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Invention Center: a Building of Inventions

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Invention Center:

A Building of Inventions

_ A facility to display, demonstrate, and improve today's technological inventions.
Through collaboration, today's technologies can become tomorrow's advancements.

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Signature:_____ Date: _____

_On Innovation

"I can't understand why people are frightened of new ideas...
I'm frightened by the old ones."
-John Cage

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Why are buildings (in the United States in particular) not built or run sustainably?

_"There is something very specific in the economy of this country (The United States) in about the way buildings are built, marketed and sold, and that is in the United States, if you build a building, let's say a high-rise, the chances are that you are going to lease it to someone or sell it. The thought process is not tied to the larger collective social mission, it's tied to tax policy and limited operating cost and low startup cost. In Europe, they tend to look at building in a fifty year period. What the building is going to cost initially is part of the equation, but what it is going to cost to operate, cost to renovate and repair, cost to keep online, and to possibly take down and disassemble over a fifty year period. In the United States, its (cost) only thought of for a 12 month period."

- From the words of William McDonough

_The additional upfront cost needed in constructing a sustainable building is what stops American builders. If the owner's of new buildings look past the higher start up cost, there are economic reasons to design sustainably. The design and construction cost are only a small portion of the total life cost of the building. Over the next 50 years the building will have to be maintained, upgraded, and possibly expanded or dismantled. The building will need electricity and water. The largest cost the owner should consider is the cost of the employees (whose salaries over 50 a year period will be much more then the construction cost).

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Introduction

I began the thesis process by exploring several general architectural questions.

- "How to improve what a building can be?"

- "How can a building improve the environment that surrounds it?"

- "How can a building be designed to be Expandable and adaptable for whatever space the program will require (performance, technological, sustainable)?"

_Since January I have explored several possible programs in search of a program that would best answer my architectural questions that started out this process. I explored the possibilities of designing a Compassion Center for Rhode Island, An Ayerdaic Medicine Greenhouse, a design for fast expanding companies, and a point tower for sustainable high-end housing.

_Looking back at these potential projects the same architectural ideas are evident in each one; Sustainable, Efficient, Highly Technological buildings. This realization became the program I was looking for. The idea's within the following texts and imagery shows what this thesis aims to demonstrate. "We as a race are capable of doing so much more."

"He who controls the present controls the past.
He who controls the past controls the future."

_George Orwell- 1984

_ This Building is a center for designing, unveiling, and showcasing new technologies of the 21st century. Collaboration will be valued over individual achievements.

_ Being a facility where new building technologies are invented and unveiled the building will have to embody these same ideas.

_ Buildings can be around for hundreds of years. They should be planned with that in mind.

_ It's easier to prevent a mess then to clean one up.

Problem Statement

_ Where do I stand?

Like everyone before me I am standing between past buildings and future buildings. Behind me I see thousands of years of technological advancements that have brought us from living in caves found in the hillside to the skyscrapers that push the limit of today's materials. Ahead of me I see buildings that can do more than just provide a shelter. I see buildings that produce the energy they use and have a positive effect on the environment they inhabit. How we go about making these new buildings will set the standard of what sustainability can mean in the 21st century. The question isn't will this happen; the question is what has to be done to make it happen?

_ What do I believe architecture to be about?

Architecture is the act of conception through design. Architecture is for making space to improve qualities of life. Every design should be an improvement from last. Each project is a chance to improve the way that people live. A properly designed building can inspire.

_ What is it for?

Architecture is to improve the lives of people.

_ Architects and Buildings of note to look at

- William McDonough
- Douglas Durst
- Paul Goldberger
- Cook + Fox Architects
- Bank of America Tower, New York
- Lloyd's of London- Richard Rogers.

(Rogers considered the lifecycle of the various parts of the building and made it easy to upgrade, replace, and still remain flexible.)

_ Techniques for Sustainability

- Recycled material
- Environmental materials
- New technologies (fretted glass, photo-voltaic glass blast furnace slag, using less cement)
- Human comfort techniques
- Material lifecycle

_ What I wish to teach myself?

I want to learn how to make a building that is sustainable and economic on a large scale. What is the life of a large building? What needs to be done to make a project that can run smoothly from conception through to disassembly?

Project Statement

In today's world, the word sustainable often goes hand in hand with design. As a recent trend the LEED standards are used as a way to "prove" a building's commitment to being sustainable. LEED however is only the tip of the sustainable iceberg of what design can actually be. The term Sustainable has to be linked with the term efficient. Sustainability is more than the design and construction of a project. It has to be involved with all aspects of a project's life.

Sustainable Issues in a skyscraper

- LONG TERM USAGE
- Material selection
- Site selection
- Storm water retention
- Expandability
- Flexibility
- Energy use
- Water use
- Material reuse (dismantle-ability)
- Air quality

All of these issues must be a vital part in the design of a sustainable building. But there are more areas of sustainability that are harder to identify and quantify.

- Greater employee production rates
- People are happier to be in an environment where they have natural light and clean air
- Less employee turnover
- Tax breaks
- Peoples feeling toward where they work as Matt Flynn wrote "workflow and productivity of employees are boosted ten-fold when they are content in their work environment."

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_Buildings today serve a different purpose then they did 100 years ago. Ever changing technologies mean that buildings must be ever changing as well. This makes permanent construction almost useless after a few short years in some building types. Obstruction-free space allow for maximum flexibility while a rased floor system provides easy access for maintenance and upgrades to the services. Focusing on how the equipment is connected will allow for easier upgrades as needed by the equipment.

Designing for the Unknown!

- To design a building where the program is stated from the owner, the architect knows what the function of each space is and how they work together. When the program is left undefined or prone to change then the architect must design the building to function regardless of the program that is added/changed at a later date.

- The function of this project is to plan for the future. The whole project is geared toward advancing the human race and the sustainable way they live. This facility will have conference and demonstration areas to bring society and tomorrow's technology together.

- This building will welcome the ideas of The backyard inventor. They will have a space to advance their ideas, a place where like minded innovative people can work together to come up with new ideas.

- The program is that of several rentable spaces.

These spaces will have manufacturing, think spaces, office spaces and will need to be exchangeable.

_As the people within this building will be thinking about the future and the new technologies that will take us there, the building must show that ambition to help inspire those within and around to design for a sustainable future. "Leed by Example". As part of a sustainable future this building will house a number of innovative design think tanks. These people will work on inventive ideas and technologies. Example company- a company researching into reserve battery cells in electric cars that allow the full charge to be removed from the main cells thus giving them a longer life.

_To encourage interaction with the surrounding community the building will house community spaces that will allow companies to partake in joint ventures (such as a wood or metal shop, or laser cutter). Other secondary program will include a gym, automated underground parking (small site) a lobby, and a day care. The top of the building will have a green roof garden with a sky cafe looking out into the city. It will be a wonderful place to have lunch on a warm day.

_To house such a constantly changing and evolving and possibly expanding and contracting program the building will have to have the same qualities. For this reason the building should be modular and the served and service space should be kept separate. (This will also allow upgrades, changes, or even general maintenance on the mechanical system easier).

_The building will use both passive and active sustainable ideas to achieve the greatest efficiency. Natural daylight and natural ventilation will be used as much as possible.

Presence- Program, circulation and access to places for occasions

Project Statement

_ HOW DOES THIS BUILDING IMPROVE THE AREA IT INHABITS? RELATION TO THE COMMUNITY

_ Sustainable buildings are the marketing trend in today's construction. However Marketing trends happen because there is a deeper meaning. The world seems to finally be realizing that what is done today affects the world for future generations and only by careful control can people continue to live in comfort. It is estimated that if everyone lived like Americans that we would need 3 ½ earths to support us. I do not believe that we should lower our standard of living we just need a way to live at the same means while using less.

_ The public area of the project would be first made with basic open spaces. (Bays that can open to the park or the street to allow for the rest of the community to see what happens within the space: Keeps everyone honest and keeps the surrounding building as safe and vibrant place to be)The classes for the first 2-5 years would work on finishing the project doing all aspects of the space (all but the structure and enclosure) thus making the space truly owned by the surrounding community.

_ A Good Example of this public space can be found in Providence at THE STEEL YARD
The site for this project is an old boarded up building adjacent to the Brooklyn Bridge Park (pier one) on Furman St. in Brooklyn, NY.

_ For the past 25 years a comity has been working to transform the old piers from warehouses into a 16.7 acre park. The park has many features to attract the public. (See Brooklyn Bridge Park section below)

_ The Steel Yard in Providence, Rhode Island is a non-profit organization. Its goals are to teach industrial arts to a wide array of people in the community. The working facilities at the Steel Yard are ceramics, bronze casting, glass casting, metal work, and blacksmithing.

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_ EDUCATING THE OWNER

_ By looking at the cost of a building over its useful life there becomes an economic reason to design the best possible building.

_ PEOPLE

_ This building will hold people who want a better tomorrow, people who believe that there is a more economical way to live, work, and play. This building will promote better health of the people within. Bike incentive programs and 3-stop elevators will encourage health use. The people within the building are the most valued part of any building.

_ People work better when they are comfortable.
Collaboration is where some of the best ideas are born. How can a building encourage collaboration? (See Salk)

_ Example #1_ a small company that would be drawn to this type of building would be a company specializing in collapsible furniture that is weather proof and easy to move. (flood victims)

_ Example #2_ a group of people working on furniture designed for use in private space ships that are currently being designed.

_ INCIDENTAL MEETINGS (collaboration)

_ The unplanned meeting is where unforced innovation comes from. They are the most clear and come with much more frequency over random interactions.

Program

A day in the life of an Invention center

The Inventor_ Mark has been working with his team on a 3-D interactive projector interface to allow information to pass from the user to the projection in real time. This morning he is late for work having got a flat tire as he biked across the Brooklyn Bridge. Walking the final mile of his morning commute he enters the lobby (dropping off his bike at the bike shop on the first floor).

As he makes his way to his design team area Mark stops to ask Susan, a member of another team, a question about infrared sensors. They have been sharing their research for weeks because their projects are similar.

The team has already started the morning meeting to discuss the upcoming work plan for the week. While in the review area, Mike and his team overhear the team they share space with debating the best way to start there next project.

Joann and her team have just finished their last project and are discussing ways to set up their work space to start the next one. All the furniture in the work areas is designed with wheels to allow for easy maneuvering. Desks, shelving units, partitions, and work tables fit together to give a seemingly endless number of configurations.

Down in the wood shop there are three people working. Two inventors are trying to make a form they can take back to their work space where they are working on a non toxic odorless epoxy. The third man is a Brooklyn local who rents one of the storage cabinets in the wood shop. He has been making a kitchen table set with chairs. The coffee table he made last week is the envy of the office's poker game. There isn't any room for furniture work back in his four floor apartment.

A family of four just walked in from the park to get out of the mid day sun and to find a bathroom. The father takes the smaller child to the toilets while the mother and the other child wander through the gallery. As they leave to head home the mother grabs a flyer for the upcoming energy fair being held next week. It looks interesting.

On Furman St. the "hop on hop off" NYC tour bus has just dropped of 30 people who are walking through the building to get to the park. Some veer off toward the boutiques and Cafés while others head up to the observation deck. From the observation deck one can see from the Governors Island up past the Brooklyn Bridge. The green roof seems like an extension of the park and draws people up. There are benches and small shrubs along the building's edge.

Tonight's guest speaker for the new gallery exhibit, feeling a bit nervous, decides to work out in the gym to ease his mind. The gym is a clean facility with cardio equipment and free weights.

Program

202,000 Sf.

_ The program will have to be as innovative and flexible as the people within it. It must inspire people to be as progressive as they can be. While designing anything, people have to be able to think and react while adhering to several issues at the same time.
The people within this building will be expected to be time-conscious (efficient), adaptive, collaborative, innovative, and contributive to society. They must think about human comfort and the delicate balance of nature. If this is achieved then they will be sustainable by default. If the people working within this building are expected to live and work with a conscious thought toward the list above then it would be hypocritical to design a building that is anything short of the most adaptive, innovative, re-useable, efficient and by default sustainable building possible.

_ If the building is a healthy building that is designed for the users comfort and use then the people within will spend more time working and less thinking about how uncomfortable they are.

"The Design Environment" (63,000 SF)

Providing a series of open spaces, customizable to allow for maximum space or semi private working conditions, that allows employees to work in a manor most conducive to their current step in design. These spaces must have good natural light and a floor to ceiling height that will allow for whatever project the teams may work on. The spaces must have large vertical or horizontal circulation to allow for convenient transportation of models and prototypes from work areas to the Gallery, Loading Dock, and machine shops. The inventors must also have quick access to the reference area. This area will only be available to the public on guided tours.

Parts of the invention process

- Conception
- Refinement
- Focus of idea
- Research
- Process work

"The Machine Shop" (27,000 SF)

Providing the inventors and the public access to equipment and temporary work space that would otherwise be too costly for a single entity to purchase, operate and maintain. These spaces include a wood shop (2,500 SF), metal shop (2,500 SF), digital manufacturing lab (2,000 SF), assembly area (8,000 SF), testing facility (2,000 SF) welding area, (2,000 SF) and publically rentable work space with storage for materials and tools (8,000 SF). This space must have easy access to the loading dock and the design spaces. Both the public and the private organizations within the building will have access to this area.

Parts of the invention process

- Conception
- Physical design
- Testing

"Exhibition Hall" (36,000 SF)

The Exhibition Space will function as a platform to draw the public to support technological advancements. With large glazed views across the east river the hall will serve as the iconic element that will represent design advancements. This part of the program should be razed above the park to provide views toward the Governor's Island, Liberty Island (The Statue of Liberty), lower Manhattan, the Brooklyn Bridge Park and The Brooklyn Bridge.

Parts of the invention process

- Conception
- Educating the public
- Public Interest and Investments

"Gallery" (4,500 SF)

The Main function of the gallery is to inform the public as to what is being invented here and around the world. The space will be used to promote upcoming Exhibitions, and encourage the public to think about the world they live in and how they can improve it. The primary function of the Gallery will be for the public and there for must be located in a high public traffic area, preferably located adjacent to the lobby.

Parts of the invention

- Conception
- Education
- Display

"Building Amenities" (30,000 SF)

If people are happy with the place they work they are less likely to complain or quit. Simple amenities can make a huge impact. The amenities will also encourage public interaction. This facility will include a gym (10,000 SF) with lockers and showers, a day care (2,000 SF), an observation deck restaurant (2,000 SF), and 2 cafés (1000 SF each). The Ground Level will have Additional small rentable spaces (14,000 SF) for stores and small food venues focused on connecting with the newly opened Brooklyn Bridge Park.

Parts of the invention

- Conception
- Support
- Income

Parking (7,500 SF)
Loading Dock (1,000 SF)

"Additional Program" (33,800 SF)

Mechanical, Electrical, HVAC, Structure, Vertical and Horizontal Circulation, Rest Rooms, Janitorial Closets, Recycling and trash collection center.

Program Outline

Open Work Space		**63000**
Inventer Work Area (210) within	250	
Work Areas (7)	8,200	
Common Space (7)	800	
Machine Shop		**27,000**
Assembly Area	8,000	
Rentable Work Space	8,000	
Metal Shop	2,500	
Wood Shop	2,500	
Digital Manufacturing Lab	2,000	
Test Facility	2,000	
Welding Area	2,000	
Exhibition Hall		**36,000**
Gallery		**4500**
Main Gallery	4,000	
Entrance/ Security	300	
Information Desk	200	
Building Amenities		**38,500**
Gym	10,000	
Café (2)	2,000	
Day Care	2,000	
Resturant	2,000	
Retail	12,500	
Park Info Kiosk	1,500	
Parking	7,500	
Loading Dock	1,000	
TOTAL NET SF		**169000**
20% for Mech/elect HVAC, Structure		33800
Total		**202800**

The Words of Others...

The wonderful words of Carol Willis -director of the Skyscraper Museum
The greatest cost in any building is the people cost inside. If you look at the bottom line of building, keeping people happy (whose salaries could be more than 200 times the running cost per unit of energy) is much more cost effective. When you look at the whole building cost mechanical and its people, the addition of people and their feeling toward the type of place where they work then these technologies become a source of saving money rather than spending more.

QUOTES

- "Lloyd's [offers] a responsive… balances between permanence and transformation."

- "After the design if the question is asked "why that form?" You should be able to answer."
  - J. Bonder

- "Architecture is in the details"- Steve White

- "Materials should be able to be re-used." – Peter Boland

- "…We don't really call it environmental anymore; we call it a smarter more intelligent way to build" – Douglas Durst from E Squared

Paul Lukez, Suburban Transformations New York: Princeton Architectural Press 2007.

"William McDonough and Michael Braungart explore other ways to protect the environment that could involve new typologies and building methods. In their book Cradle to Cradle they stray from a restrictive view of environmental protection, characterized by four R's (reduce, reuse, recycle, and regulate), and advocate for design that is based on lifecycles. Biological metabolism serves as a metaphor for processing waste such that waste becomes generative. Buildings could produce their own power and convert their own waste into useful products such as clean water and vegetation. The city itself can be recycled according to lifecycles. Long lifecycle features such as infrastructure provide the backbone for development, while short-lived features such as retail outlets could be flexible and constantly reconfigured and reprogrammed." (Lukez 19)

"Erasure is by definition a destructive act. It removes evidence of some previous action or event recorded on an object, field, or text. Erasure is an essential and necessary component in making our environments, allowing them to renew and regenerate their surfaces and structures in order to accommodate new uses and technologies. Without erasure, the residue of history would suffocate communities. Selective erasure can reveal and activate the potential for new and exciting possibilities, like cyclical fires in great forests. Thus, paradoxically, erasure can be constructive."(Lukez 26-27)

"Despite man's heroic attempts to counter the forces of entropy, cities, buildings, and monuments decay. Decay is due to the forces of nature (sunlight, wind, water, chemical decomposition, and natural disaster) as well as the wear caused by man, through inhabitation. Structures can be sustained through ongoing maintenance and renewal of components and their assemblies. The study of building economics examines the relationship of building lifecycles and their economic performance. Buildings are comprised of several clusters of systems, each with its own lifecycle. Depending on the method of construction and culture, these groups might include (from longest lasting to shortest lifecycle): 1)foundations, 2) structure, 3) exterior walls, 4) interior walls, 5) appliances. Each of these lifecycle groups and its elements must be replaced and maintained at a different rate. Thus buildings, if they are sustained, undergo constant transformation. New technologies and improvements on building components, make it possible to improve and alter buildings through the gradual replacement of outdated components, such that the evolving forms of cities and their buildings change gradually, but significantly, over time." (Lukez 36)

Topics to cover
- Building Organization
- Modular units
- Expandable Design
- Sustainable design techniques for high- tech buildings and tall buildings
- Site qualities needed for such a building to exist
- New useful technologies
- Ease of Maintenance
- Precedence
- Project overview
- Thesis Topic intro Paragraph (project overview)
- Separation of building functions
- Construction
- Served vs. service
- Temporary building (only there as long as it is deemed useful)
- Reuse of materials (construction and dismantle in a way that allows the materials to retain their use) afterlife
- Energy and sustainability

"If cities, buildings, and their configurations undergo constant change, by virtue of physical and economic necessity, why not take this into consideration in the initial design and construction phases of our communities? The opportunity to minimize waste is well within the limits of our ability to forecast the probable "behavior" of buildings, and the economic and development cycles that generate their shape. We cannot predict the future, but we can work with time as a component of our decision making process. We can also begin to transform existing development as the component systems expire and require replacement." (Lukez 37)

"Modern societies are defined by mobility. Mobility equals freedom, and freedom is associated with time: time to make money and enjoy the fruits of one's labor. Time also equals convenience. Loss of convenience results in a loss of time, money, and opportunities for recreation. Therefore, the infrastructure of space is the infrastructure of the economy and, by extension, of our culture. The identity of a town, region, state, or country is tied to the shape and form of its infrastructure." (Lukez 37)

Brand, Stewart, How Buildings Learn

Daily, Gretchen & Ellison, Katherin New Economy of Nature: The Quest to Make Conservation Profitable
Washington, D.C.: Island Press 2002
Harvey Wiley Corbett & Raymond Hood (Towers on the Hudson River Bridge)
Hugh Ferris
1964 New York World's Fair
Parisian four- to eight-lane boulevards

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BUILDING ORIGINATION

_ Space sets up a whole idea of how the building is organized.

_ Separation of physical building elements works well with the idea of replaceable, upgradable, expandable, exchangeable construction. If the structure is separate from the façade, the mechanical and so on then the organization of the building becomes elementally easier. (very visual type of building, this will be the drive along with environmental advancements)

_ SEPARATION OF BUILDING ELEMENTS

_ Structure: used to hold the building up against the forces of gravity, the horizontal forces on the building due to wind, and the weight of the structure itself.

_ Curtain wall (enclosure): This building element encloses the building from the elements and serves as a physical barrier between the interior and exterior of the building.

_ Floor: this element provides a surface to work as well as horizontal structure. It also is an ideal place for horizontal chases.

_ Mechanical: This element is designed in most buildings to be felt and not seen.

_ SEPARATION OF PROGRAMMATIC ELEMENTS (served vs. service)

_ The rentable working space the main leasable space should be left as open as possible. Spaces should not be broken up by the buildings service elements. (vertical circulation, mechanical and electrical chases, janitorial spaces, rest rooms, etc.)

_ By separating program there is a greater chance of INCIDENTAL MEETINGS (page number) between people which should be encouraged as in the SALK INSTITUTE (See PRECEDENTS).

_ This will allow maintenance and repair to happen without interrupting the adjacent work space.

_ CIRCULATION

_ The circulation of this building will have to allow for incidental meetings throughout the building. These meeting will help progress new ideas forward by encouraging collaboration and conversations about new ideas.

