipment
- Managerial computer and filing cabinets
- Mailboxes
- Janitorial cleaning equipment
- Fire pit
- Grilling station with sink
- Lounge furniture
- Outdoor workout jungle gym
- Bicycle repair station and storage rack

GROCERY MARKET

- Shelving for product display
- Glass door refrigerators with attached storage room
- Freezers with attached storage room
- Open produce refrigerator system
- Cashier table for purchasing items
- Cash register with card reader
- Baskets and basket storage rack for customer use for gathering items
- Locker system for employees

GRAPHIC STANDARDS OF EQUIPMENT

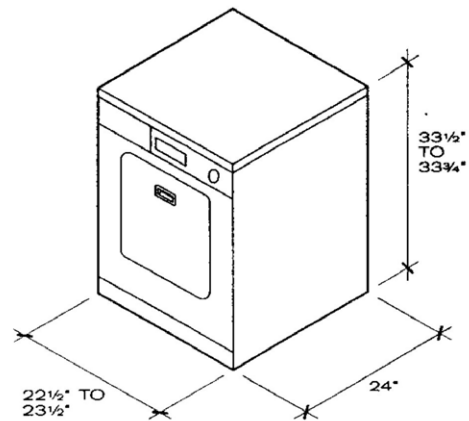
washer.



NOTE

Front-loading washers may be equipped with an integral top if not mounted under a counter.

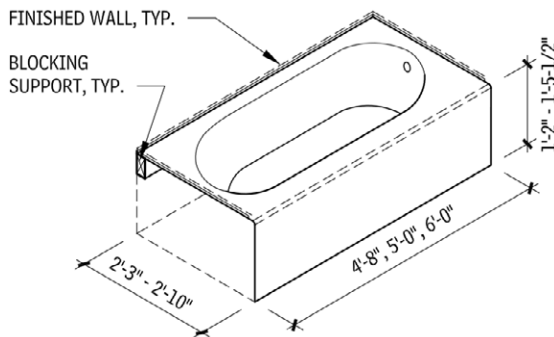
dryer.



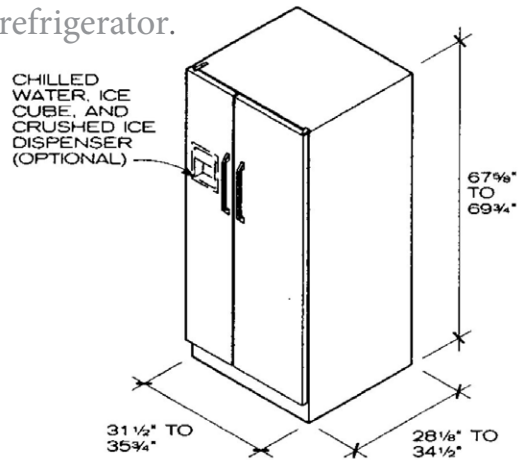
NOTE

Front-loading dryers may be equipped with an integral top if not mounted under a counter.

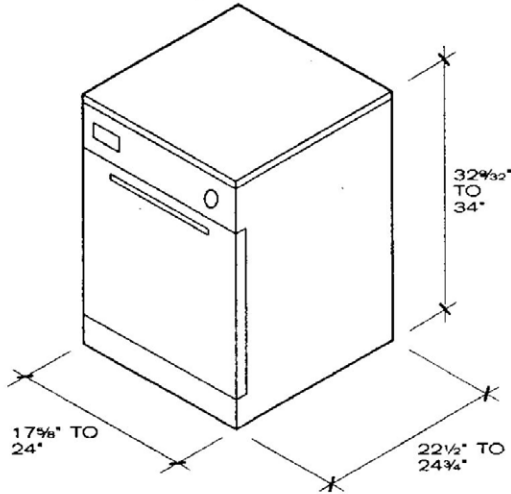
bathtub.



refrigerator.

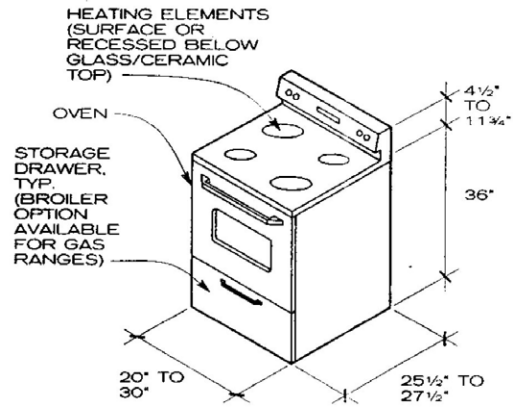


dishwasher.



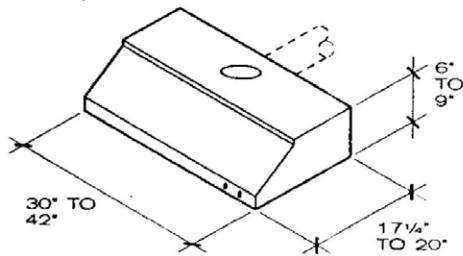
NOTE
Do not place dishwasher farther than 10 ft from sink, typically, for proper drainage.

stove.



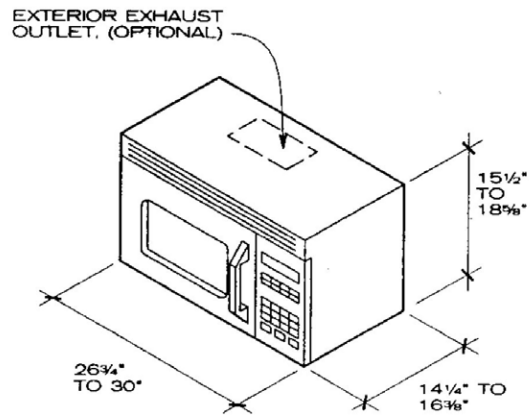
NOTE
Freestanding range/ovens may have front-mounted controls; if so, the backsplash area may be eliminated.

vent hood.



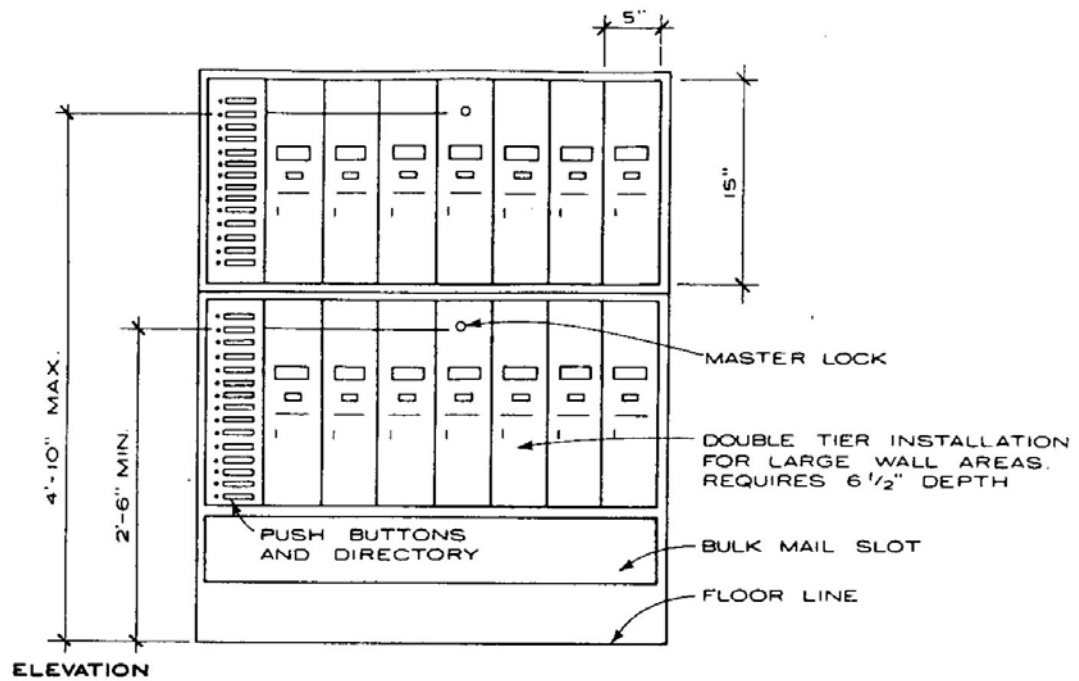
NOTE
Range hoods vent through filters back into the room (self-venting) or through ducts and filters to the outdoors. Accessories such as fans, filters, and lights vary greatly in design configuration. Some ranges and cooktops are equipped with downdraft venting, which may eliminate the need for an overhead range hood. Fans typically vent from 50 to 350 cu ft/min (CFM) of air for standard residential cooktop use. For commercial ranges, consult a design professional for CFM requirements.

