

Spring 5-4-2017

# Fluidization of the Office: Relationship of Place to Productivity

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# Fluidization of the Office:

*Relationship of place to productivity*

This Final Project is presented to  
The Faculty of the School of Architecture

by

Jacob Alexander Matherly

In partial fulfillment of the requirements for the Degree of

Bachelor of Architecture

Kennesaw State University, Marietta, Georgia

Spring Semester 2017

# Thesis Collaborative 2017

Request for Approval of Project Book

Department of Architecture  
School of Architecture and Construction Management  
Kennesaw State University

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Thesis Project Title: Fluidization of the Office: Relationship of place to productivity

Thesis Summary: The influence of technology has vastly changed the way the office operates. With ideals such as mobility and flexibility on the rise, the office requires more attention in the way it is designed and laid out. By examining existing models of office development as well as research into how employees can be more productive in their office setting, a new adaptation of the office must be designed in order to accommodate these changes.

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The author would like to acknowledge the following people for their assistance:

Timothy Frank

Edwin Akins II

Dedicated to Wayne & Sherry Matherly

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## Chapter 1: *Design Theorem*



Fig. 1.01

## The Opposition: *An Outdated Form of Design*

The atmosphere of the workplace is an ever-changing organism, driven by rapidly changing technological advancements that results in a changing sense of how people work and create. The existing tendencies of the office embody an outdated mode of operation that is representative of the typology today. With the ideals of collaboration and mobility on the rise, the current model of the commercial development is no longer supportive nor relevant.

The effect of technology on the office layout has brought to light the fact that less occupancy and interior load are required on the building and thus, the existing spatial configuration requires a change. The use and inhabitation of the space are responding to change while the design of the office is remaining the same.

The hypothesis of this thesis will seek to examine the relationship of place to productivity within the office. By studying the ideals of solitude and communal space, as well as the performance of a building, a new hybrid form of the office will be developed that allows for the maximization of where the market is headed while maintaining a high standard of performance for the building and the people who work within it.





Fig. 1.02

## The Change:

*The evolution of the modern workplace*

*Woodhouse Workspace Planners*

It is undeniable that the workplace is changing, the rapid involvement of technology and the increase of mobility in the office has proven that. Recent industry figures have brought to light the fact that this continuing increase in technology will continue to evolve the way in which we use our offices. To better understand how the office environment has changed over the past thirty years, one must look back and understand where the typology began and where it is headed.

Since the 1980's, technology has played a vital role in how we use our offices and the way in which the culture of the office has changed. In the early years of technology companies such as IBM, uniformity was valued as the key factor in a successful company. Each person had an identical workstation to call home which was viewed as successful from a facilities point of view but made employees feel "like a number" and not vital to the workforce.

In recent years, the support of uniformity has began to falter as technology continues to influence the design and use of the office space. This rapid growth has enabled a sense of freedom in the workforce as rows of lifeless cubicles and florescent lighting are starting to disappear. This has allowed for a trend to start forming that creates a focus on a valued workplace for employees to collaborate and share ideas in.

Work is no longer done in a single place, it is done on mobile devices while on route to work or in a coffee shop. With 14% of the current working population working from home, the focus has now arrived to the question of why do we want people to come to the office at all? One of the rising answers to this question is the influence of work culture to increase the revenue of the office. Company culture is difficult to measure as it is intangible but it is easy to recognize once you step foot into the office.



59%

less office space per employee than 10 years ago.



5 hrs

working from home.



6 hrs

employees spend an average of 2 hours working in public places and 4 hours at an external location.



50%

of employees check work email or take business calls after business hours.



78%

of employees working in highly regulated industries report the highest usage of free file-sharing services.

*The user's work world is becoming location agnostic*

*..... the only place you'll find people working 9 to 5 is in a Dolly Parton song.*

Fig. 1.03

“Happy employees lead to better customer satisfaction, lower staff turnover, fewer sick days and easier recruitment, which all lead to greater growth and profitability. In short improving company culture lies with making employees happy.

- Henry Stewart  
Woodhouse Client

A recent survey conducted by JLL, states that “during a working day the average white collared employee spend most of their time on e-mails, phone calls and meetings”, all tasks that can be associated with the office of the past or without an office entirely. Employees are no longer tied to their desks which in turn, allows their work environment to become more flexible. Less office space is allocated to desks or meeting rooms which in turn saves the company both space and money.

Open office plans have been consistently used since the 1960's because of their ability to promote collaboration. However they are known to create unwelcomed distractions from overly-social people which in turn, creates a negative impact on others who need privacy or a quiet space to carry out their work.

Employees desire social interaction as the dullness of routine work tends to lead to declines in productivity. This social desire stems from the use of their time outside the work environment. By studying the trend of this sub-culture, we can begin to bring these concepts into the office environment in order to promote a more social and productive environment for employees.

Based on this analysis and its application to the modern office today, we need workspaces that allow for a wide variety of different activities. Allocations of space such as one-man areas where privacy is of the utmost importance to larger rooms that adjust for staff training or collaborative work. This not only creates an environment where people want to meet and collaborate together, but one that is fit for its general purpose.



Fig. 1.05

## The Technology:

*The evolution of the modern workplace*

*iOffice*

Technology has radically restructured the average workplace in America over the past decades. The office atmosphere of 30 years ago is longer a practical means and has been taken over by rapid technological advancements. This heightened sense of technology has allowed employees to interact with a global market and even take work out on the road with them. As a result of this technology, 3 major roles have been established that are modifying the modern workplace today:

**Efficiency and Increased Productivity:** The modernization of the workplace has witnessed a complete shift in how employees spend their time. Time management has been improved and the efforts put into the daily routine of work has been eased. As a result, employee output and effort has been improved, allowing for more attention dedicated to precision and creativity. The level of expectation of clients and co-workers has also changed as a result of this technological shift, keeping everyone connected on a constant basis and allowing for results to come much faster than ever before.

**Increased Collaboration:** Technology has increased our level of communications to heights we never imagined were possible. Employers can reach any of their employees at any time, anywhere. This has brought about an increase in collaboration that has lead the way to an enhanced level of flexibility in communication and as a result, co-workers can facilitate a continued partnership no matter where they are in the world. This has allowed for team work to become much more engaged and brought to a whole new level.

**Improved Cost Management:** The underlying goal of any business is to earn a profit and with the introduction of technology into the workplace setting, productivity in finance has soared. Companies are more fiscally healthy as a result of the innovation of technology and the role it has played in the office. This technology has allowed employees to optimize their time, thus less time is wasted and more time is available to hone in on profitable tasks at hand. Technology has allowed the workplace to become a more productive area and in turn, has changed the office environment for the better.



Fig. 1.06

## The Mobility:

*How mobile employees are changing the workplace*

*Herman Miller*

There is new type of worker that is emerging in the working market of businesses today. The term "mobile" worker is one that is gaining popularity but most people don't know how to identify or quantify this new class of employee. Author Erica Driver offers a definition of a mobile worker as anyone who spends at least 10 hours per week away from his or her main workplace and the IDC, International Data Corporation, categorizes these workers into three identifiable subgroups:

### The Office-based mobile worker:

- The office-based mobile worker is someone who spends most of his or her time in a company-provided office, but who also sometimes works at home or in a third-party place.

### Non-office-based mobile worker:

- This worker is in the field, such as a salesperson, or working between buildings on a corporate campus, such as an IT professional. They are more often at someone else's office than at their own.

### Home-based mobile worker:

- The former "telecommuter," this employee spends most of the work week in a home office, but comes into the corporate workplace for meetings or collaborative work sessions.



Fig. 1.07

“Business is on a steady, irreversible march into a highly networked world in which traditional boundaries of time and space are eroded, and work is done in non-traditional environments and across geographic borders and time zones.”

- Bomba and Taylor  
*“Enabling Work in a Networked World”*

Due to a changing attitude of how people work and create and where this work can be accomplished at, millions of Americans today find themselves “freed” and falling within the definition of the mobile worker. With their work readily available in their hand, workers are spreading out across an average of 3.4 different places where they will go to get their work done and these “places” are what we call third places. Whether that be to the park, a coffeehouse the local library or the beach, it is all up to the individual doing the work.

As a result of the innovation of the laptop and the cellphone, workers now have a level of freedom that 15 years ago was unimaginable. They can work anywhere, anytime, becoming what is known as a “rootless army.” Many of these workers are markedly different from the original, the telecommuter, although various categories of employees who are based at home do comprise a piece of this population.

But another portion is modeled on the company sales force. Salespeople are very familiar with a no-boundaries, mobile work style. They were its original innovators, working from place to place out of the backseat of their car and using their hotel room as their central location as they worked from town to town for the business they were involved with. Today, however, it is knowledge workers who represent the most rapidly growing portion of mobile workers.

These are employees who feel least productive in a typical 9-5 job and more often than not, get more work done at a coffee shop after work hours. They tend to value autonomy and that's the feature of mobile work that inspires them the most. They want to be out of the office to find stimuli, make connections and meet new people while still having the need of the retreat to a home base whether that be their own or the corporate office.



Fig. 1.09

## The Landscape:

*Evolution of work patterns based off of changing conditions*

*The Workplace Intelligence Unit*

As society has changed in a multitude of ways, from the rise of individualism to the declining birth rate, there has been an unavoidable impact on the way we work. In past years, work has been more process oriented and clearly defined by delineations. These delineations, such as job titles, clocking-off times, and office walls, have since been eroded and their boundaries blurred. The most common trend taken from these observations is the sense of "work-life" balance, as most employees don't attribute working tasks to working hours.

The fact that fewer jobs are solely office based also erodes the boundary between working and living as people no longer expect to completely separate the two. Organizational structures are less hierarchical and job titles provide less strict definitions of function and status. Today, employees are expected to accomplish more activities and swap between them more regularly than in the past. As a result of this drive for innovation, working styles have become more collaborative in their nature.

As a result, two changes can be seen that come about because of this new age. The first result is a changing complexity linked to working life. Workers must now be multifaceted, dealing with many roles and people, and the blurring of work-life boundaries can be a result of this advancement. Because of this, work organizations are taking some responsibility for helping employees manage this complexity so their individual wellbeing and productivity isn't impacted as a result.

The second result is a more social way of working within a business. All work is social because innovation is the heart of knowledge economy and is as a result, social. The design community is responding to these evolving changes in order to begin to design actual interactions between people. Spaces can be specifically designed to enhance judgment, creativity and build social networks. These workplaces are what are forming the "new office landscape" and are based upon different principles and goals than the workplace 20 years ago.



Fig. 1.10

"Rather than just hoping that a company can "capture the sparks resulting from the chance friction of different disciplines and talents rubbing against one another" the priority now is to actually "design interactions."

- Duffy & Goeman  
*"The New Office Landscape"*

Every company is different in its function and as a result, there is no one uniform design for a workspace. However, given the changes in society and the resulting change in workers' needs, there can be a set of principles that acts as guidelines for designing the new office landscape.

#### Variety and Choice:

Workplaces should adhere to the desire for choice and control if they are to avoid creating a frustrated and constrained workforce. This can be achieved by providing multiple locations for work (both within and outside the office), a mix of private and social work areas, and employee control over elements such as lighting and work-settings.

#### Mixed-use and Multipurpose:

Space or furniture should serve more than one purpose. Circulation space between dedicated work areas can be used for informal interactions, or informal seating areas may be used for business meetings or having a break. Again, the result can be to remove traditional delineations and replace them with new kinds of implied or virtual boundaries which are more natural, and less dictative to the workforce.

#### Reallocation of Space:

Workplaces should consider a shift from private to public space allocation. Traditionally, workplace assets have not been "publicly" shared but have been reserved for a select group of employees (for example, the directors having the outermost offices with natural light). Breaking down the private barriers, and sharing the workplace assets (light, view, meeting rooms etc) can increase density and prompt creativity and connection.



Fig. 1.11

#### Quality of Work/Life:

Companies should desire to make workplaces and practices as natural and desirable as residential space and activities. This may involve a mixture of home and office working, but the challenge is to make employees actually want to spend time in the office. The appeal will come not only from creating an aesthetically pleasing and comfortable environment, but also from the social interactions that the workplace supports.

#### Sustainability:

The new office landscape is built upon sustainable principles. Not only should the office be architecturally sustainable but the workplace should be designed to promote environmentally friendly working practices amongst employees.

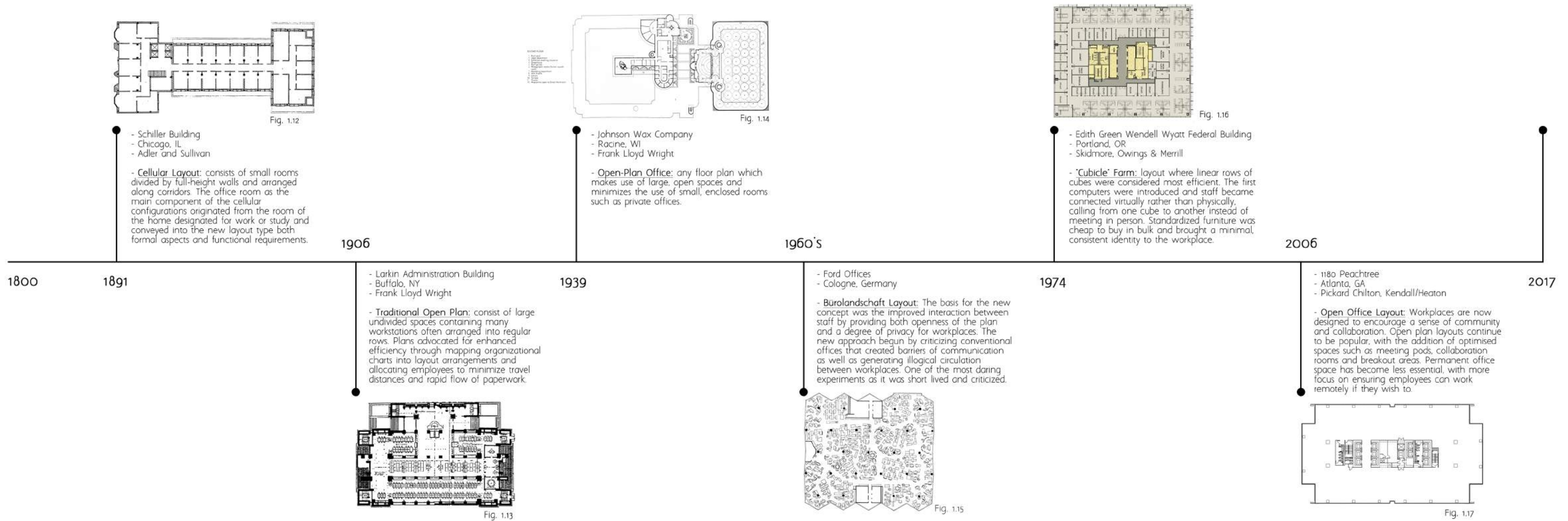
#### Residual Social Capital:

An office must give employees the permission and facilities to make the office a hub for both their work and social activities, rather than fight to maintain the distinction between the two. Providing on-site gym facilities is a prime example of how to provide residual social capital.

#### Increased Density:

However much the working environment changes, financial constraints on space utilization will always exist. By using team and public spaces more effectively and installing better (but smaller) individual workstations, occupation density can be increased whilst improving workforce satisfaction and productivity.





# Office Design:

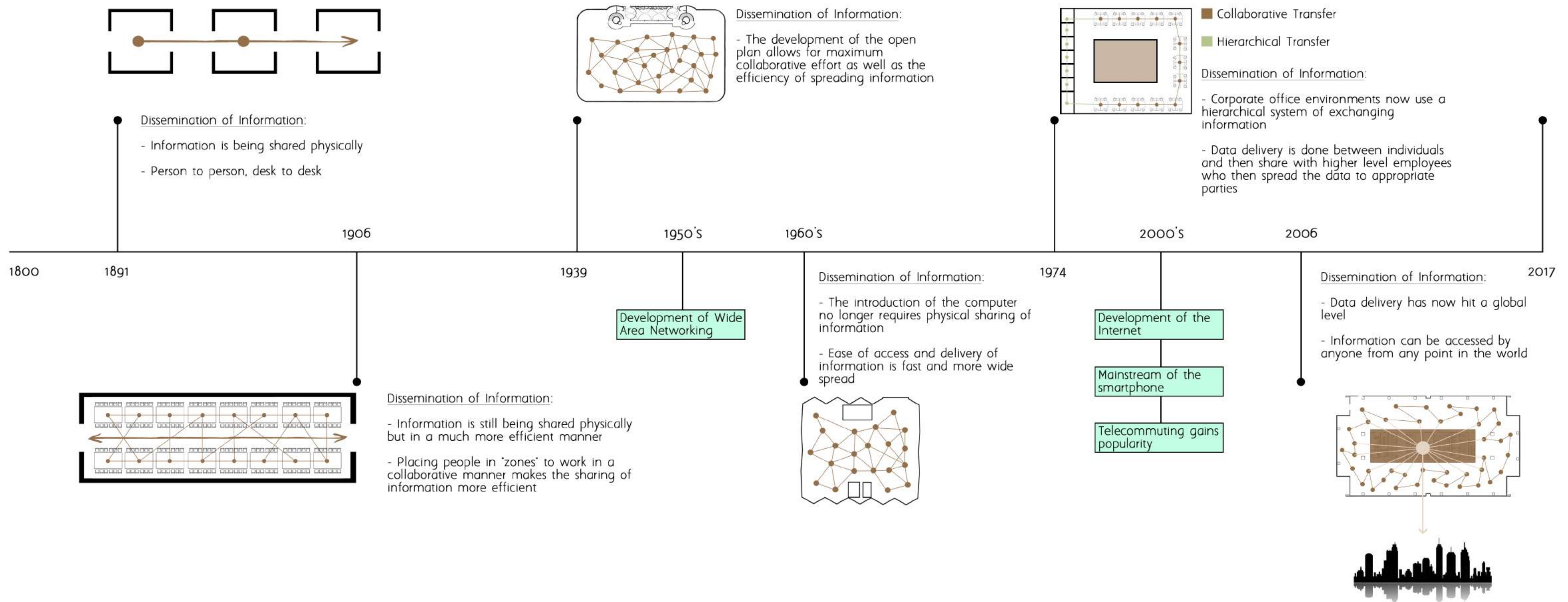
*History of the development of the office*

There is no denying that the office has drastically changed in its form throughout the years. Due to the changes in the way people work as well as the influence of technology, the overall form of the office has taken quite a new shape. From the traditional cell design that was instated in the 1800's to the open plan that exists today, many things have evolved and taken new forms.

The traditional office design no longer supports the collaborative efforts and mobility in which offices are currently thriving under. This change coming about by the massive influence that technology has played in the role of the office. Data and information are no longer being distributed person to person, its being transferred from device to device.

As this change in technology has vastly altered the way in which offices operate, it does not dissolve the office typology completely. Society will always need a reference to cling to when it associates something with a place, and therefore the office typology will never cease to exist. It can however alter the perception of how it exists.

The standard typology of office design no longer has to be associated with the typical skyscraper in the downtown financial district but can now be suited to the best manner in which it can operate. The influence of technology and the mobility that comes with that will now be the driving force in how people work and create.



# Office Design:

*Dispersion of Use and Data Delivery*

## Dissemination of Information:

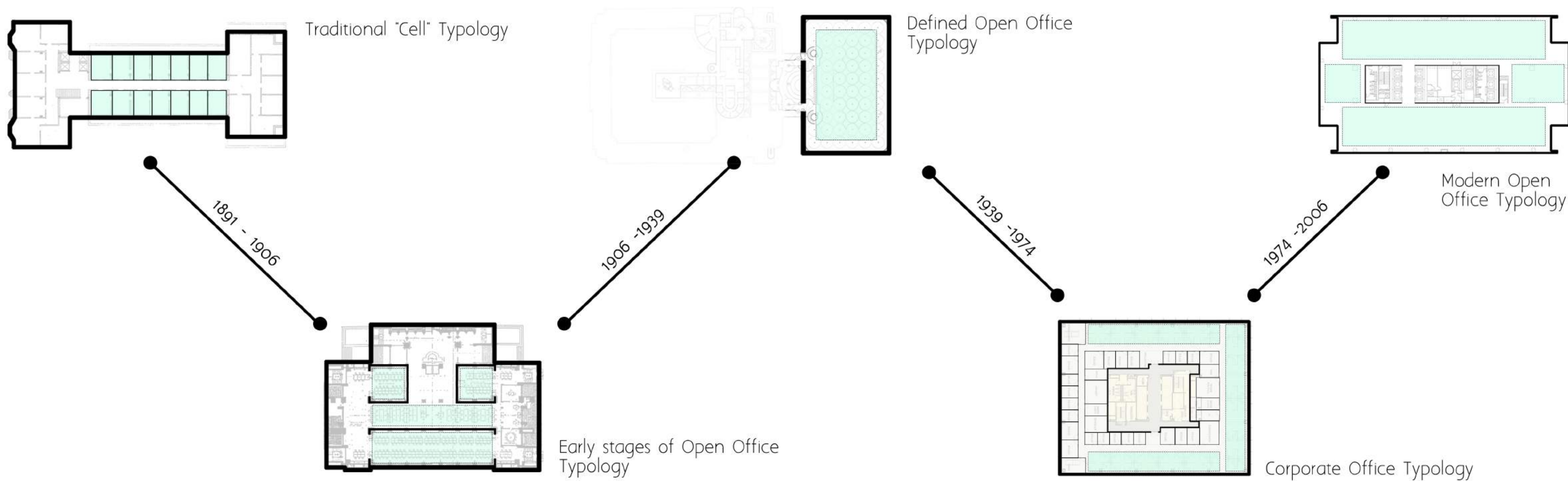
The exchange of information between coworkers has always been one of the driving forces behind how offices work and thrive. The easier data is to access and use, the more efficient the flow of work can be. Over the years, the development of the office has been linked to the way in which data is received and processed. The first offices were denied the technology we possess today and therefore, relied on the physical exchange of information from person to person. However with the influence of technology, that system has changed drastically.

Information can now be accessed by anyone at anytime from any location and this advancement has drastically altered the way in which people work as well as the location in which it occurs.

## Spatial Requirements:

Over the years, research has shown that way in which people work is highly dependent on the environment in which it occurs. Traditional offices were styled after the hive concept wherein every employee was given their own space to work in. However as time progressed offices began to realize that work was more efficient when collaboration was involved and as the technology became available, the typology began to alter to accommodate these changes.

Technology and spatial requirements go hand in hand in this case. The more efficient the technology can become, the better an office can operate and thrive. With the mobility that the current technology can provide, an "office" can now become any place it wants to be.



## Office Design: *Transformation of office space*

In relation to spatial qualities of the office, not much theoretically has changed but the physical nature of the office has gone through its fluxes. The traditional office was design in the cell format that gave every individual their own office space to work in. For the time that was an appropriate design but as time progressed and offices began to expand, that design was no longer the best fit.

Open office plans became popular starting in the early 1900's with the designs of Frank Lloyd Wright. These spaces were designed in order to accommodate more employees in a larger, more open style design while promoting the ideals of collaboration as well. As time progressed, the open plan took root and became the ideal form for creating office space.

Over th last decade, the open office has come under scrutiny as its founding principles of flexibility and collaboration are no longer supporting the type of work that people are doing. Employees complain that too much collaboration and open spaces promote distraction and result in less efficient work flow.

The ideal of the open plan is a well constructed idea at its core but requires more strategy and planning when it comes to the needs of multiple people using it. It is the support of solitude while maintaining the need for collaborative space that must now become the new goal of design

## Office Organizational Types

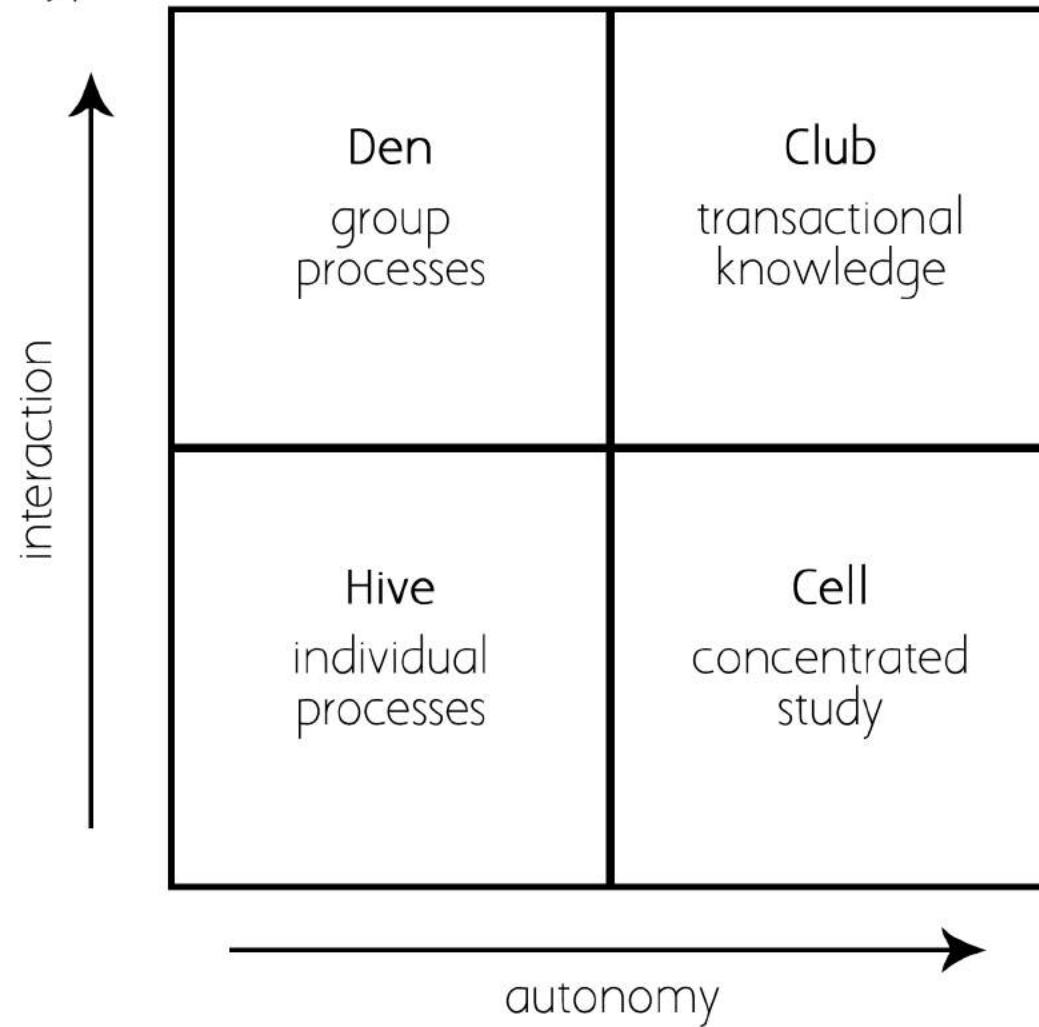


Fig. 1.18

## Planning + Design: *Office Ergonomics*

The basic planning strategies of any office begins with a simple chart that shows how organization will be distributed. These strategies are based off of two key elements required in all office design: interaction and autonomy. Interaction is required in all office settings, otherwise nothing would be able to be accomplished. Autonomy is required as well because employees need to feel like they are independent and can work in ways that best suit their needs.

The chart above begins to explain how this process operates. The hive is baseline for individual operations, this organizational type places people in a group setting but allows them to do their work individually and at their own pace.

The next type is the cell, which is the most autonomous structure there is in the office. This is original concept for office design as it places each individual in a room of their own in order to allow for maximum privacy for work. The den on the other hand pushes for more of a group setting. This organizational type places people in group setting and allows for maximum collaboration between employees.

The last type is the club, and is used most frequently in the office setting today. This organization combines both the interaction and autonomy of the office into one setting in order to maximize efficiency of work. There are open collaboration spaces for people to group together and meet and once they're done, there are individual spaces for them to go back to work in private in.