_ EASE OF MAINTENANCE

_ Keep the floors cleaner so that less time is spent cleaning. “1. If walkways are covered at least 25 ft. from the primary entrance interior floors will be much better protected from the ravages of soil and water, as the length of the covered walk will act as a soil entrapment device.” (pg. 45, Building Design for Maintainability)

_ A textured or roughened walkway/apron will trap the soil and water as people walk toward the door thus keeping the mess outside. A grate with a catch pan works even better

_ Automated window washers (controlled from the roof)

_ Furniture designed to be easy to keep clean and dust free.

_ “…what monuments to economic waste they will be if they are designed with the same lack of regard for their maintenance as we have seen in the past” (Building Design for Maintainability by Edwin B. Feldman

_ MODULAR UNITS

_ Lloyd’s of London is a prime example of modular construction designed to be expandable, and dismantle-able

_ Modular construction allows for a building to be started without knowing what functions each space will be doing.

_ Modular units allow for easier maintenance with parts being replaced in units with the possibility of being replaced as a whole and fixed off site.

CONSTRUCTION

_ Time = Money

_ Types of buildings that lend themselves to modular construction
(Buildings with repetitive elements that often require expansion)

- Schools
- Office buildings
- Laboratories
- Any university building

Calendar subject to change

2010 Editorial Calendar

McGraw-Hill CONSTRUCTION Architectural Record

Issue Date/ Close Dates	Features Special Editions	Products/ Building Science	Sponsored Sections	Extra	Bonus Distribution
January Reservation: Dec. 1 Material due: Dec. 6	Schools of the 21st Century Featuring Coop Himmelbau School #9	Flooring	Acoustics in Schools Print/Online CE article* Ad close: Nov. 1, 2009	WebInsider E-newsletter Weekly	
***February** Reservation: Jan. 1 Material due: Jan. 6	Renovation, Adaptive Reuse Projects Olympic Sites Old and New: Vancouver, London, Beijing Record Lighting	Concrete Lighting Reclamation Programs	Theater Design/ Acoustics	WebInsider E-newsletter Weekly	World of Concrete World of Masonry Technology for Construction, Las Vegas, Feb 2-5
March Reservation: Feb. 1 Material due: Feb. 6	Transportation Facilities: Airports/ Rail Recession Update Cover Feature	Cladding, Recladding, Reskinning, OverCladding	Design-Build Products Print/Online CE article** Ad close: Jan. 15	China Edition WebInsider E-newsletter Weekly	
April Reservation: March 1 Material due: March 6	55th Annual Record Houses Shaun Donovan, Secretary for Housing and Urban Development	Water Conservation Products, includes Plumbing Wood	Trends in Energy Efficient Kitchen & Bath Products Print/Online CE article* Ad close: Feb. 15	Online Interactive* CEU: Greening of Government Buildings Ad close: Feb. 1 WebInsider E-newsletter Weekly	Global Construction Summit, New York City, April 7-8 Schools of the 21st Century Symposium, Chicago, April 9
May Reservation: April 1 Material due: April 6	Mega Projects Burj Dubai CCTV Hotels Record Lighting	Green Roofing Lighting Project story will earn CE credits	Concrete Print/Online CE article* Ad close: March 15	Online CE section* Innovations & Trends in Storefronts & Entrances Ad close: Feb. 26 WebInsider E-newsletter Weekly	Lightfair 2009, Las Vegas, May 12–14
June Reservation: May 1 Material due: May 6	AIA Honor Award Projects Architects' Essays Activist Architecture Religious Buildings	Windows Double Facades		China Edition Schools Online CE section* Ad close: April 1 WebInsider E-newsletter Weekly	AIA National Convention, Miami, June 10-12 NeoCon, June 14-16 ENR/CURT Conference, Washington, D.C.
July Reservation: June 1 Material due: June 6	Multi-Family Housing	Glass Structural Glass	Commercial Applications for Wood Windows Print/Online CE article* Ad close: May 15	Online CE section* Upgrading School Facilities Ad Close: April 30 WebInsider E-newsletter Weekly	
August Reservation: July 1 Material due: July 6	Chinese Museums Photo Essay Low-Rise Commercial Projects Record Lighting	Healthcare Lighting Living Building/Net Zero*		WebInsider E-newsletter Weekly	
September Reservation: August 1 Material due: August 6	Annual Record Interiors*	Walls and Ceilings Metals	Color & Texture: Green Paints & Interior Finishes Print/Online CE article* Ad close: July 15	China Edition WebInsider E-newsletter Weekly	
October Reservation: Sept. 1 Material due: Sept. 6	Healthcare Projects Kitchen & Bath Portfolio	Doors and Door Hardware	Products & Trends for Health Care Facilities Print/Online CE article* Ad close: Aug. 15	WebInsider E-newsletter Weekly	Innovation Conference, New York City, Oct. 6-7 Outlook Executive Conference, Washington D.C., Oct. 28-29
November Reservation: Oct. 1 Material due: Oct. 6	Colleges and Universities Business Week/Architectural Record Awards Record Lighting	Green Products Building Controls		HQ e-newsletter Ad close: Oct. 1 WebInsider E-newsletter Weekly	Greenbuild International Conference & Expo

*Record Exclusive

_ NEW TECHNOLOGIES

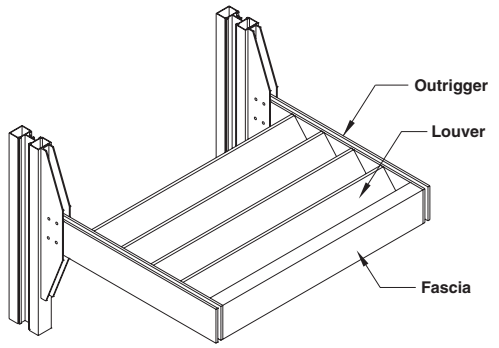
_ Wall screens and Entrance (Kawneer co.)

_ Sun Shades (possible way to collect energy)

_ Photovoltaic panels

_ Power Walls

OCTOBER, 2009 **TRIFAB® SunShade** 1
EC 97911-14 FEATURES



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AN ALCOA COMPANY

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- **Permanodic® anodized finishes in seven standard choices**
- **Painted finishes in standard and custom choices**

"Technology… must aim at solving long-term social and ecological problems." –
_ Richard Rogers

Floorometry_ Tiled flooring used in high traffic areas that are designed to remove and collect dirt and water REDUCING the amount of time needed for cleaning the floors. (AR March 2010)

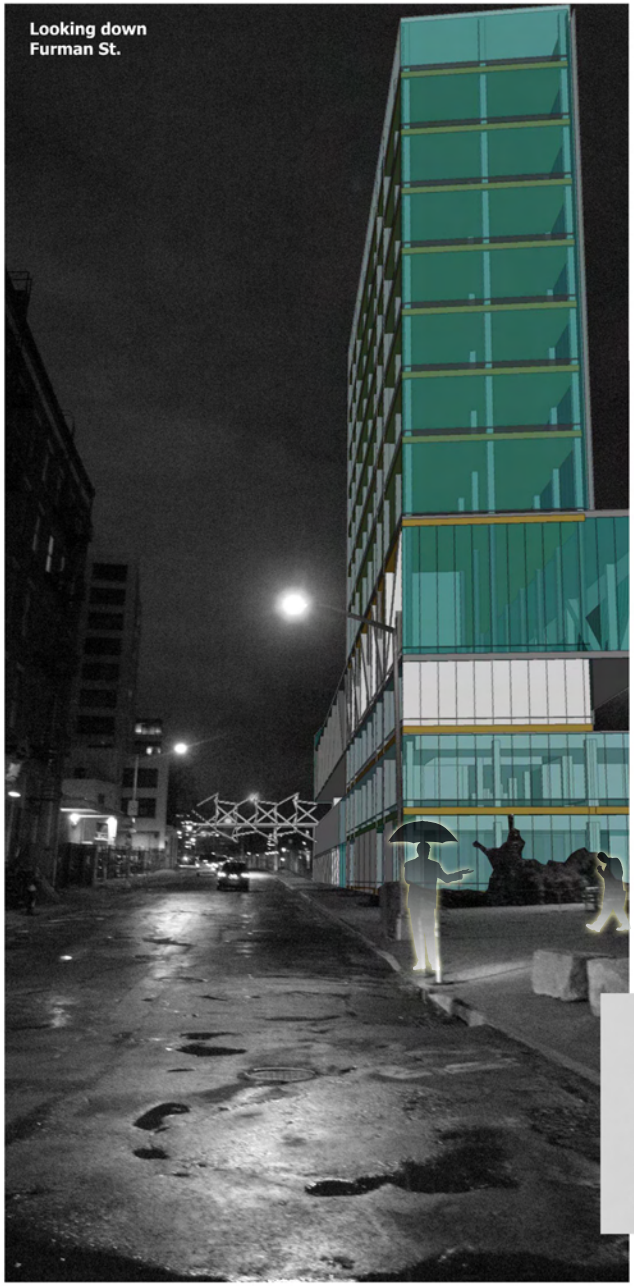
Solucent_ Building Exterior Shading System _ This product would help REDUCE the amount of energy needed to cool the building and provide a visual screen in areas that may hold services that have been pulled to the outside of the building.

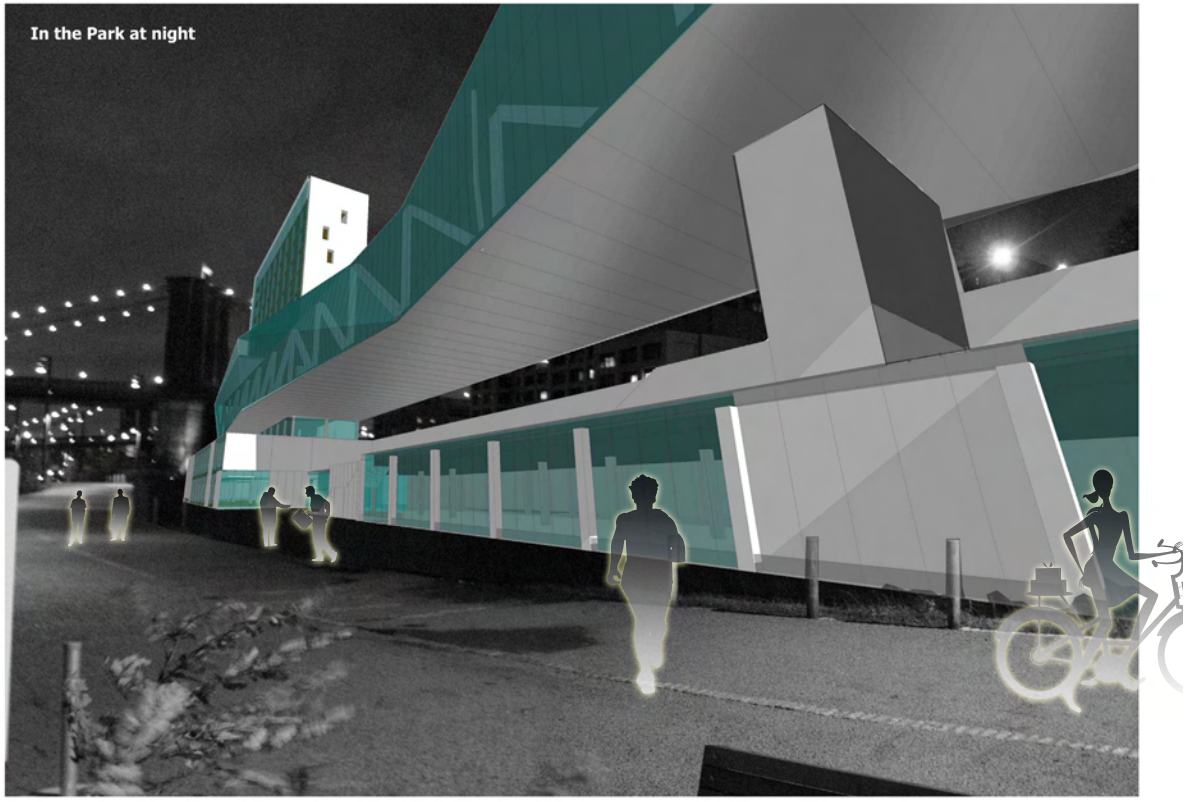
Control Freaks_ Computer controlled water-wall screen that detects motion and shuts off the needed water jets to allow for a dry passage through the waterfall. Although mainly a show piece, these technologies can help inspire the people working within the space. (Seeing new technologies well inspire new ideas… imagine the possibilities)

_ Passage from the book "why buildings stand up" by Mario Salvadori

"It may be surprising to realize, at the end of this rapid excursion through the field of architectural structures, that such a highly technological field has contributed and will continue to contribute to our innate need for beauty. To those of us who cannot live without beauty, this is an encouraging thought. The separation of technology and art is both unnecessary and incorrect; one is not an enemy of the other. Instead it is essential to understand that technology is often a necessary component of art and that art helps technology to serve man better. Nowhere is this more true than in architecture and structure, a marriage in which science and beauty combine to fulfill some of the most basic physical and spiritual needs of humanity."

–Mario Salvadori (1907-1997)





A Building of Inventions

Brooklyn, New York. U.S.A.

Fall 2010

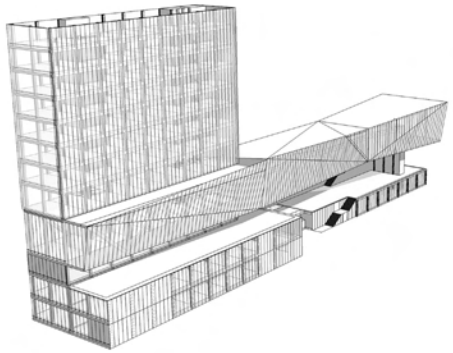
Arch 613 - Thesis Design Studio

Roger Williams University

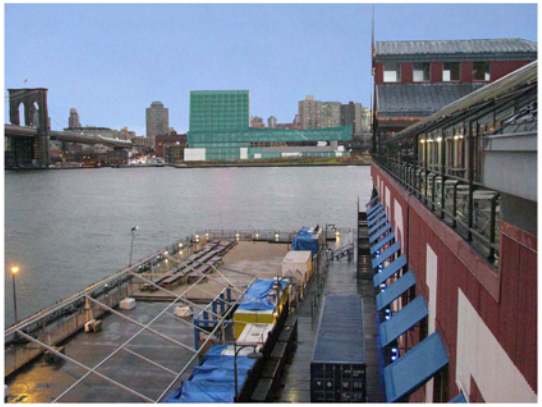
Professor Vin Giambertone

Jonathan T. Archbald

"If cities, buildings, and their configurations undergo constant change, by virtue of physical and economic necessity, why not take this into considerationin the initial design and construction phases of our comunities? The opportunity to minimize waste is well within the limitsof our ability to forcast the probable "behavior" of buildings, and the economic and development cycles and generate their shape. We cannot predict the future, but we can work with time as a component of our decision making process. We can also begin to transform existing development as the component systems expire and require replacement."
- Paul Lukez

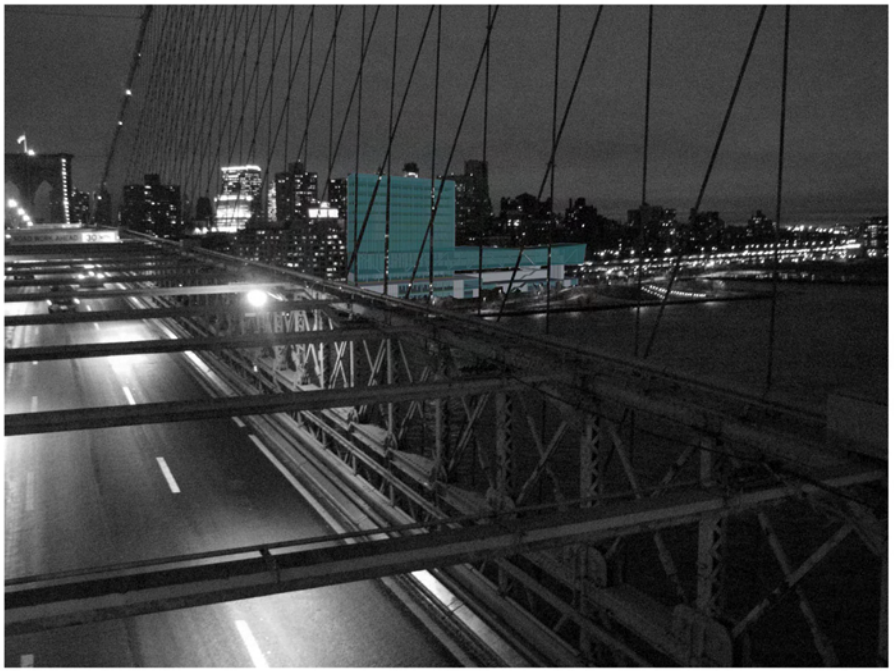


6. View from Pier 17

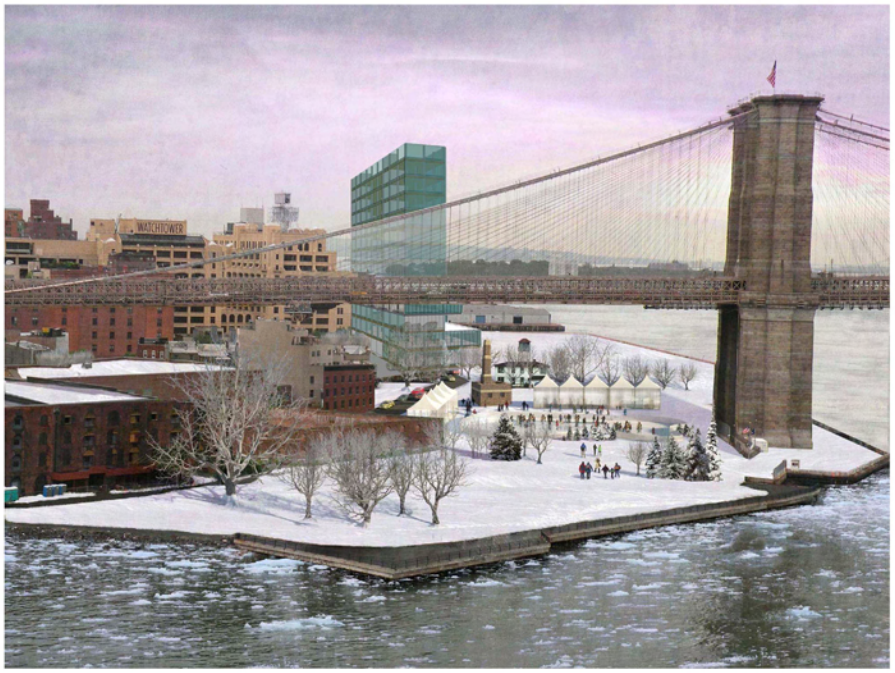


7. Manhattan from the Brooklyn Promenade

8. Looking South from the Brooklyn Bridge



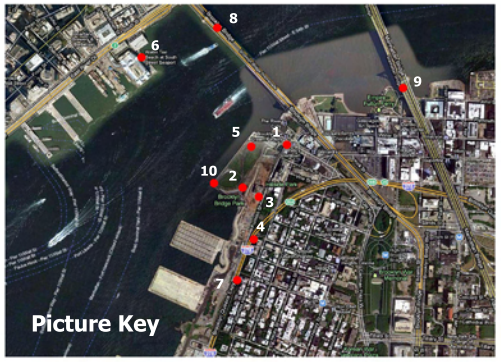
9. From the Manhattan Bridge



Views


3. On the Roof Terrace

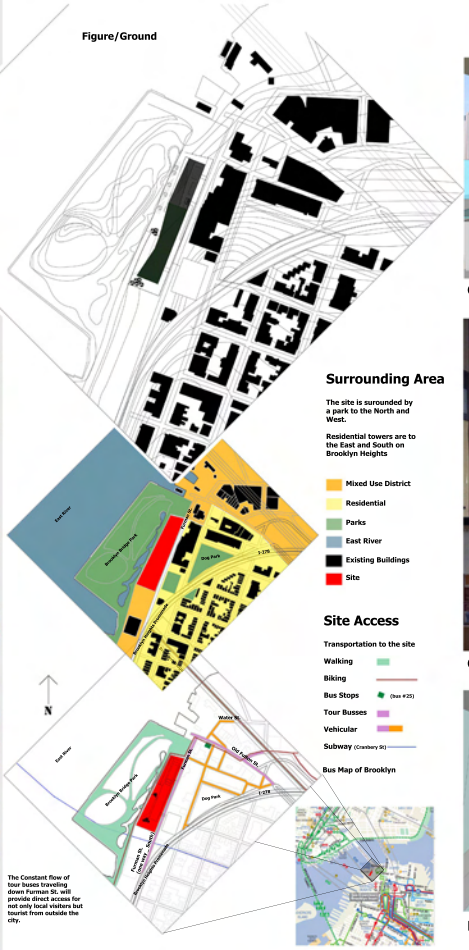

4. Brooklyn Promenade

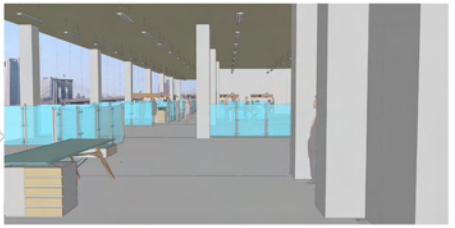


Views

Jonathan T. Archbald

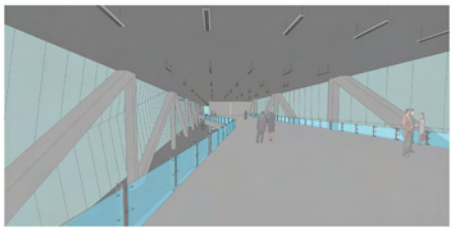
Site PLan at 1/128" =1'-0"