microwave.

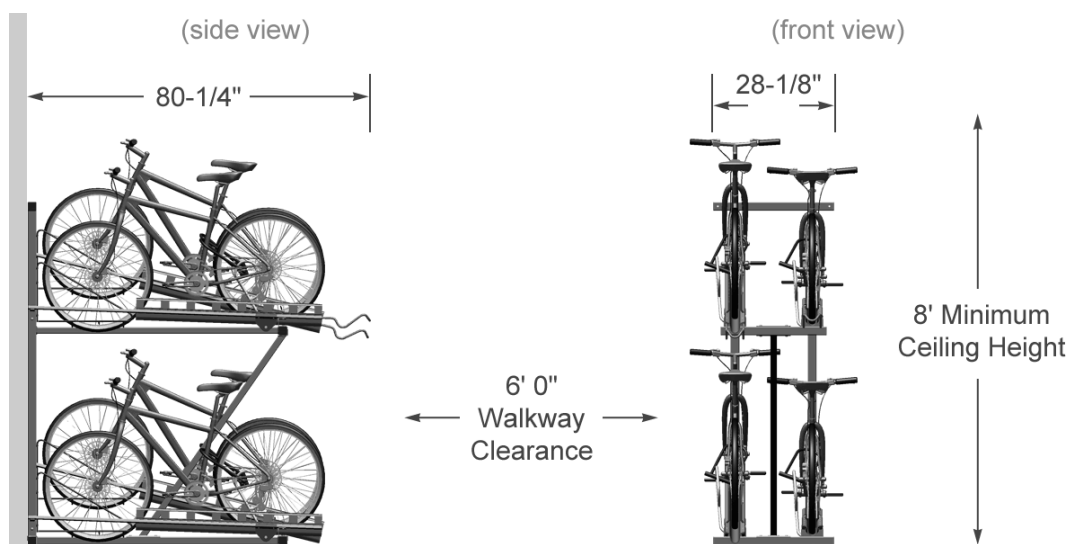


NOTE
Venting may be directed to the outside or recirculated.

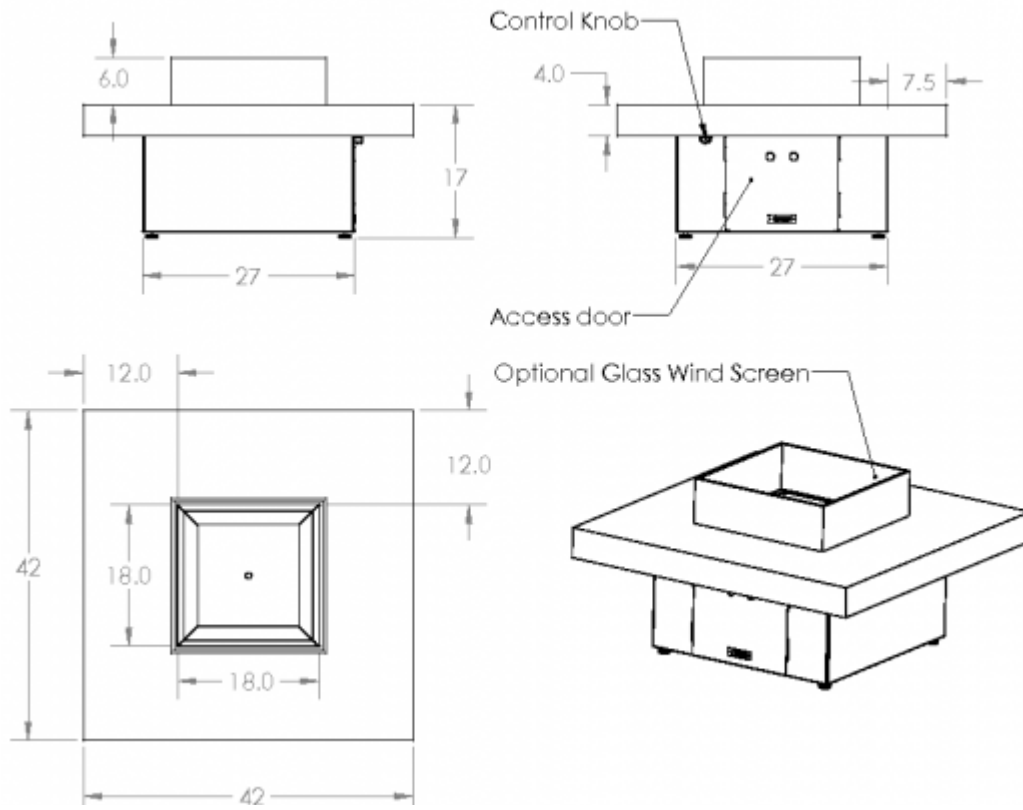
mailboxes.



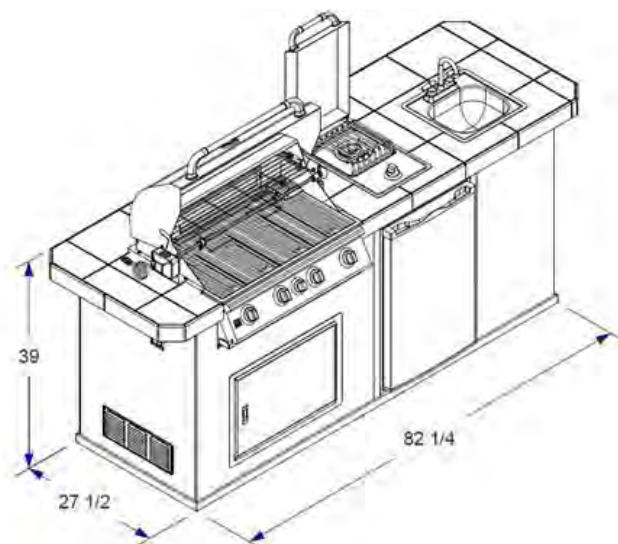
bike storage.