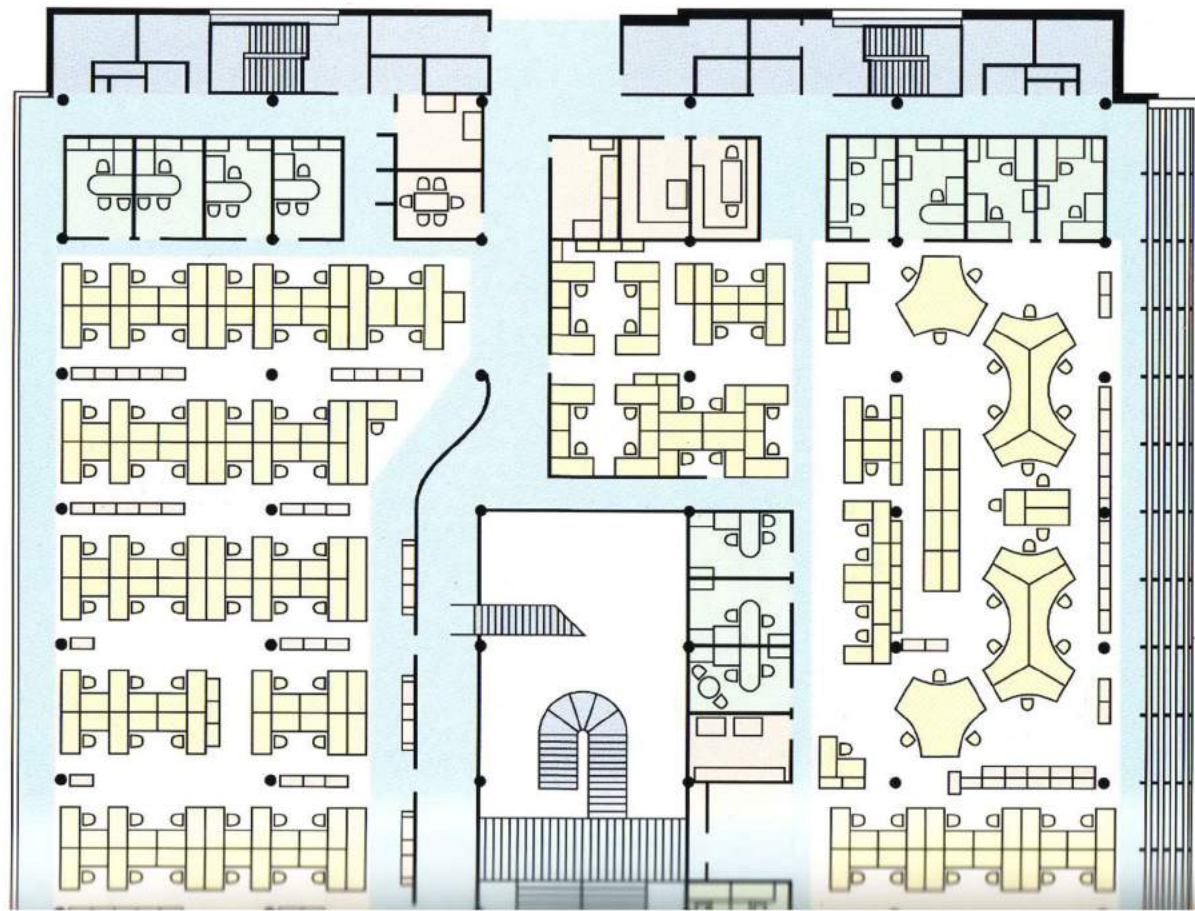


Fig. 1.20 - The Hive

British Airways Compass Center, Heathrow, UK

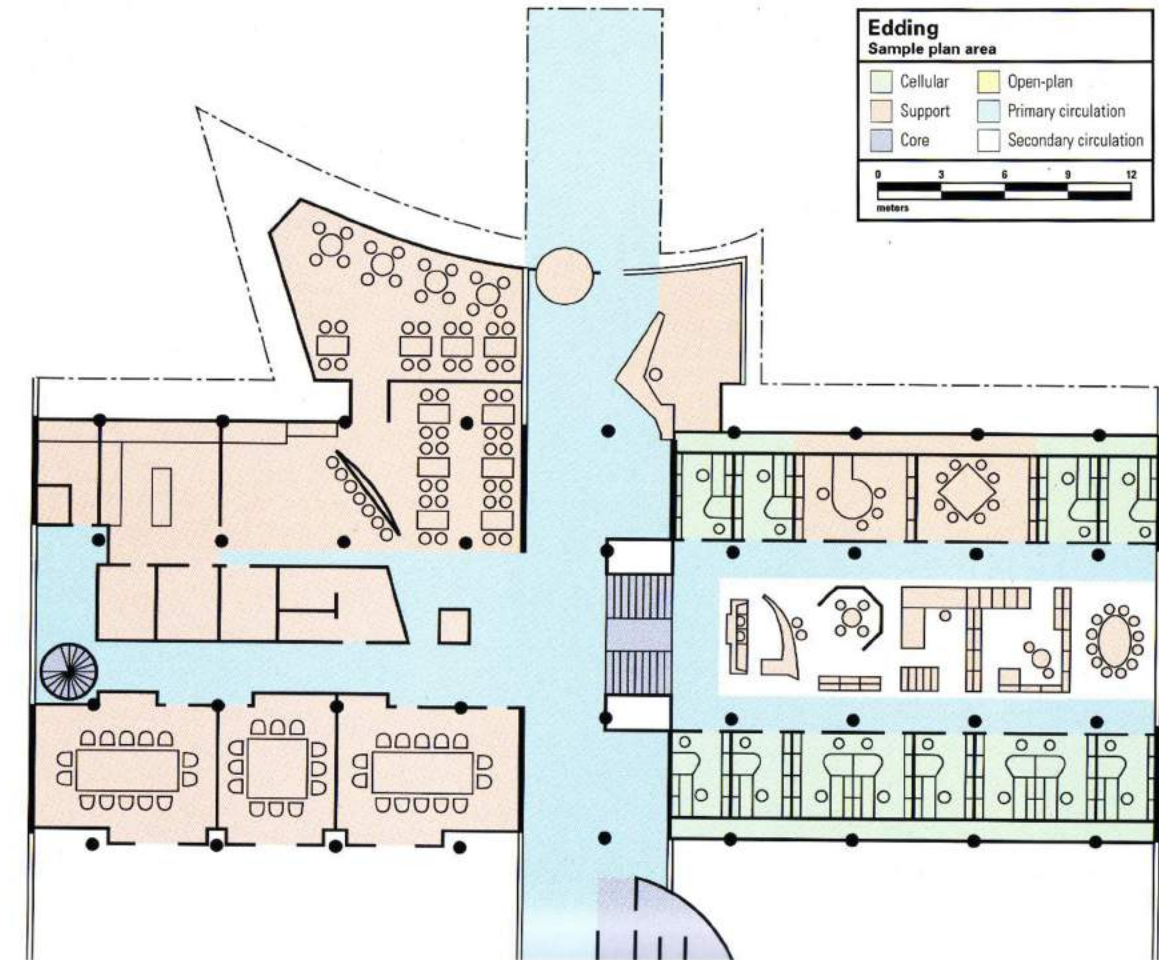


Fig. 1.21 - The Cell

Edding Ahrensburg, Germany

## Planning + Design:

### Office Ergonomics

**The Hive:** Similar to that of a bee hive, the hive design of an office clusters people together in areas together. Each area has its own designated program based on the people that work there and is generally distributed across an open office floor plan.

#### Advantages:

- Flexibility
- Ease of Communication
- Heightened sense of productivity
- Maximizes collaboration

#### Disadvantages:

- No privacy for individual workers
- Collaboration is the only goal and therefore becomes a distraction through its use
- Circulation becomes disrupted

**The Cell:** Like that of a microscopic mass, the cell office design is similar as it is bounded externally by a semipermeable membrane which is represented by the enclosure of the walls.

#### Advantages:

- Privacy
- Optimizes focus of the individual or the group
- Maintains circulation

#### Disadvantages:

- Doesn't support collaboration in the office
- Employees or groups are confined to "cells" to do their work
- Sociality isn't allowed a role in the office

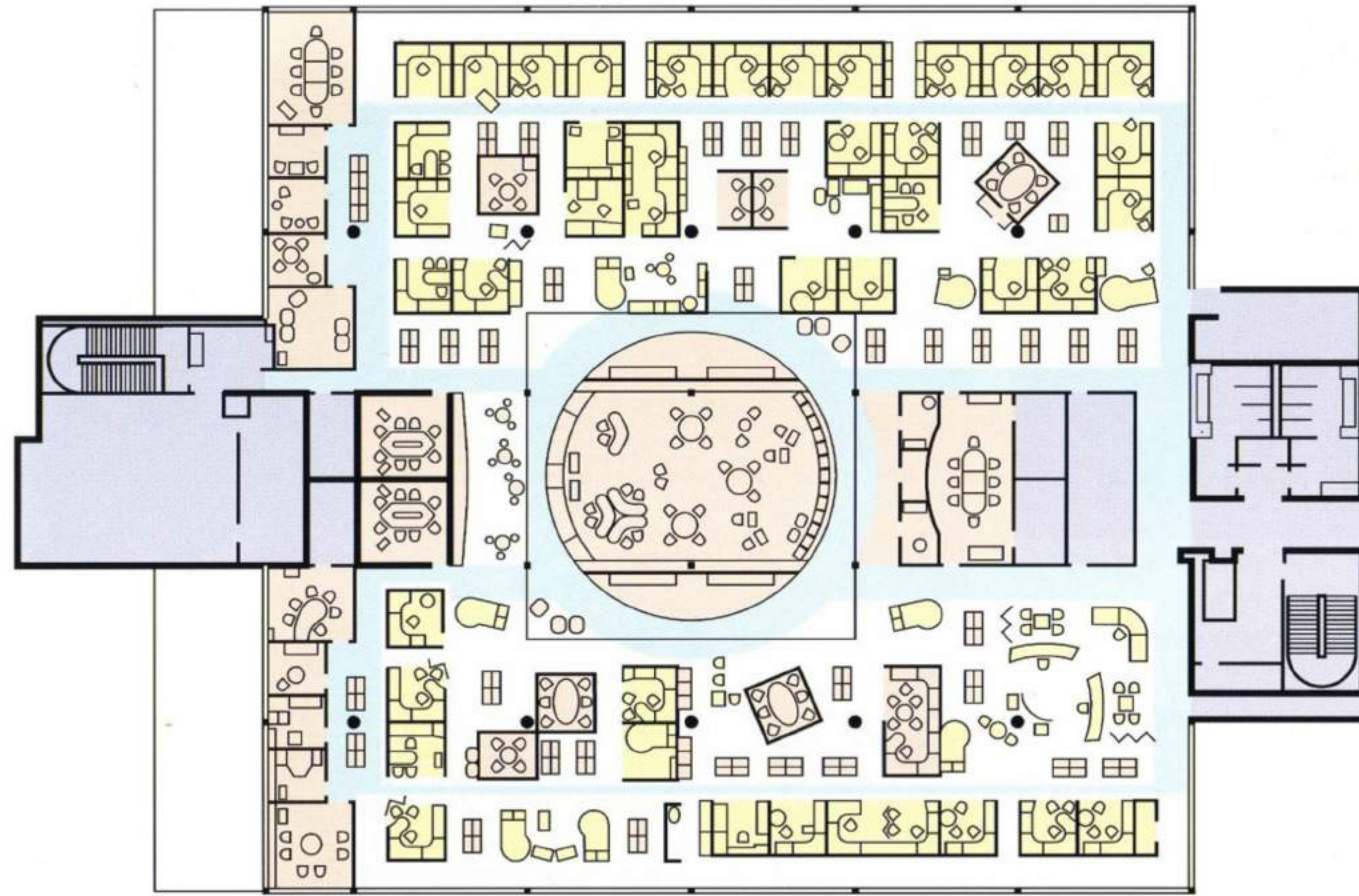


Fig. 1.22 - The Den

Steelcase  
Grand Rapids, MI

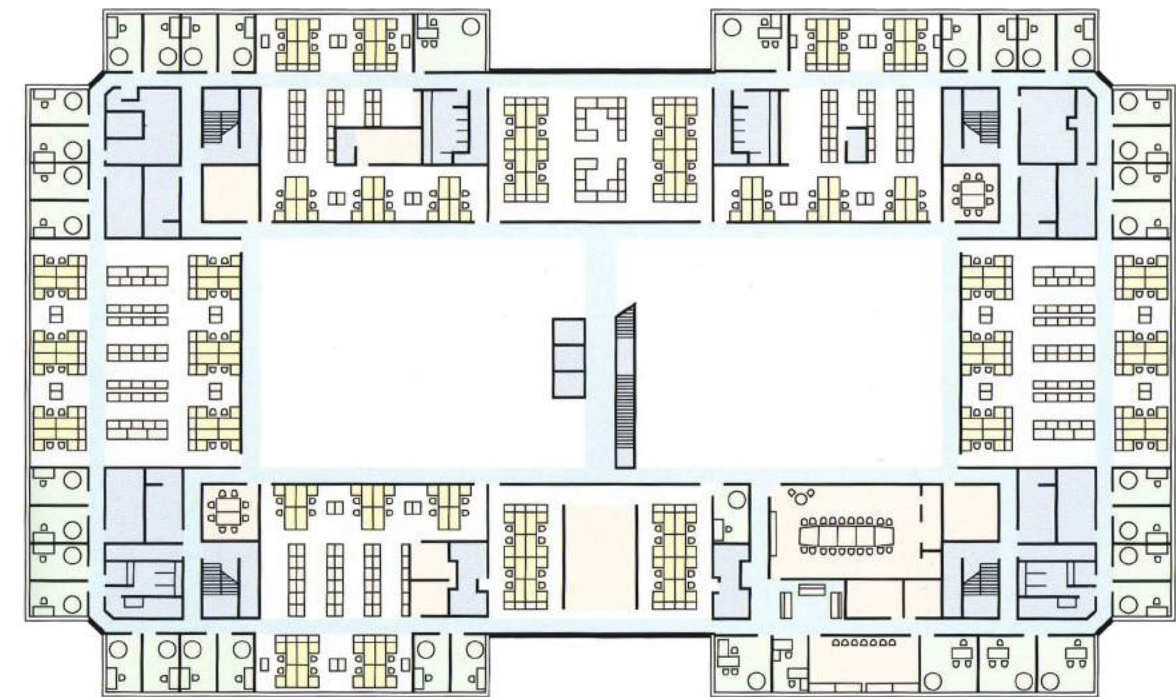


Fig. 1.23 - The Club

## Planning + Design:

### *Office Ergonomics*

**The Den:** defined as a comfortable usually secluded room, the den office style is similar to the way in which the hive is designed. Rather than clustering desks together in one area, the den design adds some privacy to the space while still allowing access to the whole at the same time.

#### Advantages:

- Privacy
- Maintains collaboration
- Adds structure and order to the design
- Keeps some sort of circulation pattern

#### Disadvantages:

- Circulation is still disorderly
- Social space is shared with work space
- Total privacy is not allowed for all employees to use

**The Club:** Defined as a group identified by some common characteristic, the club office design groups people of similar jobs types into their own secluded area in the office. Each area is accessible by common circulation while still holding its enclosure to itself.

#### Advantages:

- Combination of the hive and the cell design
- Each "club" has both private and collaboration spaces in the same area
- Balances the social and private role needed in the office

#### Disadvantages:

- Each "club" could be viewed as its own separate entity and therefore doesn't support full collaboration in the office
- Enclosure doesn't allow the office to flow as one whole unit



Fig. 1.24

## Planning + Design: *Optimal Office Layout*

**Existing Models:** Based off of the analysis of the existing models of office design, key attributes of each can be implemented in order to design in the most optimal way:

**The Hive:** The hive represents the optimal way in which information can be shared and distributed throughout an office as clusters of desks allows for maximum collaboration.

**The Cell:** The cell represents privacy in its greatest form. Although it doesn't support the collaborative efforts the office is based on today, it provides people a retreat away from the social pressures of the office.

**The Den:** The den represents a hybrid of the hive and the den. A mix of both private and public, this allows for an informal space for people to work in that doesn't completely isolate them from other coworkers.

**The Club:** The club is the most representative model of the office today. Social and private spaces allow for both collaboration and individual work to be carried out in the

Based off of this analysis, I believe that an implementation of all four major roles of office design needs to be incorporated into one fluid model that allows for full optimization of the office typology. A balance of both collaboration and solitude are required in order to allow an office to function properly. Based off of the rising influence of technology in the workplace and the vast spread of information, it is clear that work is no longer situated in single place. Therefore, there needs to be an adaptation in the workplace that supports this changing role.

Key underlying principles taken from the latest research as well as from the study of the history of the changing office will be taken into consideration when trying to accomplish this goal. The history of the office will tell what has failed and what has succeeded while the research will allow for an adjustment to where the potential market is headed.



Fig. 1.26



Fig. 1.25



Fig. 1.27



Fig. 1.28



Fig. 1.30



Fig. 1.29

## Design Principles:

*How baseline components result in optimal design*

**Mobility:** Mobility is a key factor in the design of offices today. Not only in the sense of being freed from one's desk and being able to "plug in" at different points in the office, but also in the sense of being able to work away from the office. Third places are being more and more popular as it frees employees from the strain of a 9-5 job and allows them to become more autonomous.

**Technology:** Technology has played a vital role in the way in which offices are operating today. Lifeless cubicles are now a thing of the past as most work can be carried out wirelessly through mobile devices or laptops. Collaboration and communication have reached new heights as employees and clients are able to reach each other no matter where they are in the world.

**Communication:** Technology has pushed communication possibilities past the limits never dreamed of 30 years ago. People are able to connect with others across the globe with the push of a button and as a result, team work and client based interfaces are now more successful than ever.

**Efficiency:** Technology in the workplace has streamlined the efficiency of the office environment. Companies are more fiscally healthy as a result of employees optimizing their time and being able to focus more on profitable tasks at hand.

**Flexibility:** Aside from the role of technology in the workplace, flexibility is one of the more important roles in the office environment. Employees are no longer required to be in on place at all time in order to carry out their work. Whether their out on the road, in the coffee shop down the street or taking a stroll in the park, work is able to be carried out on the go and flexibility has played a major role in accomplishing that.

**Fluidity:** Fluidity in the workplace is a new concept that is on this rise in the design of office space. Work is no longer defined to four walls and a roof for all employees in an office. The boundaries of the office are being dismantled and blurred and is allowing the design to flow as a single organism.





Fig. 1.31

# Google Tel Aviv:

*Camenzind Evolution*

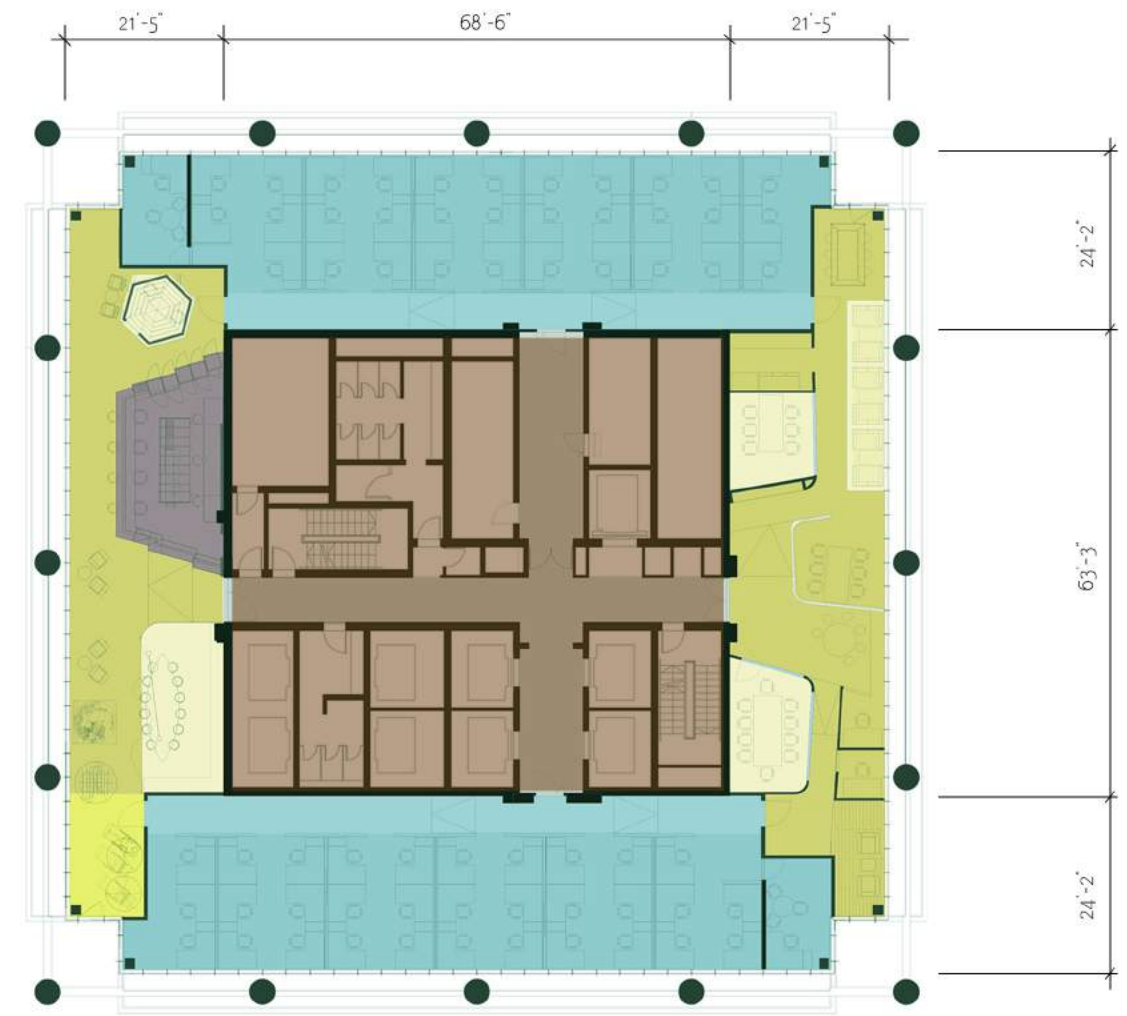
*Tel Aviv, Israel*

Key Attributes: Technology, Mobility, Communication

Design Strategy: The Club

- The new Google office occupies 8 floors in the Electra Tower in Central Tel Aviv, with views across the whole city and to the sea.

- It is a new milestone for Google in the development of innovative work environments: nearly 50% of all areas have been allocated to create communication landscapes, giving countless opportunities to employees to collaborate and communicate with other Googlers in a diverse environment that will serve all different requirements and needs.



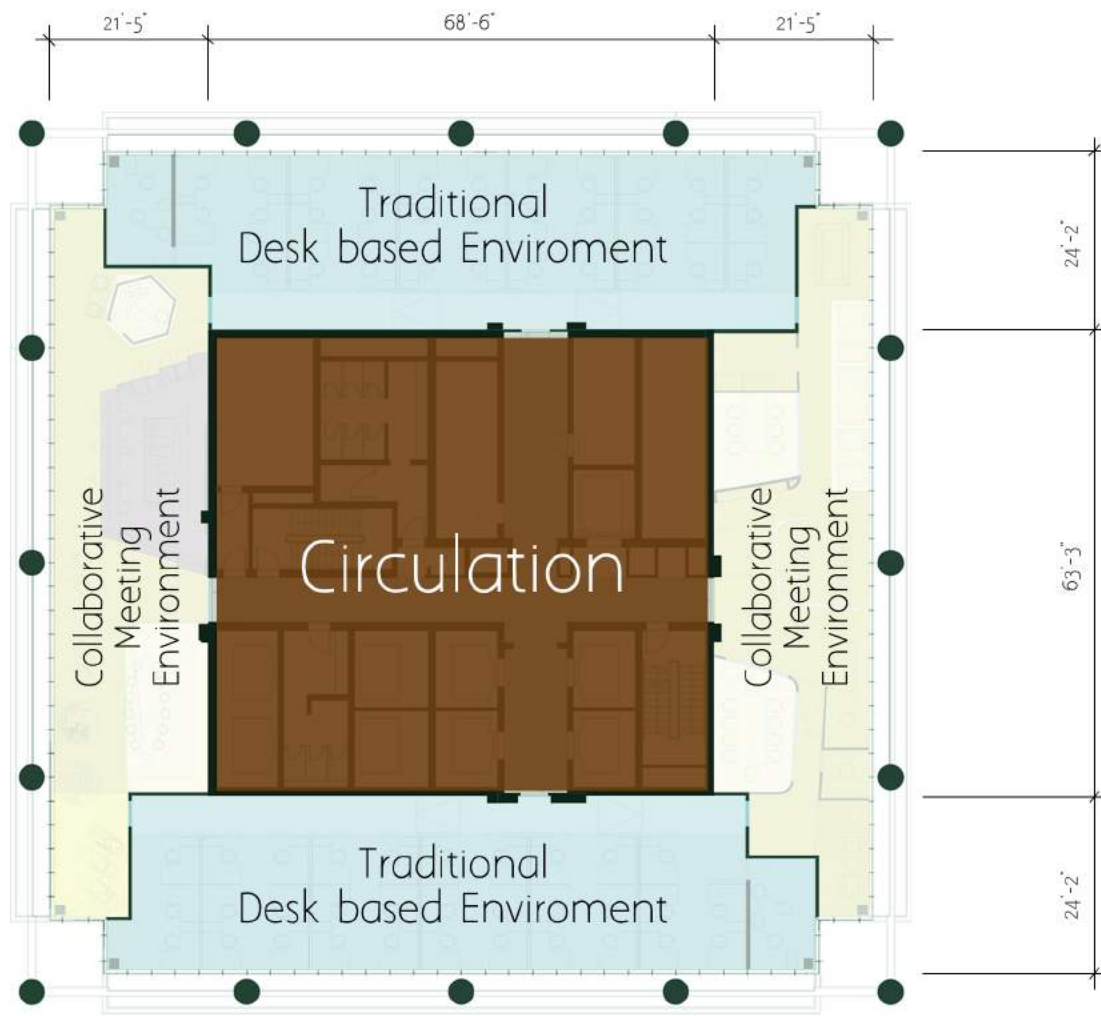
Level 31 - Joy & Optimism

- Circulation
- Homebase - Work Desk Area
- Communication - Informal Meeting
- Communication - Formal Meeting

Fig. 1.32

- There is clear separation between the employees traditional desk based work environment and those communication areas, granting privacy and focus when required for desk based individual working and spaces for collaboration and sharing ideas.

- Each floor was designed with a different aspect of the local identity in mind, illustrating the diversity of Israel as a country and nation.



Level 31 - Joy & Optimism  
 ■ Circulation ■ Communication - Informal Meeting  
 ■ Homebase - Work Desk Area ■ Communication - Formal Meeting

Fig. 1.33

# Google Tel Aviv:

*Camenzind Evolution*

*Tel Aviv, Israel*

*Key Attributes: Technology, Mobility, Communication*

*Design Strategy: The Club*

### Office Plan and Phasing of Use:

- The plan is like that of a typical office tower design, with the core and utilities located in the center of the floor plate.
- The unique quality about the design of Google Tel Aviv is its ability to separate collaborative and personal spaces while still creating an innovative environment.

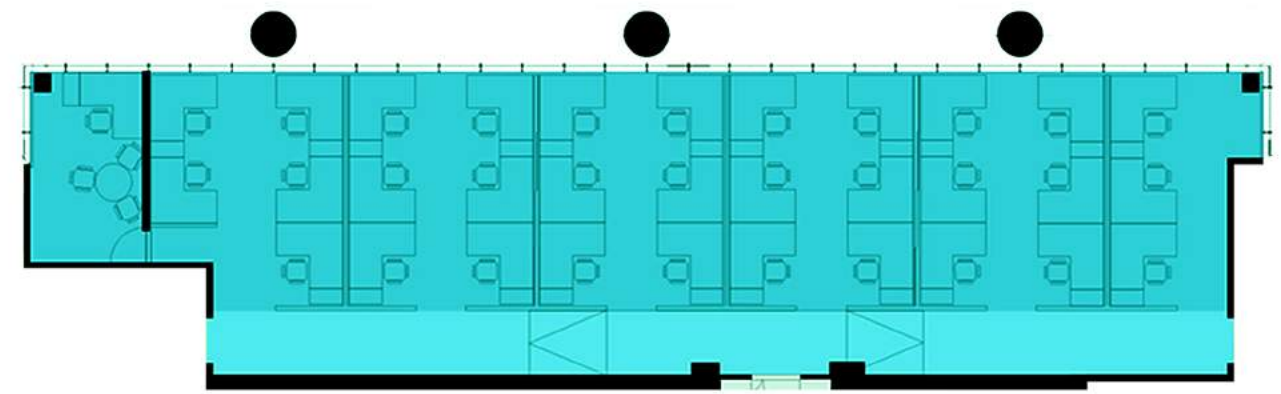


Fig. 1.34 - Traditional Desk Based Environment

■ Informal Meeting Space ■ Formal Meeting Space

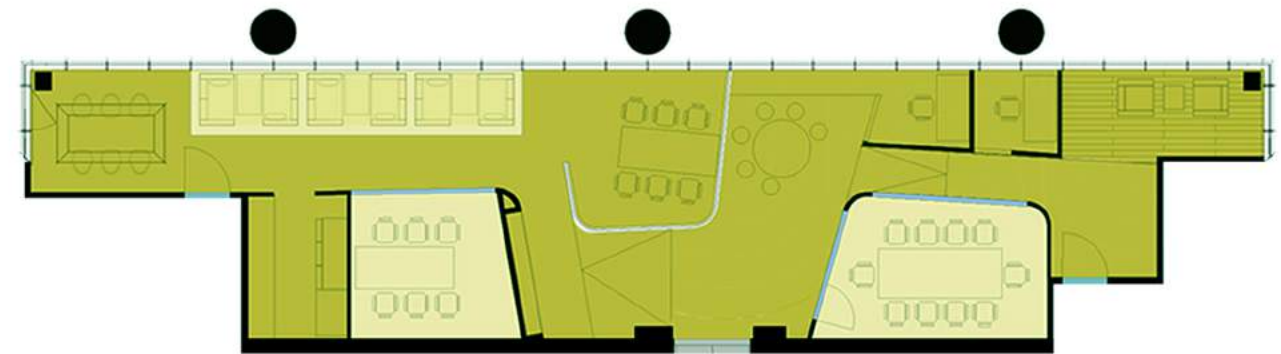


Fig. 1.35 - Formal and Informal Meeting Space

■ Informal Meeting Space ■ Formal Meeting Space

- The typical open office plan is instituted in this design but in a fashion that each employee can "jump" floors to home base areas in order to allow maximum collaboration between co-workers.
- Informal and formal meeting spaces are placed throughout each floor to allow workers to meet on any floor and collaborate together in an informal space or go to a formal space to retain their privacy.