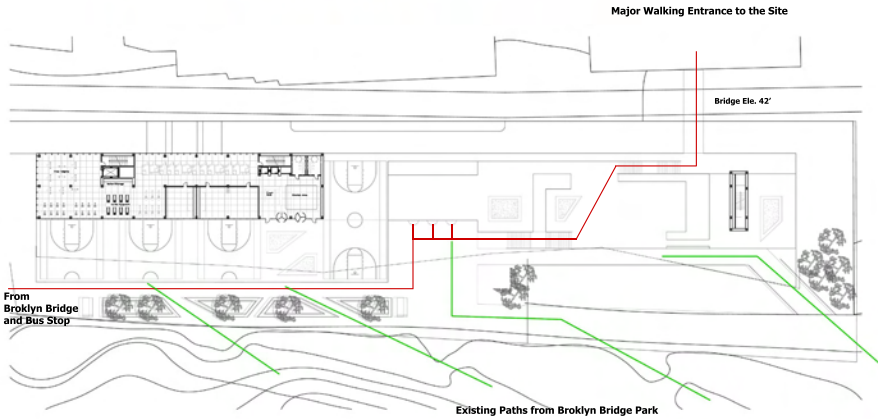
Open Work Floor

Open Work Floor



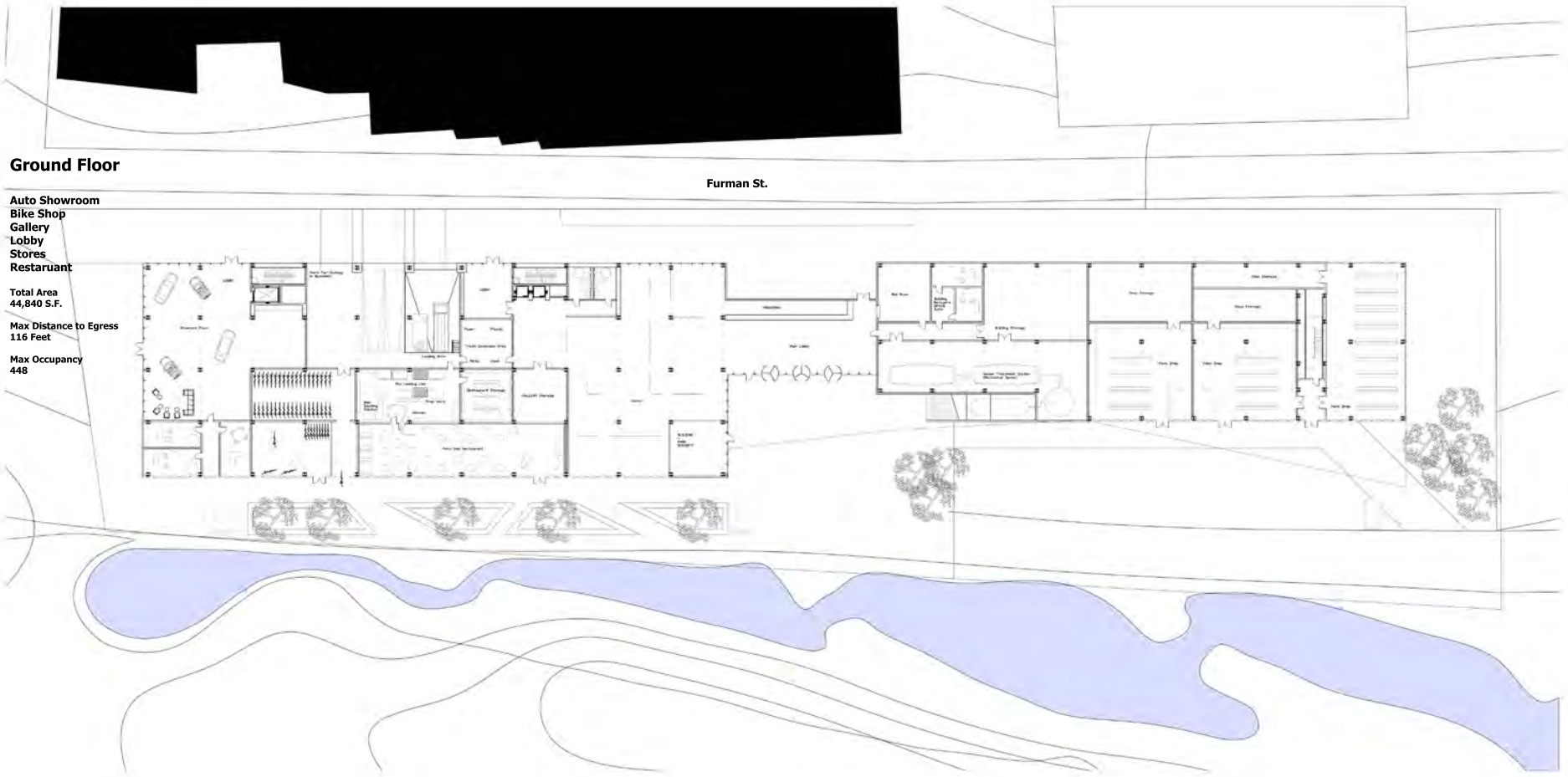
Exhibition Hall Mezzanine Level

Far corner of the park



Site Information

Jonathan T. Archbald



Ground Floor

Auto Showroom
Bike Shop
Gallery
Lobby
Stores
Restaruant

Total Area
44,840 S.F.

Max Distance to Egress
116 Feet

Max Occupancy
448

Basement

Parking

Total Area
66,000 S.F.

Max Distance to Egress
178 Feet

Parking Spots
200

Floor Plans

Scale 1"= 16'-0"

Jonathan T. Archbald

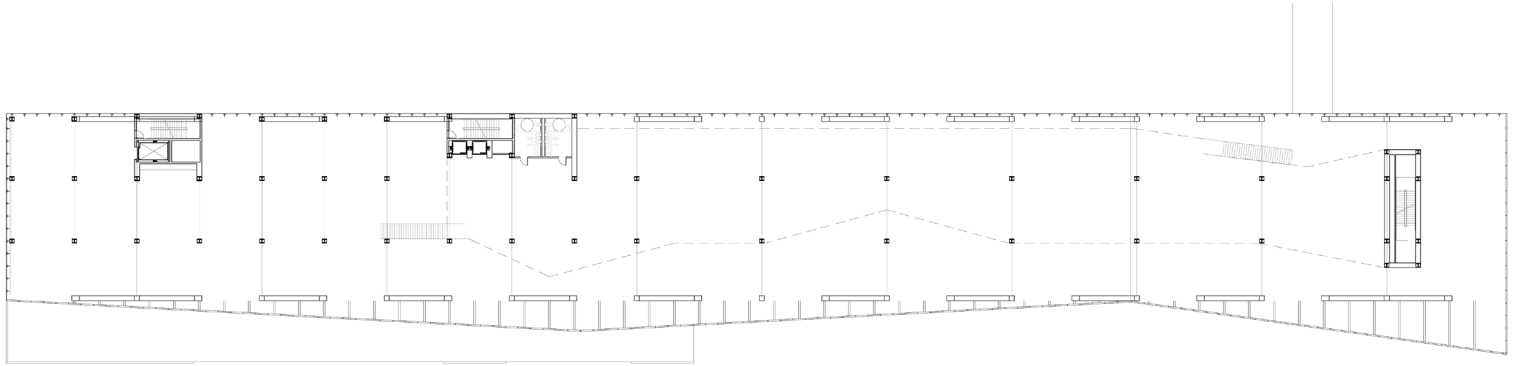
Fourth Floor

Exhibition Hall

Total Area
38,500 S.F.

Max Distance to Egress
186

Max Occupancy
2560 (15 sf/person)



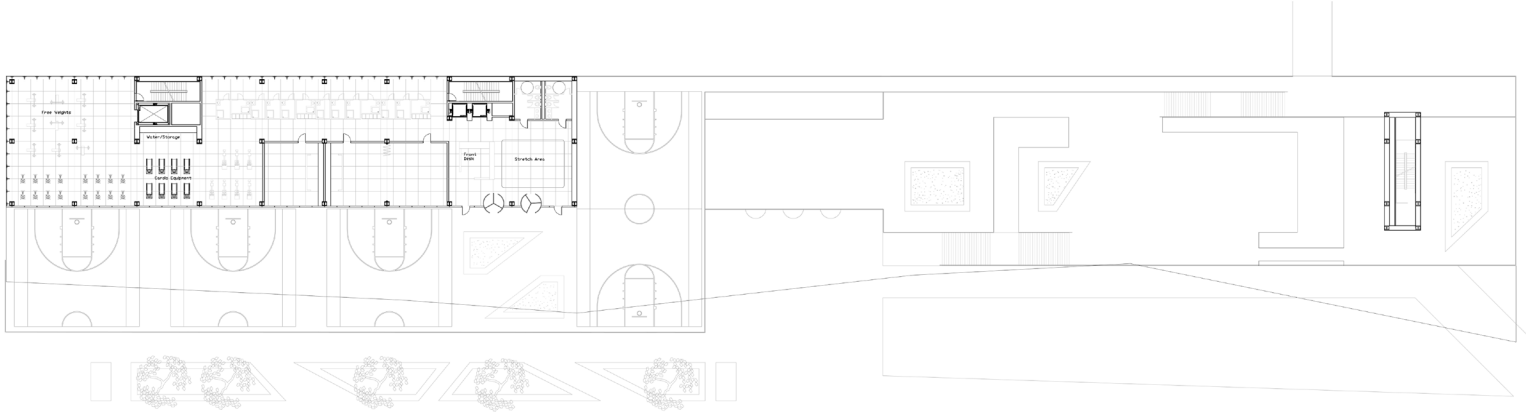
Third Floor

Gym
Exterior Basketball Courts

Total Area
9,450 S.F.

Max Distance to Egress
106 Feet

Max Occupancy
189



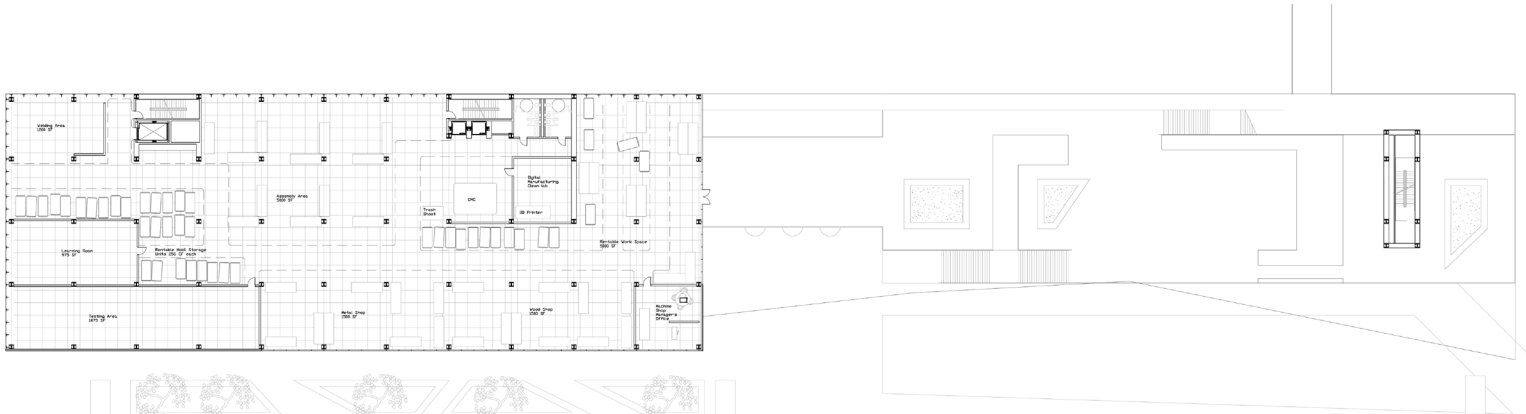
Second Floor

Machine Shop

Total Area
25,300 S.F.

Max Distance to Egress
171 Feet

Max Occupancy
101



Floor Plans

Scale 1"= 16'-0"

Jonathan T. Archbald

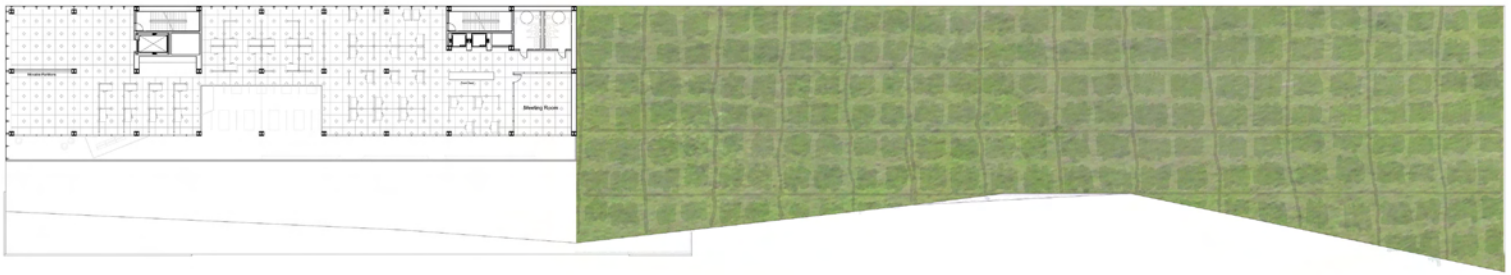
Seventh Floor

Open Work Space

Total Area
8,740 S.F.

Max Distance to Egress
87 Feet

Max Occupancy
44



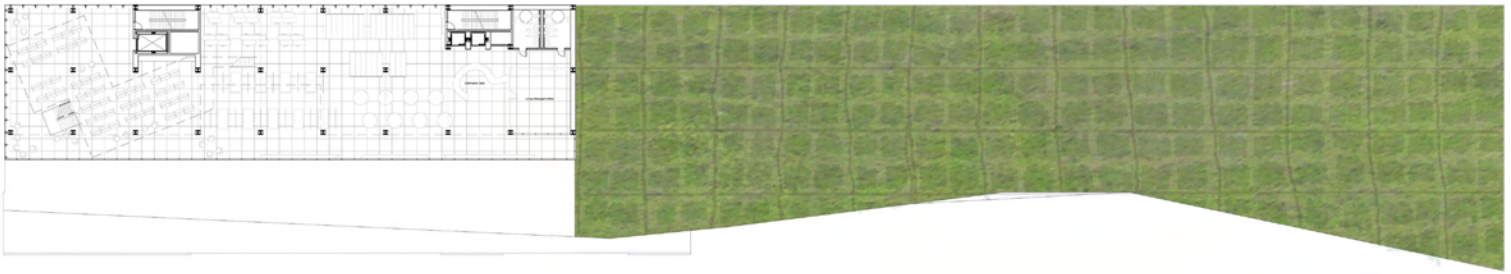
Sixth Floor

Reference Library

Total Area
9,800 S.F.

Max Distance to Egress
112 Feet

Max Occupancy
49



Fifth Floor

Day Care

Total Area
9,400 S.F.

Max Distance to Egress
112 Feet

Max Occupancy
94

Floor Plans

Scale 1"= 16'-0"

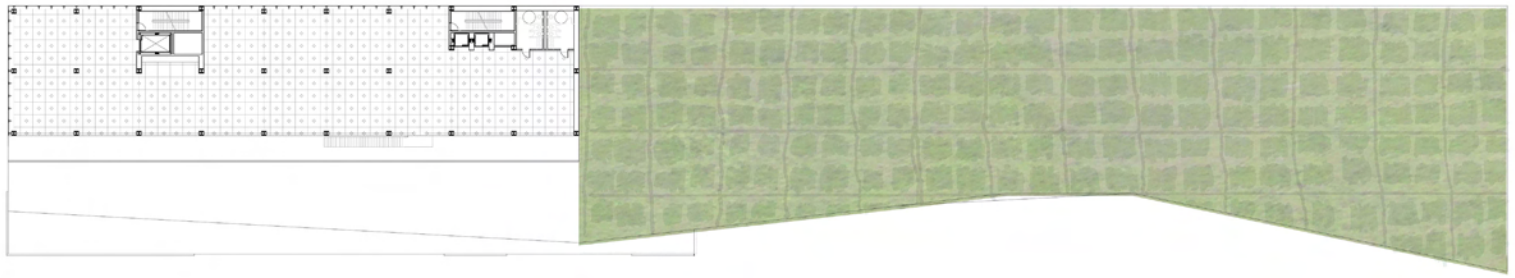
Eleventh Floor

Open Work Space

Total Area
10,400 S.F.

Max Distance to Egress
112 Feet

Max Occupancy
52



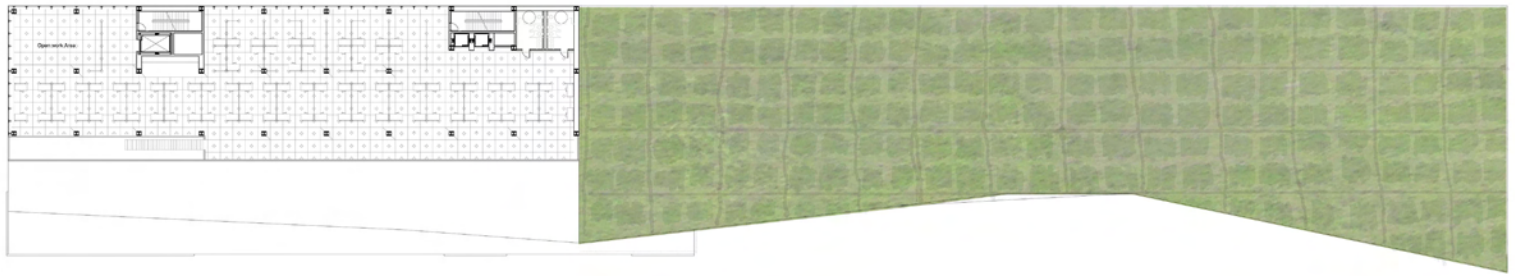
Ninth & Tenth Floor

Open Work Space

Total Area
10,400 S.F.

Max Distance to Egress
112 Feet

Max Occupancy
52



Eighth Floor

Open Work Space

Total Area
10,400 S.F.

Max Distance to Egress
112 Feet

Max Occupancy
52

Floor Plans

Scale 1"= 16'-0"

Product Information

1600 Wall System
Features
- 1600 Wall System®1 is an outside glazed captured curtain wall
- Standard 6" or 7-1/2" depth systems
- Concealed fastener joinery creates smooth, monolithic appearance
- Open-back horizontals and perimeters are available for cost savings
- Shear block fabrication method
- Corners and splayed mullions available
- Offers integrated entrance framing systems
- Silicone compatible glazing materials for long-lasting seals
- 1600 Wall System®1 has been small and large missile impact and cycle tested
- Permanodic® anodized finishes in 7 choices
- Painted finishes in standard and custom choices

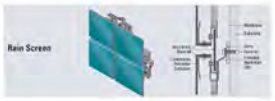
- Steel reinforcing available
- Rain screen and backpans
- Deep and heavy-weight mullions available
- Integrates with standard Kawneer windows and concealed GLASSvent™
- Integrates with 1600 SUNSHADETM and 1600 POWERSHADE®

Product Applications
- Ideal for low to mid-rise applications where high performance is desired
- It also is the right choice for high span applications

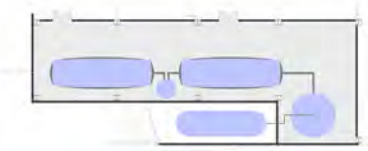
Information From Kawneer web site

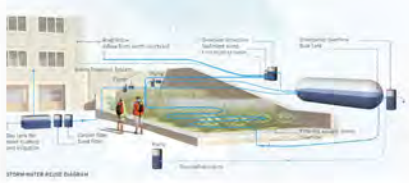
ALUCOBOND

1600 Wall System
Features
- Thin Light-weight Metal system
- Standard sizes 50" - 62"
- Easy On-site assembly
- North American Building Code Acceptance City of New York



Information From ALUCOBOND web site





Sustainable Aspects of the Project

Water Treatment

Cross Ventilation

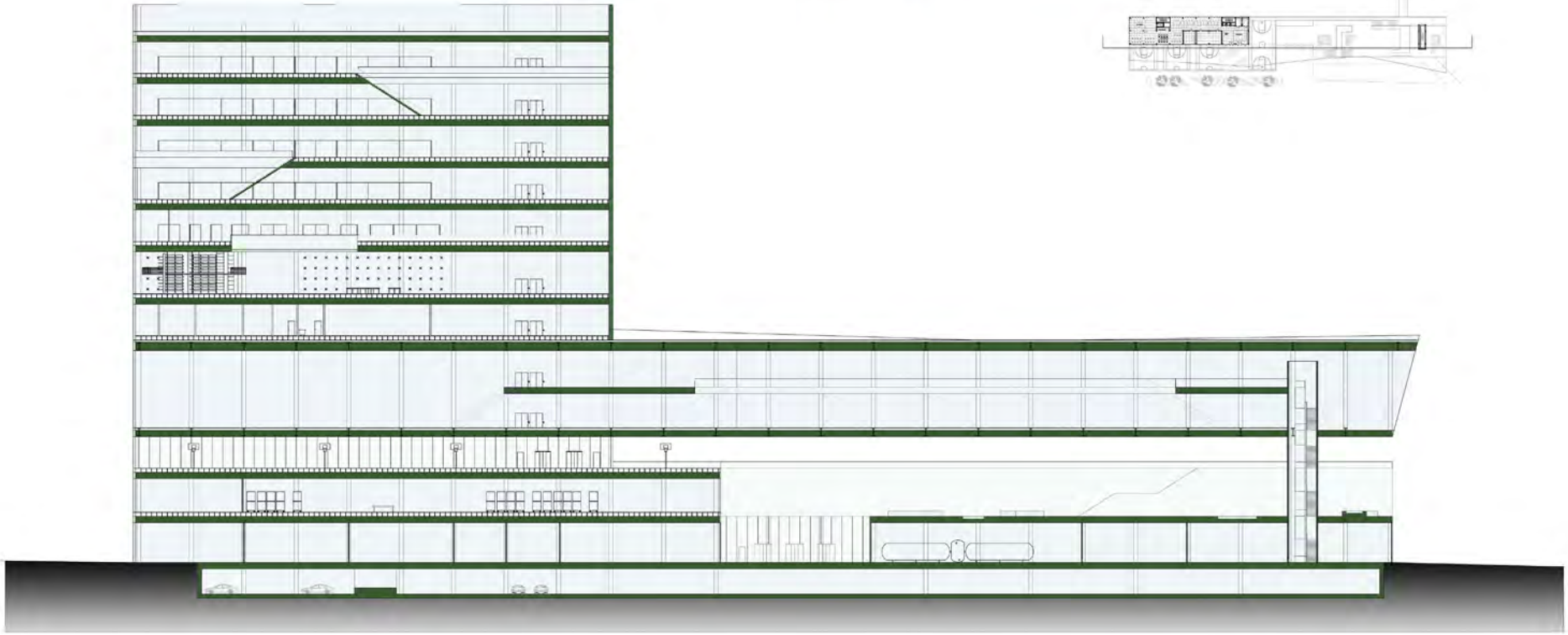
Operable Glass Skin

Thin floor plate (natural ventilation)