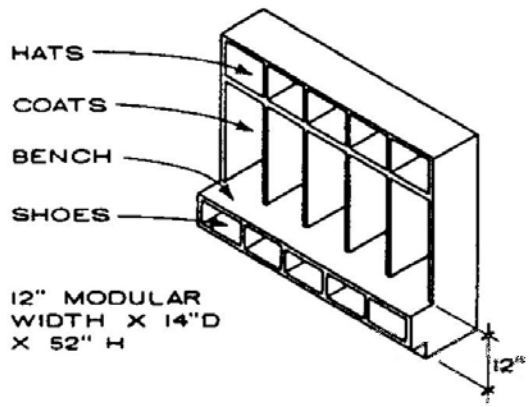
fire pit.



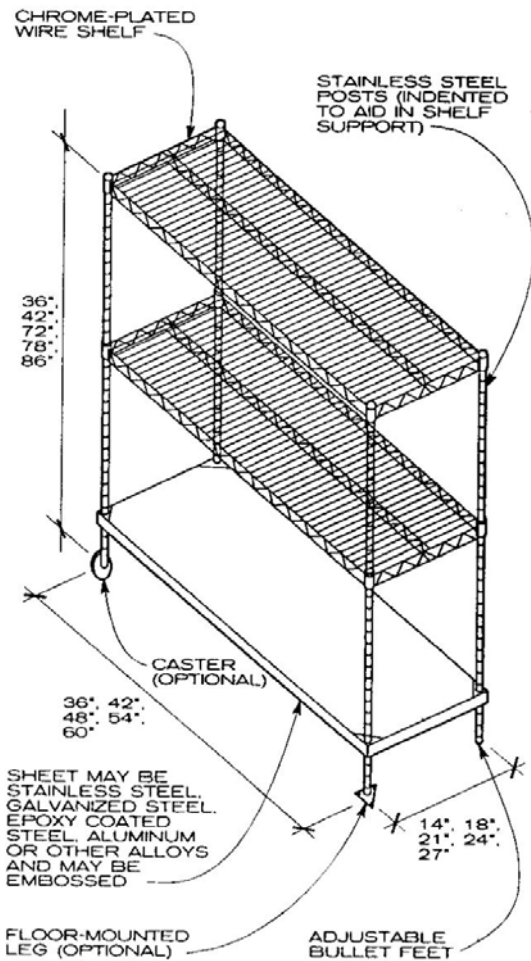
grill station.



lockers.



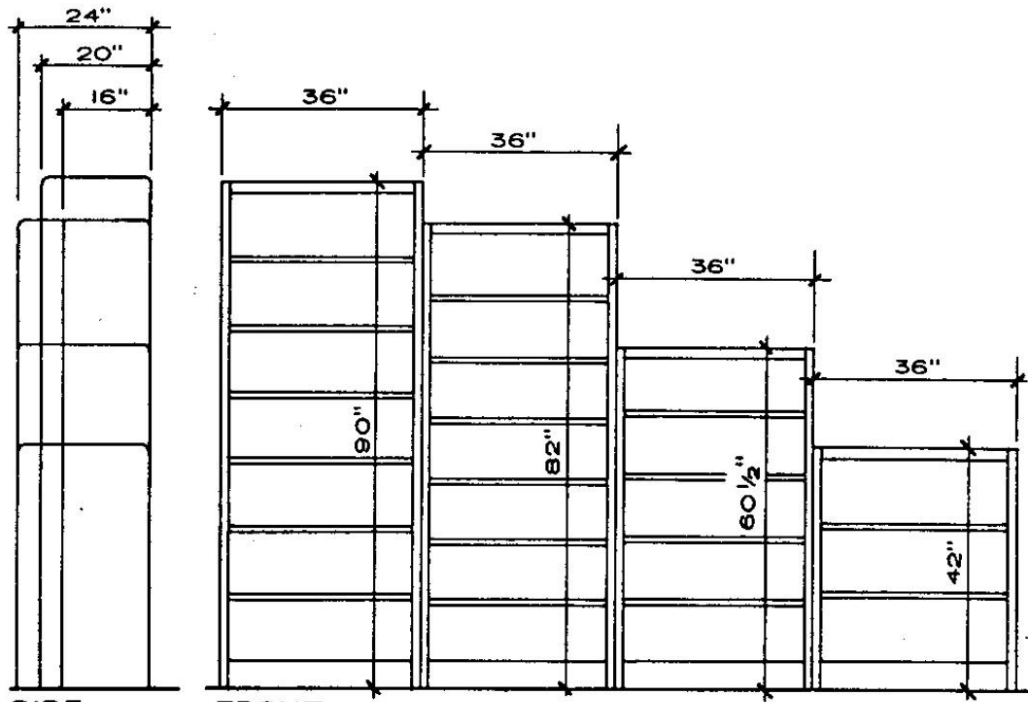
movable shelving.



NOTE

This shelf may be used in dry storage rooms and walk-in refrigerators and freezers. Shelving may be mounted to the wall for stability and can be attached to other modular units.

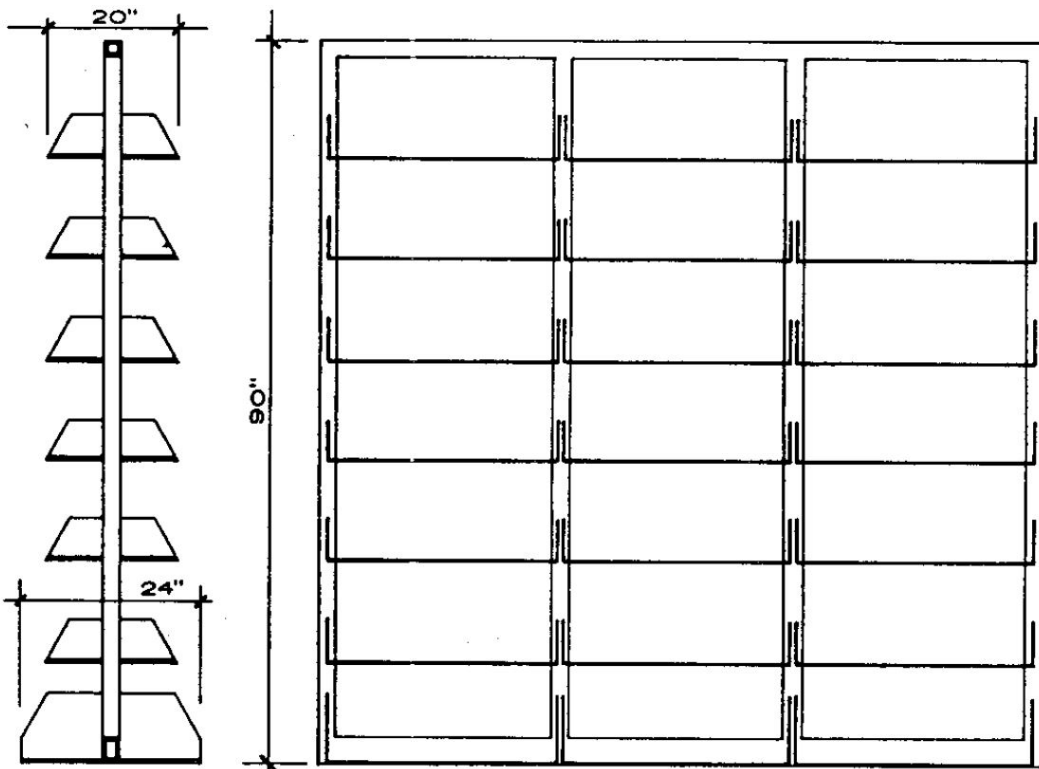
stationary shelving.