Fig. 1.36

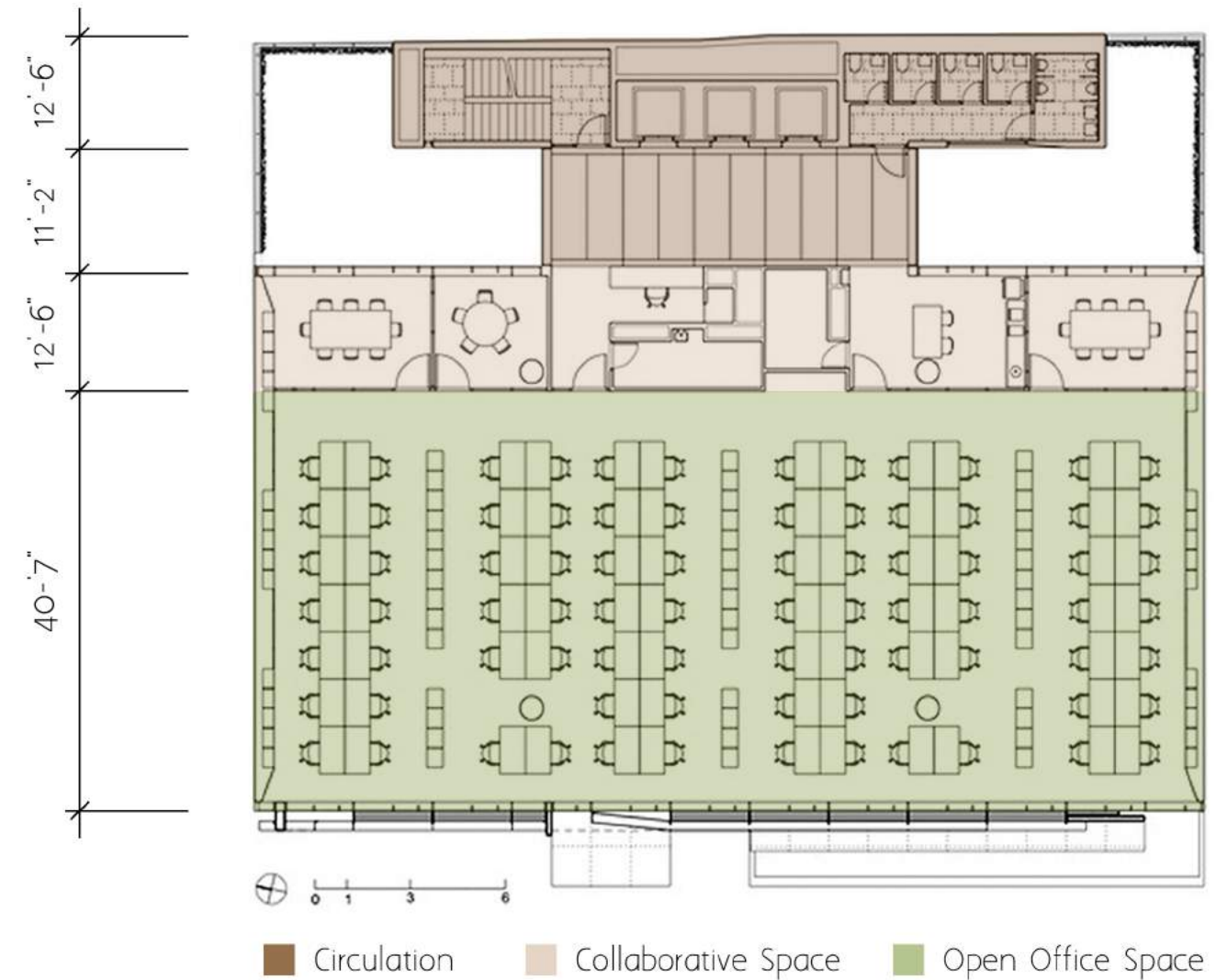


Fig. 1.37

# Leblon Offices:

*Richard Meier / Bernhard Karpf*

*Rio de Janeiro, Brazil*

Key Attributes: Communication, Efficiency, Fluidity

Design Strategy: The Cell & Hive

## Beneficial Characteristics:

- Reduction in floor plate size allows for an improvement in natural light in terms of both quality and quantity
- Reduction in artificial light requirements and energy use
- Louvers placed on the front facade allow for ample views of the city as well as shade devices for the summer and maximum solar gain during the winter.

- Core circulation pushed to the exterior of the structure reduced foot traffic throughout the office resulting in less distraction and more productivity in the office

- Collaborative spaces are placed between circulation and main program to allow ease of access between floors

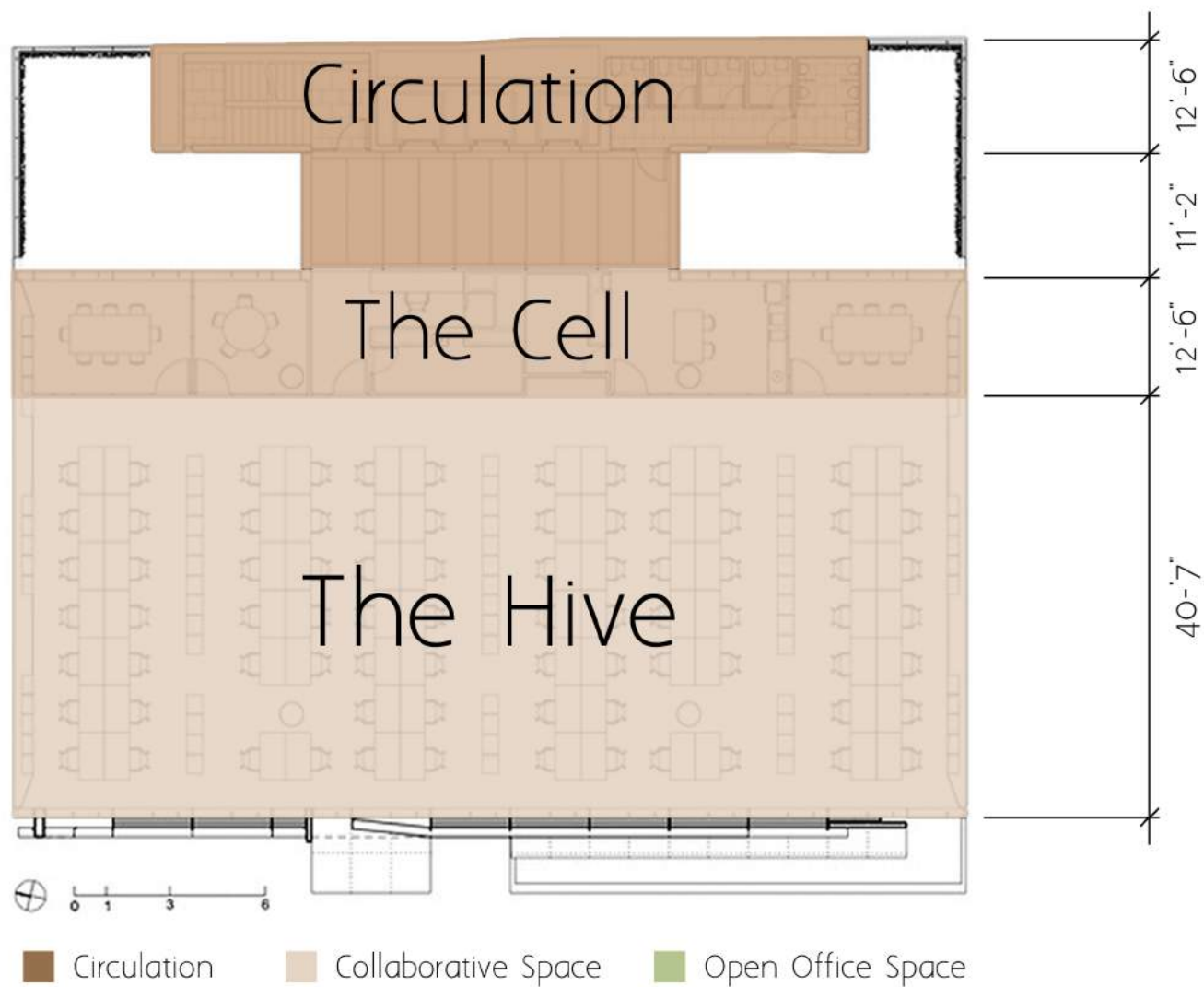


Fig. 1.38

## Leblon Offices:

*Richard Meier / Bernhard Karpf*

*Rio de Janeiro, Brazil*

Key Attributes: Communication, Efficiency, Fluidity

Design Strategy: The Cell & Hive

### Typical Office Plan:

- The structure consists primarily of private interior courtyards, open office spaces and a series of terraces that create a direct connection with the urban artery of Bartolomeu Mitre Avenue.

- This office layout places the core of the building to the exterior footprint of building instead of centrally located within it.

- This allows for program to be pushed to the front of the building to receive ample daylighting as well as external views to the city.

- This design process allows employees to feel more at "home" while at work unlike the typical deep floor plates of modern commercial developments.

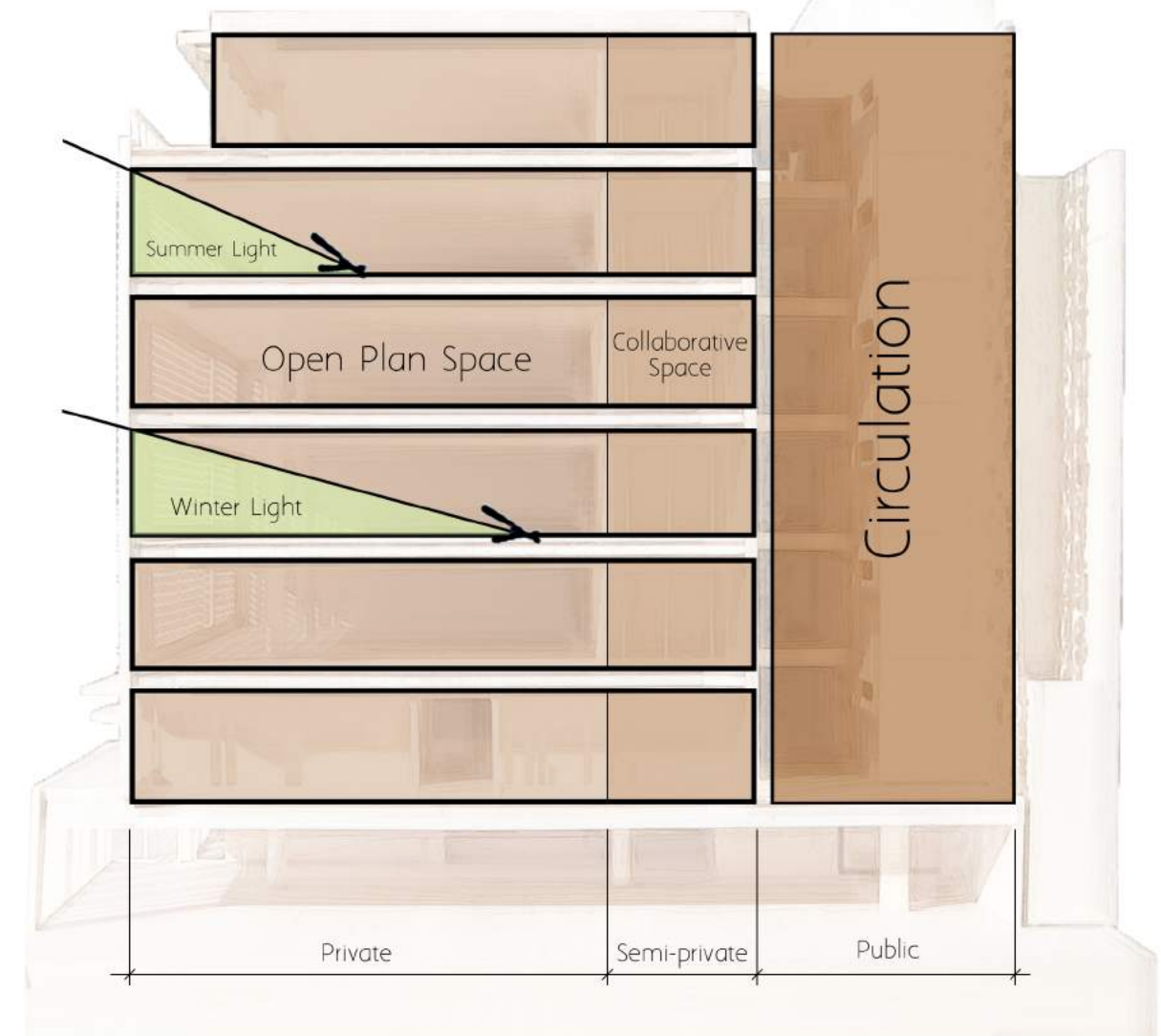


Fig. 1.39

### Phasing of Use:

- Circulation corridors and utilities are placed on the back perimeter of the building that parallel the vertical interior corridors.

- A bridge connects the secretary space to circulation to allow immediate contact upon arrival to each floor.

- Collaborative spaces are between the circulation and the main office space, this allows for collaboration between floors without disrupting the office space.

- The main open office plan is placed on the front of the building in order to allow maximum daylighting and views to the city.



Fig. 1.40

## CA Technologies:

*Setter Architects*

*Herzliya, Israel*

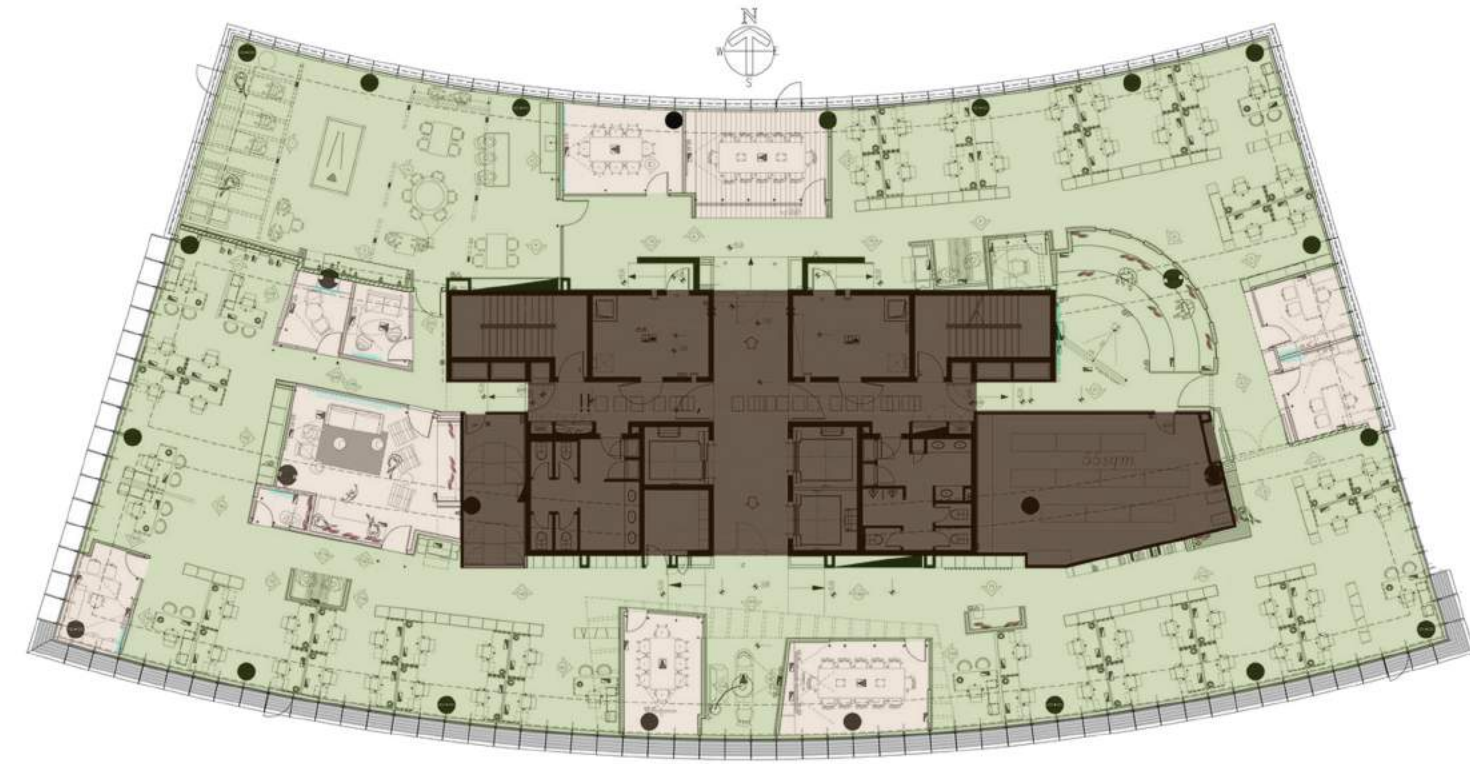
Key Attributes: Communication, Efficiency, Fluidity, Mobility

Design Strategy: The Hive & Den

- CA Technologies required Setter Architects to create a sound and dynamic environment for the office.

- As a result, the design team came up with an idea for a new kind of work space that met these requirements as well as being an inspirational and unique space.

- This open and creative design allows for several formal and informal collaborations spaces that also act as a buffer between active workstations and public areas.



■ Circulation   ■ Collaborative Space   ■ Open Office Space

Fig. 1.41

- The design team came up with a multipurpose, functional partition that serves as storage units and separates the corridors from the employee workstations.

- A combination of plumbing pipes and recycled wooden boxes, along with hanging vegetation and lighting fixtures.

- The space acts a warm and embracing area that allows the employees to feel like they are in a home setting, a technique not usually found in the office environment.

- Incorporating various elements from different fields, diverse materials, natural vegetation, spot-on lighting and street inspired graphics, all these elements come together to form a beautiful new language and an exclusive working environment.



Fig. 1.42

## Honestbee Office:

*Wynk Collaborative*

*Singapore*

Key Attributes: Communication, Efficiency, Fluidity, Mobility

Design Strategy: The Hive & Club

- Honestbee is an online grocery delivery service based in Singapore that accommodates around 120 staff members.

- The aim of the design is to create an open and collaborative environment that blends the functions of work, play and community.

- A multitude of spaces are arranged around 2 volumes inserted into the space.

- One containing a series of meeting rooms and library, and the other a small theatre.

- This design creates a variety of situations that allow for different activities to occur, from more traditional desktop work spaces and meeting rooms, to casual seating areas and informal little nooks, to small plaza-like spaces.



■ Collaborative Space   ■ Open Office Space

Fig. 1.43

- Many of the casual intermingled spaces are designed without a predetermined program to allow a certain flexibility and spontaneity to occur.

- The office is designed with an open concept to allow for maximum daylight to enter from the sides.

- A variety of types of workspaces are created to cater to the work habits of the different individuals.

- Beside the standard open benching, there are standing height desks, booth style workspaces allowing for close collaboration, and arched niches for people who prefer to a more private setting for their workspace.

- A glass meeting room punctuates the office allowing for transparency through the whole space. A hexagonal array of tube lights spread across the ceiling ties the whole office space together.

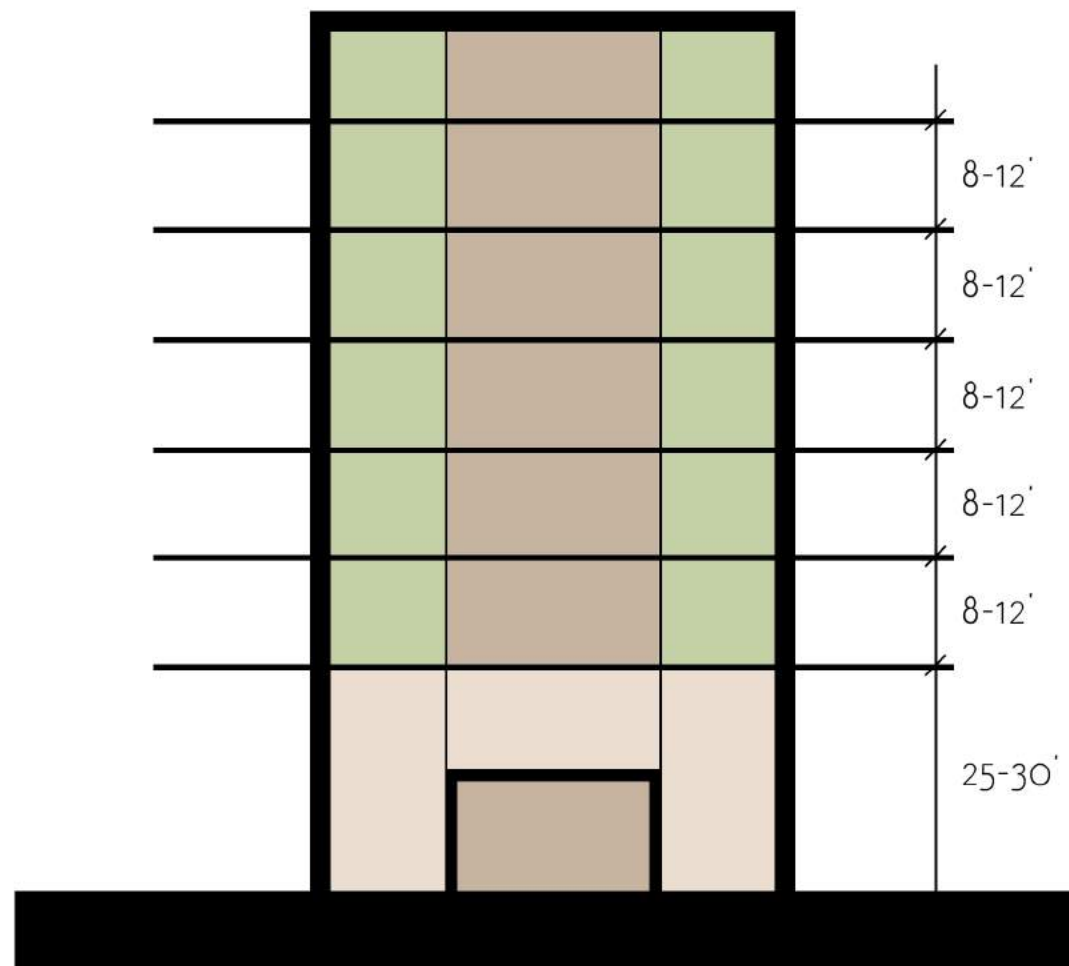


Fig. 1.44 - Traditional Office Design

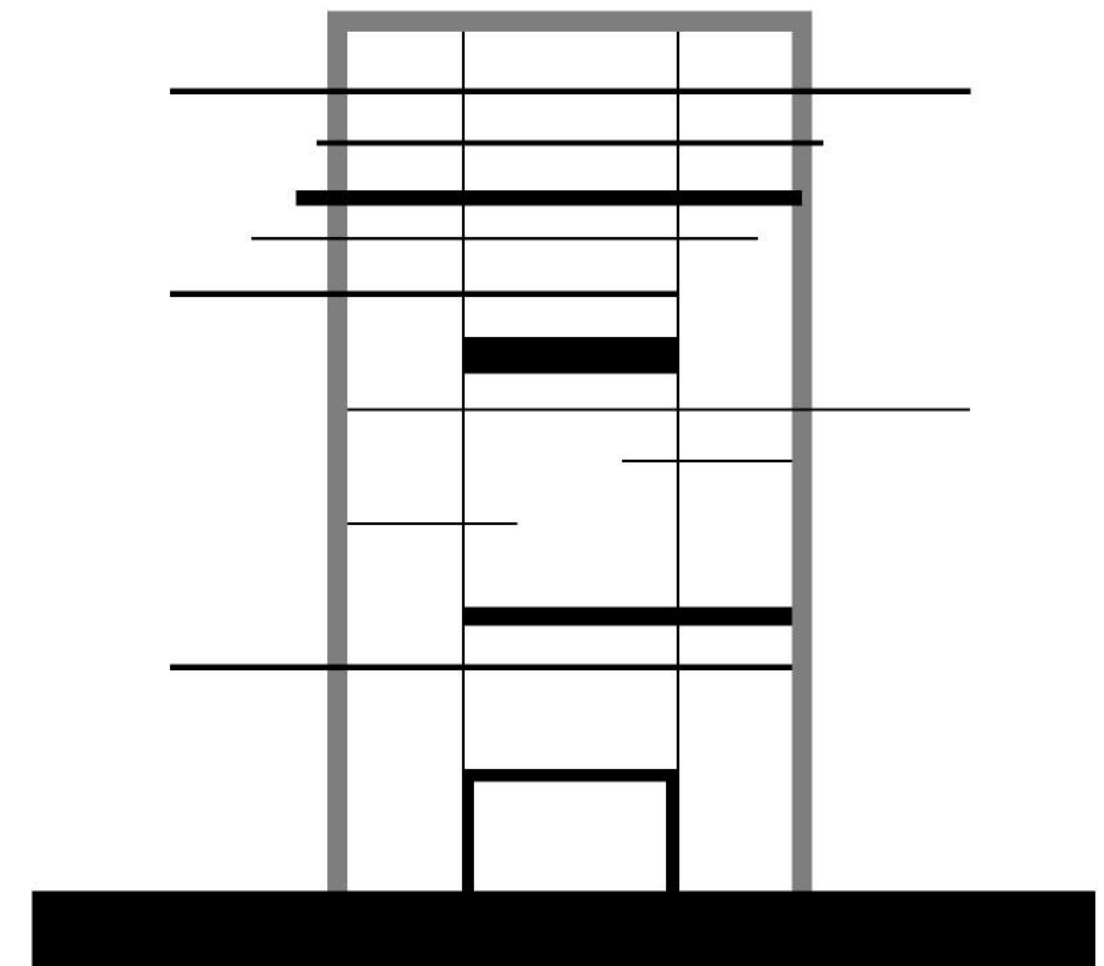


Fig. 1.45 - Breaking the Boundaries

## Design Synthesis:

### *Breaking the Boundaries*

After careful analysis of the existing office conditions and the research that has been done on where the emerging market is heading, there needs to be a final "conclusion" or outlook that would suggest what needs to happen next. It's no surprise that the typology is evolving and that a new strategy is needed in order to account for this change. The office itself is not the thing that's changing, more so the way it is being viewed and how its being used. Technology is playing a key role in why this is happening and as a result, the office is becoming more mobile and fluid in its actions.

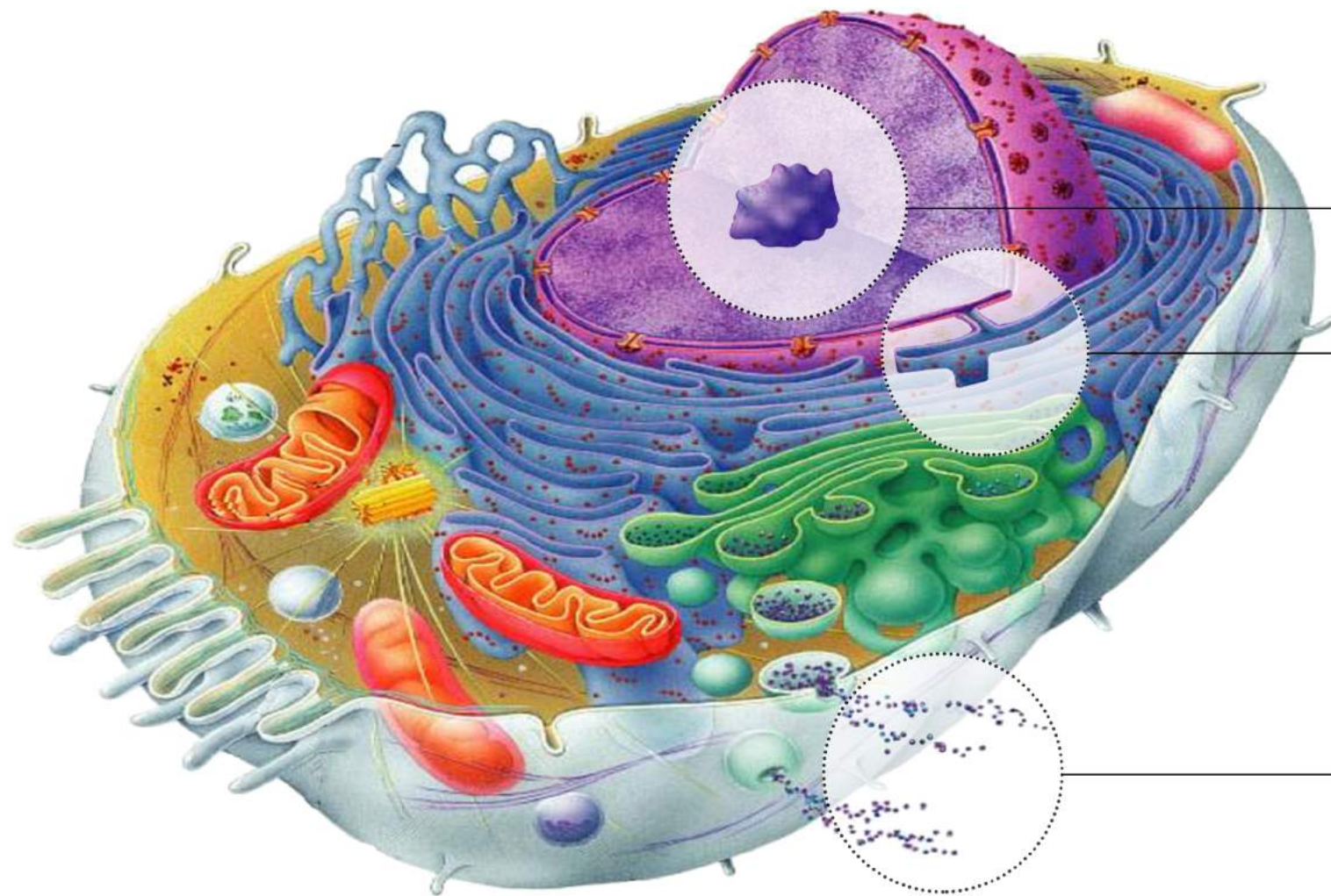
The first thing that needs to be addressed is the role of technology itself. It has vastly changed the way in which we work and communicate and as a result, the design of it needs to be altered. An all out change is not being suggested, the office clearly functions properly otherwise we wouldn't be using it like we are today. What is being suggested is an idea that blurs the boundaries of the office and allows it to become more fluid in its design. Specific zones of the office are no longer required. Four walls and a roof no longer serve their intended purpose.

Breaking the boundaries is the new proposition that this thesis is addressing. No more rigid structure and delineated floor plates that are all equal in proportion and scale. A mass overhaul in the way in which we look at and design the space of an office. Taking into account key features such as technology, mobility, communication and efficiency, we will be breaking these common threads of design in order to create an organic office. One that links the office together as a whole instead of breaking it apart according to certain criteria and program.

The underlying principles of the office will still remain the same in this design. Looking back at successful schemes such as the hive, den, cell and club will give the baseline for what has worked in the past and give light to how they can influence the way we look to the future.

## Chapter 2: *Design Analysis*





- Nucleic Model
  - All program embodied in one unit
- Parasitic Model
  - Separate program but still relies on the host
- Viral Model
  - Self-sustaining program with no dependents

Fig. 2.01

## Programmatic Models:

*Exploring different styles of work and their influence on design*

Work styles over the past decade have drastically changed and altered the current work environment. Vast improvements in the realms of technology and mobility have changed the outlook on how people work and create and thus, have created a changing sense in the work environment. Therefore, this thesis will explore these new models by studying a series of outcomes based on these new work elements. Three different models will be studied based on the "mobile" patterns and work habits that are becoming popular in the workplace today.

These models will reflect the user group chosen and will be implemented as site studies in order to better understand how we should design the modern office of the future. By studying these patterns and the people that use them, an outcome will be developed that takes the most vital aspects both in and out of the office and combines them into a program that will be useful no matter what task the office requires.