Green Non-Irrigated Roof

White Roof Membrane

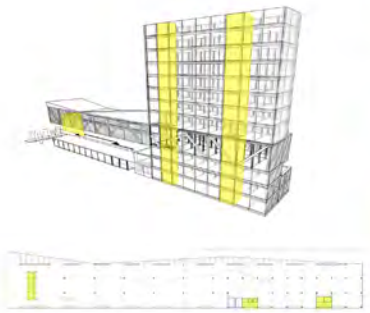
Thin Southern Facade



Section

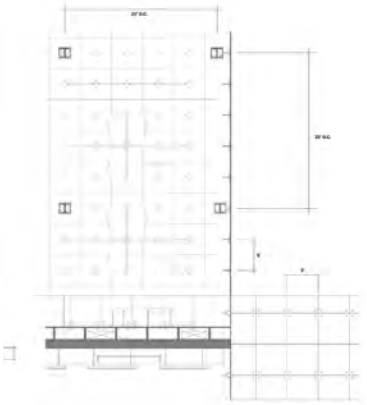
Scale 1"= 16'-0"

Circulation

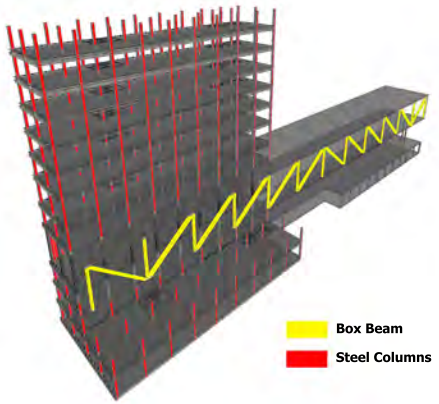


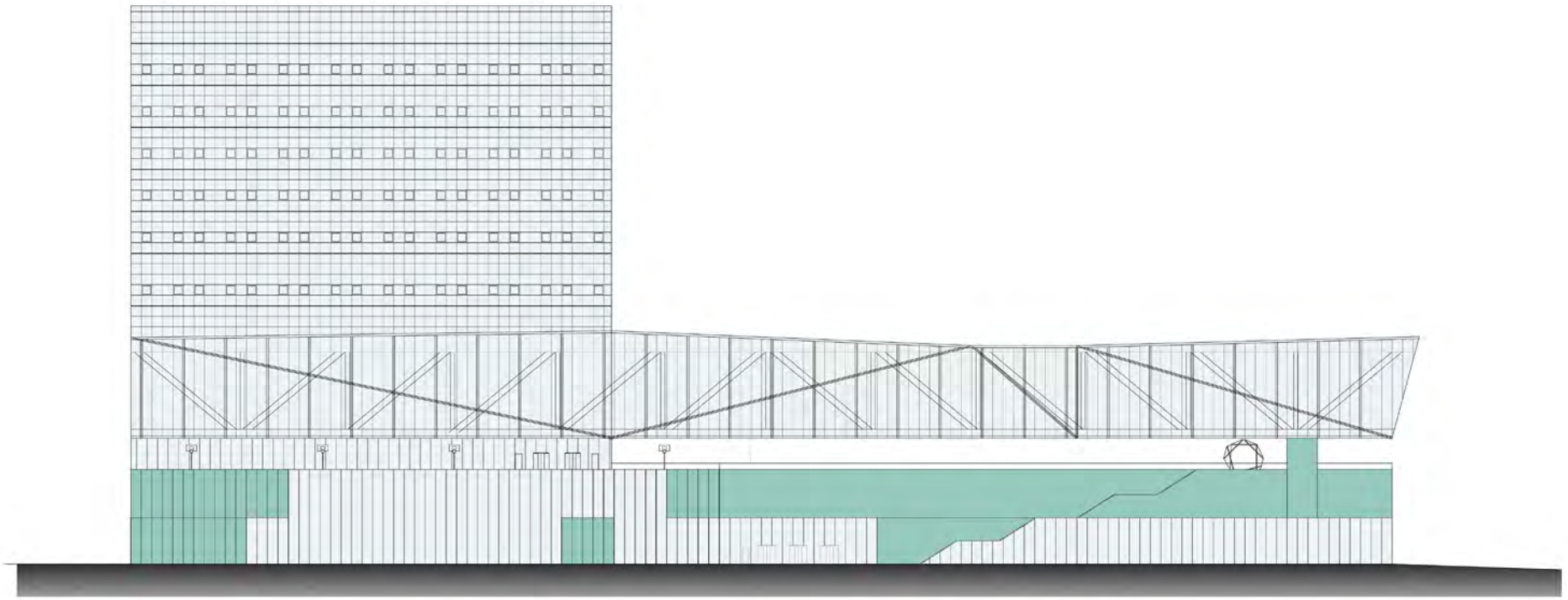
Bridge Concept

Dimentional Module



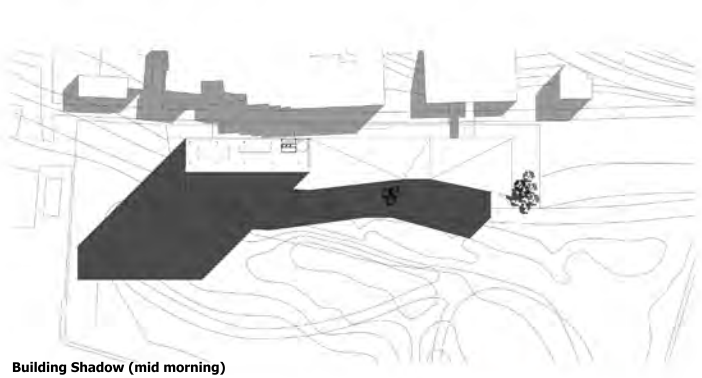
Structure





Elevation

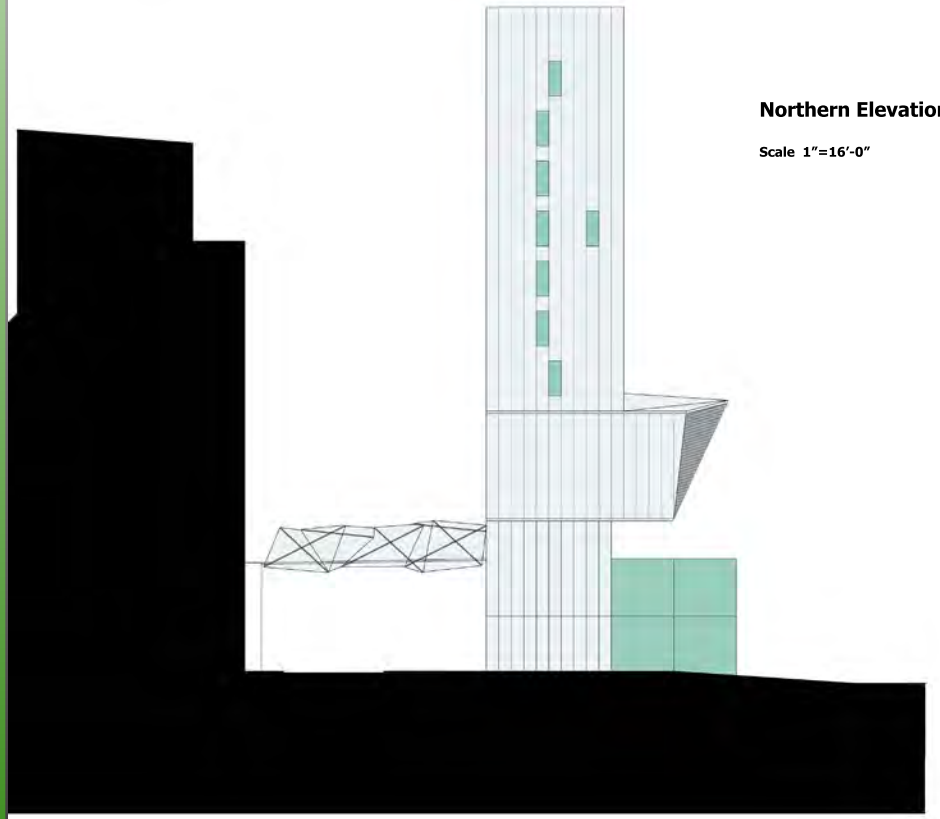
Scale 1”= 16‘-0”



Building Shadow (mid morning)

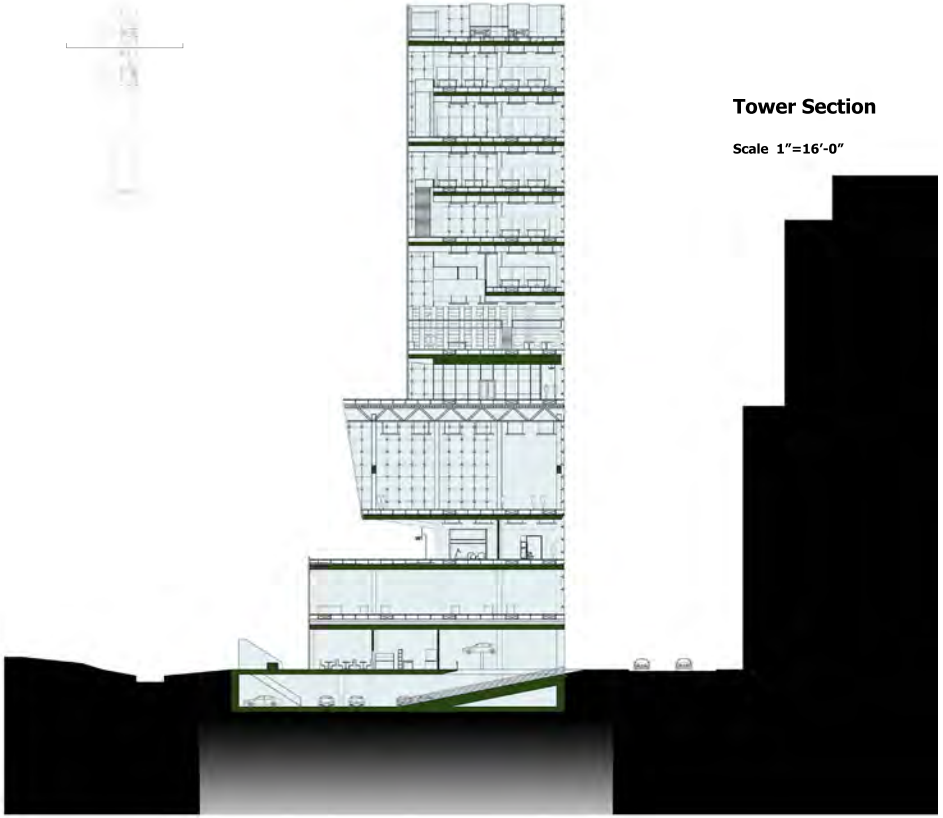
Movable Partitions

Raised Floor System



Northern Elevation

Scale 1"=16'-0"



Tower Section

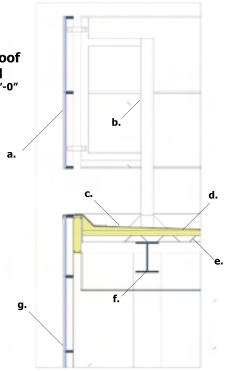
Scale 1"=16'-0"

Section / Elevation

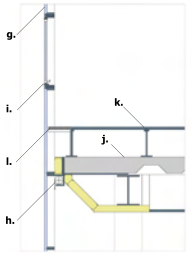
Scale 1"= 16'-0"

Jonathan T. Archbald

1. Tower Roof Edge Detail
Scale 1/2" = 1'-0"

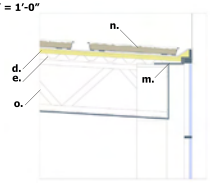


2. Tower Floor-to-Wall Detail
Scale 1/2" = 1'-0"

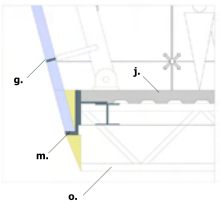


a. Roof Parapet
b. roof structure
c. white membrain
d. rigid insulation
e. roof deck
f. wide flange
g. 1600 Glazing system
h. sun shades
i. operable windows
j. concrete floor
k. raised floor system
l. HVAC vent
m. bent steel plate
n. roof planters
o. exhibition hall truss

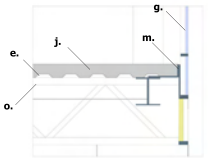
3. Exhibition Hall Green Roof
Scale 1/2" = 1'-0"



4. Exhibition Hall Floor
Scale 1/2" = 1'-0"

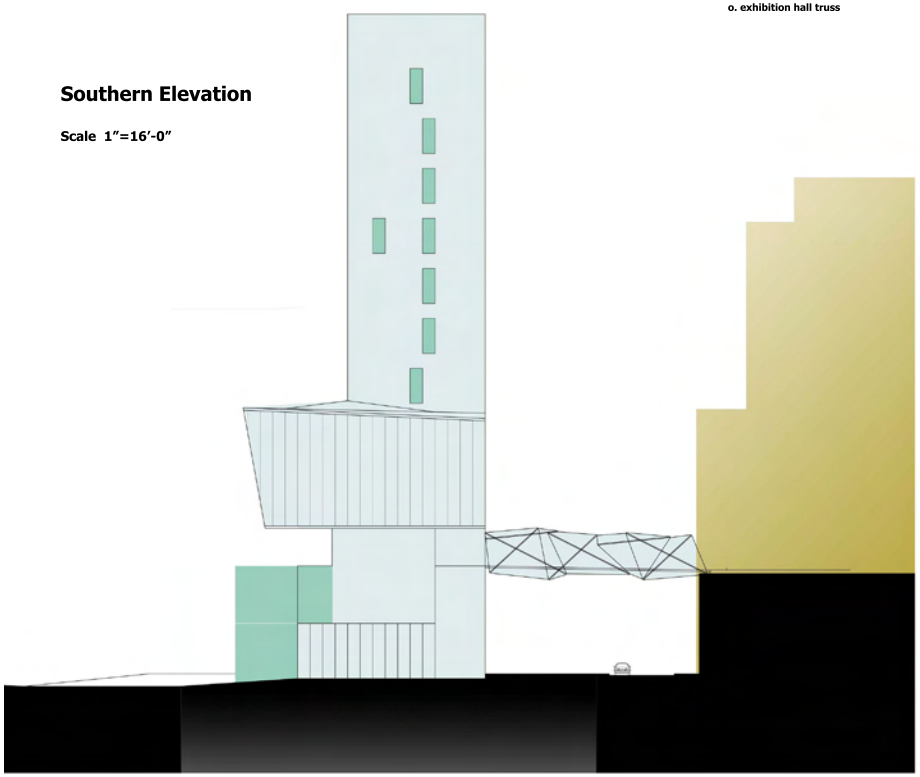


5. Exhibition Hall Floor
Scale 1/2" = 1'-0"



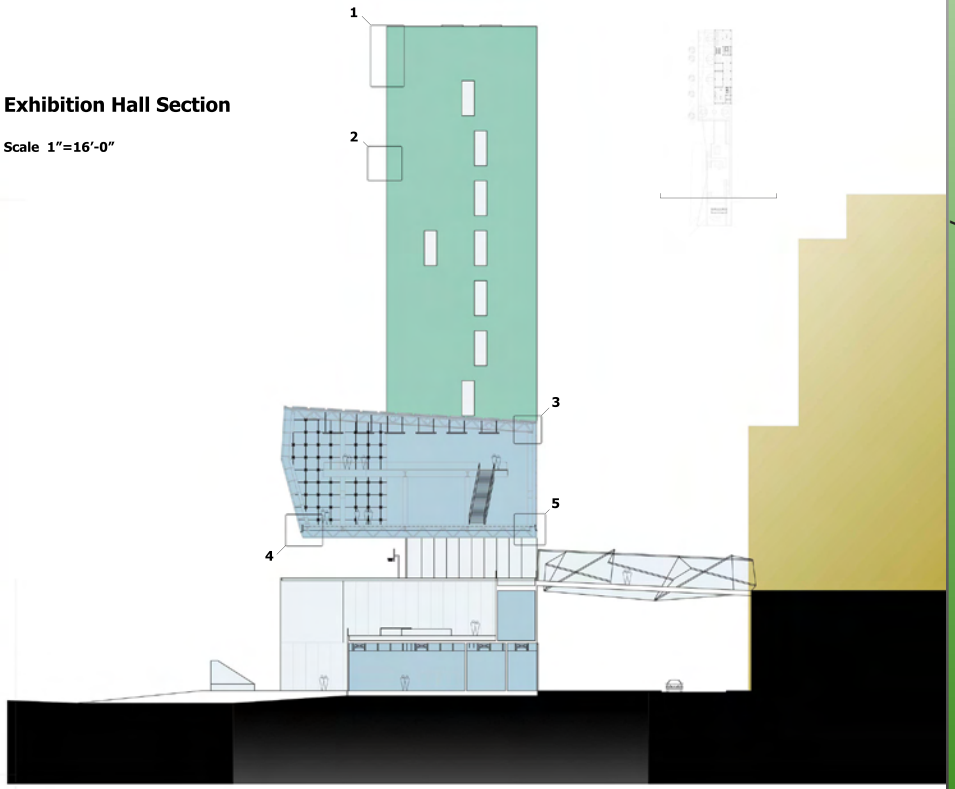
Southern Elevation

Scale 1"=16'-0"



Exhibition Hall Section

Scale 1"=16'-0"



Section / Elevation

Jonathan T. Archbald

Site Information

The Site

_146 Furman St.
Brooklyn, NY 11212

Lat: 40.663
Long: -73.912

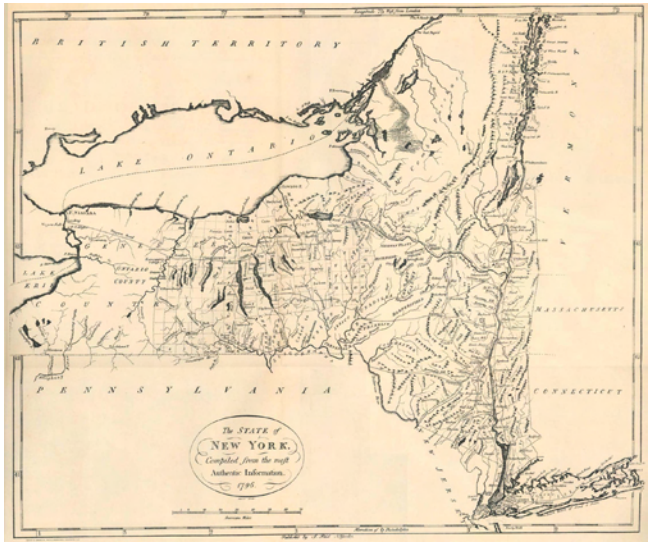
Population (2005)
NYC: 8,213,839
Brooklyn: 2,511,408
Dristric 2: 98,620

Site Size
_Area 101,015 Sq. Ft.
_Perimeter 1,224 Ft.

_ According the City Planning Report Brooklyn has a need for Non-Residencial construction. The City planners are Looking to re-zone for higher density.

_ The site is located on the East River just south of the Brookln Bridge.

_ New York City is the center for international relations. It is the epicenter of ideas and has a community that has lead the way in "new" for over a hundred years. For this reason NYC and its surrounding community seem the right space for a building committed to the "new"



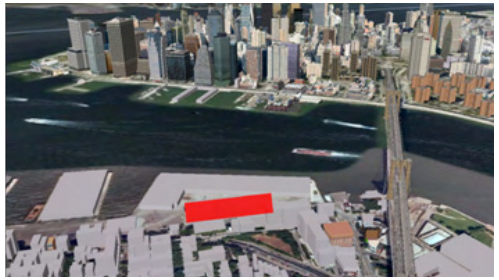
Desired Site Qualities

_On the Water
_View of Lower Mannhattan
_Green Space
_Ability to build tall
_Public Transportation

- NATURAL ELEMENTS_A building of this nature cannot be designed without consideration of the site. Information on annual charts for wind, sunlight, temperature, and precipitation need to be studied to learn what energy saving techniques can be implements

- SURROUNDING POPULATION_ Given the size and possible functions for this building it would most likely have to be in a high-density area. (Lloyds of London has millions of visitors each year)

Jonathan T. Archbald



_ Brooklyn Bridge Park

_ On March 11th 2010 the first stage of the BBP (Brooklyn Bridge Park) was officially opened. The park is planned to give the community a large space for a variety of activities. There are walking paths, open fields, 700 trees, 3 full soccer fields, and picnic areas. Events are held all the time to encourage use.

_ Adjacent to The Brooklyn Bridge Park will allow for a wonderful view of the financial district in Manhattan while providing work space and more jobs in Brooklyn. This site has little to block the sun and wind from the building and thus will allow for natural ventilation as well as natural light within the building.

_ Environmental

_ Brooklyn-area historical tornado activity is above New York state average. It is 21% smaller than the overall U.S. average.