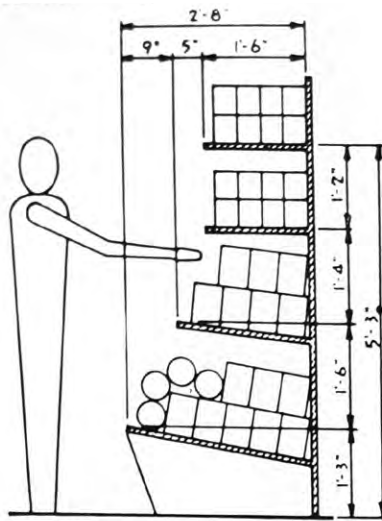
**SIDE
DOUBLE
FACED**

FRONT

SINGLE FACED 8", 10", 12" DEPTH. 90" HEIGHT ONLY 10" DEPTH. DOUBLE FACED 16", 20", 24" DEPTH. 90" HEIGHT ONLY, 20" DEPTH



product display.



SECTION

SUPER-SHELVING

NOTE - SHELVES MAY BE 1 3/16" BOARDS.

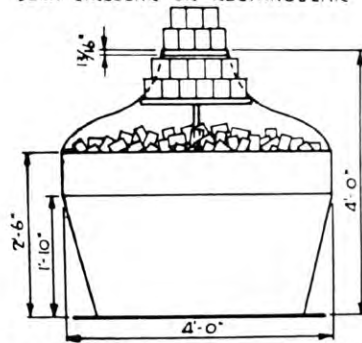
NOTE - PLAN MAY BE SEMI-CIRCULAR OR RECTANGULAR.

Good vision arc (drawing at left) demands that top shelf be not over 5 ft. 3 in. high, permitting an angle of view not more than 15° above the horizontal. Easy-to-reach zone starts at about 15 in. above the floor, the minimum height for the bottom shelf. Face of cans or packages should be as nearly at right angles to eye as practical. Cans for bottom shelves are now designed to be legible lying on their side.

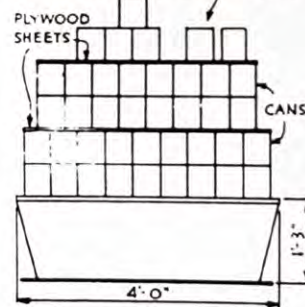
Length of "super island" units varies, 9 ft. being the longest in common use. Distance between shelf supports varies about a norm of 2 ft. 6 in. Supports should be set back to permit an appearance of uninterrupted merchandise.

NOTE - PLAN MAY BE SEMI-CIRCULAR OR RECTANGULAR.

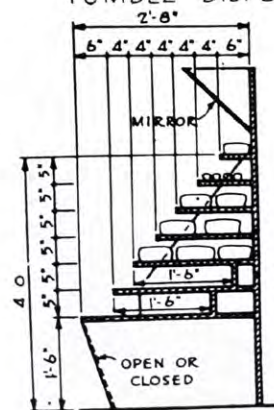
CUSTOMERS ARE NOT APT TO DISTURB A SYMMETRICAL DISPLAY, SO GOODS ARE PLACED AT RANDOM



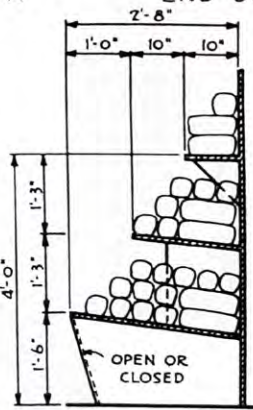
ELEVATION
TUMBLE DISPLAY



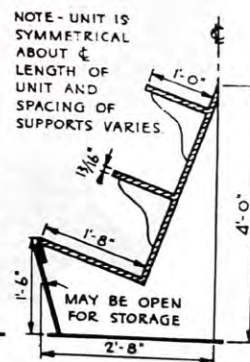
ELEVATION
END DISPLAY



SECTION
CAKE SHELVES
NOTE - SHELVES MAY BE 1/2" THICK PLYWOOD



SECTION
BREAD SHELVES
NOTE - SHELVES MAY BE 1/2" THICK PLYWOOD



HALF-SECTION
SUPER-ISLAND

programmed spaces. descriptions and requirements.

INCLUSIONARY HOUSING

private units.

- Living area- This area is for gathering and relaxing. It will hold lounge furniture and will be configured as the focal point of circulation. The living room should be conducive to general family life and should allow for group activities as well as individual relaxation: entertaining, reading, writing, listening to music, and watching television. The living room is the most impressive and largest of all rooms in the apartment and should be visible from the entry hall.
- Dining area- This area is for gathering and eating. It will hold a dining table and chairs.
- Cooking area- This area is for the preparation of food. It will hold equipment to aid in cooking such as oven, stove, microwave, refrigerator, sink, dishwasher, storage for cooking and dining utensils, etc.
- Cleansing area- This area is for the cleansing the body. It will hold a toilet, shower or bathtub, a sink, and storage for toiletries and towels.
- Sleeping area- This area is for sleeping and relaxing. It will hold a bed and additional furniture to store personal items.
- Closet- This area is for clothing storage. It will hold shelves and additional furniture to store clothing items.
- Food storage- This area is for the storage of food. It will hold shelves for easy access to food items.
- Work area- This area is a quiet space away from the gathering spaces for working from home or reading. This space may function as a play room for residents with children.
- Storage- This area is for miscellaneous storage. It will hold shelves for compact organization of less frequently used items.
- Laundry- This area is for the cleansing and folding of clothes. It will

hold a washer, dryer, storage of cleaning supplies, temporary storage of soiled clothing, and room for folding the clean clothes.

- Entry- This area is for the welcoming of guests into the private unit. It will hold a table for placing frequently used items and small closet for coats and umbrellas.
- Outdoor living- This area is for gathering and relaxing in an unconditioned space. It will hold lounge furniture and possible small dining set.
- Mechanical closet- This is a small area to house the needed mechanical equipment such as HVAC and water heater.

communal areas.

- Lobby- This area is provides a secure entrance for the residents where they may host gatherings and relax in a communal space. It will hold lounge furniture and possible social activity instruments like a pool table.
- Communal work space- This area provides a space where residents can work in a quiet, communal space. It will hold a conference table and chairs, a casting screen, and possible computer workstation with printers.
- Outdoor grill station- This area provides a space where residents can gather and share a meal in a communal setting. It will hold a grill, counter space for food preparation, and sink.
- Outdoor lounge- This area provides a space where residents can gather and relax. It will hold a fire pit and lounge furniture.
- Outdoor workout station / jungle gym- This area will function as a space where residents may workout using the stationary equipment and children may play
- Bicycle Storage and repair- This area allows for the easy storage of bicycles . It will hold a repair station with necessary tools for such and a rack system for organized storage of bikes
- Mail room- This area is for the secure collection of residents' mail and packages. It will hold a mailbox system for the secure transferring of mail and additional storage room for larger packages.