### Series of Studies:

- The Nucleic Model: The nucleic model will resemble that of the typical "campus" style office design. This model will explore how all elements necessary to a productive and social environment can be housed in one place so that all styles of work can be accommodated.

- The Parasitic Model: The parasitic model branches off of the viral model as a "base" for work to be developed. This model will explore how program can be latched to other programs, like a parasite, so that work can still be accomplished without having to return to the office.

- The Viral Model: The viral model will explore the mobile worker and how their daily activities affect the office from both the inside and out. This model will allow us to see what components of the office must stay and which ones will leave based on the daily routine of a mobile worker.

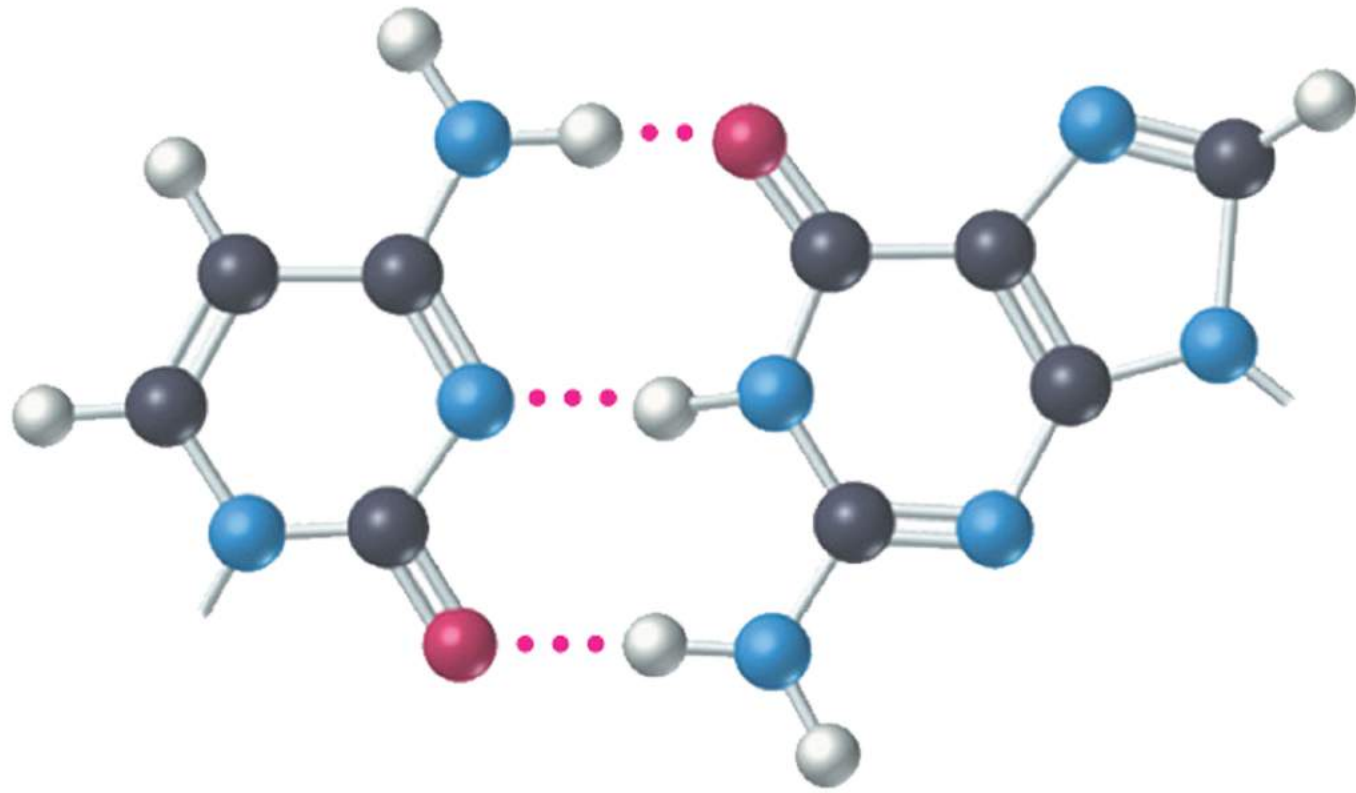


Fig. 2.02 - Cytosine - Guanine Compound Structure

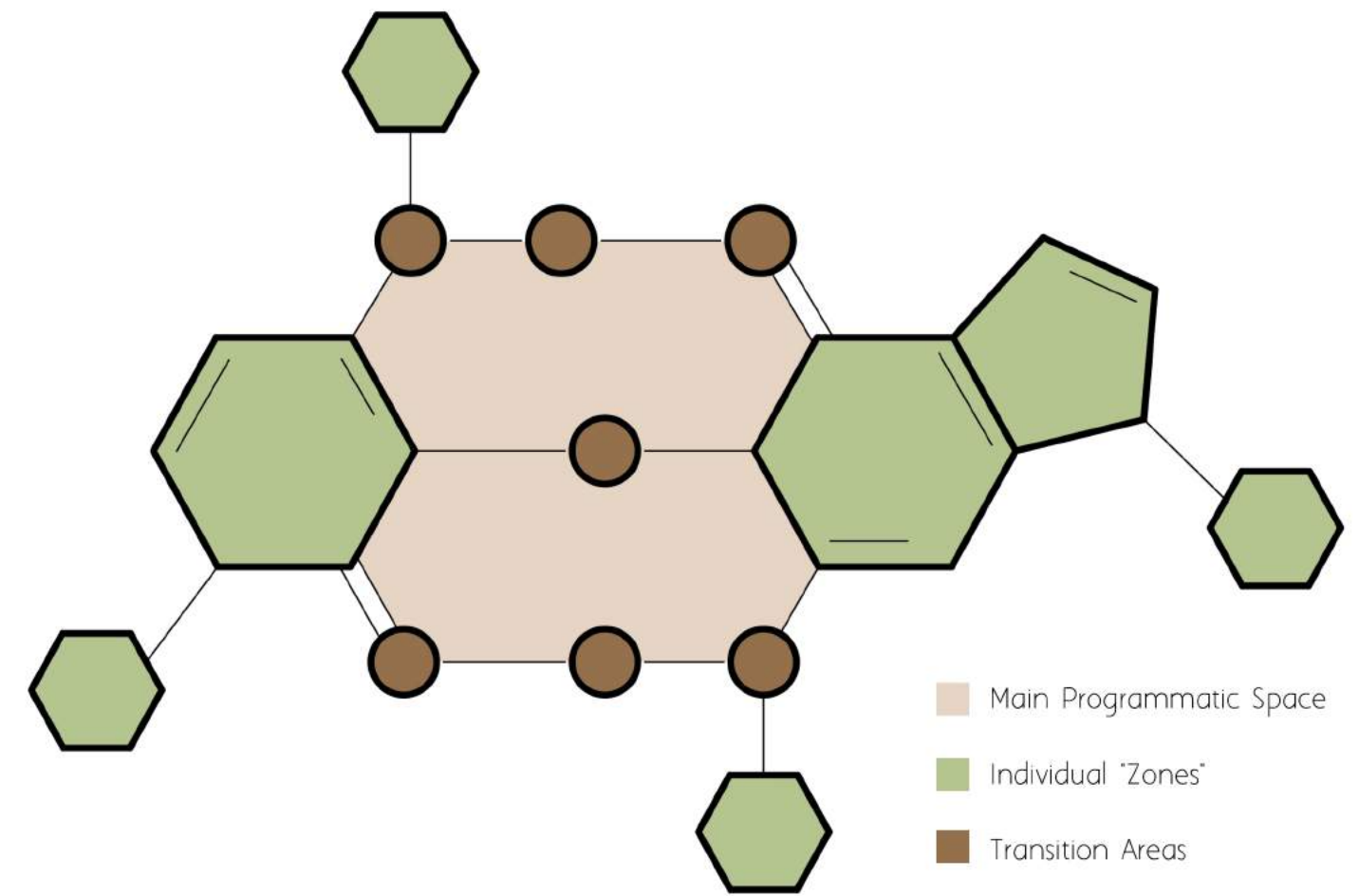


Fig. 2.03 - Organic compound in terms of office design

## The Nucleic Model:

*The essence of the office in one location*

The final model of design is the nucleic model. This model will seek to develop a scheme in which all things vital to the office are all in one central location. Similar to an organic compound, the nucleic model mimics how compounds must consist of several vital elements in order to survive and stay together. If one element is not added or doesn't fit, the entire compound crumbles and is rendered useless.

The nucleic model will follow this design found in nature in order to create the most optimal design possible. Elements such as mobility, technology, communication and efficiency will be taken into account during the design phase in order to assure that all elements can co-exist and function properly.

This model will be similar to the existing "campus" model that is seen in the office typology today. Companies such as Facebook and Google have realized the importance of this design strategy and have used it to their advantage in order to create a more flexible and viable company. All amenities vital to the workplace will be present in the model in order to ensure maximum efficiency while still maintaining a social atmosphere for people to work in.

Recent studies have shown that a good work/life balance is critically to a well functioning office. Flexible space for people to work in is of vital importance but most companies are starting to realize that a social environment is just as equally important. The nucleic model will seek to develop a programmatic strategy that intermingles main programmatic spaces with an active social environment that encourages chance encounters of employees in the office environment.



Fig. 2.04 - Emerson College Los Angeles / Morphosis Architects

## The Nucleic Model:

*The essence of the office in one location*

Thom Mane recently came to Georgia Tech and gave a lecture on his life's work and ideas concerning the development of the architectural realm. As he was going through his lecture, Emerson College came up and it was like a light bulb went off. His approach to the design was for a mixed use building that incorporated both residence halls as well as multiple zones for learning and social interaction.

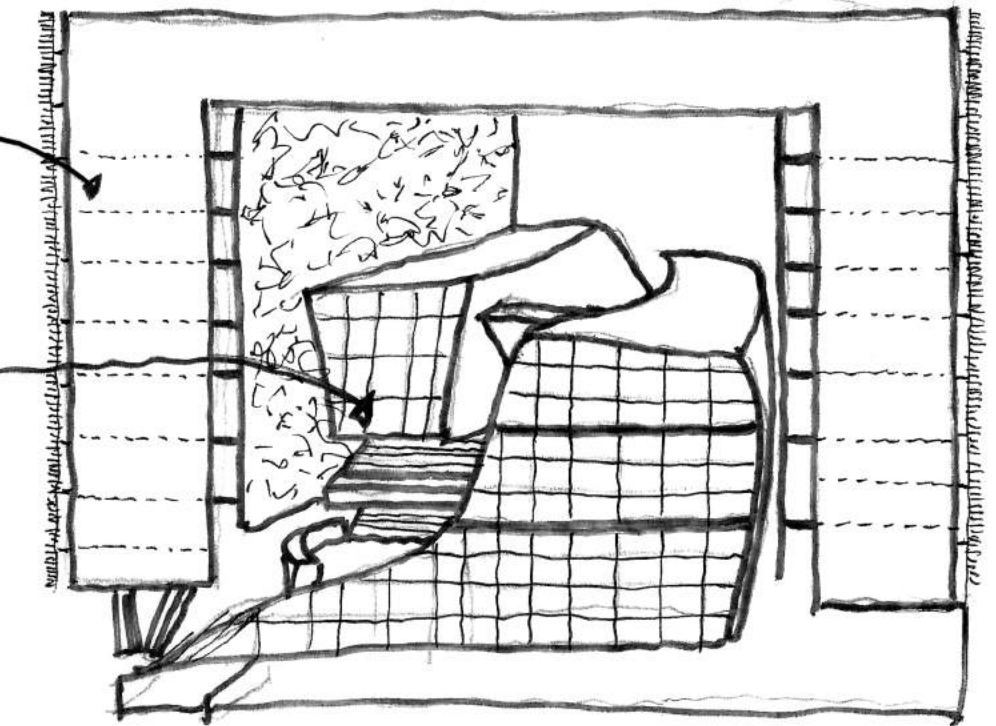


Fig. 2.05 - Emerson College Los Angeles / Morphosis Architects

This design made me begin to think how it could be applied to the ever changing environment of the office typology. Recent studies have shown that the open office plan has come under criticism and doesn't live up to its former glory of supporting a collaborative environment. Employees have complained that the open plan causes too many distractions and in fact, results in a decrease in productivity in the workplace.

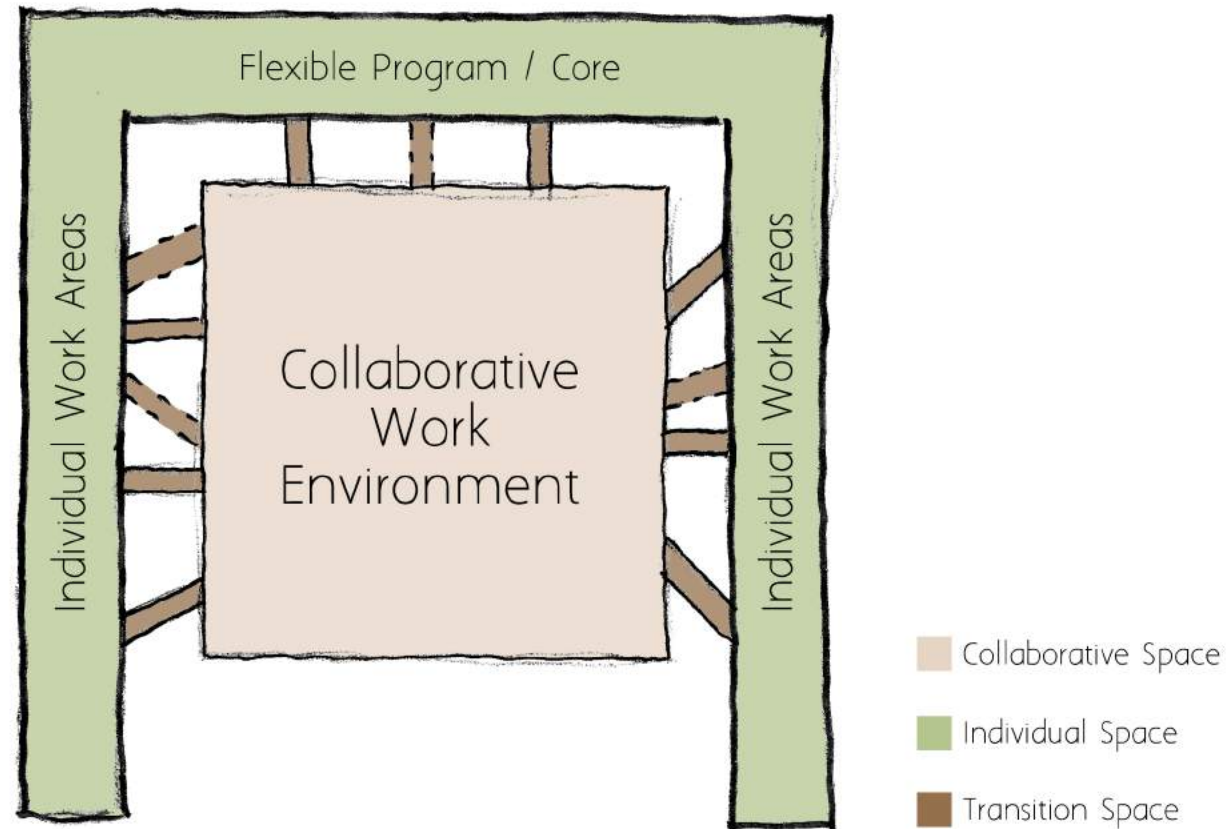


Fig. 2.06 - Plan adaptation for office typology

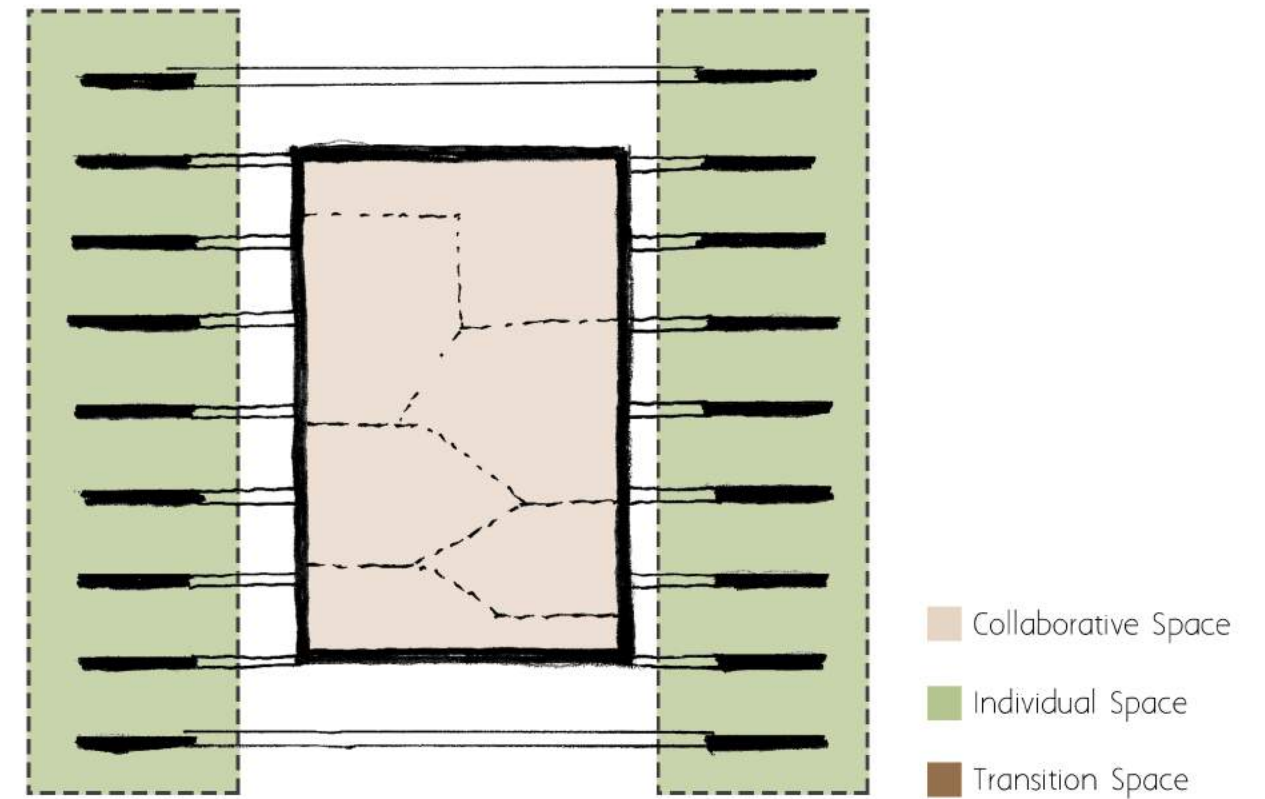


Fig. 2.07 - Sectional adaptation for office typology

## The Nucleic Model:

*The essence of the office in one location*

Based on these new evolving facts, the open plan can still remain viable in the workplace but requires some modifications in the way it is approached. By analyzing Emerson College and the way Mayne designed it, the open office plan can be implemented into this design in order to make it viable again.

Collaborative and Individual space will be separated into two separate zones. Individual work Elements will be placed on the exterior of the building while the collaborative space is located on the interior. Now while these two elements are technically separated, they are actually still connected. Series of ramps and stairs will connect the floors that house the individual spaces to the collaborative spaces in the middle of the building. This allows for private individual spaces as well as direct access to collaborative spaces from all points in the building.

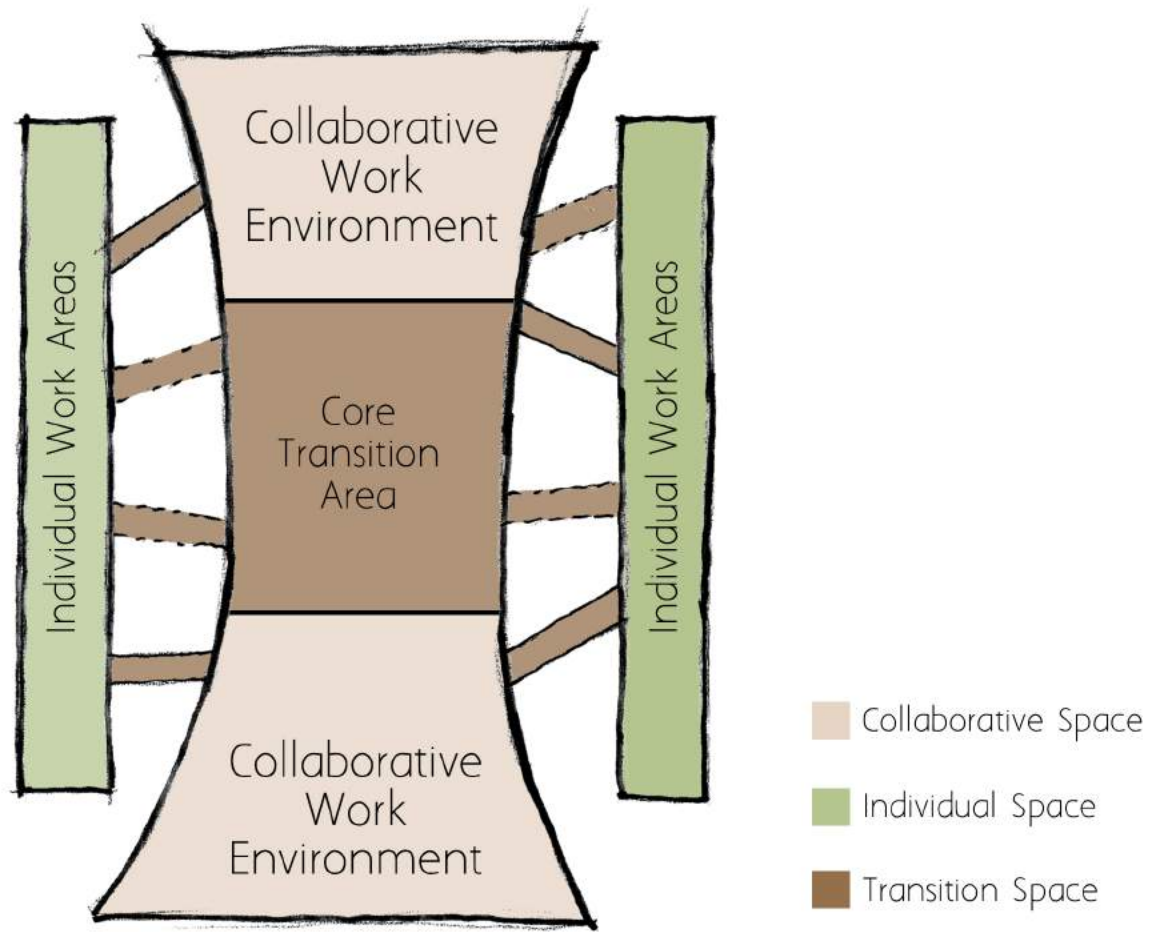


Fig. 2.08 - Plan Adaptation for Office

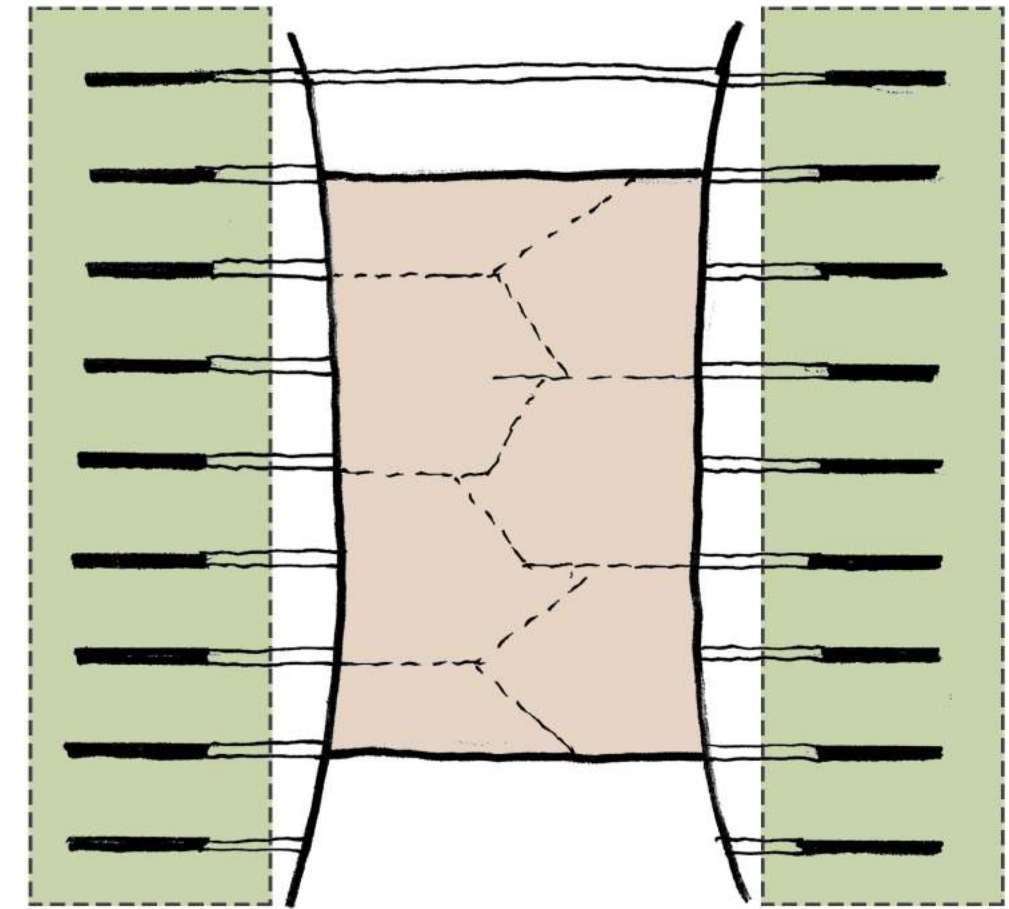


Fig. 2.09 - Section Adaptation for Office

## The Nucleic Model:

*The essence of the office in one location*

This is a second iteration of the nucleic model. Similar to the first model, this design takes into consideration the ideals of Thom Mayne and his design of Emerson College. All collaborative space will be located in the center of the structure while the individual space is located on the perimeter of the building. This design minimizes floor space on the exterior wings that provides both economical and sustainable benefits.

This design goes up in scale from the previous design. This design takes space from the exterior and adds it to the interior component, sort of like a mini office building within a building. This allows for more focus on the collaborative areas and less on the individual spaces. These design moves will be further modified and changed once the final program and user group is established.



Fig. 2.10 - Parasitic Design Example



Fig. 2.11 - Parasitic Design Example

## The Parasitic Model:

*Programmatic latching to other components*

The second model of design is the parasitic model and is actually quite similar to the viral model in its approach and design with slight modifications. The parasitic model approaches design similar to that of the viral in relation to mobile workers. The viral model discusses how mobile workers act and operate without the use of the typical nine to five work environment and what their daily routine is outside the office. How mobile workers can work at any place and anytime without the confinement of a cubicle or an assigned work area.

The parasitic model takes these ideals into consideration and in turn, suggests something that can further the concept of the viral model even further. The concept is fairly cut and dry based on its name as it seeks to find programs that exist throughout a city and find their potentials that may help a mobile worker become more productive and proficient.

These programs can consist of any type of structure that may be useful to a mobile worker. A train station, cafe, coffee shop or even a library can become a site for parasitic design. The concept is based on the fact that mobile workers still require some sort of work environment in order to accomplish the work they need to do and in fact, require a space that deals with less distraction than a public place can offer. Therefore, we as designers can take these public areas that are attractive based on their curbside appeals or the amenities they offer within, and add on to them in order to create a space useful for the mobile worker.

This space will share the desirable qualities inherit to the existing program while also adding the component of the office necessary in order for the current task at had to be accomplished.

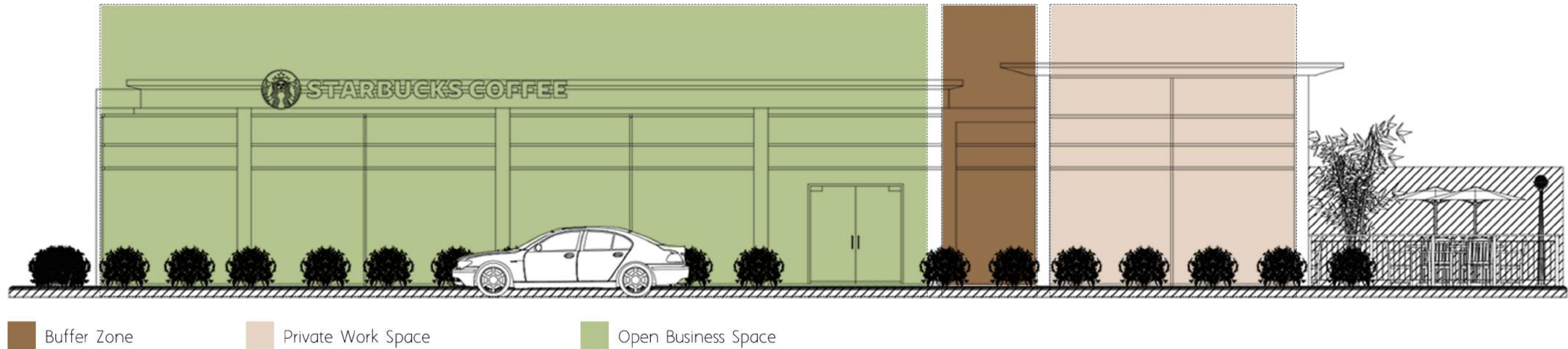


Fig. 2.12 - Elevation of Programmatic Distribution

## The Parasitic Model:

*Where program latches to other components*

The parasitic model doesn't approach program in the way that the viral model does but it does have some similarities. In this design concept, programmatic elements are not "taken" and "kept" in the design scheme, they are designed based on their transitive qualities and how those qualities link them to a particular place. Components taken out of the office as a result of the mobile worker can now be "attached" or "latched" onto other programmatic elements deemed useful by the daily habits of a mobile employee.

This design approach takes elements that are typically used in the office environment and places them within proximity to elements that are used on a daily basis by a mobile employee. This allows for a mobile worker to use the typical office environment in a setting which is most suitable to them which in turn, allows for more productive employees.