_ On 5/28/1973, a category 3 (max. wind speeds 158-206 mph) tornado 30.5 miles away from the Brooklyn borough center caused between $50,000 and $500,000 in damages.

_ On 9/7/1998, a category 2 (max. wind speeds 113-157 mph) tornado 14.3 miles away from the borough center injured 6 people and caused $1 million in damages.

_ Brooklyn-area historical earthquake activity is slightly above New York state average. It is 86% smaller than the overall U.S. average.

_ On 8/26/2003 at 18:24:18, a magnitude 3.8 (3.8 LG, 3.5 ML, Depth: 1.9 mi, Class: Light, Intensity: II - III) earthquake occurred 60.6 miles away from Brooklyn center

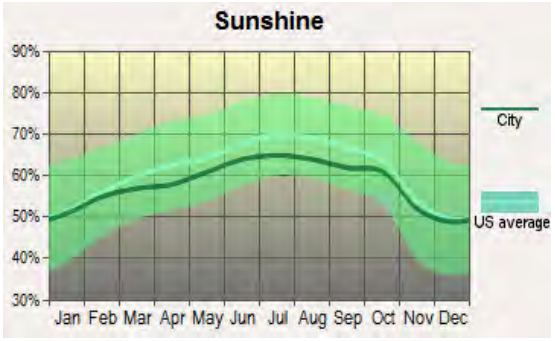
_ On 1/9/1992 at 08:50:45, a magnitude 3.1 (3.0 LG, 3.1 MD, Depth: 4.9 mi) earthquake occurred 28.5 miles away from the city center

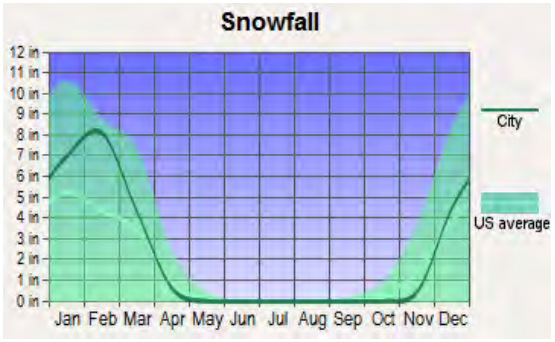
_ On 10/28/1991 at 20:58:26, a magnitude 3.0 (3.0 LG, Depth: 6.2 mi) earthquake occurred 35.0 miles away from the city center

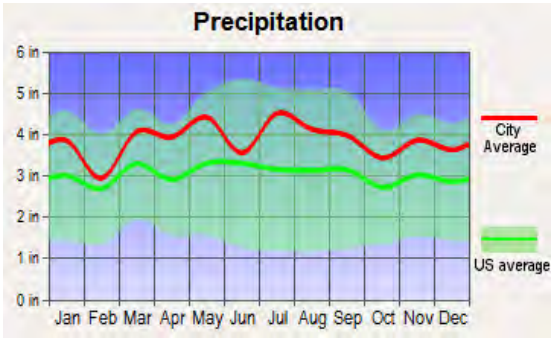
_ Magnitude types: regional Lg-wave magnitude (LG), duration magnitude (MD), local magnitude (ML)

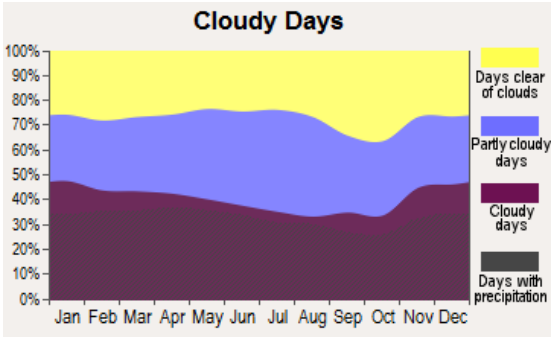
_ Birthplace of: Aaliyah - (1979-2001), rhythm and blues singer, Aaron Copland - (1900-1990), composer, Joan Rivers - (born 1935), stand-up comedian, Mel Brooks - (born 1926), comedian, Gene Tierney - (1920-1991), actress, Dom DeLuise - (born 1933), actor, comedian, George Gershwin - (1898-1937), composer, Michael Jordan, Norm Coleman - politician, Joe Paterno - (born 1926), football coach.

Read more: http://www.city-data.com/city/Brooklyn-New-York.html#ixzz0rVh97qHC









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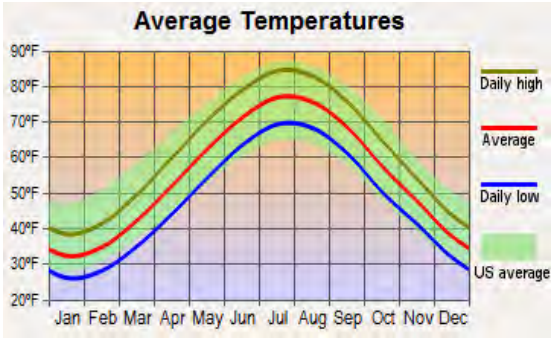
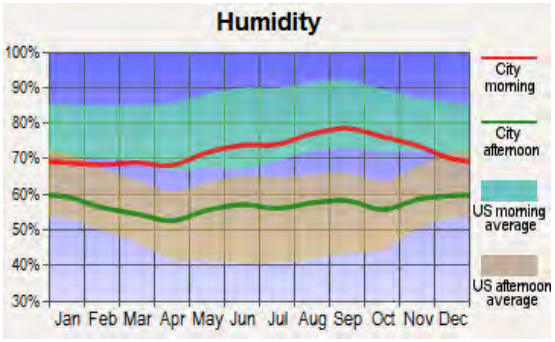
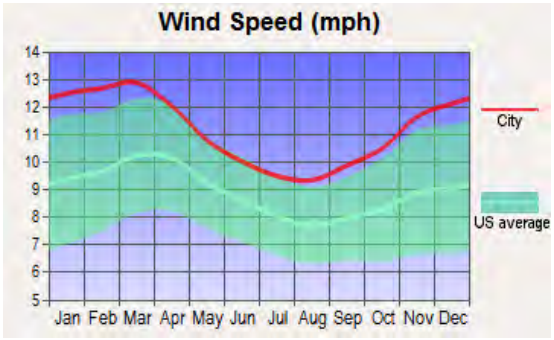
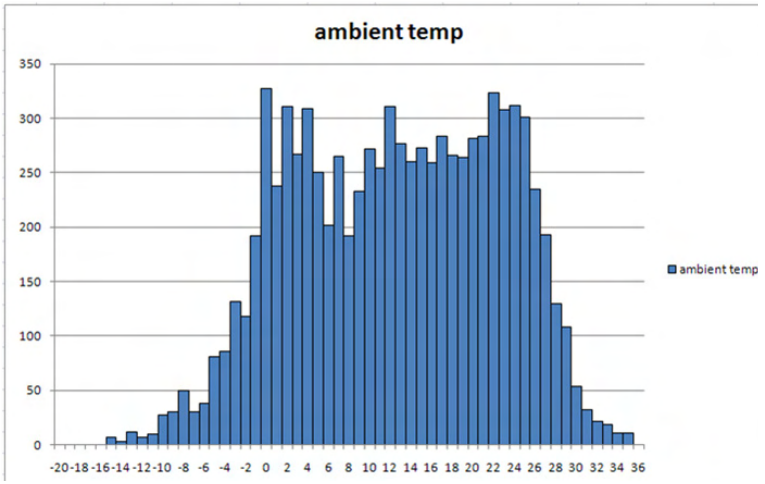








Brooklyn has

_ Higher then average Wind Speed

_ The city falls in the U.S. Average for Humidity, Air Temperature, Sunshine, and Precipitation.

_ Races in Brooklyn:

* White Non-Hispanic (41.2%)
* Black (36.4%)
* Hispanic (19.8%)
* Other race (10.1%)
* Chinese (4.9%)
* Two or more races (4.3%)
* Asian Indian (1.0%)
* Other Asian (0.9%)

(Total can be greater than 100% because Hispanics could be counted in other races)

Dec. 2009 cost of living index in Brooklyn: 194.2 (very high, U.S. average is 100)

Current Local Time: 1:29:47 PM EST time zone

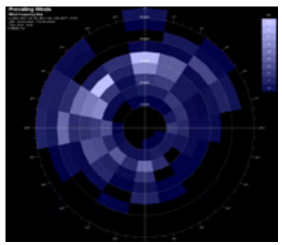
Incorporated in 1816

Land area: 70.6 square miles. Population density: 35957 people per square mile

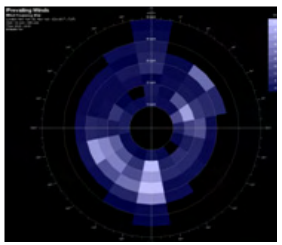
(Very high).

Read more: http://www.city-data.com/city/Brooklyn-New-York.html#ixzz0rVfSxo5w

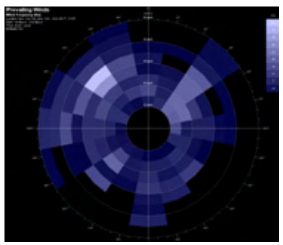
Spring



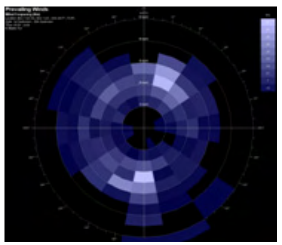
Summer



Fall



Winter



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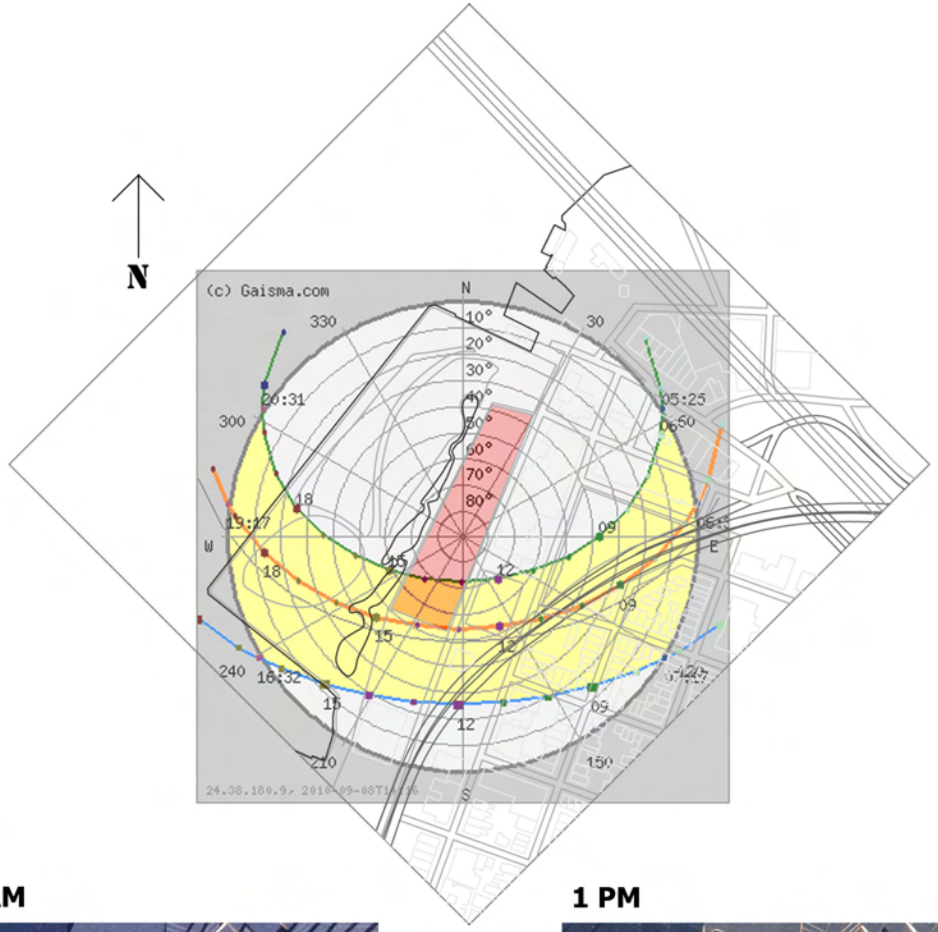


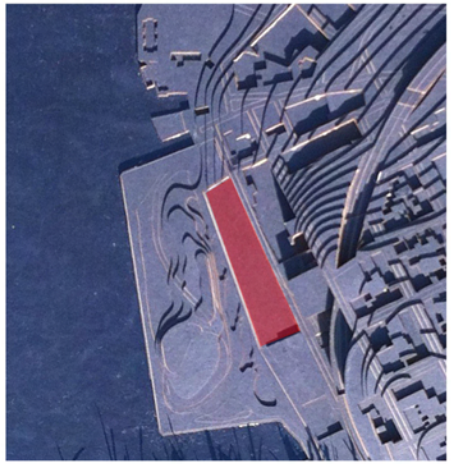
Sun Diagram

The site will recieve full sun in from noon through the late afternoon.

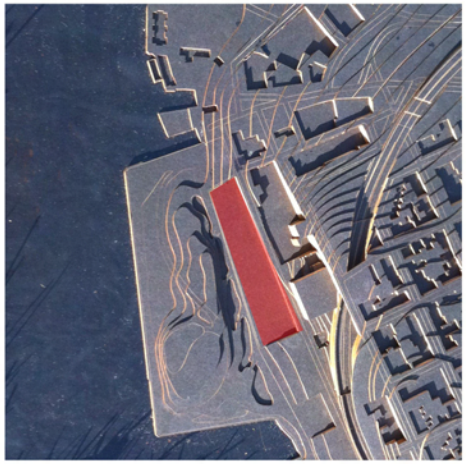
The only time the site will be in shadow will be early in the morning before the sun comes over the hill east of the site.

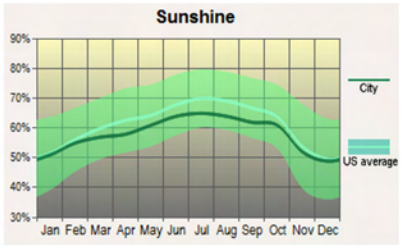
Summer Sun Angle :	**82***
Winter Sun Angle:	**25***
Summer Daylight (hrs):	**15.125**
Winter Daylight (hrs):	**9.25**

10 AM



1 PM





The City has less then average sunshine throughout the year.

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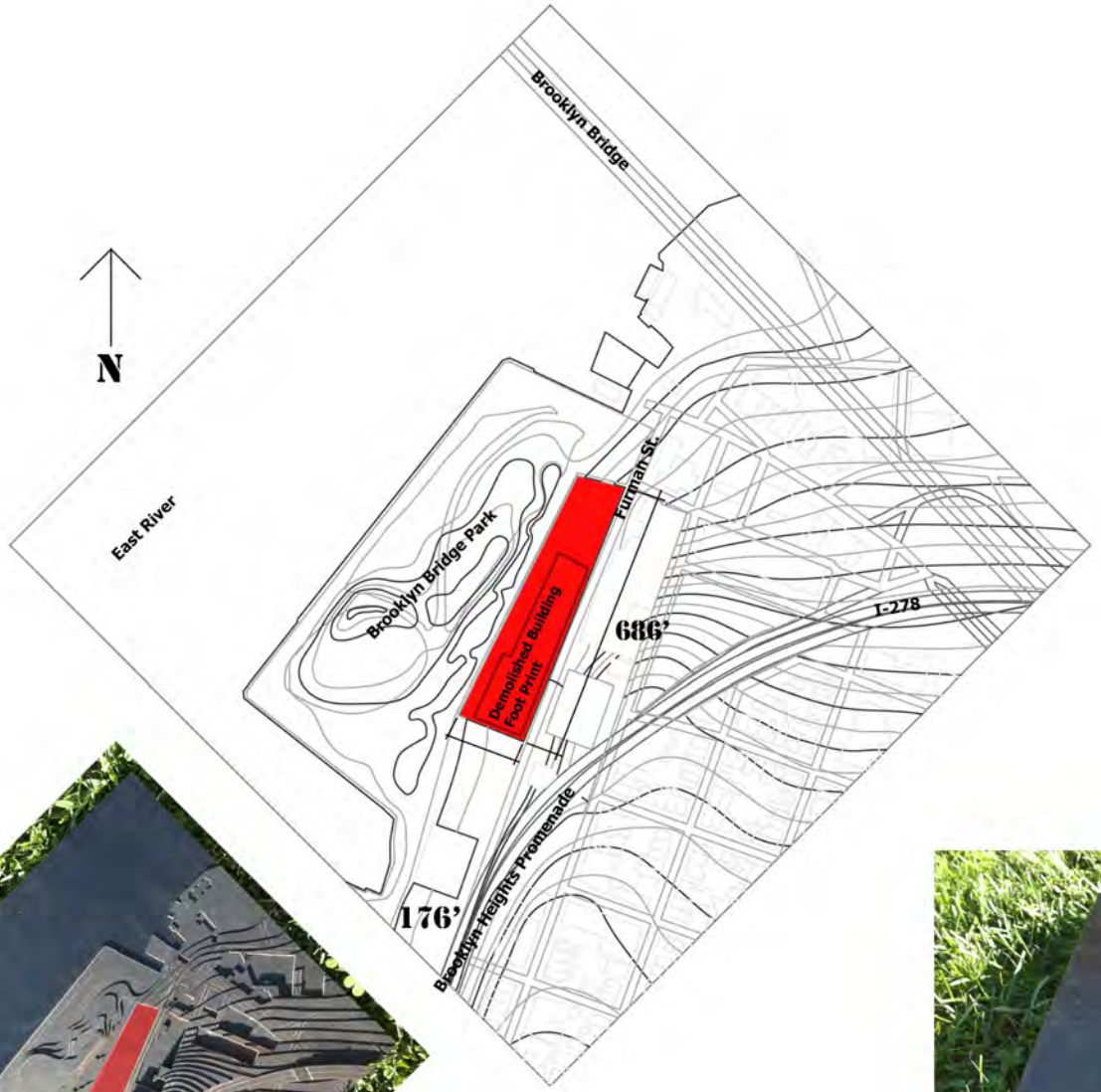


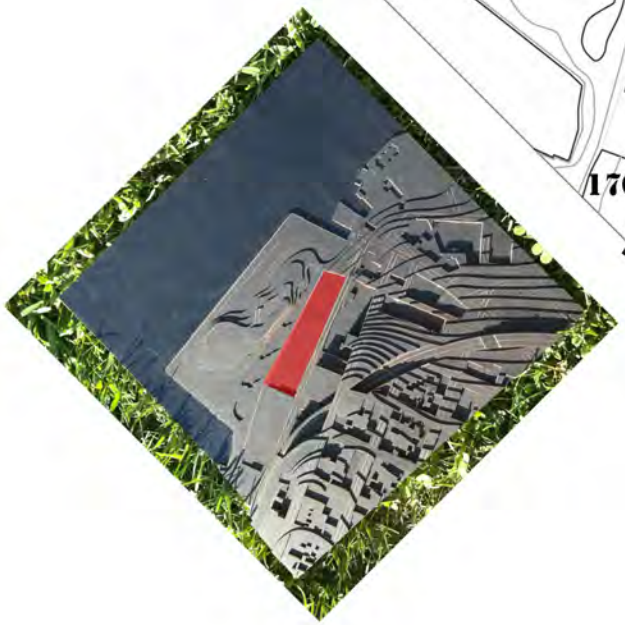
Site Dementions

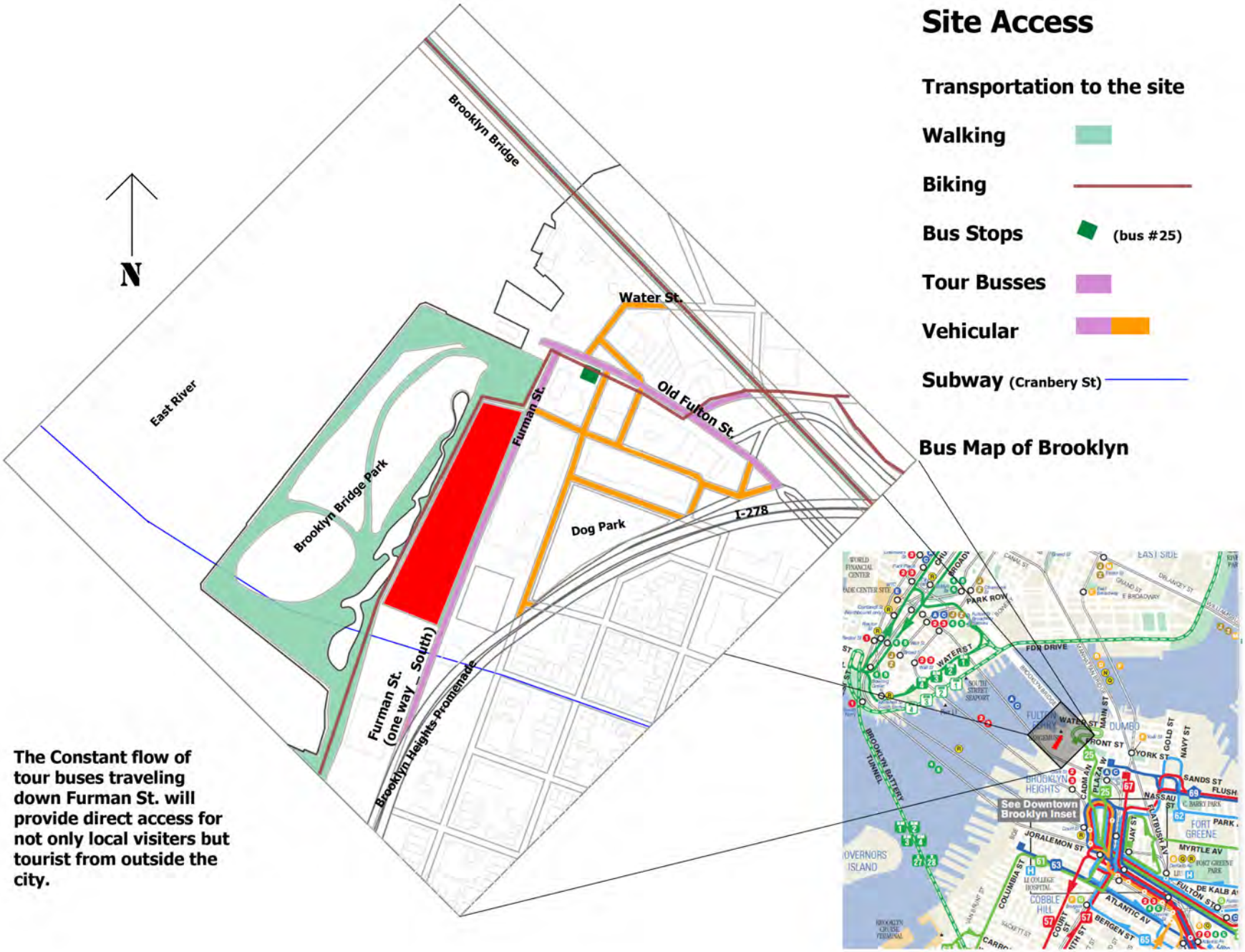
Site :	**101,120 SF**
Elevation :	**12'**
Latitude :	**40* 42' 08"**
Longitude :	**73* 59' 44"**