- Services
 - › Restrooms- for residents while they enjoy the communal spaces.
 - › Elevators and elevator room- to house the elevator equipment
 - › Data closet- to house the servers for internet
 - › Electrical room- to house the electrical equipment
 - › Janitor closet- to house the cleaning supplies and equipment
 - › Manager's office- to house the manager and their needed supplies
 - › Storage- to house seasonal items that rotate usage
 - › Trash- area for trash collection system
 - › HVAC room- mechanical room for central HVAC

- General product selling floor- This is the main area of the market where customers interact with products and employees. It should be designed with special attention paid to customers' convenience to items and circulation. It will hold all items available for purchasing and their respective display equipment (freezers, refrigerators, cold islands, shelving, etc.)
- Various temperature stock rooms- These rooms will house the surplus grocery stock until it is time to restock the general product selling floor with more items
 - › Freezer stock room for frozen goods
 - › Refrigerated stock room for cold goods and produce
 - › Dry stock room for shelf stable goods
- Checkout area for product purchasing- This area will be for the purchasing of goods once the customer has finished collecting them from the general product selling floor. It should be placed near the exit for convenience and security. It should be positioned in such a way to the selling floor that a waiting line can easily form and work efficiently. This area will hold checkout desks with cash registers and possible conveyor belt product movement equipment.
- Manager's office- This area will be dedicated for the manager/owner to conduct business transactions or hold formal meetings. It will house the manager's office equipment such as telephone, computer, printer, fax, etc. as well as allow for the storage of filing equipment.
- Employee break area- This area will be for the convenience of the employees. It will house the employees' lockers for personal belonging storage and lounge furniture for group meetings and general break relaxation.
- Loading dock-This will be the area that grocery items are delivered to the market. It should encompass adequate space to easily move stock from a delivery truck into its respective stock room.

programmed spaces. estimated net square footage charts.

affordable studio units.

Programmed Space	NSF/unit
Living area	150
Dining area	20
Kitchen	80
Bathroom	65
Sleeping area	100
Closet	25
Pantry	-
Office	-
Storage	15
Laundry	20
Foyer	-
Balcony	25
Mechanical closet	25
Total NSF	525 sq. ft.

market rate studio units.

Programmed Space	NSF/unit
Living area	225
Dining area	40
Kitchen	100
Bathroom	100
Sleeping area	125
Closet	50
Pantry	15
Office	-
Storage	15
Laundry	40
Foyer	25
Balcony	25
Mechanical closet	25
Total NSF	785 sq. ft.

affordable one bedroom units.

Programmed Space	NSF/unit
Living area	200
Dining area	20
Kitchen	80
Bathroom	65
Primary bedroom	150
Closet	25
Pantry	15
Office	100
Storage	15
Laundry	20
Foyer	-
Balcony	25
Mechanical closet	25
Total NSF	740 sq. ft.

market rate one bedroom units.

Programmed Space	NSF/unit
Living area	250
Dining area	40
Kitchen	100
Bathroom	100
Primary bedroom	180
Closet	50
Pantry	15
Office	150
Storage	15
Laundry	40
Foyer	25
Balcony	50
Mechanical closet	25
Total NSF	1040 sq. ft.

affordable two bedroom units.

Programmed Space	NSF/unit
Living area	250
Dining area	50
Kitchen	80
Bathroom	100
Primary bedroom	150
Secondary bedroom	125
Closet	50
Pantry	15
Office	100
Storage	30
Laundry	20
Foyer	25
Balcony	50
Mechanical closet	25
Total NSF	1070 sq. ft.

market rate two bedroom units.

Programmed Space	NSF/unit
Living area	300
Dining area	100
Kitchen	100
Bathroom	125
Primary bedroom	180
Secondary bedroom	150
Closet	50
Pantry	15
Office	150
Storage	30
Laundry	40
Foyer	40
Balcony	75
Mechanical closet	25
Total NSF	1380 sq. ft.

inclusionary housing totals.

Apartment Type	Units	NSF/unit
Affordable Studio	6	525
Market Rate Studio	14	785
Affordable One Bedroom	6	740
Market Rate One Bedroom	14	1040
Affordable Two Bedroom	6	1070
Market Rate Two Bedroom	14	1380
Total Units	60	Total NSF
		58880 sq. ft.

communal areas.

Programmed Space	NSF/unit
Lobby	1000
Conference Room	150
Grill Station	150
Outdoor Lounge	300
Gym	750
Outdoor Playspace	500
Bike Storage	400
Mailroom	100
Restrooms	65
Data + Electrical room	40
Janitor Closet	200
Manager Office	250
Storage	250
HVAC room	200
Total NSF	4355 sq. ft.

grocery market.

Programmed Space	NSF/unit
General product floor	4000
Freezer stock room	400
Refrigerator stock room	600
Dry stock room	600
Checkout area	400
Break area	250
Manager Office	250
Loading dock	100
Total NSF	6600 sq. ft.

total net assignable square footages.

Programmed Function	NSF/program
Private Dwelling Units	58880
Communal Living	4355
Residential Total	63235 sq. ft.
Grocery Market Total	6600 sq. ft.
Total Net Assignable Area:	69835 sq. ft.

gross area calculations.

$$\text{Building Gross Area} = \frac{\text{Net Assignable Area}}{\text{Building Efficiency}}$$

INCLUSIONARY HOUSING

net assignable area - 63235 sq. ft. // building efficiency - 65%

$$\text{Residential Gross Area} = \frac{63235 \text{ sq. ft.}}{.65 \text{ efficiency}}$$

Residential Gross Area = 97285 sq. ft.

GROCERY MARKET

net assignable area - 6600 sq. ft. // building efficiency - 75%

$$\text{Grocery Market Gross Area} = \frac{6600 \text{ sq. ft.}}{.75 \text{ efficiency}}$$

Grocery Market Gross Area = 8800 sq. ft.

Total Gross Area = 106085 sq. ft.

programmed spaces. actual designed square footages.

AFFORDABLE VS. MARKET RATE

It became clear early on that if the units varied in size based on rent price, it would create a disconnect between the tenants. Each unit was instead designed as efficiently as possible, creating tiny spaces without sacrificing comfort. A large variety of unit types (studio-three bed) were created to allow for a diverse range of age and family structure.

studio units.

Total NSF 468 sq. ft.

3 units per floor
18 total units

one bedroom units.

Total NSF 650 sq. ft.

3 units per floor
18 total units

two bedroom units.

Total NSF 838 sq. ft.

2 units per floor
12 total units

three bedroom units.

Total NSF 1025 sq. ft.

2 units per floor
12 total units

total units.

Total NSF 42,480 sq. ft.

10 units per floor
60 total units

inclusionary housing.

Private Dwelling Units	42480	sq. ft.
Residential Lobby	1184	sq. ft.
Residential Gym	1630	sq. ft.
Total Net Assignable Area:	45294	sq. ft.

*all communal spaces are unconditioned and therefore not counted

grocery market.

Product Floor + Storage	9799	sq. ft.
Mezzanine	1340	sq. ft.
Total Net Assignable Area:	11139	sq. ft.

total net square footages.

Inclusionary Housing	45294	sq. ft.
Grocery Market	11139	sq. ft.
Total Net Assignable Area:	56433	sq. ft.

total gross square footages.

Inclusionary Housing	69683	sq. ft.
Grocery Market	14852	sq. ft.
Total Gross Area:	84535	sq. ft.