Components "taken" from the office:

- Individual Work Areas: These are single user components taken from the office and then applied to an existing program. An example can be seen from the diagram above that "attaches" a new cell to the existing Starbucks in order to create a private place to work within the context of the existing environment.
- Group Work Areas: These space are created for multiple users. Similar to the individual areas, group areas can be attached to program and serve as spaces for group meetings or collaborative work. Imagine a work area created on the top of the Starbucks that can be used for conference meetings or group talks.
- Collaborative Areas: These spaces would be used as a mixed use area. Spaces designed for anyone to come and work together outside of the office

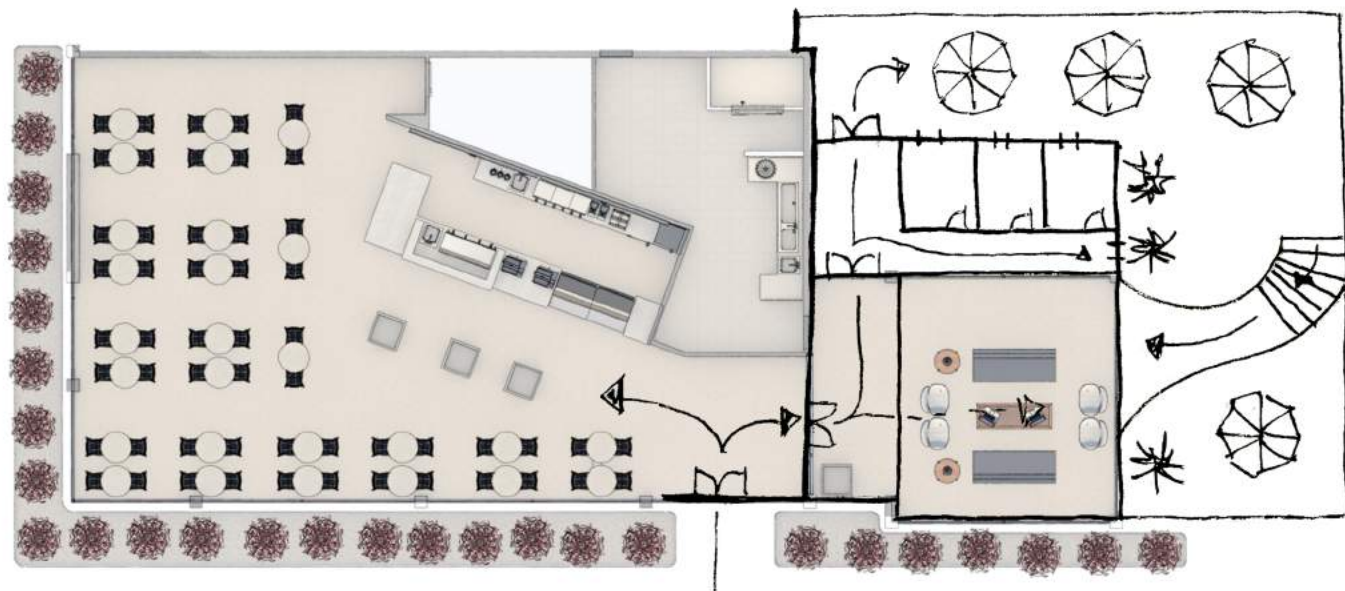


Fig. 2.13 - Plan adaptation

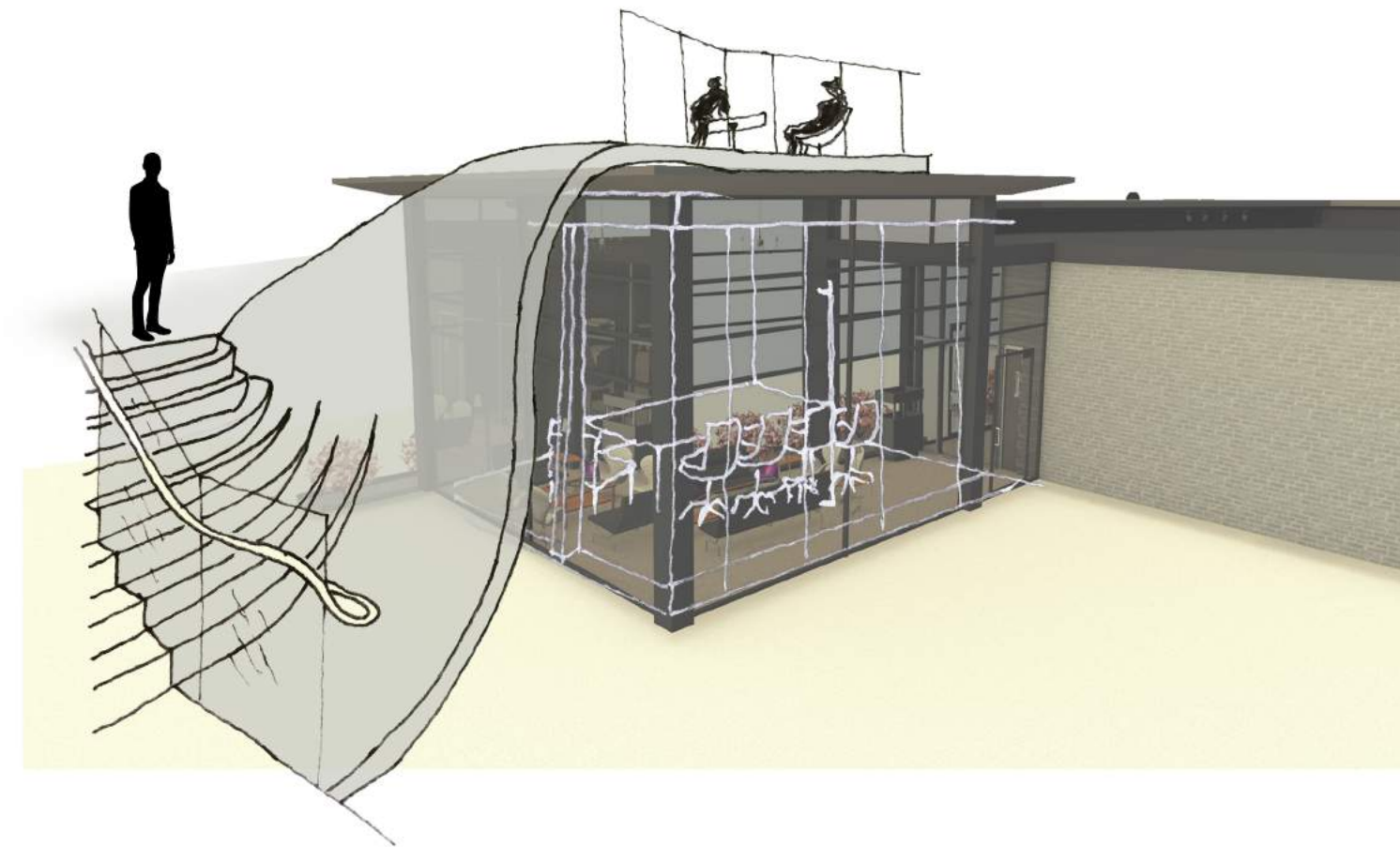


Fig. 2.14 - Spatial Diagram

## The Parasitic Model:

*Where program latches to other components*

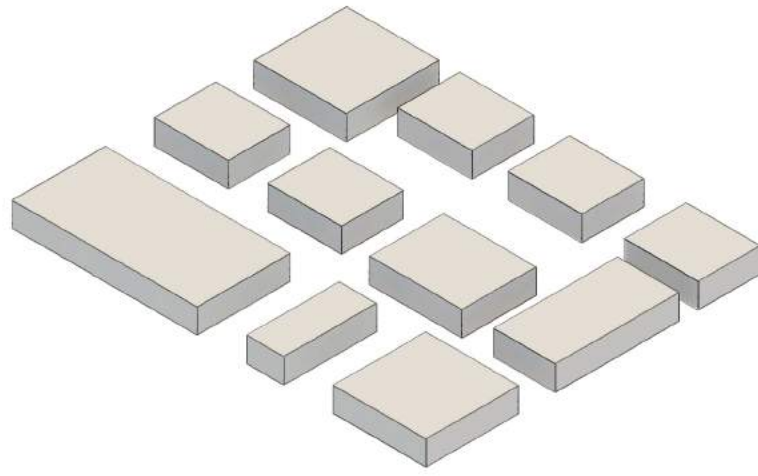
This iteration of the parasitic model studies how program can be attached to existing program based on its transitive qualities. Site locations are picked based on their significant relevance to the city and the context of their location. Densely populated areas seem to be the most beneficial locations at the present time as the program will be used to its optimal performance.

Attaching program to other program may seem like a strange concept but based on the mobile influence of the workplace and the advancement of technology, this is the optimal way to provide communal and privatized space to those who need it in the workforce at the present time.

The example provided above is a parasitic model that is attached to a typical Starbucks location. The actual program that is attached to the building can vary depending on how large the existing structure is and how much traffic the site can allow. The program is based off of typical office dimensions so the space is large enough for mobile workers to work in and be productive as well.

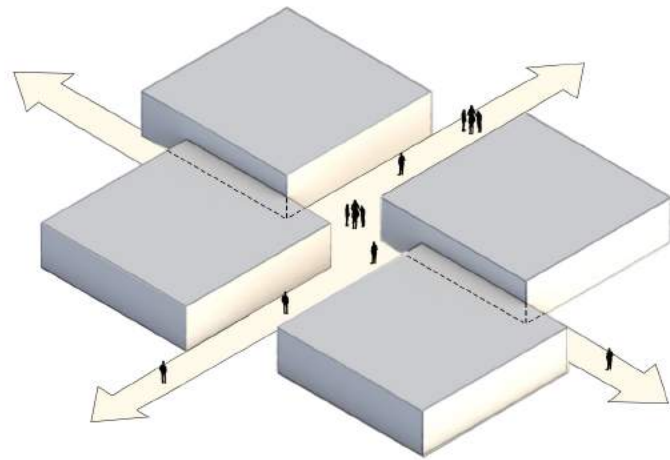
The way in which the program is attached is ultimately determined by the site location and surrounding context. If there is a large site, then the program can branch off and consume more of the site and if it is smaller then it can retract into the existing program. The new program will be available to anyone who needs the space to work in and while it is unoccupied, it provides more space for the users of the actual company to use.





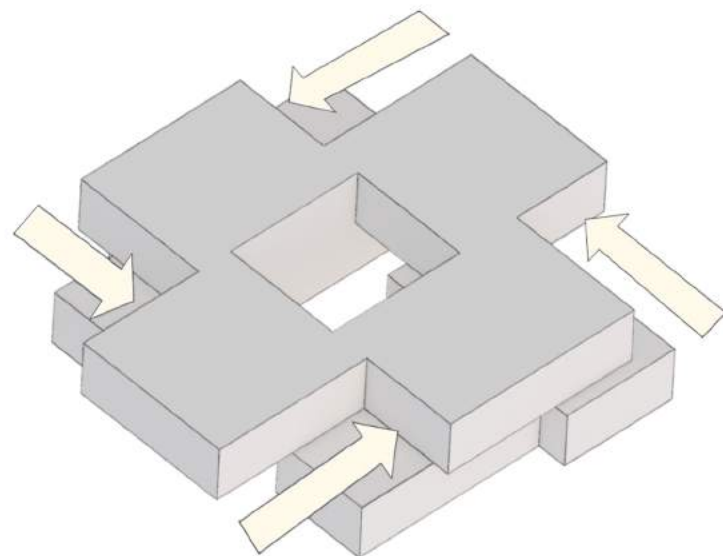
Program Application:

- Different program sizes are dimensioned based on office standards then visualized through massing
- Examples of program sizes:
  - Executive Office: 20' x 15'
  - Large Office: 15' x 15'
  - Standard Office: 12' x 10'
  - Large Conf. Room: 30' x 20'
  - Medium Conf. Room: 12' x 15'
  - Small Conf. Room: 12' x 10'



Spatial Distribution:

- Spatial adjacencies are analyzed and placed within the massing.
- Spaces are shifted and arranged in order to give hierarchy to the space as well as opening up space for circulation



Program Distribution:

- Massing becomes more distinguishable as the form begins to take shape.
- Multiple layers are added in order to gain the desired form and spacial adjacencies
- Spaces are carved out in order for light to come into the space

Fig. 2.15 - Program Development Process

Real World Application:

- Modular components based off of standard office design dimension placed throughout the city at nodes based off of the mobile workers routine or any worker for that matter.
- Components made out of shipping containers
- Reusable materials and sustainable design
- Can be placed anywhere in the city
- Can act as individual units or modular components attached to other programs



Fig. 2.16 - Shipping Container Design



Fig. 2.17 - Shipping Container Design

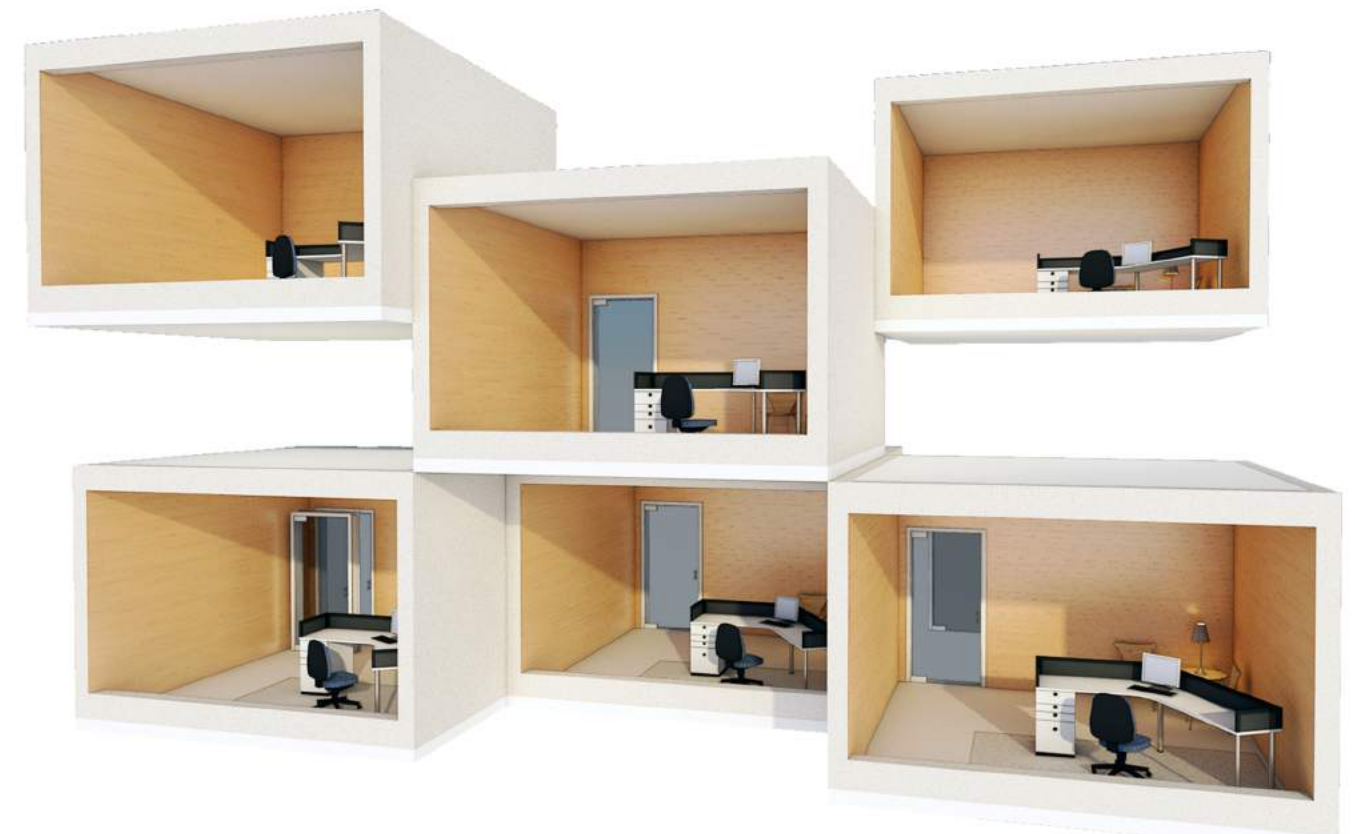


Fig. 2.18 - Shipping Container Design Concept

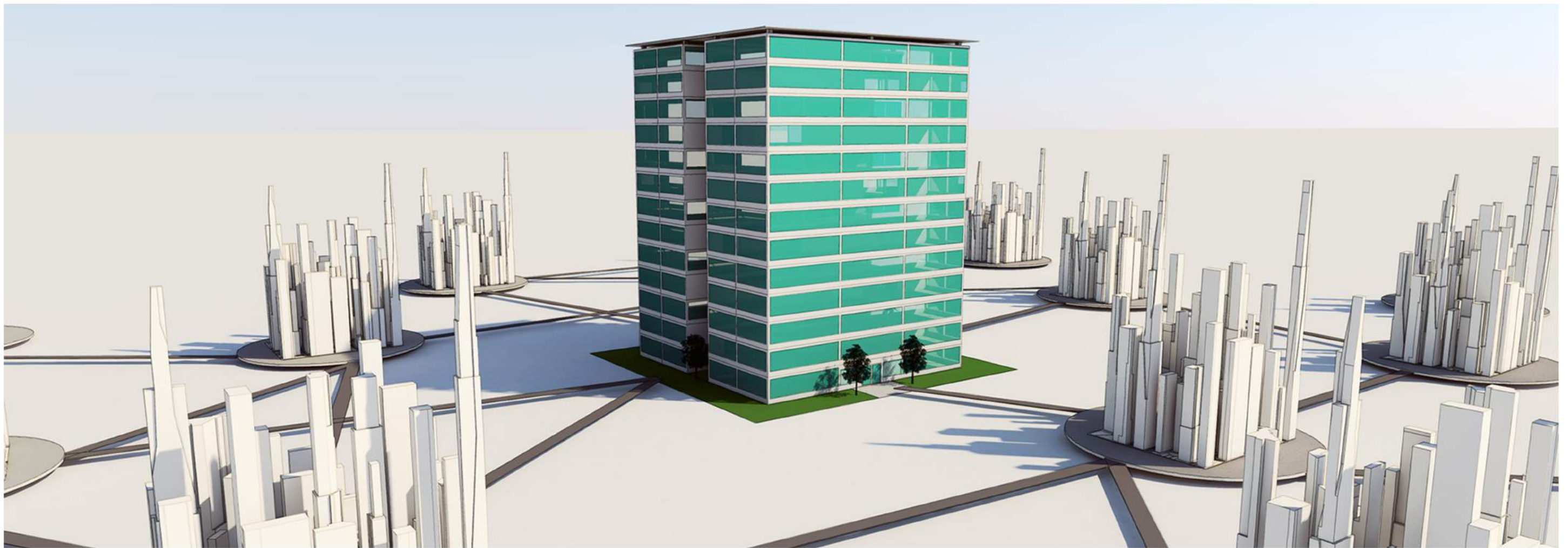


Fig. 2.19 - Viral Model Concept

## The Viral Model:

*The distribution of the office throughout the city*

Research has shown us that the daily routine in the office is no longer a "9 to 5" scenario and as a result, the way in which people are working is drastically changing.

Recent studies have shown that more and more people are becoming mobile workers and no longer spending their time in the office. These people have been placed into three separate categories based on their work styles: the office-based mobile worker, the non-office-based worker and the home-based worker.

Based on these new styles of work, a new model must be developed in order to accommodate these new goals and the design must be supportive of their style. The viral model will begin to address this and sort out how to accommodate it as well as maintain a stable work environment in the home base as well.

The Viral model will begin to explore how people outside of the office conduct their work and how that transitive quality begins to effect how we design the office typology. If more people are becoming mobile workers and spend less time in the office, what components of the office are leaving and going with them? And as a result, what components stay and how are they altered or changed in order to make up for these newly missing pieces? Is the office more productive with them gone or does it put a strain on the people who still remain there?

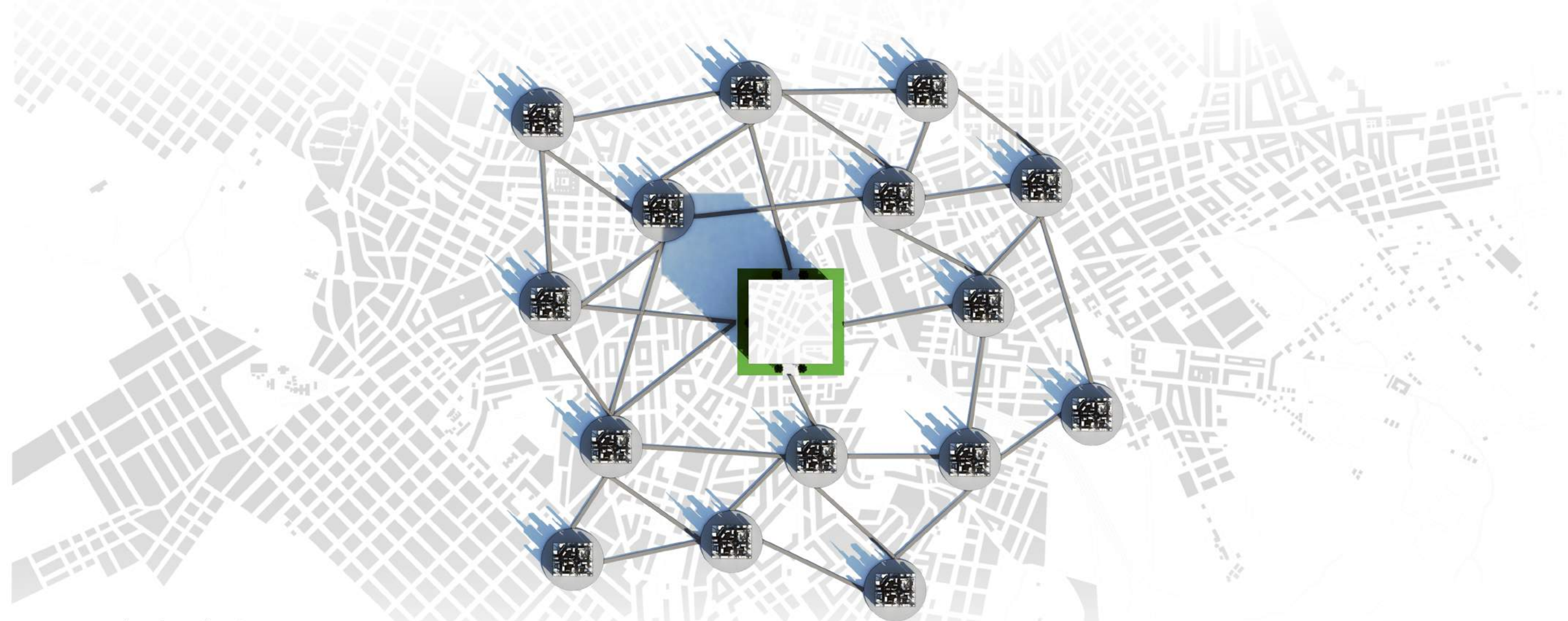


Fig. 2.20 - Viral within the City

## The Viral Model:

*The distribution of the office throughout the city*

### Components leaving the office:

- Individual "assigned" work areas: Work is now a mobile aspect and no longer requires a desk in a building for it to happen. The work space can now become anything it wants to be. Whether that be in a coffee shop, the park or even the table in your home. The advantage of a mobile worker is that work can now be carried out in the most comfortable of environments based on the users preference.

Based on the style of the mobile worker, their individual "work space" now becomes the person themselves. Based on their daily schedule and routine, the employee can now carry out work wherever they go. The influence and radicalization of technology has now allowed this to become easier than ever. A desk is no longer required, only a laptop or phone and thus, the office now becomes any place at anytime.

### Components remaining in the office:

- Collaborative Space: Group areas will become more vital than ever in this model. Mobile employees will need collaborative areas to work in when they eventually come back to the office.

- Private Work Areas: As more people leave the office more space is freed up to work in and as a result, it can become more flexible in its design. The standard cubicle design can be disbanded and allow more productive space to be designed for the people who remain in the office environment on a daily basis.

However, just because the individual work area doesn't apply to the mobile worker doesn't mean it doesn't still exist in the workplace. The mobile worker allows for less occupancy in the space and in turn, allows for more flexible and independent design.

## Chapter 3: *Design Process*

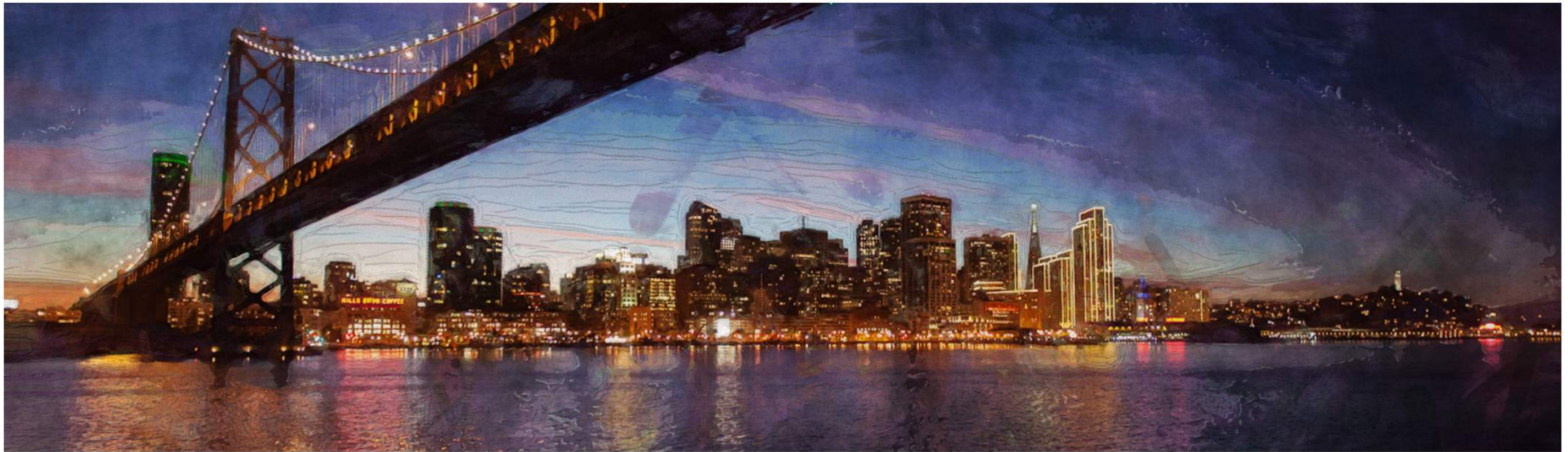


Fig. 3.01

## Silicon Valley:

*Where dreams become reality*

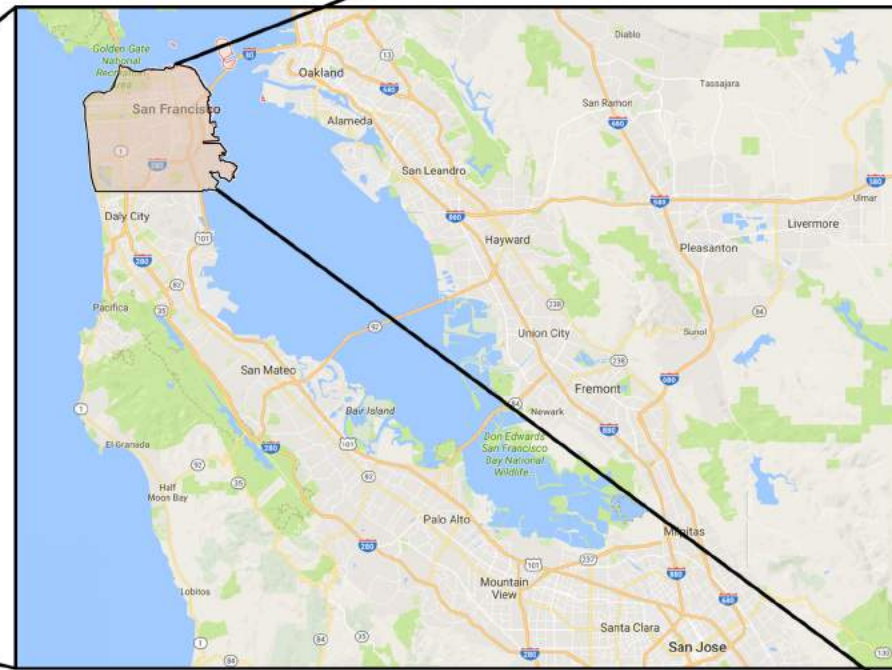
Bundled up at the south end of the San Francisco Bay resides one of the most technological advanced communities in the country. Home to the majority of the tech titans, Silicon Valley is the heart and soul of the computer technology industry. Technology giants such as Apple, Google and Facebook have made this their permanent location due to the flow of great ideas and the continuous advancements in the technological field.

This site will be selected for a vast majority of reasons. First and foremost is its involvement in the field of technology. This area in California will serve as the perfect grounds for testing this new typology of office design as it has all the key components necessary for its success. Secondly, the area is home to a very mobile environment. It has extensive transit systems throughout the area including bus and subway systems as well as multiple bike paths being instituted throughout the city.