Floor Area Ratio: 2.0

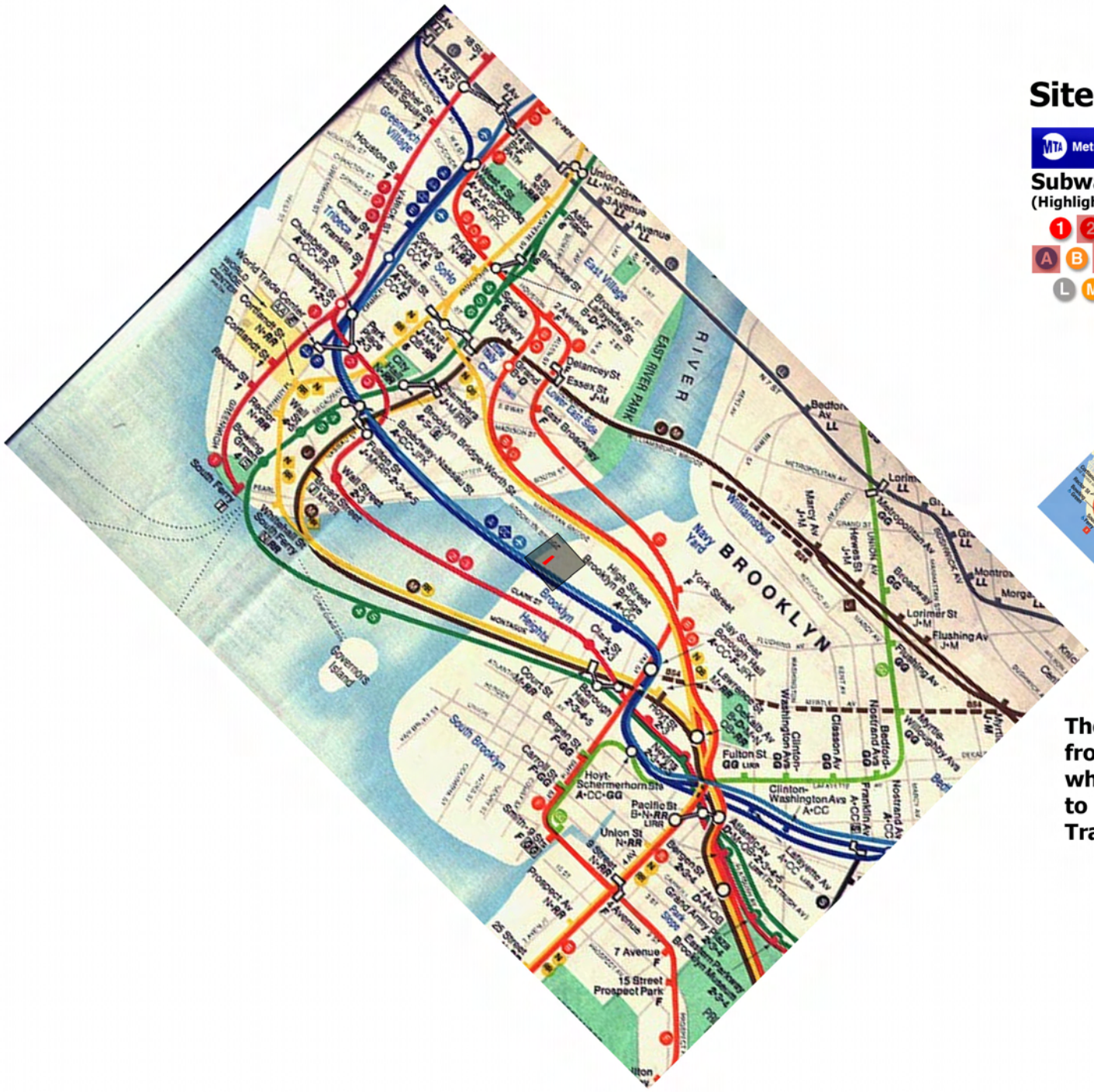
Max Building SF: 202,240 SF

Street Width: 55 FT
(Furman St. _ One Way)





Jonathan T. Archbald



Site Access

Metropolitan Transportation Authority

Subway Lines
(Highlighted Lines pass near the site)

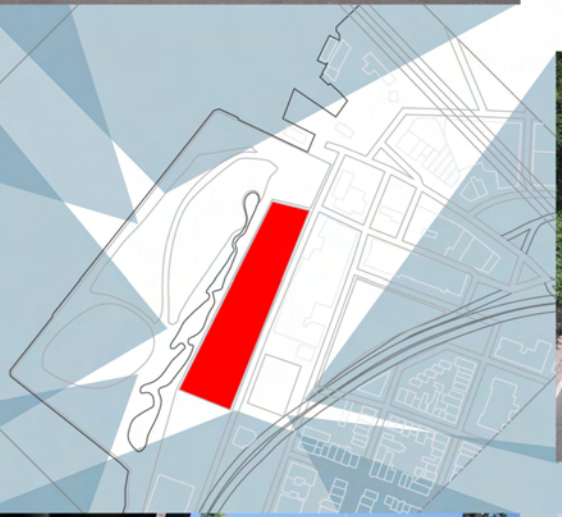
1 2 3 4 5 6 7
A B C D E F G J
L M N Q R S Z

The site is a short walk from Candan Plaza which is a crucial link to Brooklyn's Public Transportation.

Jonathan T. Archbald

Site Images

1. View Across the East River
2. Brooklyn Bridge Park
3. Brooklyn Heights
4. I-278
5. Old Building on Site
6. Furman St. (looking North)
7. From the Heights



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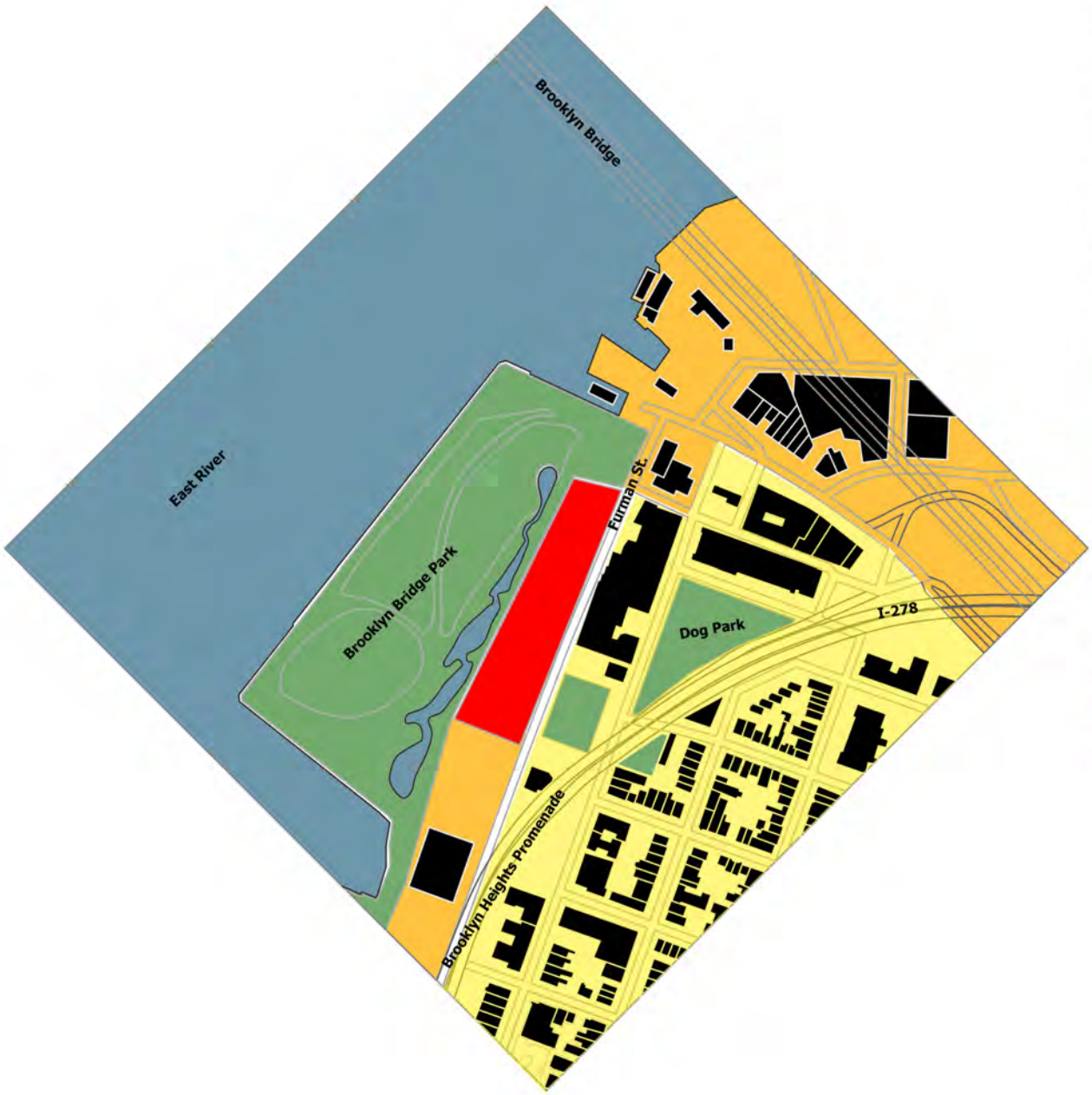

Surrounding Area

The site is surounded by a park to the North and West.

Residential towers are to the East and South on Brooklyn Heights

- Mixed Use District
- Residential
- Parks
- East River
- Existing Buildings
- Site

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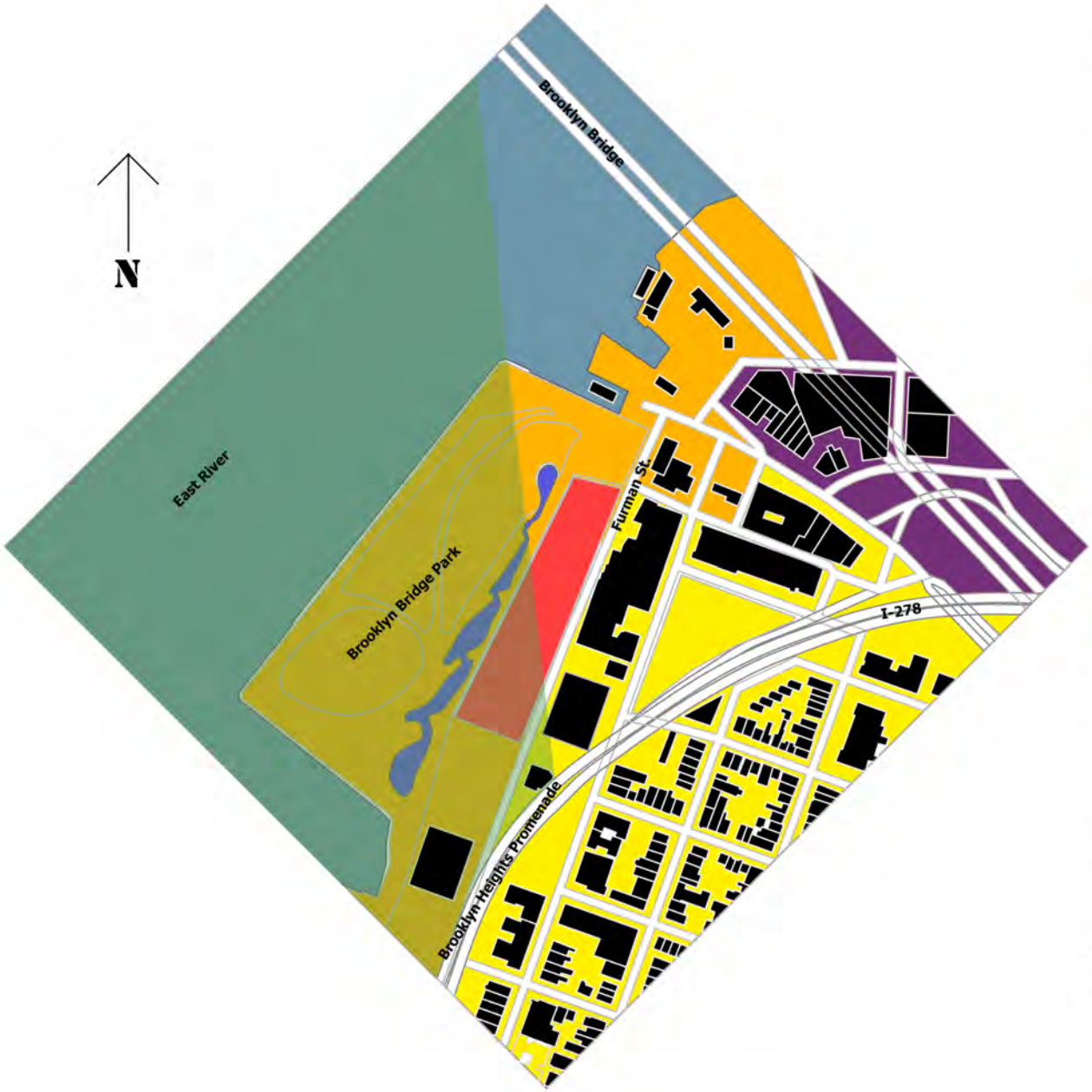


Zoning Dirstricts

- East River
- Scenic View Zone
- Residential Zone
- The Site
- Manufacturing
- Mixed Use Zone
- Buildings

The site falls within two Zones.

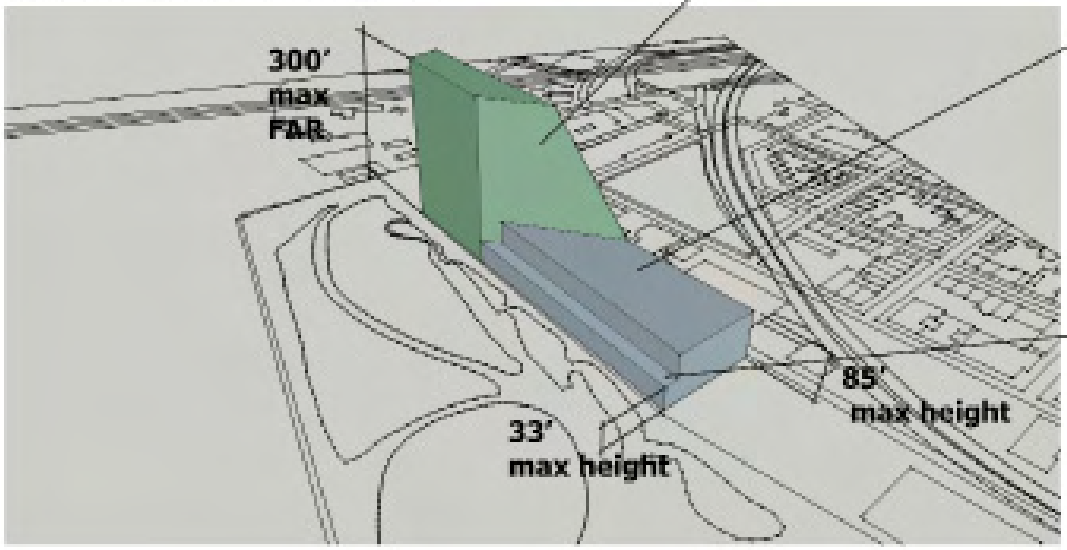
Primarly the site is a manufacturing district that has an overlay of a specical Scenic View Zone.

Jonathan T. Archbald

3-D Site Zoning

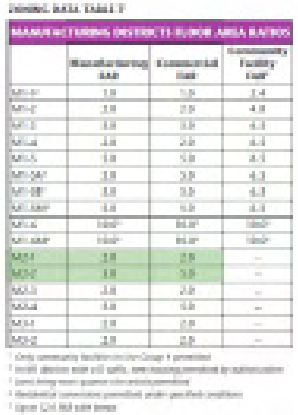
Plan View of Site

3-D Site Massing _ Maxed out



Manufacturing District

M2-1 FAR ratio limit



Special Senic View District

SV-1 102_11 Demolished building outline

10/24/74

102-11
Damage, Destruction or Demolition

If an existing #building or other structure# which penetrates the #view plane# of a #Special Scenic View District# is damaged, destroyed or demolished by any means, such #building or other structure# may be reconstructed provided that such reconstruction shall not create a new #non-compliance# nor increase the pre-existing degree of #non-compliance#.

SV-1 height restriction

ZONING RESOLUTION Web Version

THE CITY OF NEW YORK

Article X: Special Purpose Districts
Chapter 2: Special Scenic View District

Site Information

Historical Districts

_There are 22 historic districts in Brooklyn.

_The chosen site is just outside of two of them.

_Brooklyn Heights Historic District is just to the East of the site.

_The Fulton Ferry Historic District is just to the North of the site.

R-1

Jonathan T. Archbald

Walking Distance

The site has many facilities within walking distance.

Transit	
Rail	
A HIGH STREET - BRO	0.32 mi
C HIGH STREET - BRO	0.32 mi
2 CLARK STREET	0.35 mi
3 CLARK STREET	0.35 mi
F YORK STREET	0.47 mi
Bus & other	
B25 FULTON STREET	0.07 mi
B69 VANDERBILT AVEI	0.43 mi
B38 DEKALB AVENUE	0.48 mi

Screen clipping taken: 8/10/2010, 12:22 PM

Grocery Stores	
Cranberry's	0.24 mi
Pea & Pickles	0.31 mi
Forager's Market	0.35 mi
D'Agostino	0.42 mi
Bridge Fresh	0.45 mi
Seaport Marketplace	0.48 mi
Key Food Supermarke	0.51 mi
Garden of Eden Gour	0.57 mi

Screen clipping taken: 8/10/2010, 12:23 PM

Restaurants	
Pete's Downtown Res	0.07 mi
Brooklyn Ice Cream	0.07 mi
Grimaldi's	0.1 mi
No 1 Front Street	0.11 mi
Ignazios Pizza	0.11 mi
Brooklyn Bridge Gar	0.11 mi
The River Cafe	0.11 mi
Water Street Restau	0.21 mi

Screen clipping taken: 8/10/2010, 12:24 PM

Coffee Shops	
Tutt Cafe	0.16 mi
Starbucks Coffee	0.24 mi
Clarks Corner	0.35 mi
Dodo Cafe	0.48 mi
Starbucks Coffee	0.51 mi
Jack's Coffee II LL	0.52 mi
Harbour Cafe	0.52 mi
Flavors Cafe	0.6 mi

Screen clipping taken: 8/10/2010, 12:24 PM

Clothing & Music	
Digital Gravel	0.25 mi
Zoe	0.29 mi
Heights Kids	0.31 mi
Halcyon	0.41 mi
blueberi	0.41 mi
Express	0.42 mi
Modern Tots	0.42 mi
Manhattan Mini Stor	0.52 mi

Screen clipping taken: 8/10/2010, 12:30 PM

Bars	
Jack the Horse Tave	0.18 mi
Water Street Restau	0.21 mi
Henry Street Ale Ho	0.26 mi
Low Bar	0.29 mi
Ozu Japanese Cuisin	0.34 mi
68 Jay St Bar	0.45 mi
Fresh Salt	0.51 mi
Jeremy's Ale House	0.52 mi

Screen clipping taken: 8/10/2010, 12:25 PM

Movie Theaters	
Pine Route 112 Thea	0.27 mi
Movie Backer	0.31 mi
Lower Manhattan The	0.56 mi
Michael Schimmel Ce	0.77 mi
Regal Court Street	0.81 mi
Cobble Hill Cinemas	1.19 mi

Screen clipping taken: 8/10/2010, 12:26 PM

Schools	
PS 8 Robert Fulton	0.15 mi
St Ann's School	0.52 mi
Freedom Academy Hig	0.55 mi
PS 126 Jacob August	0.6 mi
Science Skills Cent	0.61 mi
St Joseph School	0.65 mi
Satellite West Midd	0.66 mi
George Westinghouse	0.69 mi