C O S T E S T I M A T E

CONSTRUCTION COSTS

building- 106085 gross square feet @ \$245 per sq. ft.	\$25,990,825
fixed equipment- @ 12% of building	\$3,118,899
site development @ 8% of building	\$2,079,266
total	\$31,188,990

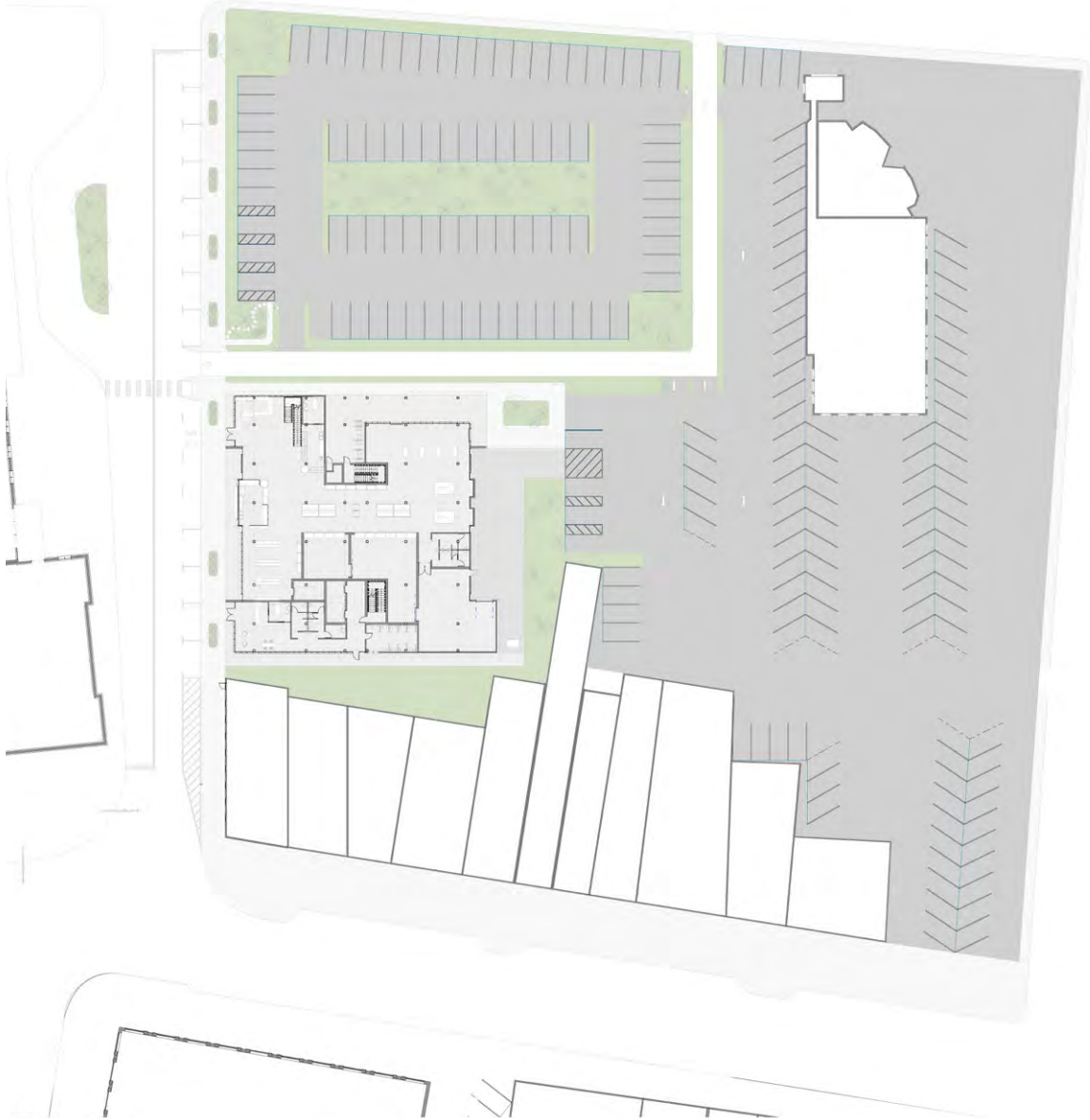
EXTERNAL COSTS

site acquisition	\$253,240
movable equipment- @ 5% of building	\$1,299,541
professional fees- @ 7% of construction total	\$2,183,229
contingencies- @ 12% of construction total	\$3,742,678
administration- @ 1% of construction total	\$311,889
total	\$7,790,577

TOTAL BUDGET

construction + external costs	\$38,979,567
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site plan.



FINAL DRAWINGS

PARKING

Currently, this vacant lot of land is flanked with two large public parking lots. These serve those who wish to use the services of union station, and since my goal is to promote public transit, these lots were kept but reworked to allow for more parking, added green space, and water displacement by making them permeable. The entrances to both were rerouted to promote security and clarity: a one lane street now creates an L that separates the residential lot from the public grocery and transit lot.

ENTRY POINTS

The pedestrian flow of traffic from these separate lots created a complex situation of where to locate entry points. From the public parking, I created a path of direct access to union station, and sited a convenient entry into the market on the north east corner.

Consolidated entry points on a grocery store is obviously ideal for security purposes, but to not allow street access from Mill street would be a disservice to the city. Additionally, my hope is that this project ushers in new life to the city so that one day these parking lots will be converted into additional buildings. This would therefore leave the back entry less accommodating and refocusing the main entry to the street. In order to promote security of merchandise, the area of the market around the street entrance is geared to items customers can consume in-store and each is accompanied by a register. A glass facade mezzanine floats above this space to provide an area where customers can sit and enjoy their food.

The residents on the other hand enter by walking along Mill to an entrance that is a mirror image of that of the market, working in conjunction to create the western facade.

ground floor plan, level 1.



ground floor plan, level 2.



typical residential floor plan.



Above the ground level condition sits six floors of inclusionary housing units. Though my role as the architect has only a marginal effect on the affordability of these units, I focused my attention to creating simple, but beautiful spaces that harbor community and promote diversity. To allow for a range of age groups and family structure, the units range from studios to three bedroom layouts.

These plans were created with efficiency at the forefront of my mind, but I also strived to bring as much luxury to affordability as possible. The open floor plan with a slatted divider wall allows the space to feel larger while still defining each function, while the large operable windows are boxed by a window seat to provide built in furniture.

But the main reason to establish this residential complex is not to just furnish people with a small, pretty box to live, but rather to create a place that invokes human connection. I arranged the units around a central open air courtyard to promote the interaction of neighbors. The courtyard's floor is designed to cultivate communal gathering. Additionally, each floor hosts a communal balcony overlooking downtown. These gathering spaces are constantly promoted by being integrated with the building's circulation. The exterior yet protected circulation that brings residents to their unit will hopefully incentivize city living to those with more rural backgrounds. Furthermore, the inlets created by the unit plans allow for a semiprivate porch in front of each unit's entry. Through the culmination of these designed spaces, my hope is that those who carry the workload of revitalizing a city, those who have previously been priced out of areas they helped rebuild, may be welcomed into a community that promotes opportunity and blurs the segregational lines of age and income.

studio unit.



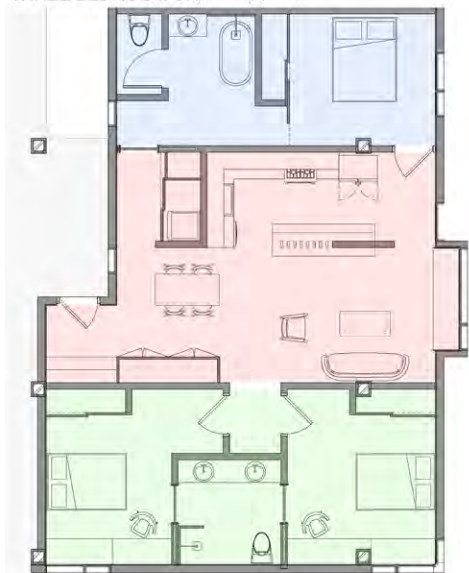
one bedroom unit.



two bedroom unit.



three bedroom unit.