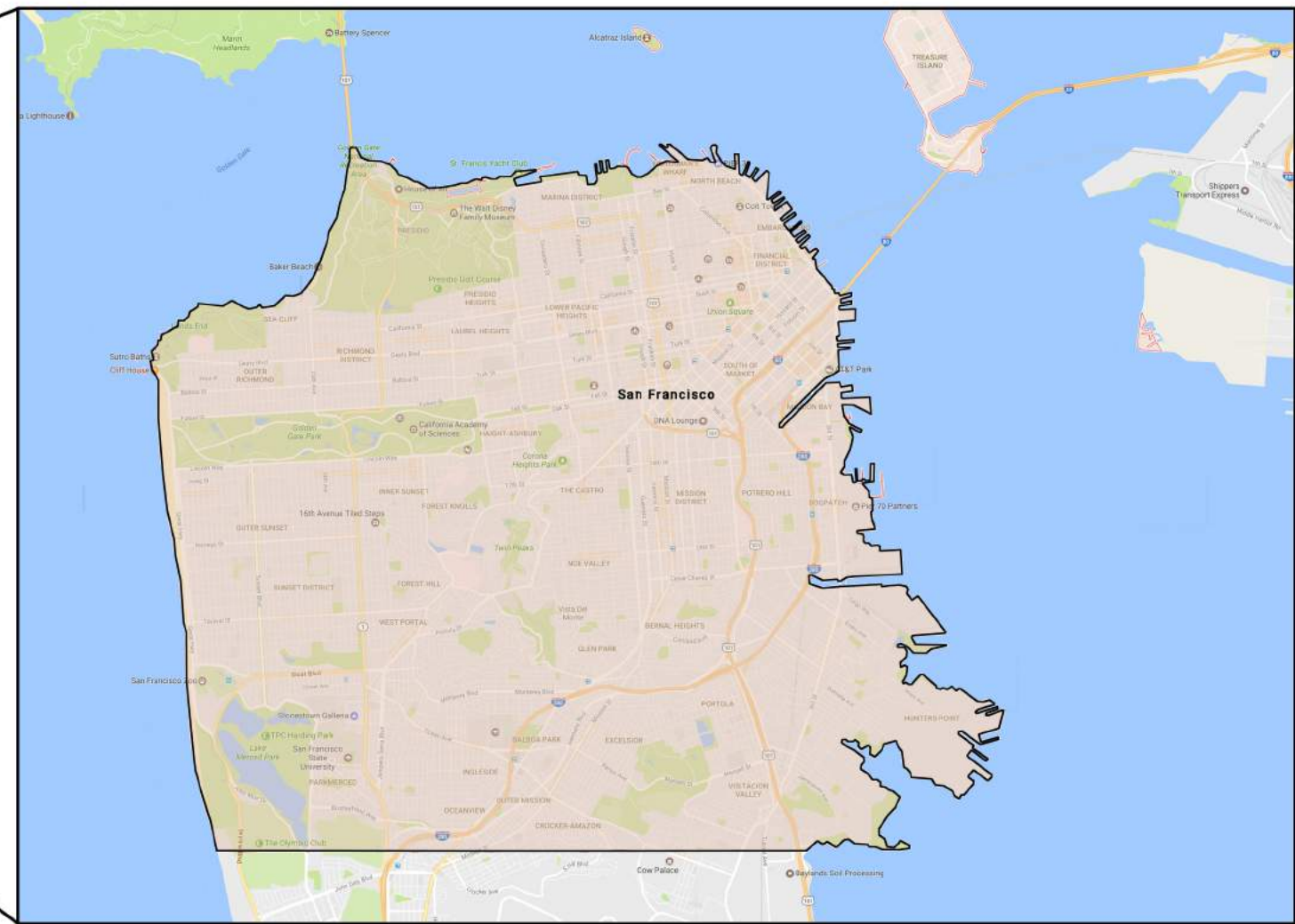
California, U.S.

Fig. 3.02



Silicon Valley - San Francisco Bay Area

Fig. 3.03



San Francisco, CA

Fig. 3.04

## Site Selection:

*San Francisco, California*

Located on the northern end of Silicon Valley lies one of the most technologically advanced cities in the country. San Francisco is home to some of the biggest tech giants in the country including Google, Adobe, Autodesk and many others. These factors make San Francisco the perfect location for picking a "site" to implement this new design strategy for the new mobile office.

Now because of the flexible nature of how this new office typology is being viewed, the "site per say is not actually going to be a physical one like most programs would typically have. The site as said before is San Francisco, but in this scenario the actual site is going to be the user group that will be inhabiting these new office typologies and how those typologies fit into a city that is based off of this growing trend of mobility and technology.

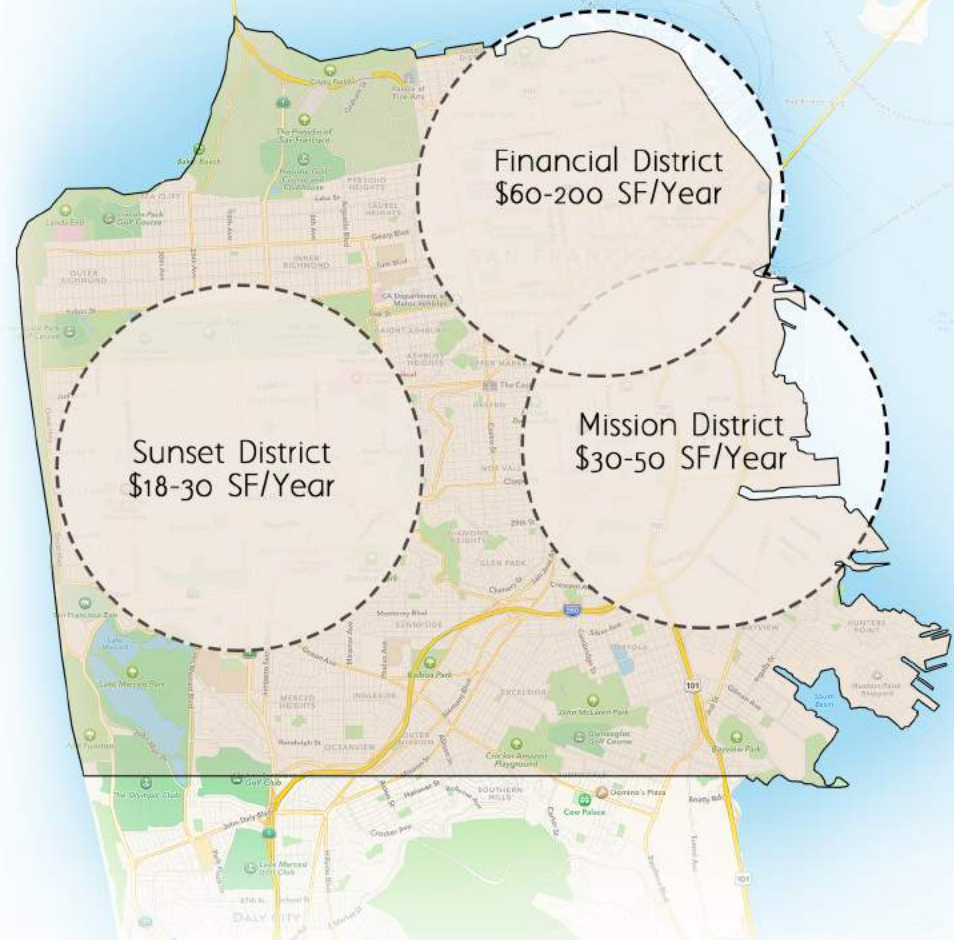


Fig. 3.05 - Financial Proximities

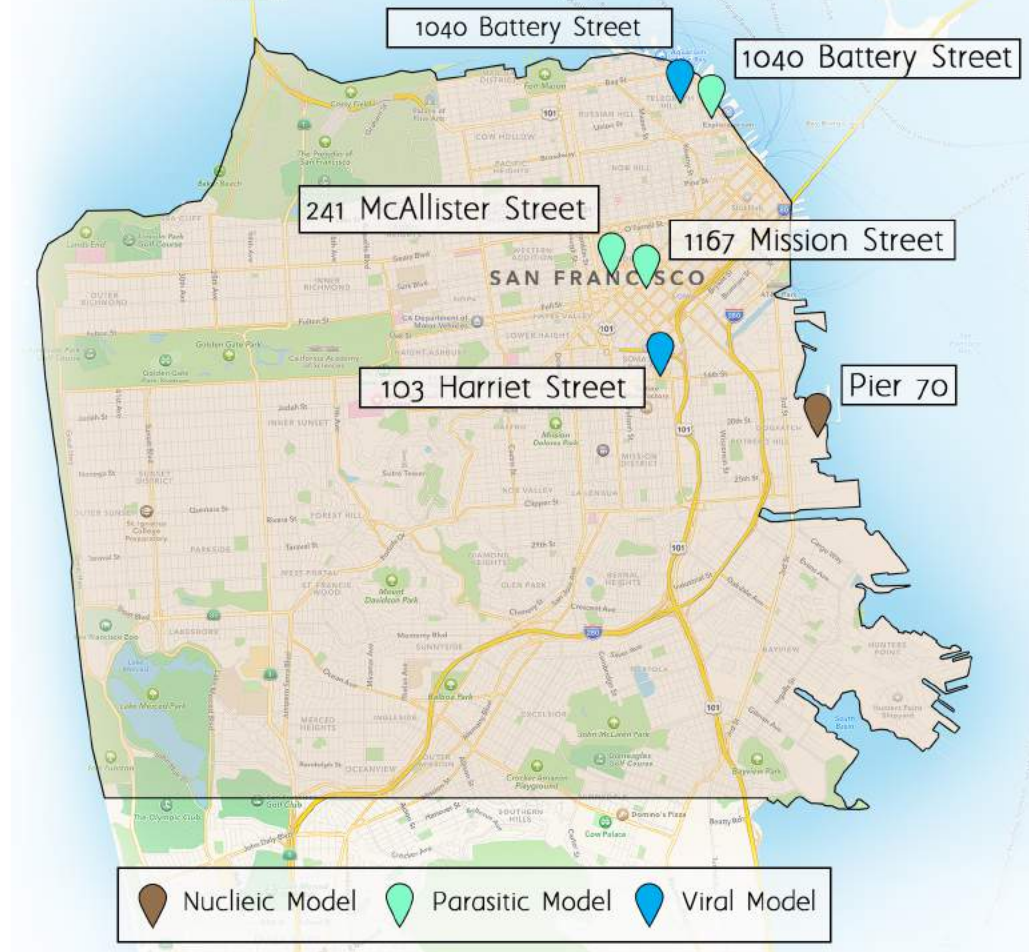


Fig. 3.06 - Program Location

## Site Selection: *San Fransisco, California*

Based on the models being used for programmatic elements, specific sites were looked for in order to implement this new style of office design. Due to the high rent costs of space in San Francisco and the relationship of the size to these costs, different financial districts were looked at in order to determine the best site locations. The financial district in came in at the highest cost per square foot ranging anywhere from \$60 to \$200. Just south of the financial district is the mission district where the price is much lower, ranging anywhere from \$30-50 per squarefoot.

After doing this initial research, it was determined that the sites for programmatic elements would use underutilized areas throughout the city in order to take advantage of sites not being used as well as saving money based on rent cost. The nucleic model would be located south of the financial district in order to avoid the high rent costs but still maintain a presence near that part of town. The parasitic and viral models would be placed in the financial district based on their proximity to relevant program in the city as well as maintaining that "corporate" image that the office typology needs in a city.

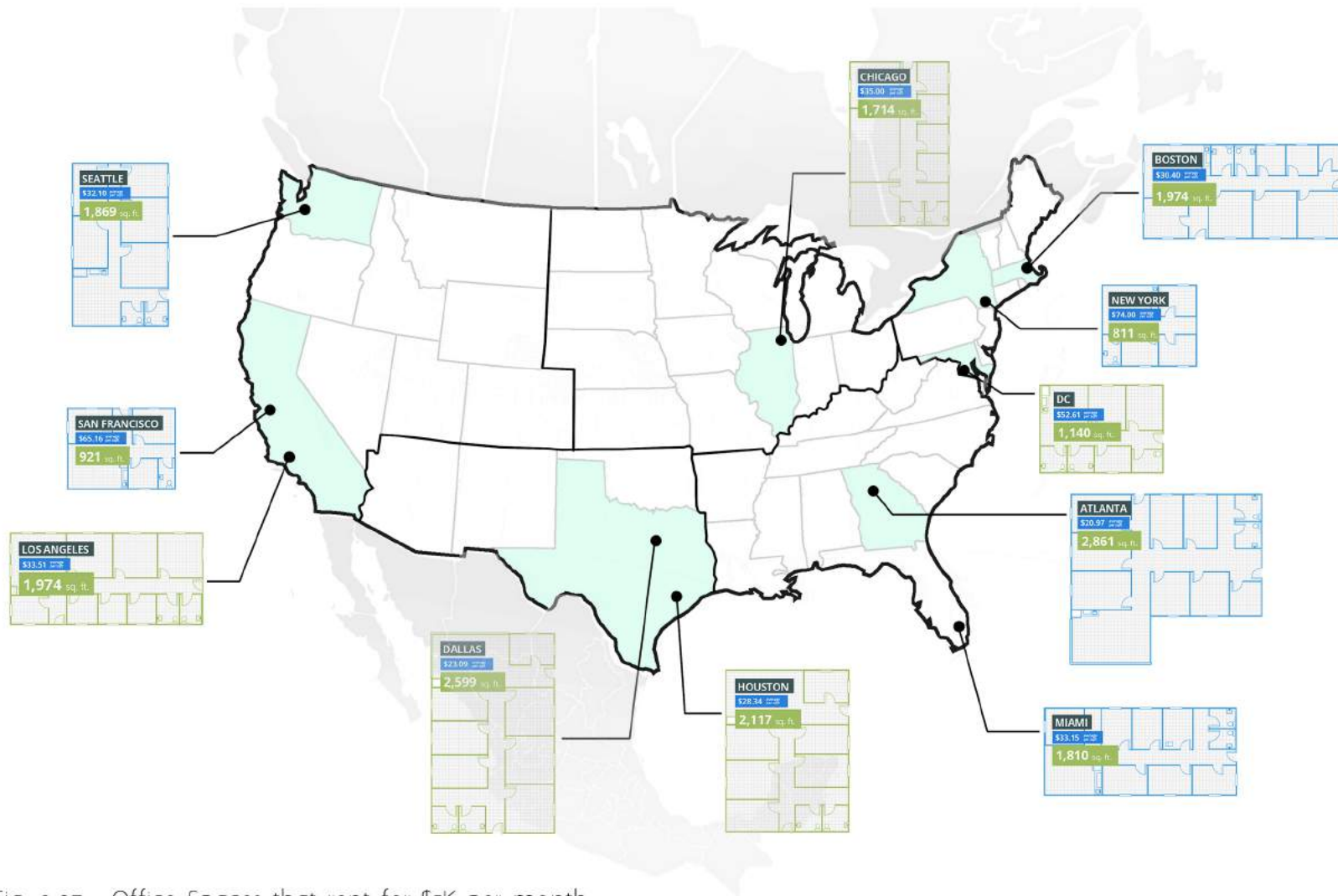


Fig. 3.07 - Office Spaces that rent for \$5K per month



Fig. 3.08 - Office Spaces that rent for \$5K per month

## User Group:

*Changing nature of rentable space*

One of the biggest issues facing the developing office typology is a factor that most people can relate to, money. The average cost per square foot to rent office space in the United States varies from city to city but most cities come in around an average of \$30-\$40 per square foot. However, in the bigger cities such as New York or San Francisco, the story is entirely different.

The average cost per square foot to rent an office space in San Francisco is roughly \$66.71 and is expected to reach over \$76 per square foot by 2019. Now while these numbers are steadily increasing, the vacancy rates of usable space are expected to reach almost 10% by the same year.

These staggering numbers are just one of the many issues that are daunting the current office typology and are beginning forcing some serious issues when it comes to usable space. Therefore, a proposition needs to be instituted in order to accommodate this change.

The concept of using underutilized or existing space for the core of the office typology will still remain the same, just without all the corporate glamor. Other satellite spaces of the same nature will then become the areas of the office that will be broken out and used at different areas throughout the city. This creates a typology that uses underutilized space as its core as well as the same type of space for its other existing office spaces.



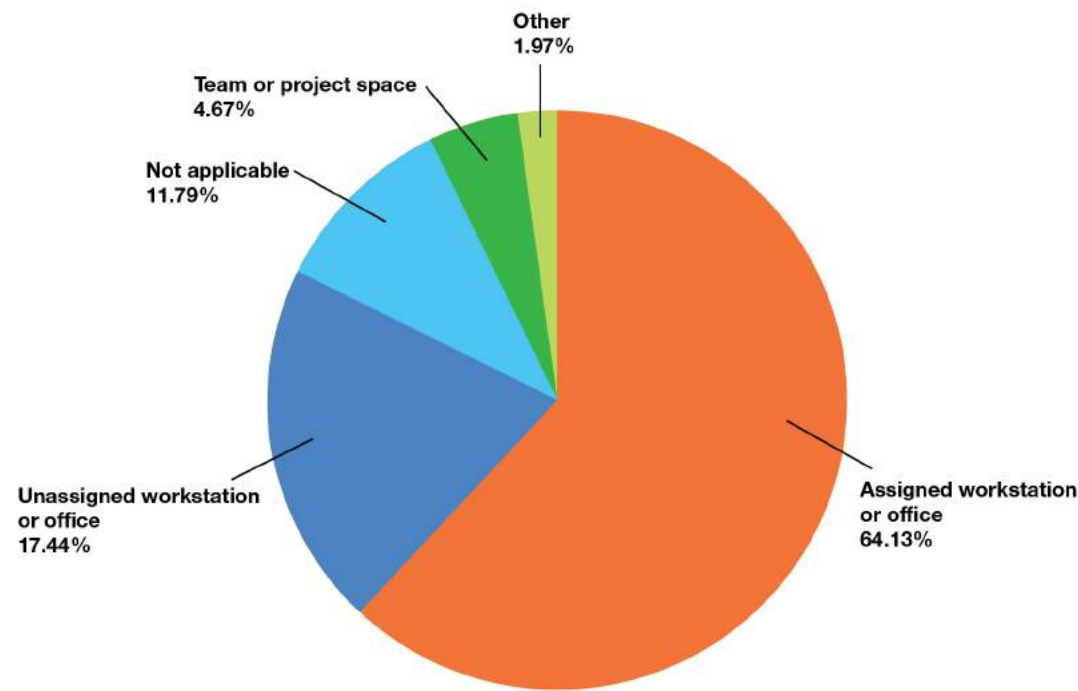


Fig. 3.09 - Mobile Workers' Most Productive Locations

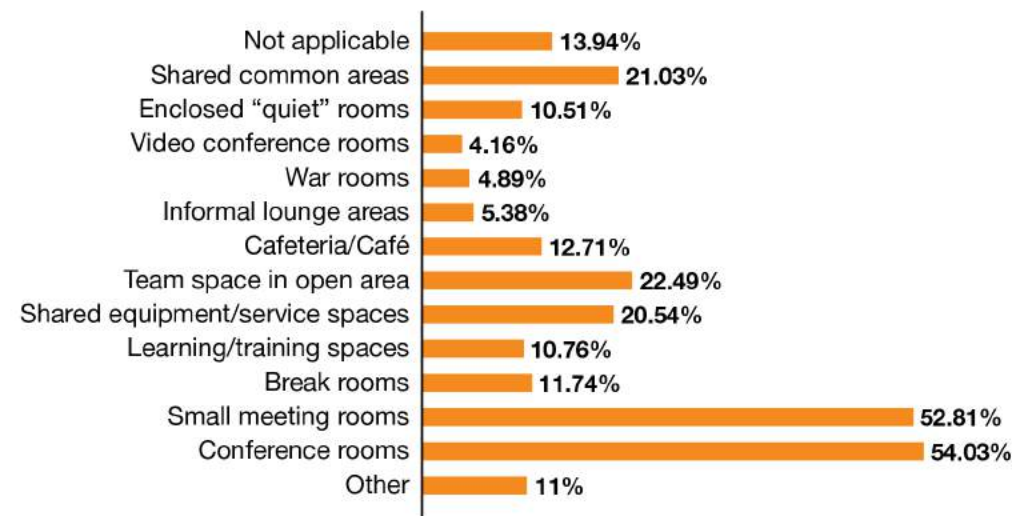


Fig. 3.10 - Types of Spaces Desired at a Primary Location

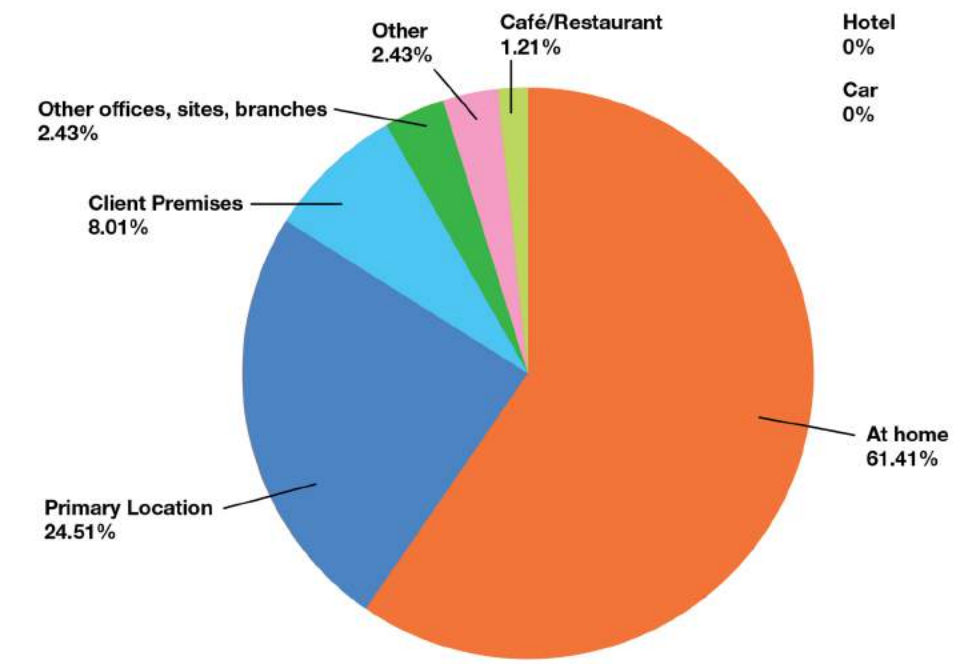


Fig. 3.11 - Types of Space Provided at a Primary Location

## User Group:

*The user as the mobile site that inhabits a changing space*

Based on a study of mobile workers done by Knoll, research shows that most mobile workers are most productive either at home or unassigned office locations. This goes to show that most of the productive work they are doing is done outside of the office setting but where is that work actually taking place at?

Most people believe that mobile workers are people who just sit in a cafe all day or in a hotel on their laptop or in some other location within the city besides the office. This couldn't be more further from the truth because in reality, most work done by mobile workers is either done within their home setting or at a primary location.

Based on the same study done by Knoll, we can see that almost 90% of all mobile work is done either in the home of the individual or at some other primary location they go to on a daily basis in order to achieve productivity. However, most of these spaces are lacking in the necessary needs in order for the individual to be productive in that setting. The most common desired space that most employees want to have is either small meeting rooms or conference rooms as well as individual space to work in.

Based on this analysis, the existing programmatic models developed will seek to fill these needs within the proximity of the city of San Francisco.

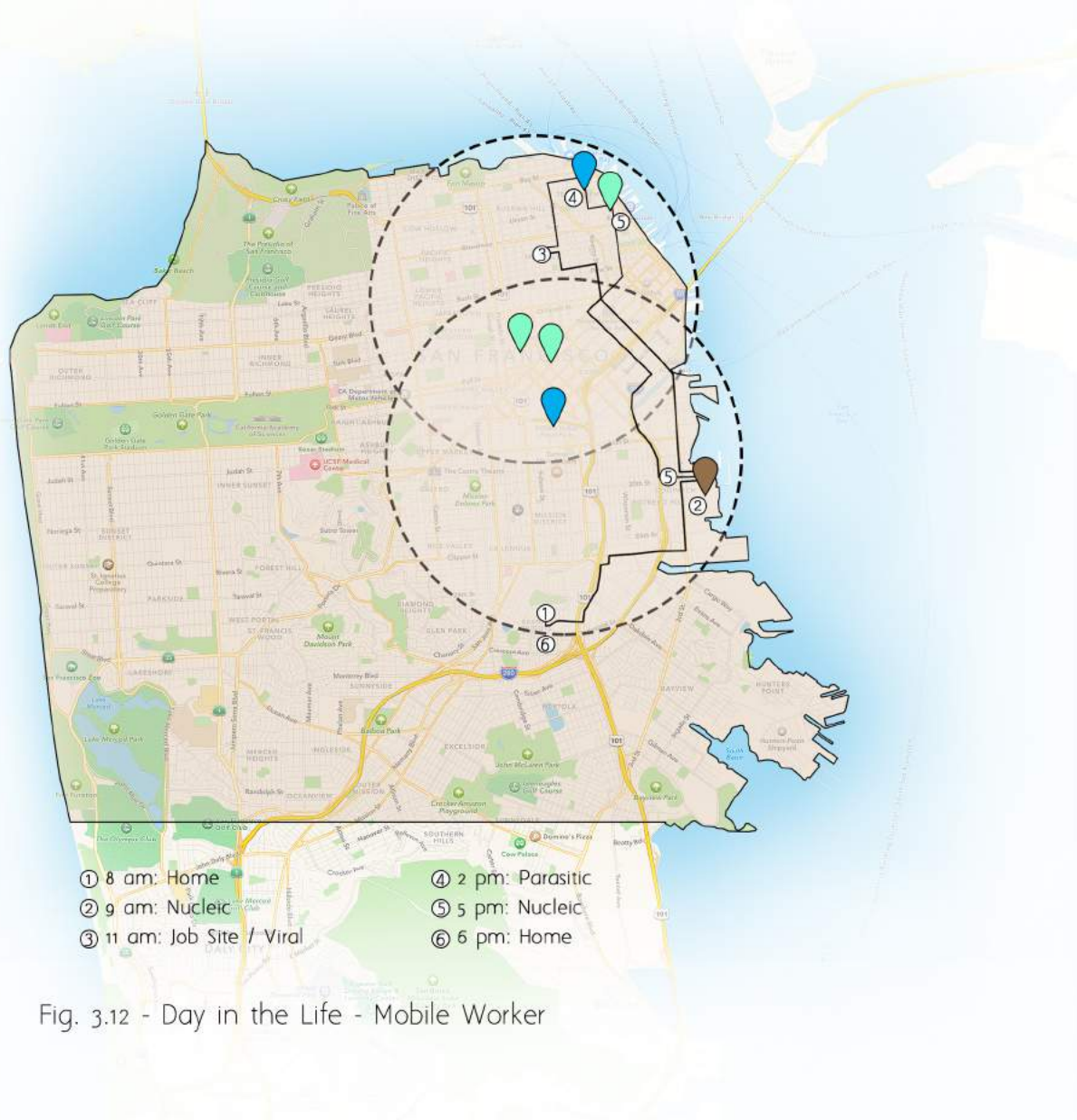


Fig. 3.12 - Day in the Life - Mobile Worker

Day In the Life Model - Mobile Worker

Program Use

- 8 am: Wake up at home / check emails
- 9 am: Arrive at the office → **Nucleic Model**
  - Check on status of ongoing work
  - Client Meetings
- 11 am: Commute downtown to check on jobs → **Viral Model**
  - Client meetings
  - Go to mobile unit to work on work changes and additions
  - Lunch break downtown
- 2 pm: Go to branch office to deliver revisions to team → **Parasitic Model**
  - Talk with team about new revisions and update work schedule
- 5 pm: Return to the office → **Nucleic Model**
  - Last minute meetings
  - Update staff on advisements for the day
  - Commute home

Fig. 3.13 - Day in the Life - Mobile Worker

## User Group:

### *"Day in the Life" Study of a Mobile Worker*

The two main user groups for the new models will be the mobile worker and the typical "stationary worker of the office. The first user group is the mobile worker, which is becoming vastly more popular in the workforce as time moves on. The concept of being able to take your work wherever you go is now changing the way in which people work and create.

This model shows how a typical mobile worker would operate within this new office system that is being developed. The typical worker would start his day at home and then based on the current schedule, would be able to determine with of the three models would work best for the type of work being done that day. If the day consists of meetings and conference calls, the best option would be the central nucleic model. If the worker is moving from place to place visiting different clients as well as other employees, the best option would be the parasitic or viral model. This new method allows for maximum flexibility of the worker himself/herself as well as promoting maximum efficiency at the same time.

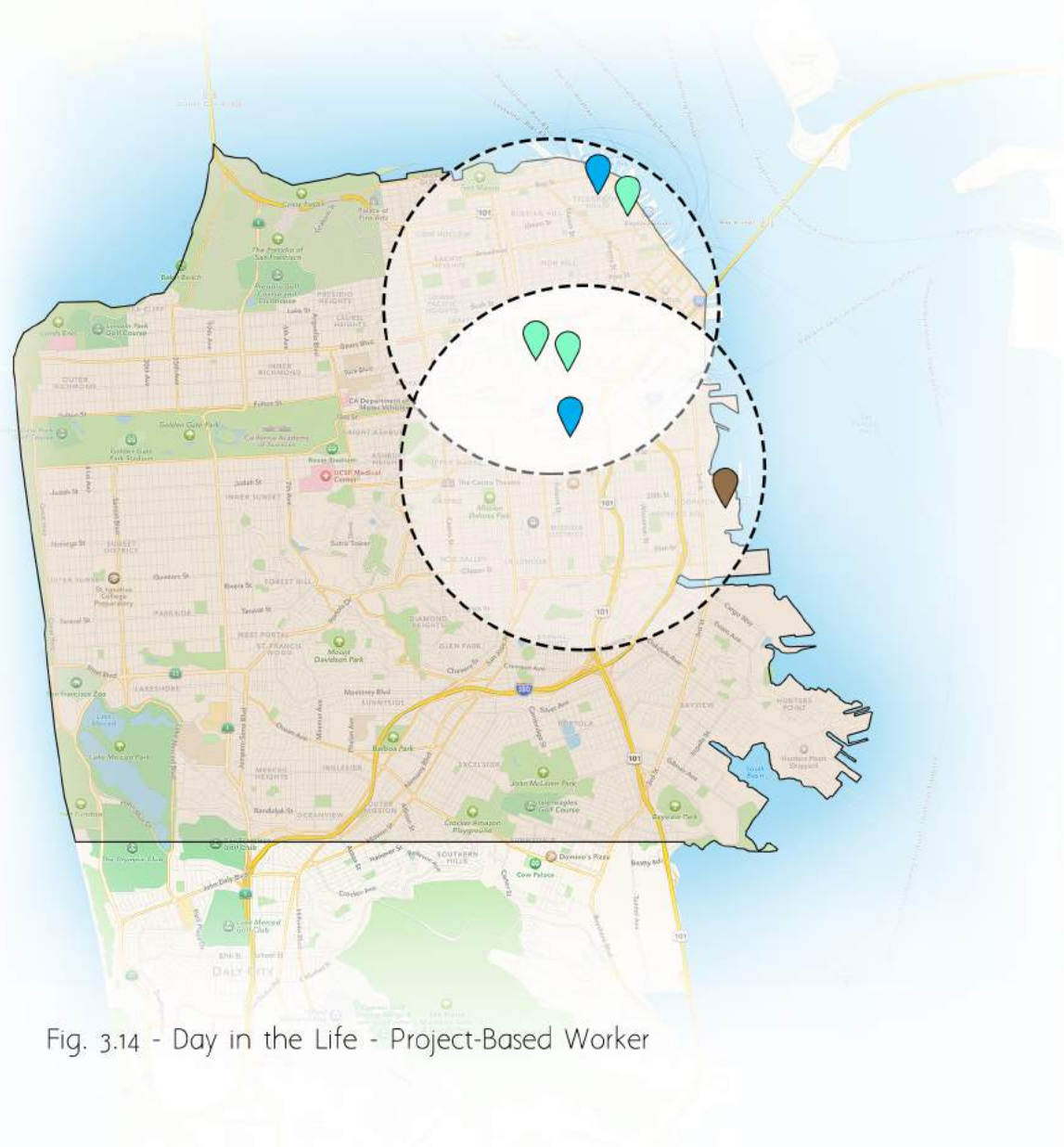


Fig. 3.14 - Day in the Life - Project-Based Worker

Day In the Life Model - Project-Based Worker

Program Use

- 8 am: Wake up at home
- 9 am: Arrive at Work
  - The employee's primary work location is dependent on the project they are working on at the time

- Partners / Associates: \_\_\_\_\_ → **Nucleic Model**

- Partners and associates would primarily be located at the "home" office but can bounce around to other locations as well

- Team / Studio Employees: \_\_\_\_\_ → **Parasitic Model**

- Studio employees would be located primarily at the parasitic office working on a particular project as a group

**Viral Model**

- Mobile Workers: \_\_\_\_\_ → **Nucleic Model**

- Mobile workers are the fluidity of the work place as they can work at any location at any time

**Parasitic Model**

**Viral Model**

Fig. 3.15 - Day in the Life - Project Based

# User Group:

## "Day in the Life" Study of Project-Based Workers

The second model of the user groups based off of the typical stationary office worker. This variation of the model is based off of the existing office typology where workers collaborate within one space in order to accomplish their work. Now the variation with model is that instead a single worker working in only one area all times of the day, there are other separate models that they can work in as well. This variation of the model will be based on project-based workers that carry out their tasks based on the project time line and therefore will collaborate with which model they decide to work in.