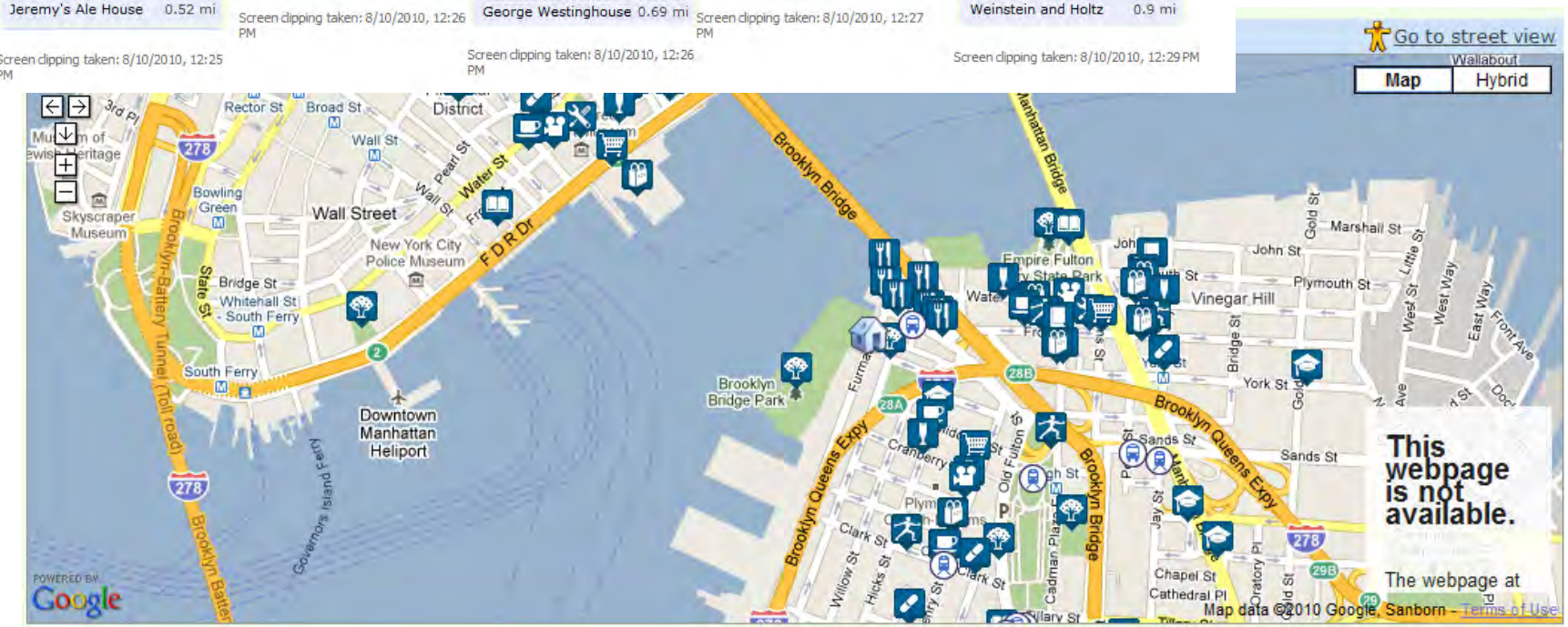
Screen clipping taken: 8/10/2010, 12:26 PM

Parks	
Hillside Park	0.04 mi
Brooklyn Bridge Par	0.13 mi
Empire Fulton Ferry	0.31 mi
Park Plaza Restaura	0.37 mi
Whitman Park	0.41 mi
New York Vietnam Ve	0.77 mi

Screen clipping taken: 8/10/2010, 12:27 PM

Hardware Stores	
Heights Historic Wi	0.25 mi
Dumbo Hardware	0.33 mi
Century Paint Hardw	0.42 mi
Brookstone Inc	0.54 mi
Variety Mart	0.54 mi
Fulton Supply Co.	0.71 mi
Dick's Hardware Inc	0.72 mi
Weinstein and Holtz	0.9 mi

Screen clipping taken: 8/10/2010, 12:29 PM



Compare Your Walk Score

Top 10% of scores:	92
Your score:	91
Average score:	49

6% *of Walk Score users have a higher Score.*

Jonathan T. Archbald

Zoning Map

R-2

Zoning Laws

The building site is in the
second district in Brooklyn

District M2-1, SV-1

Floor Area ratio (FAR) _ 2.0

Max Building Size _ 200,000 SF

Manufacturing Districts: M2

M2 districts occupy the middle ground between light and heavy industrial areas. The four M2 districts, with different *floor area ratios (FAR)* and parking requirements, are mapped mainly in the city's older industrial areas along the waterfront. M2-1 districts, for example, are mapped along much of Brooklyn's Red Hook and Sunset Park waterfronts. Manhattan's Hudson River piers, including the Passenger Ship Terminal, are within M2-3 districts.

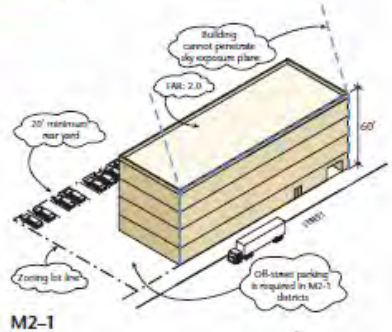
Required *performance standards* in all M2 districts are lower than in M1 districts. Except when M2 uses border on a residential district, more noise and vibration are allowed, smoke is permitted and industrial activities need not be entirely enclosed. M2-1 and M2-2 districts, with FAR's of 2.0 and 5.0, and maximum *base heights* before *setback* of 60 and 85 feet respectively, are subject to the parking requirements of Section 44-21 of the Zoning Resolution. The requirements vary according to use and are the same as those for the M1 districts where parking is required. M2-3 and M2-4 districts, mapped only in Manhattan, are exempt from parking requirements. Loading berth requirements differ according to district, type of use and size of establishment.

ZONING DATA TABLE 7

MANUFACTURING DISTRICTS FLOOR AREA RATIOS

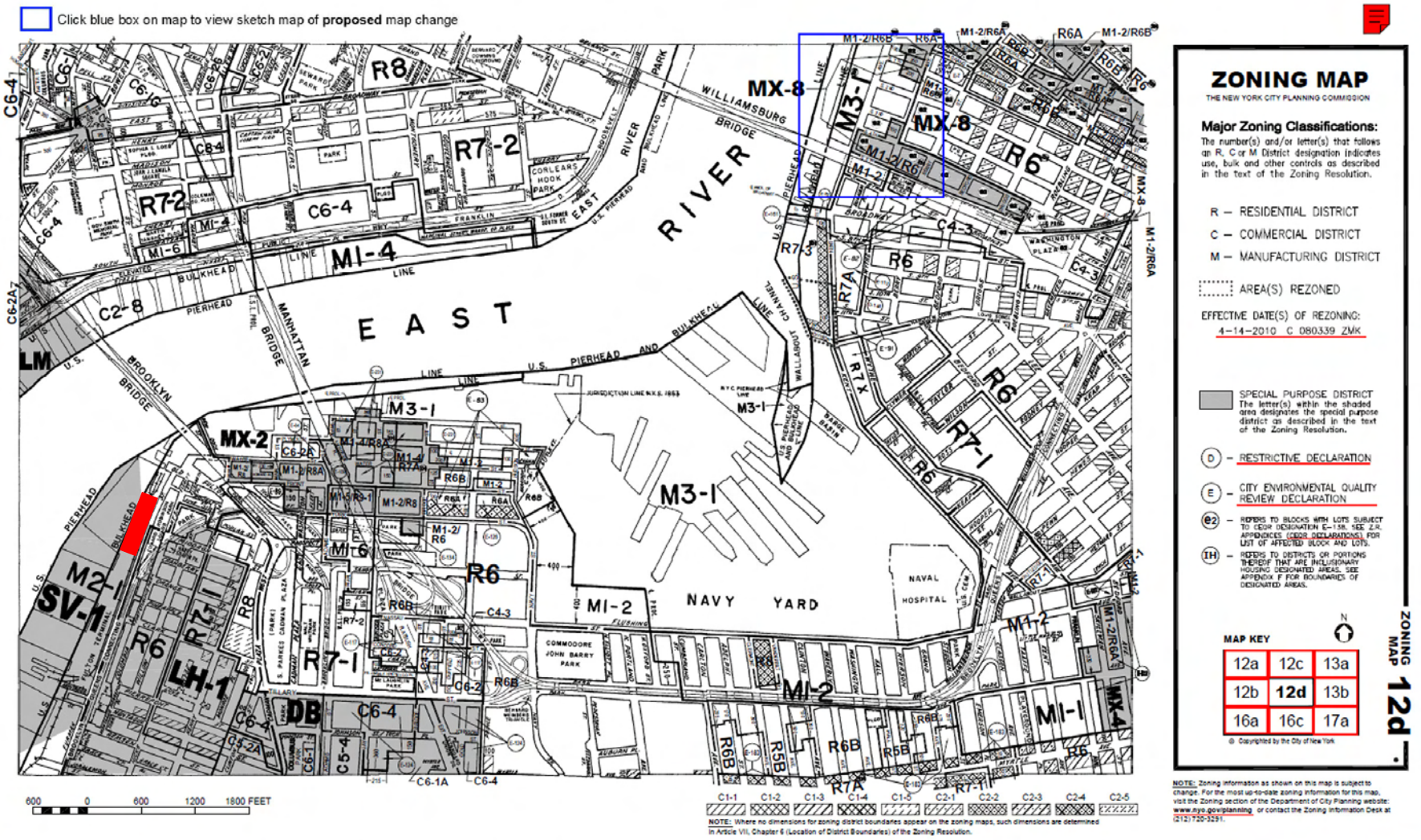
	Manufacturing FAR	Commercial FAR	Community Facility FAR[1]
M1-1[2]	1.0	1.0	2.4
M1-2	2.0	2.0	4.8
M1-3	5.0	5.0	6.5
M1-4	2.0	2.0	6.5
M1-5	5.0	5.0	6.5
M1-5A[3]	5.0	5.0	6.5
M1-5B[3]	5.0	5.0	6.5
M1-5M[4]	5.0	5.0	6.5
M1-6	10.0[5]	10.0[5]	10.0[5]
M1-6M[4]	10.0[5]	10.0[5]	10.0[5]
M2-1	2.0	2.0	–
M2-2	5.0	5.0	–
M2-3	2.0	2.0	–
M2-4	5.0	5.0	–
M3-1	2.0	2.0	–
M3-2	2.0	2.0	–

M2



M2 Manufacturing Districts				
M2	**M2-1**	**M2-2**	**M2-3**	**M2-4**
FAR (max)	2.0	5.0	2.0	5.0
Parking	required	required	not required	not required

Jonathan T. Archbald



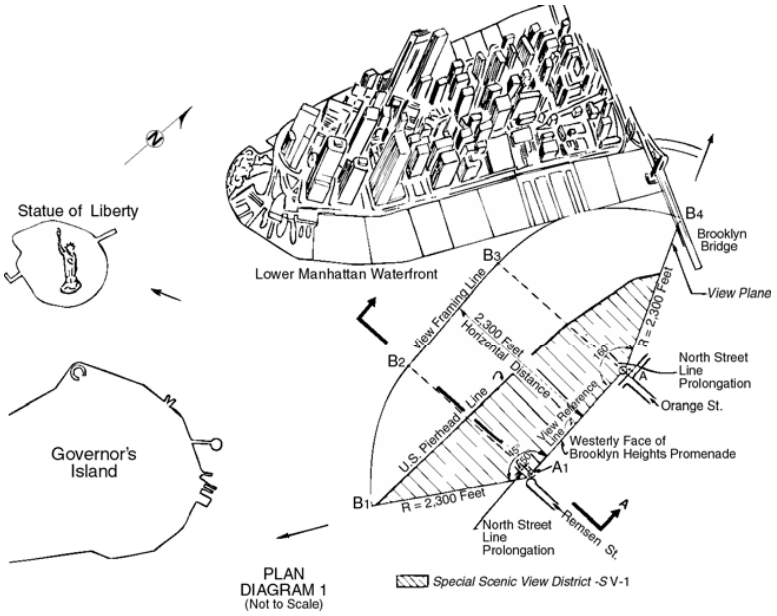
Jonathan T. Archbald

Zoning Map

R-4

Zoning Laws (Cont.)

Article X: Special Purpose Districts
Chapter 2: Special Scenic View District



102-10
HEIGHT REGULATIONS FOR BUILDINGS, SIGNS OR STRUCTURES
Notwithstanding any other provisions of this Resolution, the highest projection of any #building or other structure# hereafter constructed, or of any #sign# hereafter erected, or of any existing #building or other structure# hereafter relocated, #enlarged# or reconstructed, shall not penetrate a #view plane# unless authorized by the City Planning Commission pursuant to Section 102-30 (SPECIAL PERMIT PROVISIONS).

10/24/74
102-11
Damage, Destruction or Demolition
If an existing #building or other structure# which penetrates the #view plane# of a #Special Scenic View District# is damaged, destroyed or demolished by any means, such #building or other structure# may be reconstructed provided that such reconstruction shall not create a new #non-compliance# nor increase the preexisting degree of #non-compliance#.

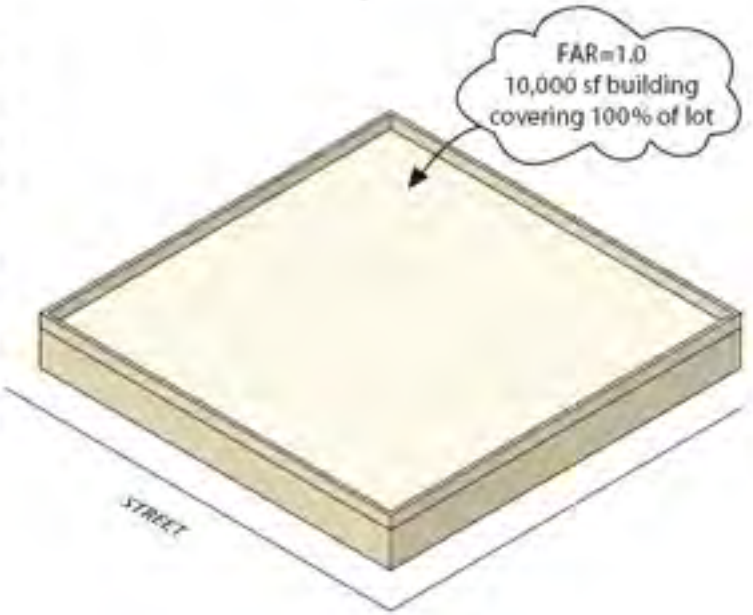
102-61
SV-1 Brooklyn Heights Scenic View District
The SV-1 "Brooklyn Heights Scenic View District" is hereby established. The regulations of Sections 102-00 to 102-50, inclusive, as well as the regulations of this Section, inclusive, shall be applicable in this Special District.

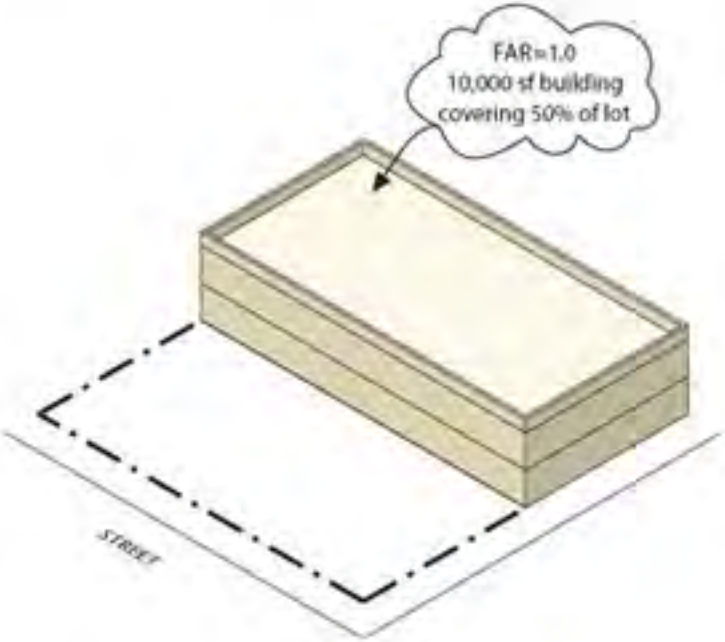
See Appendix A for full information on the Scenic View District

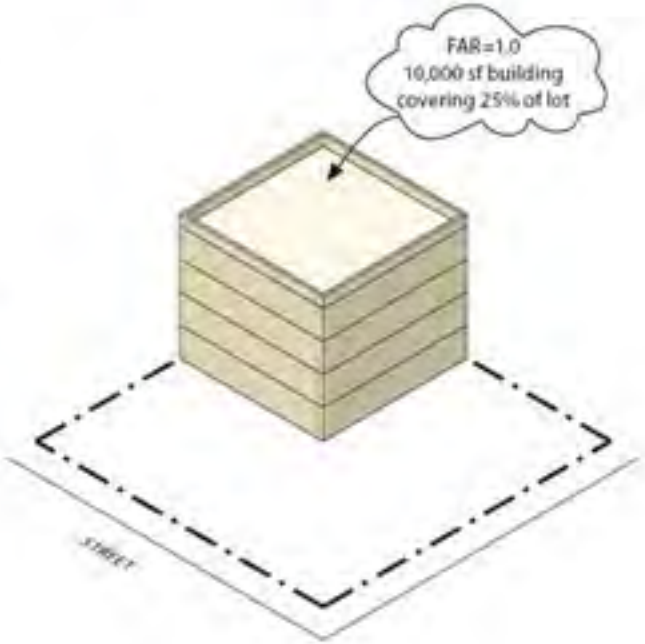
Jonathan T. Archbald

Floor Area Ratio (FAR)*

The floor area ratio (FAR) is the principal bulk regulation controlling the size of buildings. FAR is the ratio of total building floor area to the area of its zoning lot. Each zoning district has an FAR control which, when multiplied by the lot area of the zoning lot, produces the maximum amount of floor area allowable in a building on the zoning lot. For example, on a 10,000 square-foot zoning lot in a district with a maximum FAR of 1.0, the floor area of a building cannot exceed 10,000 square feet.



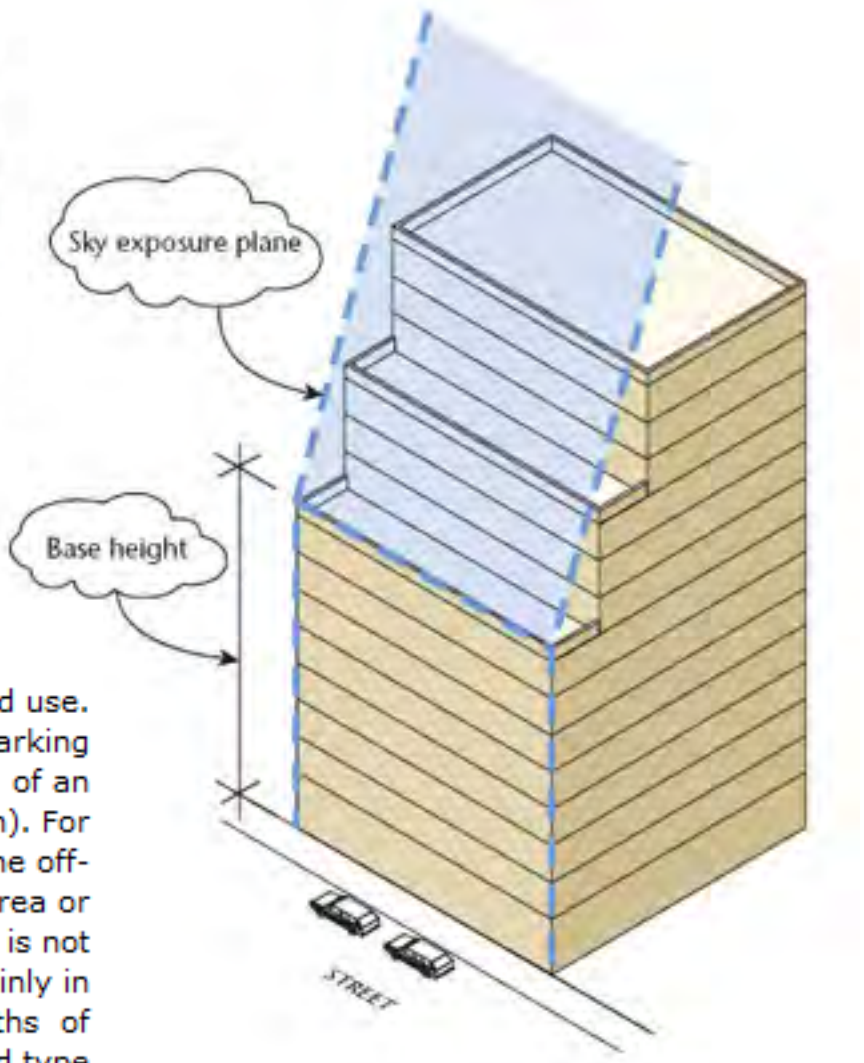




Zoning Laws (Cont.)

Sky Exposure Plane*

A sky exposure plane is a virtual sloping lane that begins at a specified height and rises inward over the zoning lot at a ratio of vertical distance to horizontal distance set forth in district regulations. It is designed to provide light and air at street level, primarily in medium- and higher-density districts, and must not be penetrated by the building (except for permitted obstructions).



Parking

Parking and loading requirements vary with district and use. M1-1, M1-2 and M1-3 districts are subject to parking requirements based on the type of use and size of an establishment (Section 44-21 of the Zoning Resolution). For example, a warehouse in an M1-1 district requires one off-street parking space per 2,000 square feet of floor area or per three employees, whichever would be less. Parking is not required in M1-4, M1-5 and M1-6 districts, mapped mainly in Manhattan loft areas. Requirements for loading berths of specified dimensions differ according to district, size and type of use.

Screen clipping taken: 9/6/2010, 6:18 PM

200,000 sf. Building means minimum of 100 parking spots.

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Setback

A setback is the portion of a building that is set back above the base height (or street wall or perimeter wall) before the total height of the building is achieved. The position of a building setback in height factor districts is controlled by sky exposure planes and, in contextual districts, by specified distances from street walls.

Tower

A tower is a portion of a building that penetrates a sky exposure plane or other height limitation, and is allowed only in specified high-density areas of the city. A tower may be occupied by residential, commercial or community facility uses.

The basic ***tower rules*** generally permit the tower portion of a building to cover no more than 40 percent of the area of the zoning lot, or up to 50 percent on lots smaller than 20,000 square feet. The tower portion of a building must be set back at least 10 feet from a wide street and at least 15 feet from a narrow street. These regulations are modified for different uses and districts.