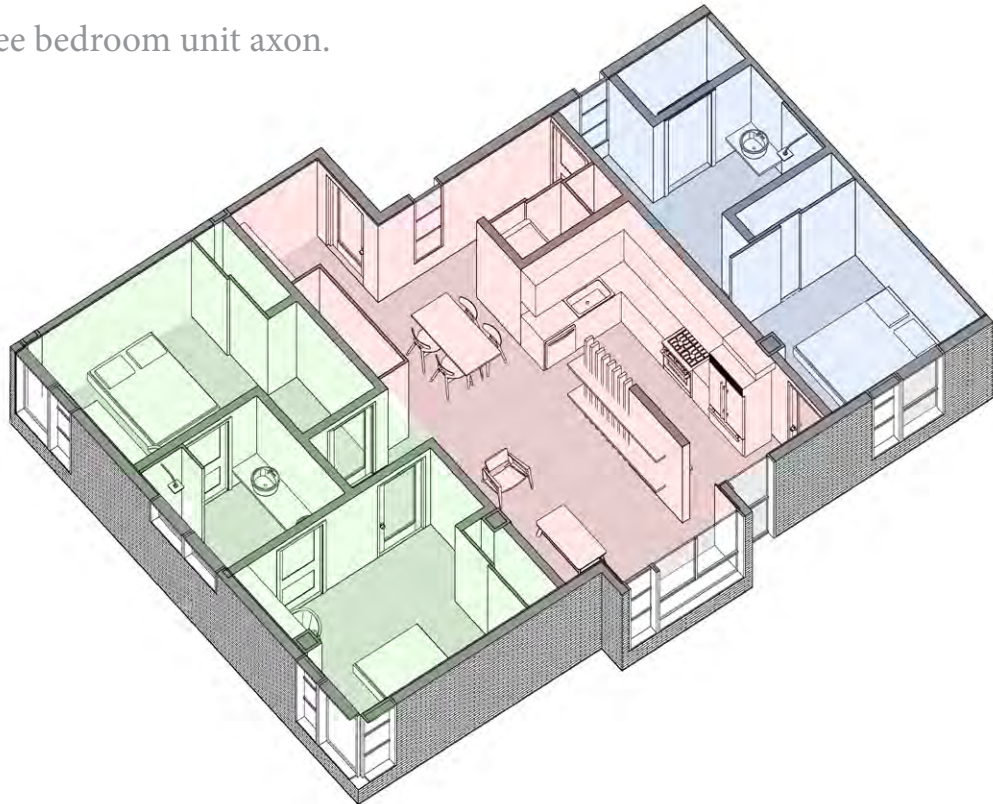


UNIT LAYOUT

Each unit is constructed from three standard building blocks:

- RED: the living and dining section that accompanies every unit type
- BLUE: the one bed / one bath section that accompanies the one + three bedroom units
- GREEN: the two bed / conjoined bath section that accompanies the two + three bedroom units

three bedroom unit axon.



unit interior rendering.



grocery market mezzanine rendering.



grocery market ground floor rendering.



west elevation.



north elevation.



east elevation.



south elevation.



western facade rendering.



north western corner rendering.



eastern facade rendering.



south western corner rendering.



east to west building section.

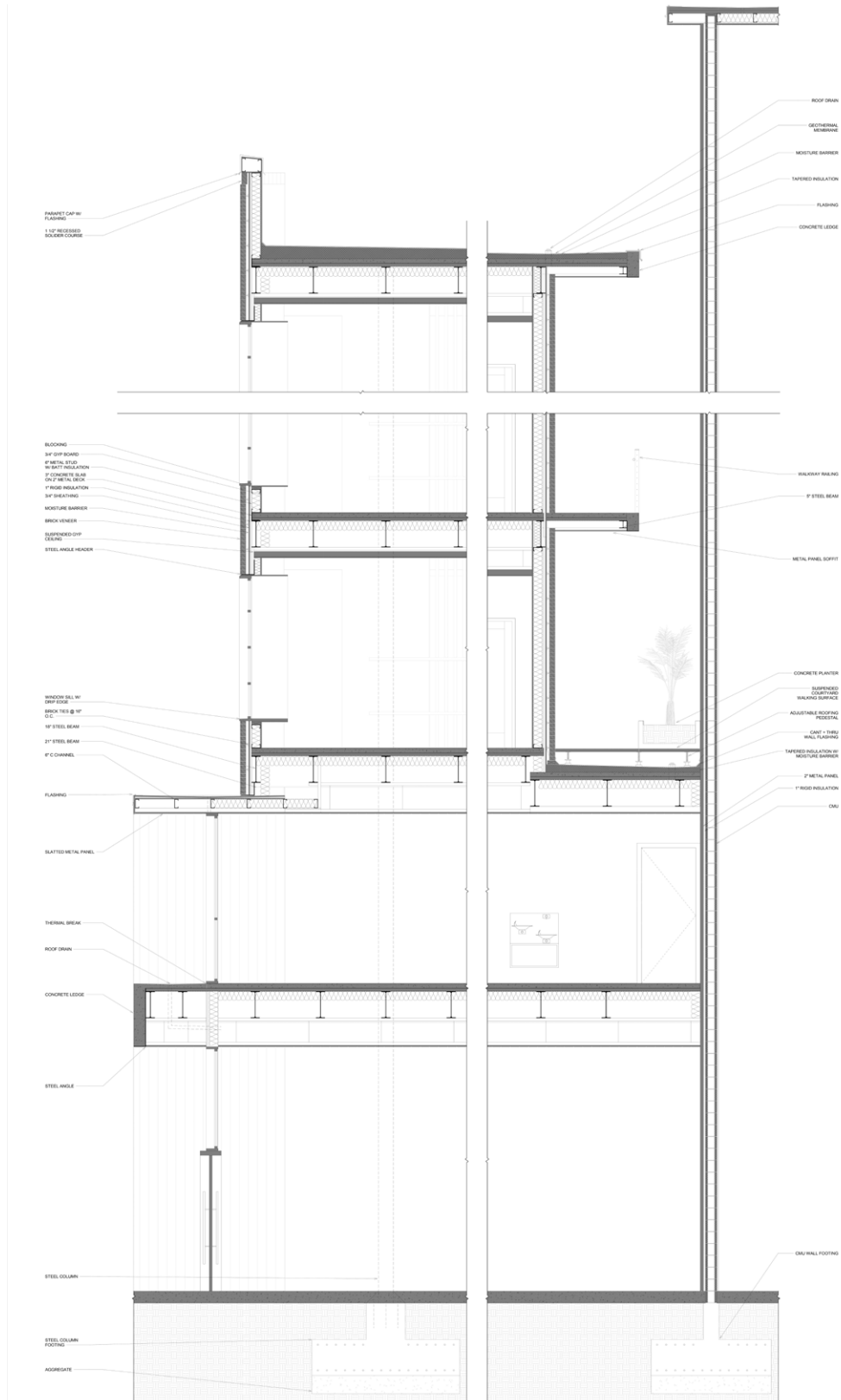


axon rendering.