Take for example once of these "project-based" workers, their schedule and place of work would be based on the type of work they are carrying out and how many people are required to work on the project with them. In the technology field, imagine a team is assigned a new app or software they need to develop and therefore require a space to work on it in. The nucleic model may not be the best fit as it promotes collaboration between all workers and this particular team needs their own space to work privately while still as a team at the same time. Therefore, the parasitic model would be the best fit for them as they are close enough to the downtown area to still be within proximity to the client for meetings as well as have an office setting that is solely theirs to work within.



Fig. 3.16 - Viral Model

Fig. 3.17 - Parasitic Model

## User Group + Site:

*Combination of the user and the mobile site*

Based on all of the research done up to this point on how the office environment is changing and how employees are changing as well, a new method of design that takes into consideration these changes will be implemented in order to better suit this new office work environment. Three different models will be implemented throughout the city of San Francisco in order to better support this new work type.

The nucleic, parasitic and viral model will each be given their own sets of sites that fulfill the needs of the workers as well as taking advantage of underutilized sites throughout the city.

**Nucleic Model:** The nucleic model will be placed in a centralized location within the city with proximity to local amenities as well as other employees using different work place models.

**Parasitic Model:** The parasitic model will take advantage of underutilized spaces within the heart of San Francisco. Sites such as alley ways will be used in order to fill sites that cannot be used for any other program.

**Viral Model:** The viral model has several possibilities as to where it can be placed and used. It can range from sites such as the beach or a park, to underutilized properties that are too small for other programmatic elements or could even be placed in someone's own back yard to use.

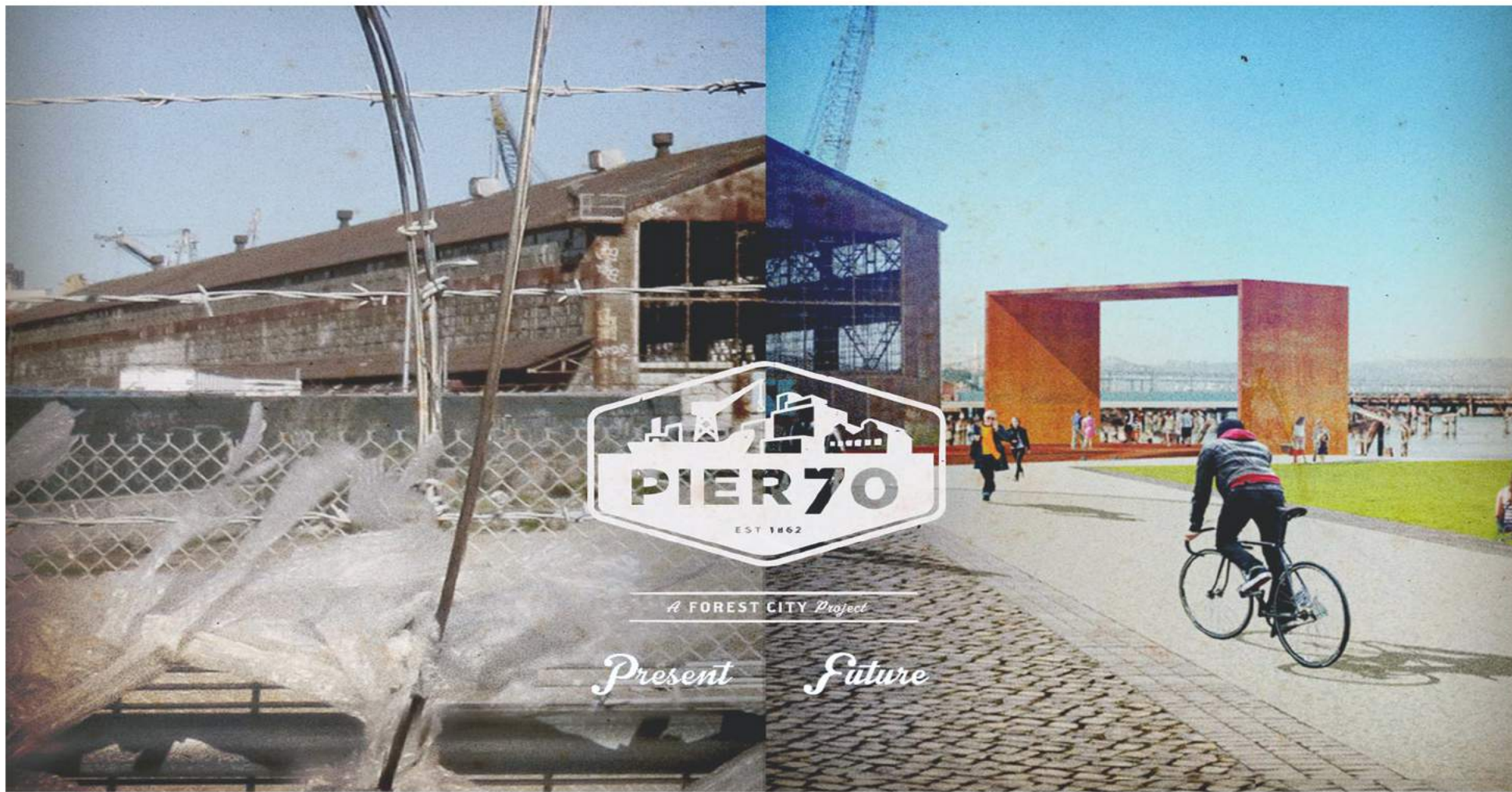


Fig. 3.18 - Pier 70



Fig. 3.19 - Interior Proposal



Fig. 3.20 - Pier 70 Proposal

## The Nucleic Model:

*The essence of the office in one location*

Pier 70 is a popular location located just south of the main downtown financial district in San Francisco. Until recently, the site has been in poor condition and neglected by the city even though it does have several features that make it quite enjoyable. Located right on the bay, the site offers many amenities such as a food truck market as well as the pier itself. This site was chosen based on its financial qualities and low rent rates while still providing the basic amenities required to keep the site viable.

Within the past few months, the city of San Francisco has instituted a new design development for the area of Pier 70. The idea of taking the funky and industrial feel of the existing site and turning it into a new urban utopia is now the new design goal for the site. The city will begin renovating the existing industrial buildings which will in turn be used for commercial and residential uses. This potential of this new urban site will provide the ideal location for the nucleic model as all the necessary amenities will be added to the existing location therefore validating the decision for placing the main office hub there.



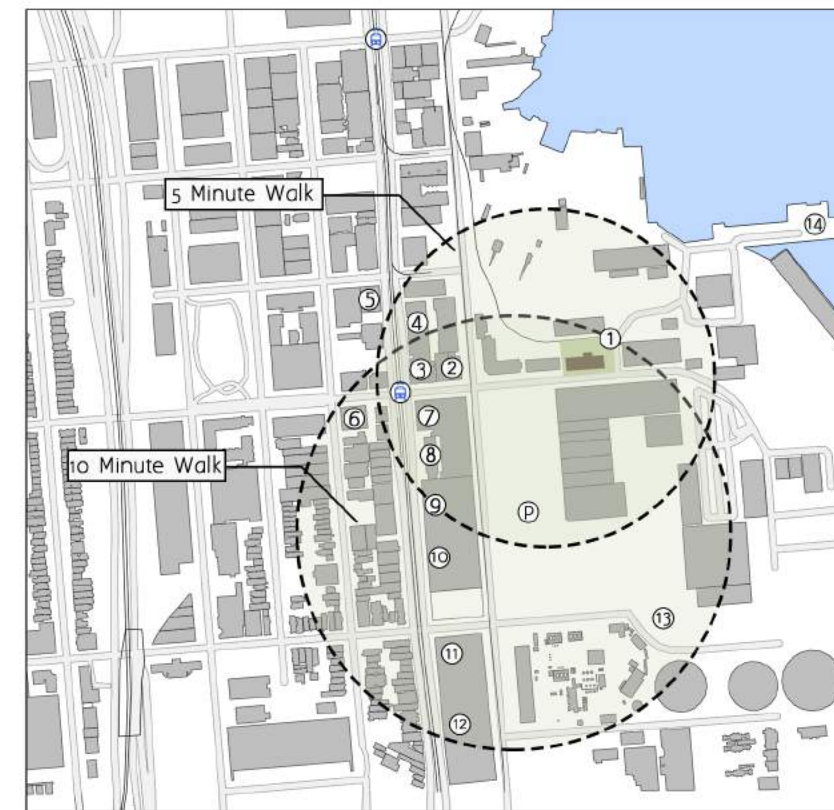
A 8 am: Home    B 9 am: Nucleic    A 6 pm: Home  
 Alternate Sites (Depends day to day)  
 C ..... Viral Model  
 D ..... Parasitic Model

Fig. 3.21 - Site Selection - Micro

## The Nucleic Model:

*The essence of the office in one location*

As stated previously, the nucleic model will be located within the Pier 70 site in the Mission District of San Francisco. This location will serve as a sort of "in-between" marker between the residential districts as well as the financial district where the parasitic and viral models will be located.



### Amenities Proximities

1. Site: Pier 70
2. Glena's
3. Dogpatch Cafe
4. Triple Voodoo Brewery
5. The Pearl Event Venue
6. LaLanne Fitness
7. Jolt 'n Bolt Bakery
8. The Plant Cafe Organic

### Transportation Proximities

9. Gerhard European Deserts
  10. Long Bridge Pizza
  11. Smokestack Brewing and Design
  12. Museum of Craft and Design
  13. San Francisco Street Food Venue
  14. Potero Point
- Mariposa & 3rd - BART Metro  
 20th & 3rd - BART Metro  
 P Parking Access

Fig. 3.22 - Site Selection - Macro

Pier 70 serves as an ideal location for the nucleic model because of its financial benefits as well as the new and upcoming renovation to the pier itself. Several amenities are already located within the area that further promote the validity of the site choice as well as the proximity to transit stations that allow for links between the financial districts and the residential ones as well.

Fig. 3.23 - Entrance Elevation

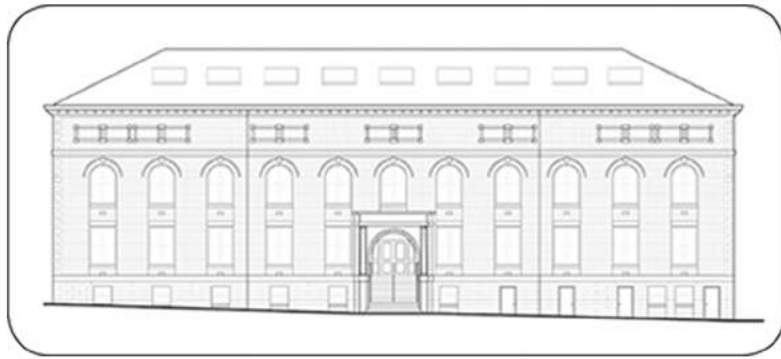


Fig. 3.24 - Site Context

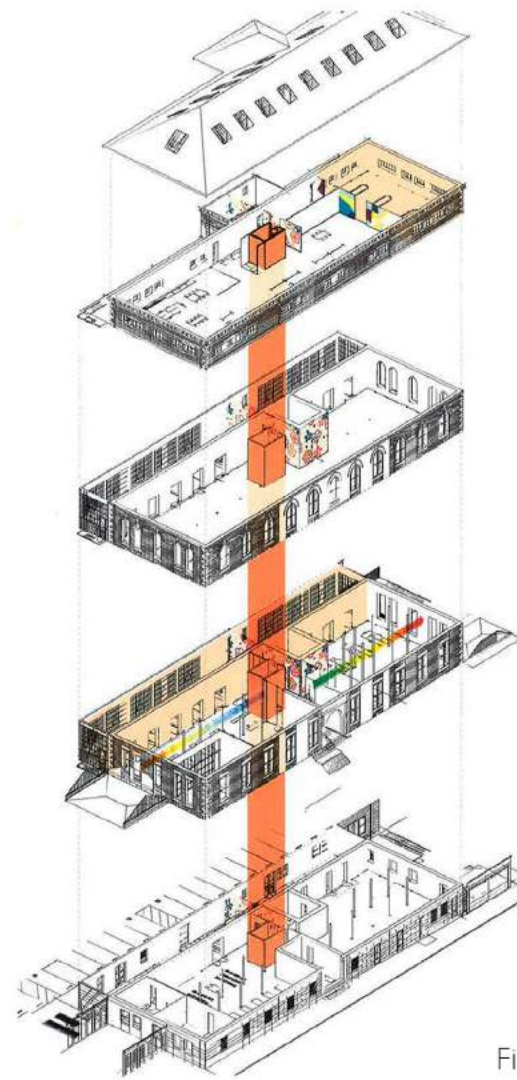
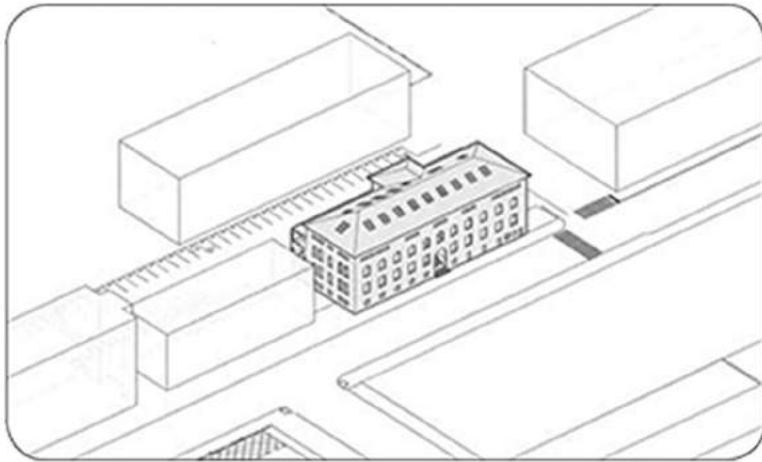


Fig. 3.25 - Axon

Fig. 3.26 - Nucleic Model Floor Plan - 4th Floor - Individual Space Floor

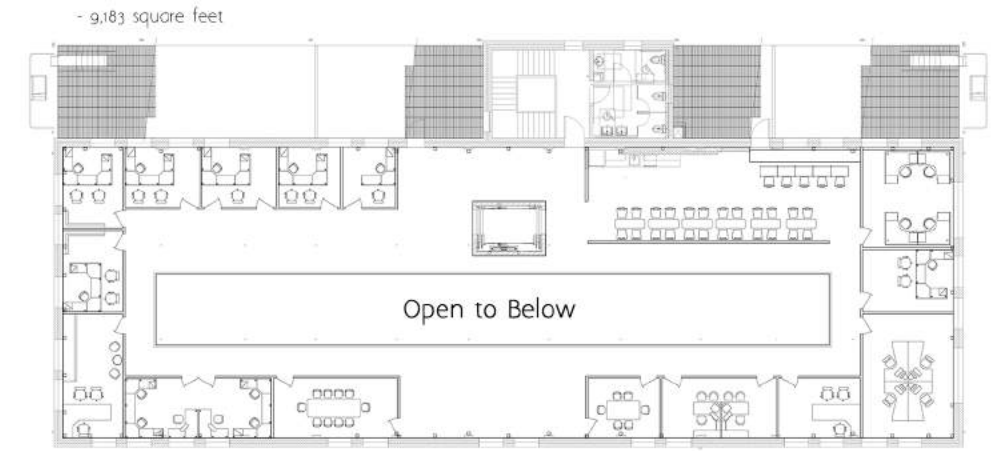
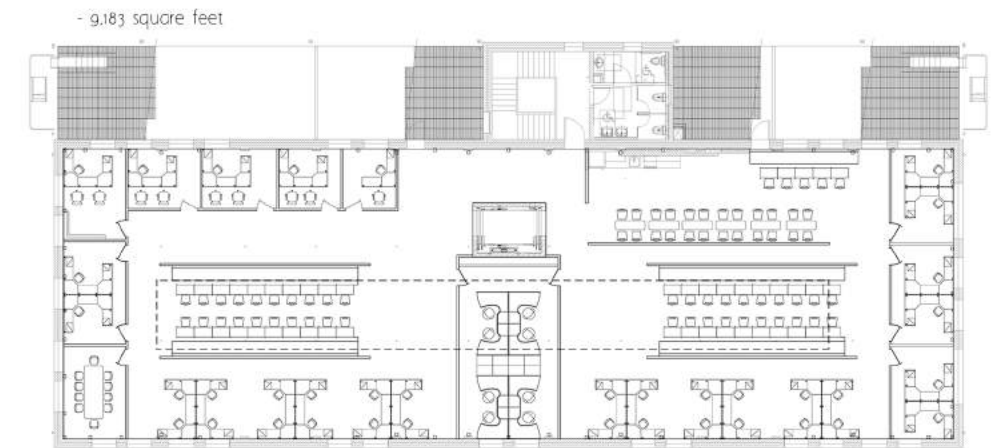


Fig. 2.27 - Nucleic Model Floor Plan - 3rd Floor - Collaborative Space Floor

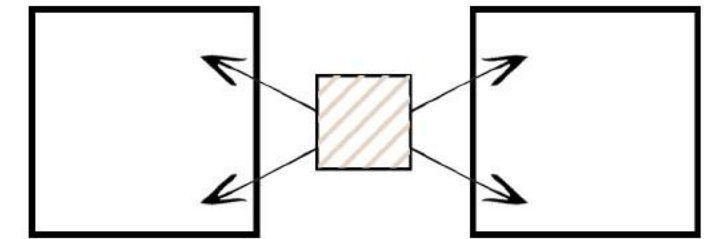
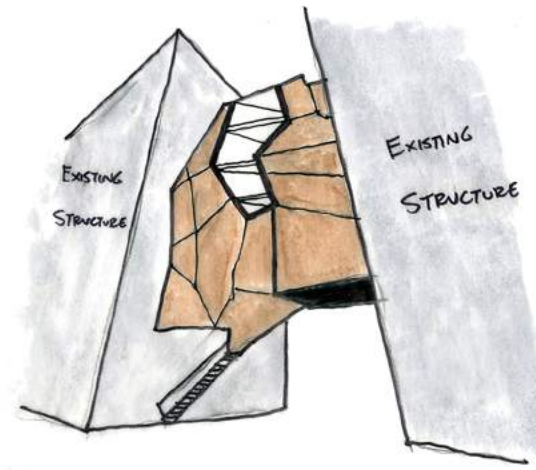
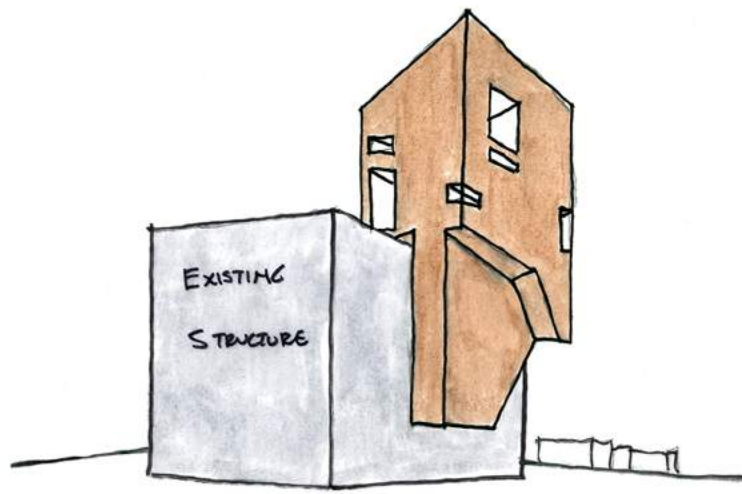


## The Nucleic Model:

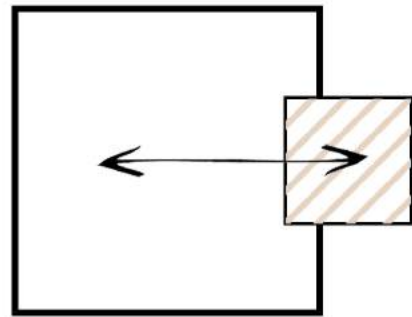
*The essence of the office in one location*

The existing building that will house the nucleic model is a newly renovated industrial building that has now become lease-able to the public for commercial use. The building promotes open collaboration based on the openness of the plan as well as locates the main transition spaces of the building to the back perimeter as to not disturb employees as they work.

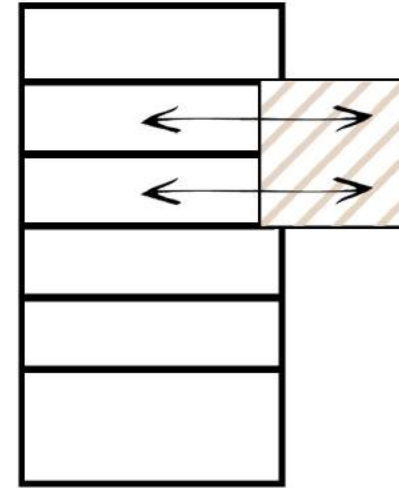
The existing building provides ample opportunities for floor plate design within the existing structure as to allow the tenant to set up the ideal space for the employees to work in. This example provided above shows one of these such techniques and how it will provide a productive space in which workers are operating and thriving within today. The 3rd floor will operate as the collaborative floor wherein there are several collaborative spaces for employees to gather in as well as individual breakout areas for more private spaces. The 4th floor will act as the individual workspace areas where there are private offices and conference rooms for employees to work in that require a more private environment to be efficient in.



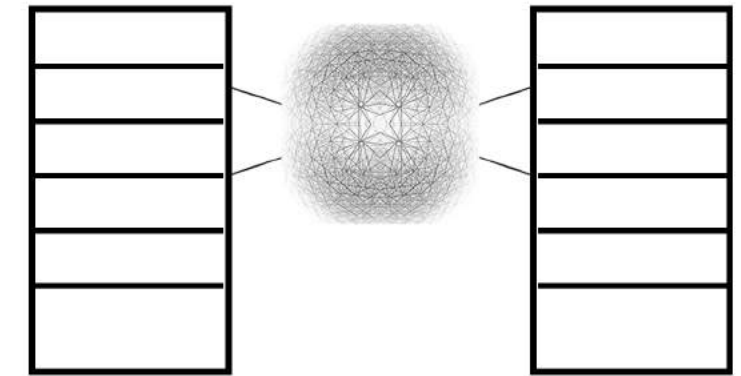
Plan



Plan



Section



Section

Fig. 3.28 - Endoparasite Study

Fig. 3.29 - Ectoparasite Study

## The Parasitic Model:

*Where program latches to other programs*

### Endoparasite Model:

en-do-par-a-site / noun - biology

*a parasite, such as a tapeworm, that lives inside its host.*

- This variation of the parasitic model allows the "host" to live within the existing structure, pulling the necessary components it needs to survive from the existing host.

- This model would have to be implemented during the construction phase of a project in order for the structural security to be sound or it could be implemented during an adaptive reuse project.

### Ectoparasite Model:

ec-to-par-a-site / noun - biology

*a parasite, such as a flea, that lives on the outside of its host.*

- The parasitic model allows for the "host" structure to live on the exterior of the existing structure. Therefore it does not take away from what is there, but merely adds to it in a way.

- This model will be used to take advantage of existing underutilized space that cannot be used for other programs for reasons such as space, quality etc.



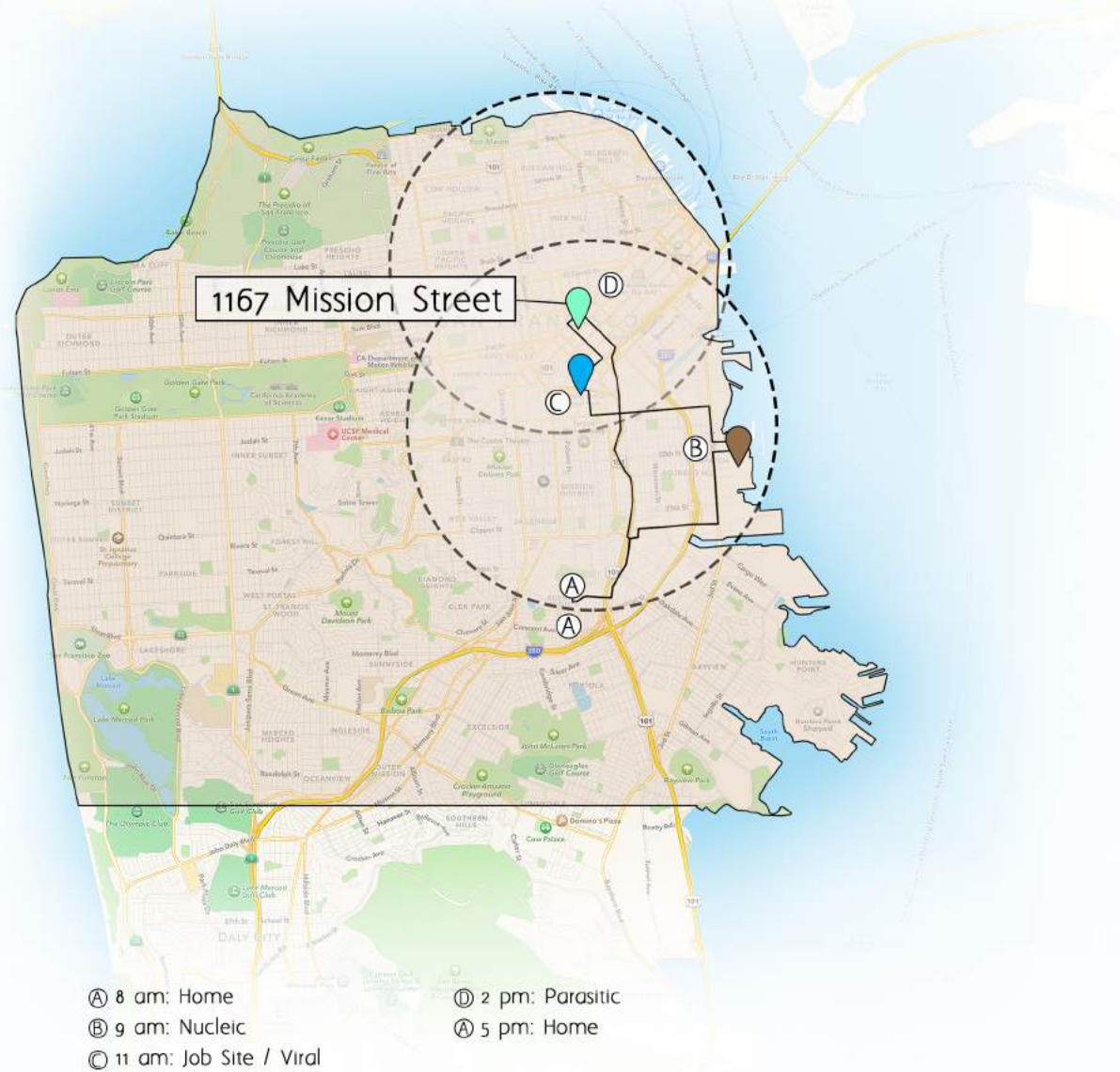
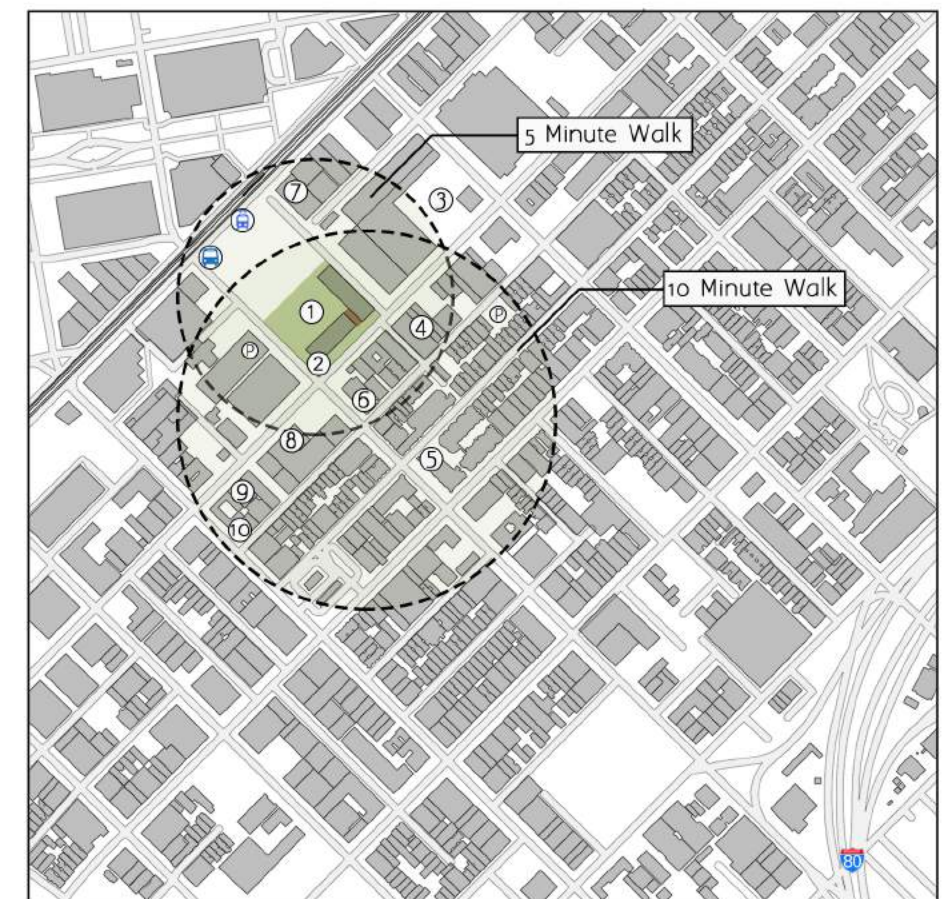


Fig. 3.30 - Site Selection - Macro

## The Parasitic Model:

*Where program latches to other programs*

The site location for the parasitic model will be located in an underutilized area within the financial district of San Francisco. This will serve two purposes: one is to better develop the infrastructure of the city so that all viable spaces will be used and secondly this will provide an office "presence" in the downtown area as the nucleic or main hub of the office is located just south of the downtown area.



### Amenities Proximities

- |                                |  |
|--------------------------------|--|
| 1. Site: 1167 Mission Street   | 6. WeWork Civic Center (Shared Office Environment) |
| 2. Focaccia Market & Bakery    | 7. Fog Towne Cafe                                  |
| 3. Honey Bistro                | 8. Moya Restaurant                                 |
| 4. 7 Mission Restaurant        | 9. Starbucks                                       |
| 5. Cellarmaker Brewing Company | 10. Asia SF  |

### Transportation Proximities

- |                                     |
|-------------------------------------|
| Market St. & Hyde St. - Bus Station |
| 8th & Market - BART Metro           |
| Parking Access                      |

Fig. 3.31 - Site Selection - Micro

The proximity of the site to relevant amenities has placed it in a very good spot in relation to the city around it. First off, it is within the heart of the downtown area which makes it easily accessible to client that might need to come in and talk about on-going projects and discuss the progress of their work and allows them to not have to travel outside of the city to the nucleic office site. Secondly, the relevant amenities provide multiple opportunities for activities to happen outside of the office setting as well as being close enough to walk to various transit stops around the city.

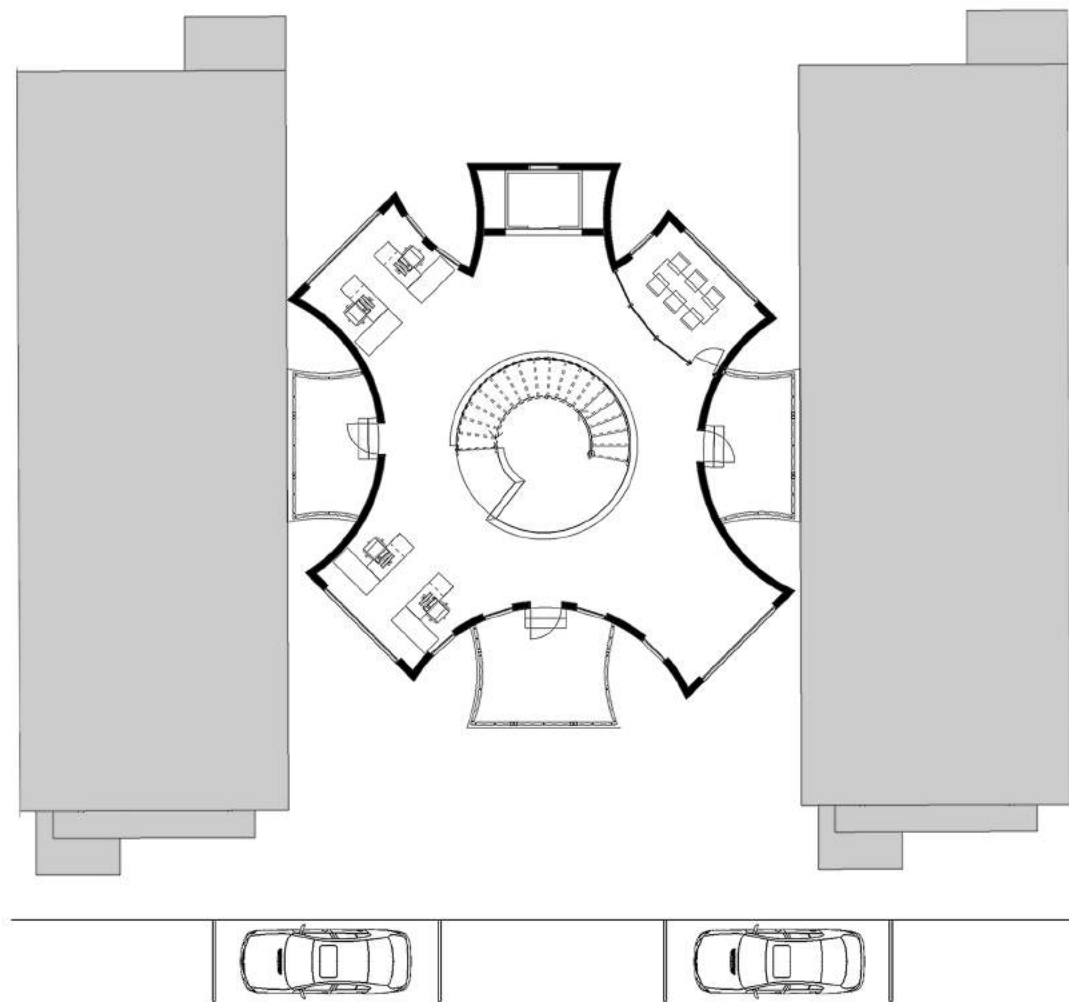


Fig. 3.32 - Plan - Collaboration Floor

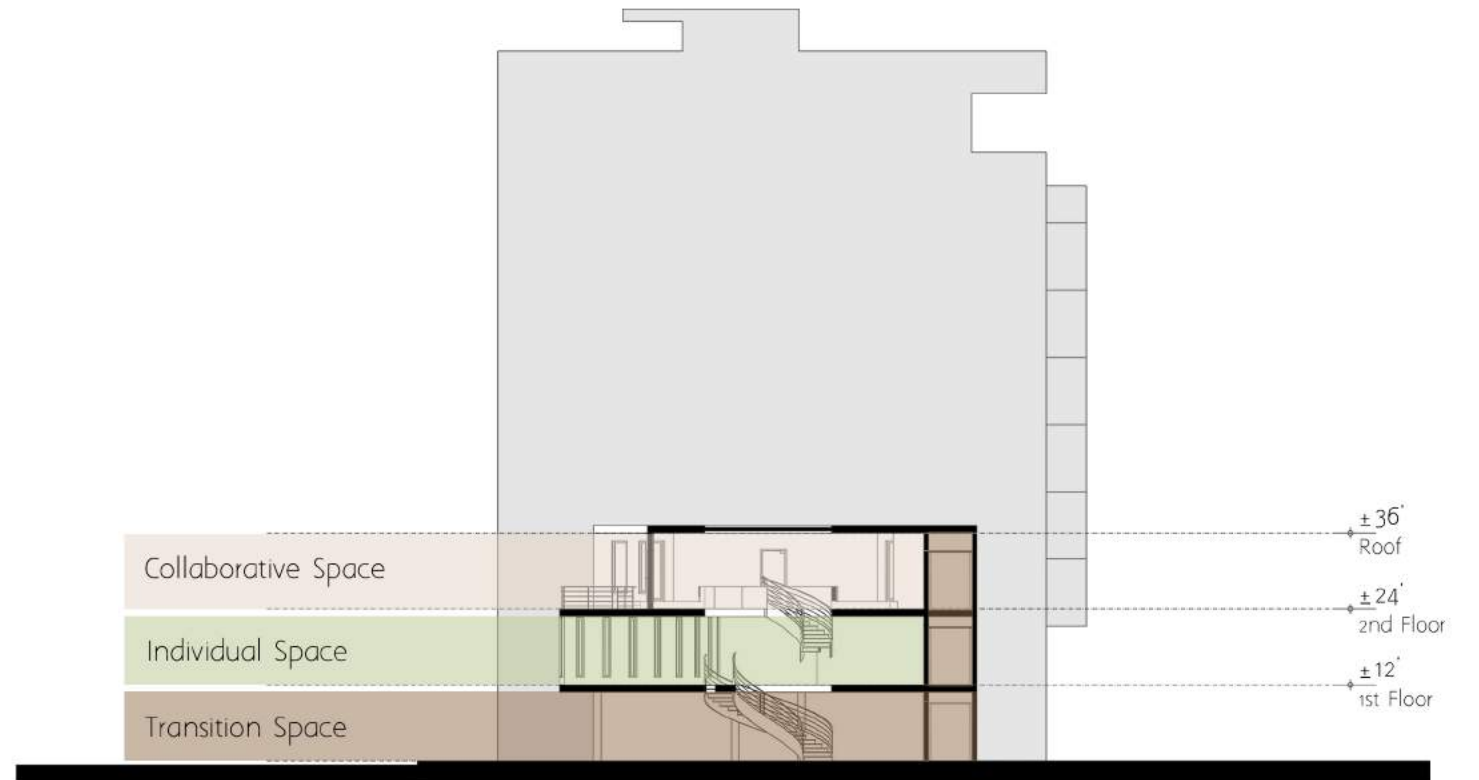


Fig. 3.33 - Programmatic Section

## The Parasitic Model:

*Where program latches to other programs*

The actual office setting itself will seek to find underutilized spaces throughout the city in order to set up shop at that other companies may not necessarily want or be able to fit their program within. These "spaces" more often than not will be located within alley ways that have been abandoned and serve as a sort of eye sore to the city itself. Because this model is smaller in size than most office settings, it is able to "squeeze" itself into these smaller areas and therefore bring them back to life within the city.

The basic model will have three distinct floors to operate within. The first floor will act as the transition area which will bring people into the office as well as act as street inhibitor to make its relevance to the city. The second floor acts as the individual space for the workers to work within. Lastly, the third floor is the collaboration floor. This will be where team meetings will take place as well as a place for clients to come and discuss on-going projects.



Fig. 3.34 - Exterior Street View

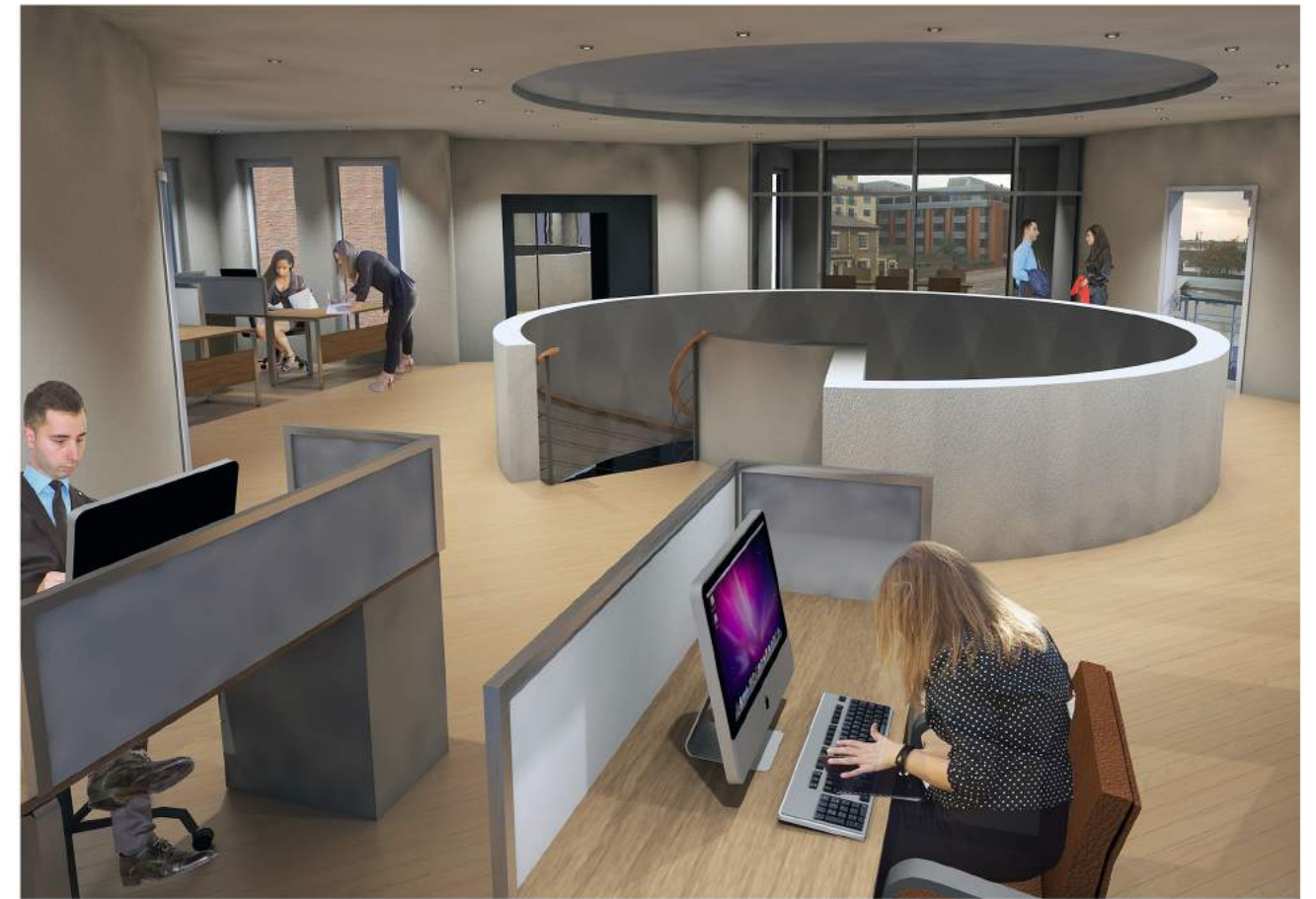


Fig. 3.35 - Interior Workspace

## The Parasitic Model:

*Where program latches to other programs*

Pictured above is what the typical exterior view of one of the parasitic models would look like. As one can see, by placing a model of this sorts within these underutilized areas, it brings life back to the area and therefore removing these abandoned areas from the city itself.

The second picture depicts what the typical interior of one of the model might look like. As one can see, it is designed in a way that promotes collaboration as well as offers private spaces for employees to work in as well.



Fig. 3.36 - Possible Site Location



Fig. 3.37 - Possible Site Location

## The Viral Model:

*Programmatic elements that mimic user patterns*

The last model of the new office design is the viral model. This model is based solely on the mobile worker and their daily routines and work habits. Currently, mobile workers are constrained to working on transit, in a coffee shop or honestly wherever their work takes them. This new model will seek to provide them with a space that is solely theirs to work in.

These new models will be based off of typical office dimensions such as room size and collaboration spaces. They will cater to both the individual worker as well as offering larger spaces that collaboration can occur within. These spaces will seek to eliminate the need to find an available space to work within and will instead offer a single space for all mobile workers to work within at their leisure.

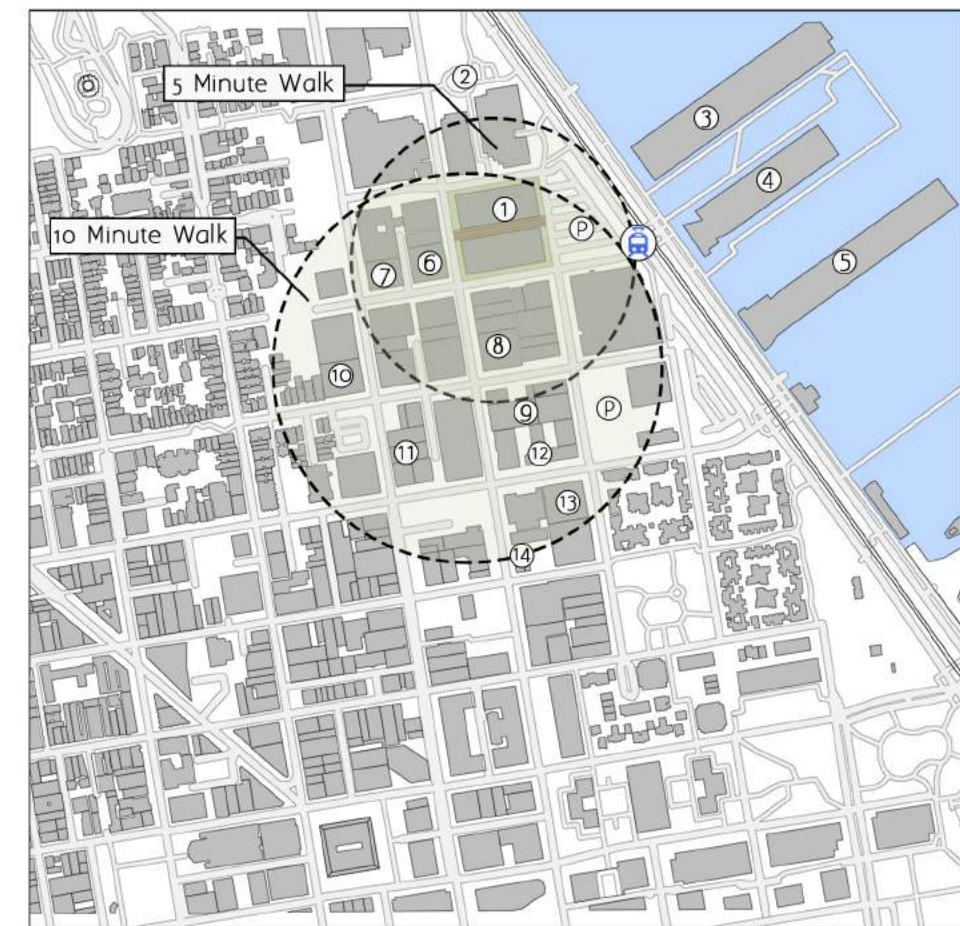


Fig. 3.38 - Site Selection - Macro

## The Viral Model:

*Programmatic elements that mimic user patterns*

The viral model's location will be simple to the parasitic model with some slight modifications to the site locations. Firstly, they will be located within the financial district similar to the parasitic model so that on their daily routine throughout the city they will be provided a private space to work within throughout the day.



### Amenities Proximities

- |                               |                              |
|-------------------------------|------------------------------|
| 1. Site: 10490 Battery Street | 8. Donut Queen               |
| 2. Levi's Plaza Park          | 9. Grumpy's Pub              |
| 3. Pier 19                    | 10. Gyro                     |
| 4. Pier 17                    | 11. Henry's Hunan Restaurant |
| 5. Pier 15                    | 12. Fora Think Space         |
| 6. Piperade                   | 13. Glazed & Confused        |
| 7. Little Window Bahn Mi      | 14. Subway                   |

### Transportation Proximities

- Green & Embarcadero - BART Metro
- Parking Access

Fig. 3.39 - Site Selection - Micro

For this particular example, this viral model would be located on the northeast side of San Francisco just outside the main area of downtown. The site selection was based on available areas that the model could be placed within as well as a general proximity to both the downtown area as well as main transit hubs in the city.

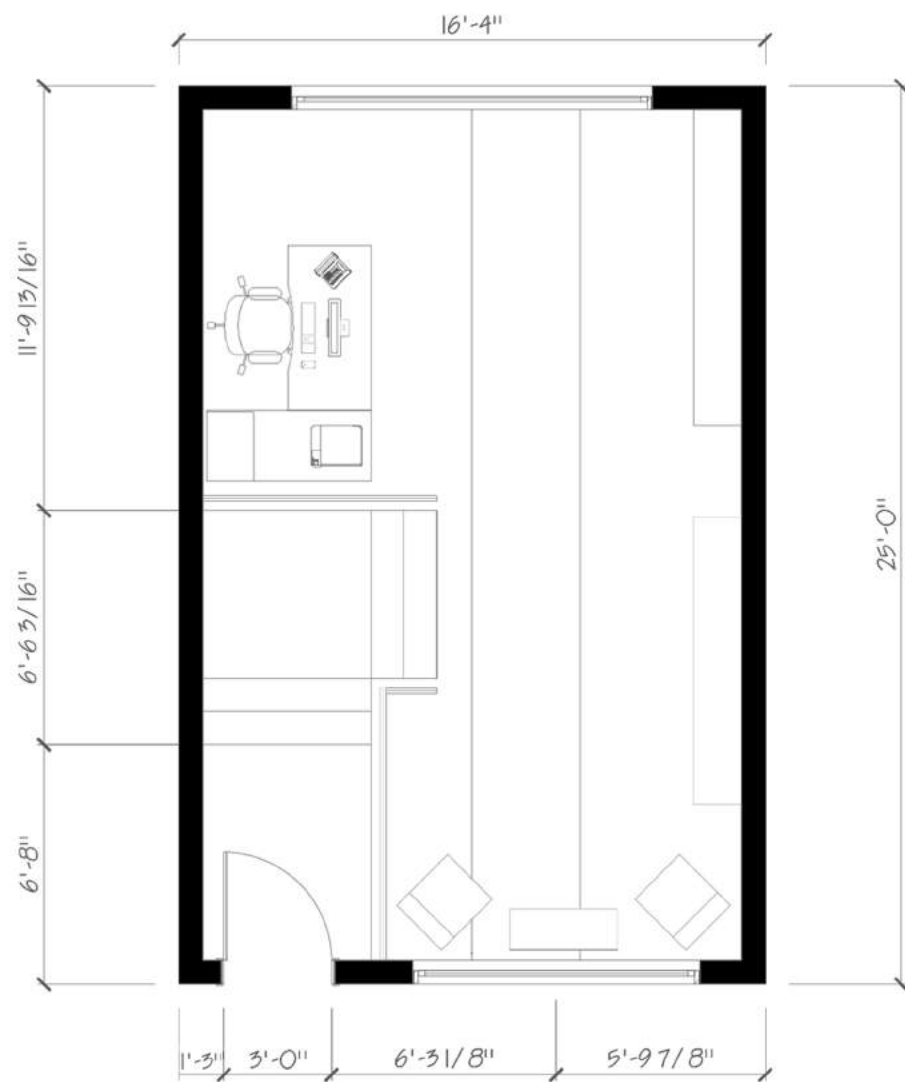


Fig. 3.40 - Individual Floor Plan



Fig. 3.41 - Interior Workspace

## The Viral Model:

*Programmatic elements that mimic user patterns*

### Mobile Module Design:

The mobile module design is based on the parameter that individual office "components" can be taken out of the typical office setting and spread throughout the city at the convenience of the user. These said components are based on typical office dimensions found within the office typology and can be used depending on the needs of the user. Individual modules can be used for single users and larger modules can be used for collaborative efforts or client meetings.

The model represented above can serve as an individual or collaborative unit. This module's size is based off a large office design, typically an executive office in a standard building.

### Typical Office Dimensions:

- Large Office: 20' x 15'
  - Space for seating and work area
- Medium Office: 15' x 15'
  - Comfortable office size
- Standard Office: 12' x 10'
  - Standard room typology
- Large Conference Room: 30' x 20'
  - Seats 20 people
- Medium Conference Room: 12' x 15'
  - Seats 8 people
- Small Conference Room: 12' x 10'
  - Seats 4 people

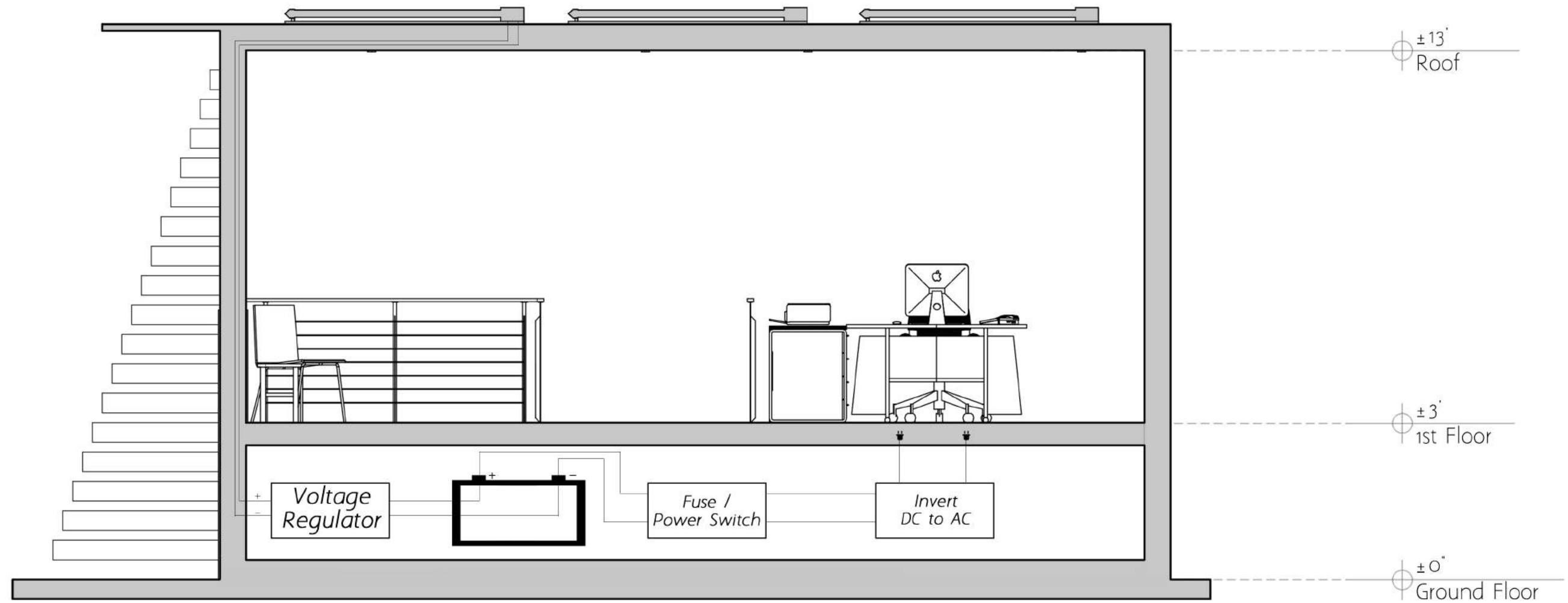


Fig. 3.42 - Sectional Attributes

## The Viral Model:

*Programmatic elements that mimic user patterns*

This mobile module design will allow for mobile workers who spend the majority of their time out of the office a place to work that acts as a sort of "home-base" for them. Depending on the location, or site, of the project, a temporary structure permit will be required in order for someone to be able to work within the module. Now, because of the fact that these are mobile modules, they can be placed anywhere within the city or proximity of where the individual will be working and because of their minuscule design, they will be easy to transport from site to site.

Now because these modules are separate entities and are not attached to any other program, they require their own systems in order to be able to operate. Each module is raised three off of the ground in order that the systems can be stored in the floor and therefore minimizing space they take up. Six solar panels will be placed on the roof in order to power the module with light and available plug ins for equipment being used. The solar panels will be routed through a voltage regulator that is connected to a battery that powers the module. The battery is then run through a fuse or switch in order to turn it on and off. This power coming from the solar panels will be run through an inverted that converts the power from DC to AC in order that devices can be powered off the voltage coming in.



Fig. 3.43 - Exploded Axon



Fig. 3.44 - Material Studies

## The Viral Model:

*Programmatic elements that mimic user patterns*

### Structure:

This module concept could have many possibilities when it comes to how it is designed and structured. One of the possibilities could be that they are made from existing shipping containers that are no longer being used and sitting unused. Typical shipping containers are roughly 20'-40' long x 8' wide x 9' high, which are basic dimensions that office components could fit inside of. Standard containers could be split into several sections in order to make individual modules or could be added together in order to make larger units for collaborative work.

### Materiality:

Materiality is an interesting component in this design as there are multiple ways in which this module can be designed. The wood slats on the sides acts as a protective barrier between the interior and exterior of the module while providing a sun shade for the windows. Any materiality can be added to the front and back of the module, whether it be for aesthetic, protective or thermal qualities depending on where the module will be placed.



## Chapter 4: *Critical Response to Design Theorem*

## Design Response:

### *Design Reflections*

This thesis has taught me a lot as to how much work must be dedicated to a project in order for it to be relevant and justifiable to the architectural community. There are several things that I would go back and alter if given the chance. I would spend more time looking at the individuals using the different models and how their specific individual lives would either alter the design or further justify it and what things could be added in order to make it more convenient and efficient for their everyday use. I also would look closer at the models themselves and how they operate within the city itself. I believe the organic terms used to describe the models was a good start but it has come to light that the terminology can be confusing at times with the descriptions attached to them. Therefore those would be examined more closely and then alter so that the titles better reflect the uses that they describe.

## Design Response:

### *Design Summary*

This thesis has been a great experience overall with its flaws here and there that are typical with any project that is taken on. There are several things I would do different if I could go back and do it all over again but for the most part it was fairly enjoyable. I feel as though I picked a relevant topic to the architectural community and gave my best effort in order to come up with a design proposal that could better help with the current situation. Overall, I believe this thesis was of fairly great success and I am thankful for the opportunity to work on it with the professors and staff at this university.

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