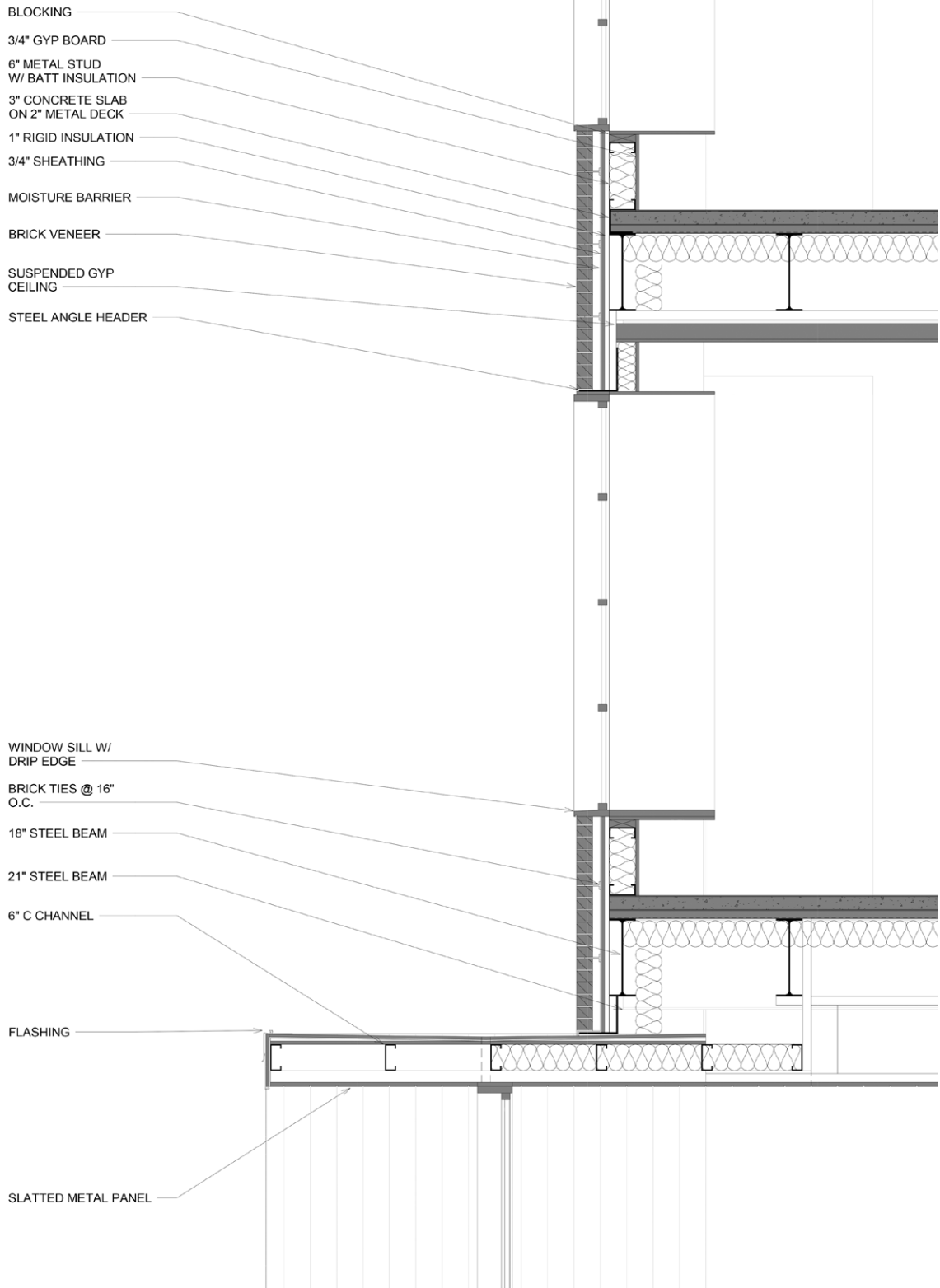


100 final drawings

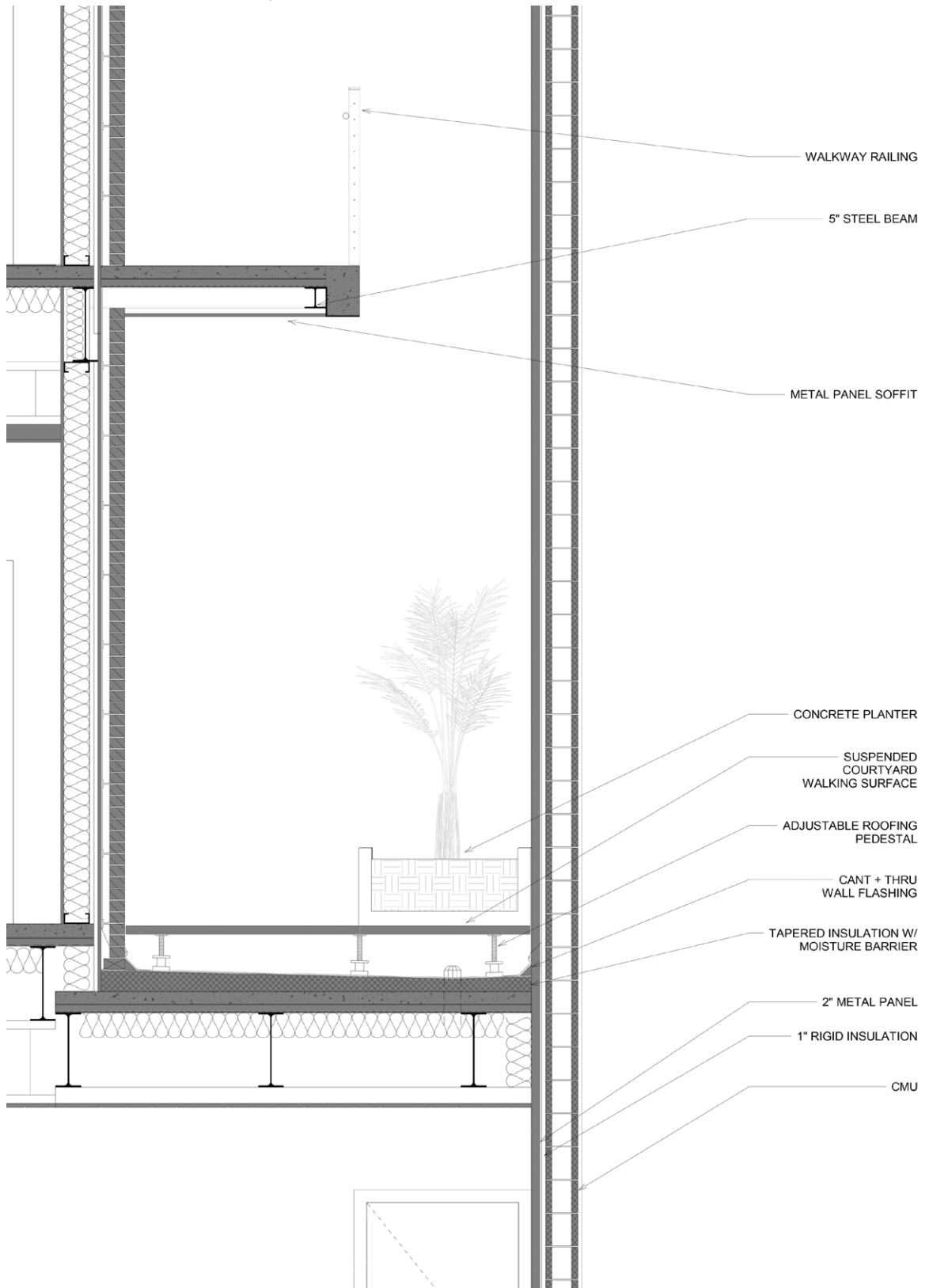
wall section.



detail @ ground floor entrance overhang.



detail @ interior courtyard floor.



rendering from exterior circulation.



rendering from interior courtyard floor.



rendering from communal balcony overlooking downtown.



rendering from interior courtyard floor.



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