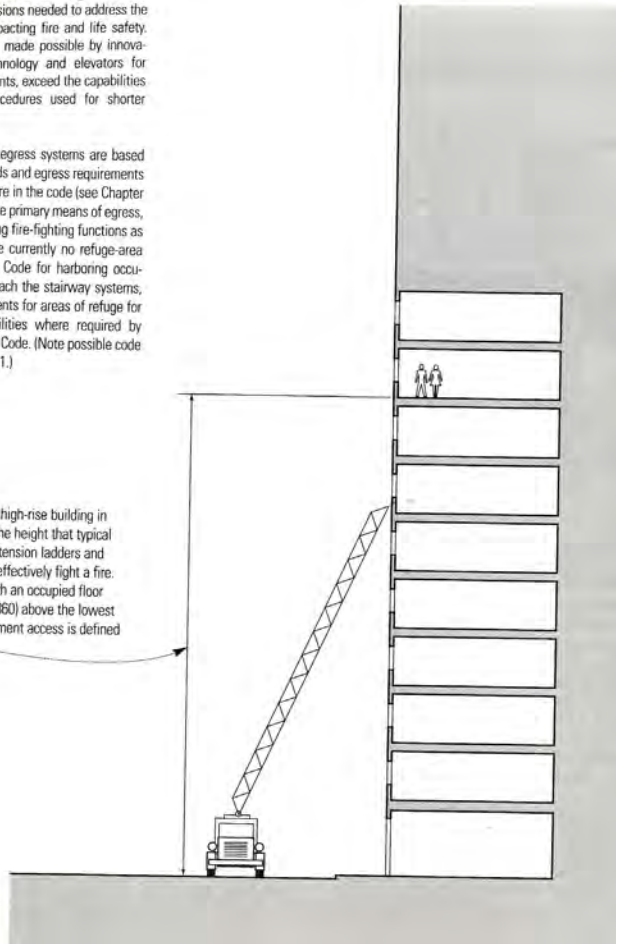
A ***tower-on-a-base*** requires a contextual base between 60 and 85 feet high that extends continuously along the street line. The height of the tower is controlled by a minimum lot coverage requirement and a rule that at least 55 percent of the floor area on the zoning lot be located below a height of 150 feet. On a wide street in R9 and R10 districts and their C1 or C2 equivalents, a building that includes a residential tower must comply with tower-on-a-base regulations, in addition to the basic tower rules.

Zoning Laws (Cont.)

HIGH-RISE BUILDINGS

As building technology allowed advances in high-rise construction, the buildings often outstripped code provisions needed to address the new conditions impacting fire and life safety. High-rise buildings, made possible by innovative structural technology and elevators for transporting occupants, exceed the capabilities of fire-fighting procedures used for shorter buildings.

Note that high-rise egress systems are based on the occupant loads and egress requirements spelled out elsewhere in the code (see Chapter 10). Stairways are the primary means of egress, with elevators serving fire-fighting functions as necessary. There are currently no refuge-area requirements in the Code for harboring occupants not able to reach the stairway systems, other than requirements for areas of refuge for persons with disabilities where required by other sections of the Code. (Note possible code consequences of 9/11.)



- The definition of a high-rise building in §403 is based on the height that typical fire-department extension ladders and hose streams can effectively fight a fire. Thus a building with an occupied floor more than 75' (22 860) above the lowest level of fire-department access is defined as a high-rise.

HIGH-RISE BUILDINGS

- Emergency phone every fifth floor in each required stairway where the doors to the stairway are locked.
- § 403.7 requires a two-way communications system for fire-department use per § 907.2.12.3, operating between the fire command center and elevators, lobbies, standby power rooms, areas of refuge and inside enclosed stairways. A communication device is to be installed at each floor level within enclosed stairways.

Code requirements for high-rises are a combination of passive and active measures.

- The buildings must be constructed of noncombustible materials.
- Shafts and vertical penetrations must be enclosed to prevent the spread of smoke and fire.
- § 403.2 requires automatic fire sprinklers be installed throughout high-rise buildings.
- In Seismic Design Categories C, D, E or F, a secondary water supply capable of supplying the required hydraulic sprinkler demand for up to 30 minutes is required per § 903.3.5.2.
- §403.3 allows a reduction in fire-resistance rating if the automatic sprinkler system has control valves equipped with supervisory initiating devices and water-flow initiating devices for each floor.
- § 403.5 requires smoke detectors connected to an automatic fire-alarm system per § 907.2.12.
- § 403.6 requires an emergency voice/alarm communication system to be activated with the operation of any automatic fire detector, manual fire-alarm box or sprinkler device.
- § 403.8 requires a fire-fighting command center per § 911 in a location approved by the fire department.
- A separate circuit and fixtures must provide sufficient light with an intensity of not less than 1 foot-candle (10.76 lux) in means of egress corridors, stairways, elevator cars and lobbies (10 seconds max. switchover time)
- § 403.10 requires a standby power system to be located in a separate room enclosed with 2-hour fire-resistance-rated fire barriers and fueled by a natural gas pipeline or a 2-hour supply of on-site fuel. This emergency power is required for the operation of emergency lights and for fire-fighting systems and operations.
- § 403.11 requires stairway doors that are locked from the stairway side to be capable of being unlocked simultaneously from the fire command center.

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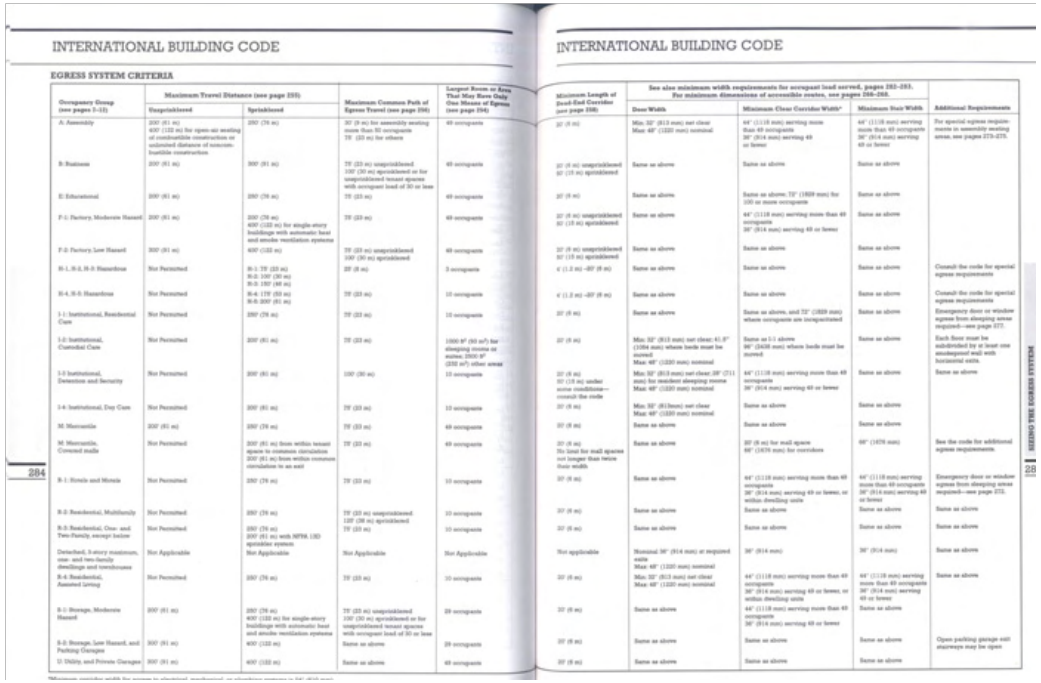
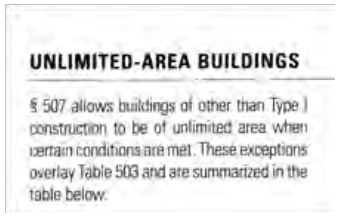
Building Code


INTERNATIONAL BUILDING CODE

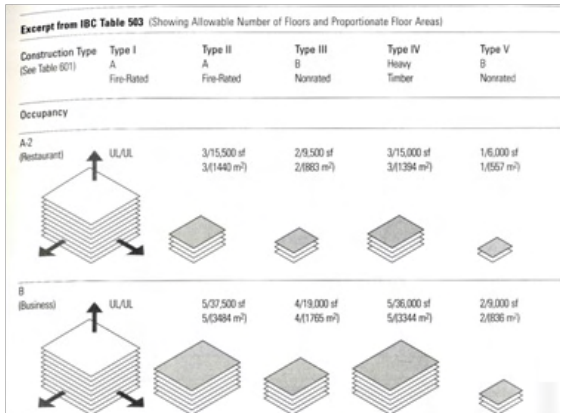
EGRESS SYSTEM CRITERIA

INTERNATIONAL BUILDING CODE

284


UNLIMITED-AREA BUILDINGS

§ 507 allows buildings of other than Type I construction to be of unlimited area when certain conditions are met. These exceptions overlay Table 503 and are summarized in the table below:


Excerpt from IBC Table 503 (Showing Allowable Number of Floors and Proportionate Floor Areas)

Construction Type (See Table 601)	Type I A Fire-Rated	Type II A Fire-Rated	Type III B Nonrated	Type IV Heavy Timber	Type V B Nonrated
Occupancy					
A-2 (Restaurant)	UL/UL	3/15,500 sf 3/(1440 m²)	2/9,500 sf 2/(883 m²)	3/15,000 sf 3/(1394 m²)	1/6,000 sf 1/(557 m²)
B (Business)	UL/UL	5/37,500 sf 5/(3484 m²)	4/19,000 sf 4/(1765 m²)	5/36,000 sf 5/(3344 m²)	2/9,000 sf 2/(836 m²)

Required Fire-Resistance Ratings in Hours

Construction Type	Type I		Type II		Type III		Type IV	Type V	
	A	B	A	B	A	B	HT	A	B
Building Element*									
Structural Frame									
Exterior	3	2	1	0	1	0	2	1	0
Interior	3	2	1	0	1	0	1/HT	1	0
Bearing Walls	3	2	1	0	2	2	2	1	0
Nonbearing Walls	Requirements for nonbearing exterior walls and interior partitions are noted in § 602 and Table 602.								
Floor Construction	2	2	1	0	1	0	HT	1	0
Roof Construction	1½	1	1	0	1	0	HT	1	0

(Building Codes Illustrated pg. 60)

Occupancy
Occupancy groups: International Building Codes
According to "the Architect's Studio Companion" this building fits into several building types.

Offices	B
Parking garages_ public	S-2
Parking Garages_ Private	U
Laboratories, testing and research	B

Allowable Square Foot sizes per construction type.

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Building Code

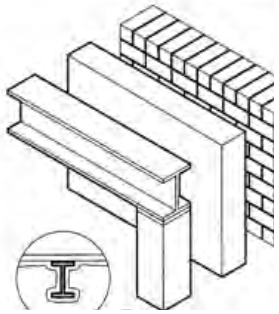
The broadest distinction between the various types of construction can be summarized in the table below:

Materials	Protected Elements	Less Protected Elements
Noncombustible	Type I-A, II-A	Type I-B
Combustible	—	—
Mixed Systems	Type III-A	Type III-B
Heavy Timber	—	—
Any Materials	Type V-A	—

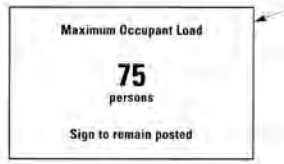
- Note that levels of fire-resistance decrease from left to right and top to bottom of this table.

Noncombustible Materials

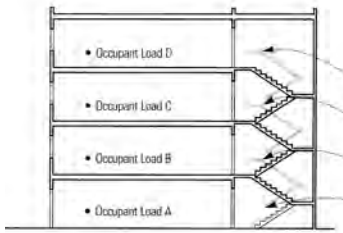
The principal elements of construction Types I and II are made of noncombustible materials. The Uniform Building Code defines "noncombustible" as "Material of which no part will ignite and burn when subjected to fire" (1997 UBC § 215). The IBC definition of noncombustibility is contained in § 703.4, and states that materials required to be noncombustible must meet the test criteria prescribed in the American Society for Testing and Materials (ASTM) Standard E 136.



GENERAL EGRESS REQUIREMENTS



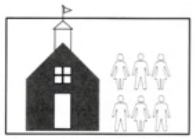
- § 1003.2.2.5 requires assembly occupancies to have signs posted in a conspicuous place showing the occupant load. This is to prevent overloading of the spaces, which could impair exiting in a panic situation.
- § 1003.2.2.6 states that the accumulation required by § 1003.2.2.3 does not apply to occupant loads from levels above or below the level in question. This is based upon observations of the time factor, along with their directional nature, in determining how people move through egress systems. The occupants of the floor below are assumed to exit that level before those behind them get to the same point in the egress system.
- Assuming A, B, C and D are approximately of equal size and occupant load:



OCCUPANCY GROUPS

Business Group B

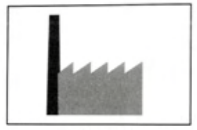
Office buildings are typically classified as Group B occupancies. Storage areas for offices, such as back-office file rooms do not constitute a separate occupancy. Outpatient clinics and physician offices are also classified in this occupancy group. Even where patients may be rendered incapable of unassisted self-preservation by anesthesia, the use could still be classified as a Group B occupancy. Testing and research laboratories that do not exceed the quantities of hazardous materials specified in the code are also classified as Group B occupancies. Those that exceed the minimums are classified as Group H occupancies. Educational facilities for junior colleges, universities and continuing education for classes above the 12th grade are considered Group B occupancies, not Group E. Assembly rooms in these facilities should be examined for conformance with the criteria for Group A occupancy.



Educational Group E

Group E occupancies are used by six or more people for classes up to the 12th grade. Uses for the day care of five or more children over 2 ½ years of age make up a subgroup of Group E occupancies. Those uses with fewer than five children are classified as Group R-3.

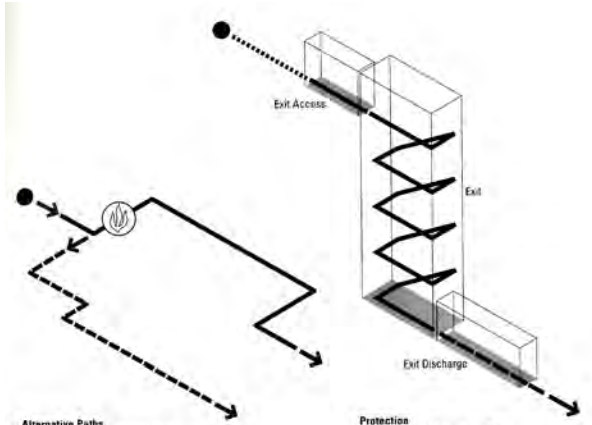
Assembly uses in school facilities are not excluded from this use group. However, most schools use their large rooms for assembly uses. Such facilities should be examined in light



Factory and Industrial Group F

Factory occupancies are defined in part by what they are not. The two occupancy groups Moderate-Hazard Occupancy F-1 and Low Hazard Occupancy F-2, are based on an analysis of the relative hazards of the operations in these occupancies and a determination that they do not fall under the criteria set for Group H. Group F-1 is classified as those operations not falling within the definitions for Group F-2. The predominate difference between F-1 and F-2 is that in F-2 occupancies the materials of manufacture are considered to be noncombustible.

The classification of Group F occupancies assumes that these are not public areas. The users are presumed to be familiar with their surroundings and not occasional visitors. The processes themselves will determine which classification the use is to receive. Uses meeting the F-2 classification are limited. Occupancy classification between Groups F-1 and H often are done by a process of elimination. When analyzing whether a use or occupancy should be classified as Group F-1 or Group H, the quantities of materials used in the process under consideration will determine to which group the use belongs.



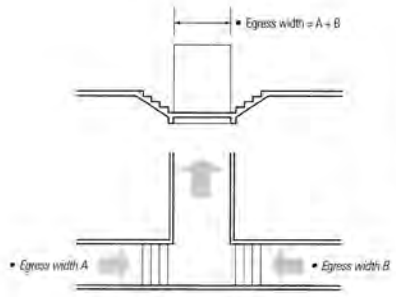
Alternative Paths

- Another basic exiting principle is that at least two different egress paths should lead from the interior of a building to the outside at ground level. The rationale is that if one path is blocked or endangered by a hazard, then the other path will be available. There are exceptions to this rule for situations involving relatively small numbers of occupants, but the designer should always begin with the basic design concept that two ways out of each space should typically be provided for in case of an emergency.

Protection

- Various sections of the egress path are required to provide fire-resistive protection to the occupants. These components begin at the access door to a corridor, then lead to an exit, extend in the exit enclosure down through the building, and then to the exit discharge, leading to the exterior. Note that often corridors will not be required to be of fire-resistive construction.

Once in the corridor or exit stairway, the occupant is to remain protected until the building exterior is reached. In the process of exiting, the occupant should not be required to move out of the protected environment into adjacent occupied spaces to get to the next portion of the egress path or to the exterior, because doing so would necessitate removing the protection the exit enclosure is required to provide.



- Note also that this section states that egress paths shall not decrease in exit capacity in the direction of egress travel. This corresponds to the watercourse analogy as well. This is further supported by § 1003.2.2.7, which requires that when egress paths merge, the capacity of the egress path serve both tributary areas.

Codes

R-11

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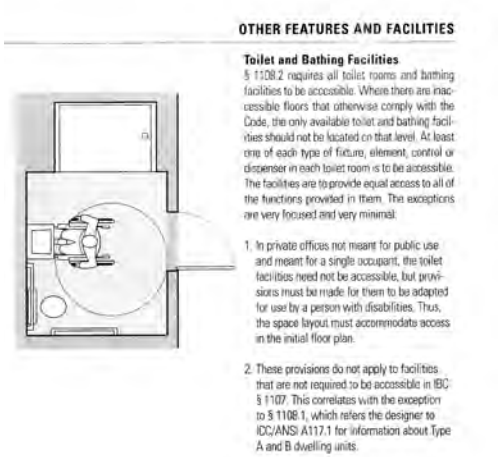
Handicap Access

Elevator



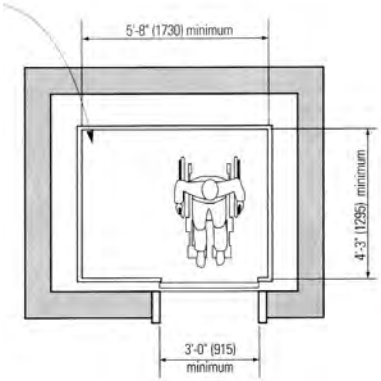
OTHER FEATURES AND FACILITIES

Toilet and Bathing Facilities

§ 1108.2 requires all toilet rooms and bathing facilities to be accessible. Where there are inaccessible floors that otherwise comply with the Code, the only available toilet and bathing facilities should not be located on that level. At least one of each type of fixture, element, control or dispenser in each toilet room is to be accessible. The facilities are to provide equal access to all of the functions provided in them. The exceptions are very focused and very minimal.

1. In private offices not meant for public use and meant for a single occupant, the toilet facilities need not be accessible, but provisions must be made for them to be adapted for use by a person with disabilities. Thus, the space layout must accommodate access in the initial floor plan.

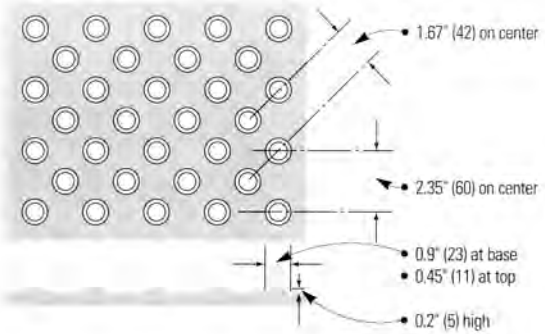
2. These provisions do not apply to facilities that are not required to be accessible in IBC § 1107. This correlates with the exception to § 1108.1, which refers the designer to ICC/ANSI A117.1 for information about Type A and B dwelling units.



Detectable Warnings

§ 1108.9 requires passenger transit platforms without guards to have detectable warnings at the edge to warn people with visual impairments of the falling hazard at that edge.

- A detectable warning is a defined term, typically meaning a pattern of raised truncated domes of specified size and spacing.
- Note that this provision does not apply to bus stops as they typically abut a curb rather than have the kind of drop that occurs at a train or subway platform.

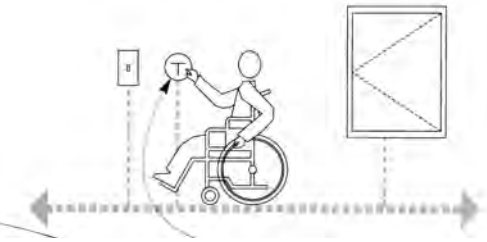


Assembly-Area Seating

§ 1108.10 is a cross-reference back to the provisions for seating and assistive listening contained in § 1107.2.

Seating at Tables, Counters and Work Surfaces

§ 1108.11 is to be read in concert with § 1107.2.5. The scoping requires 5% of seats at fixed or built-in tables or work surfaces to be accessible if they are on an accessible route. As is typical for such provisions, these accessible facilities are to be dispersed in the building or the space containing these features.



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ADA

R-12

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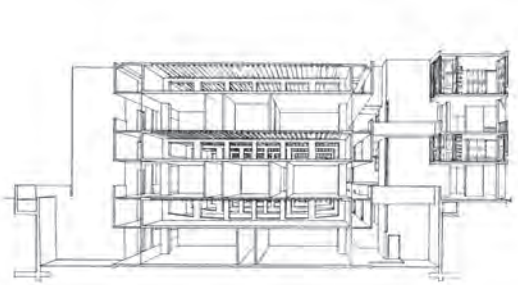
Invention Center

_Precedent Study

_Salk Institute



Lloyd's of London

The Big Dig House

Bank of America Tower

Centre Pompidou

Bahrain World Trade Center

Jonathan T. Archbald

Information

_Salk Institute

_1966

_Louis Kahn

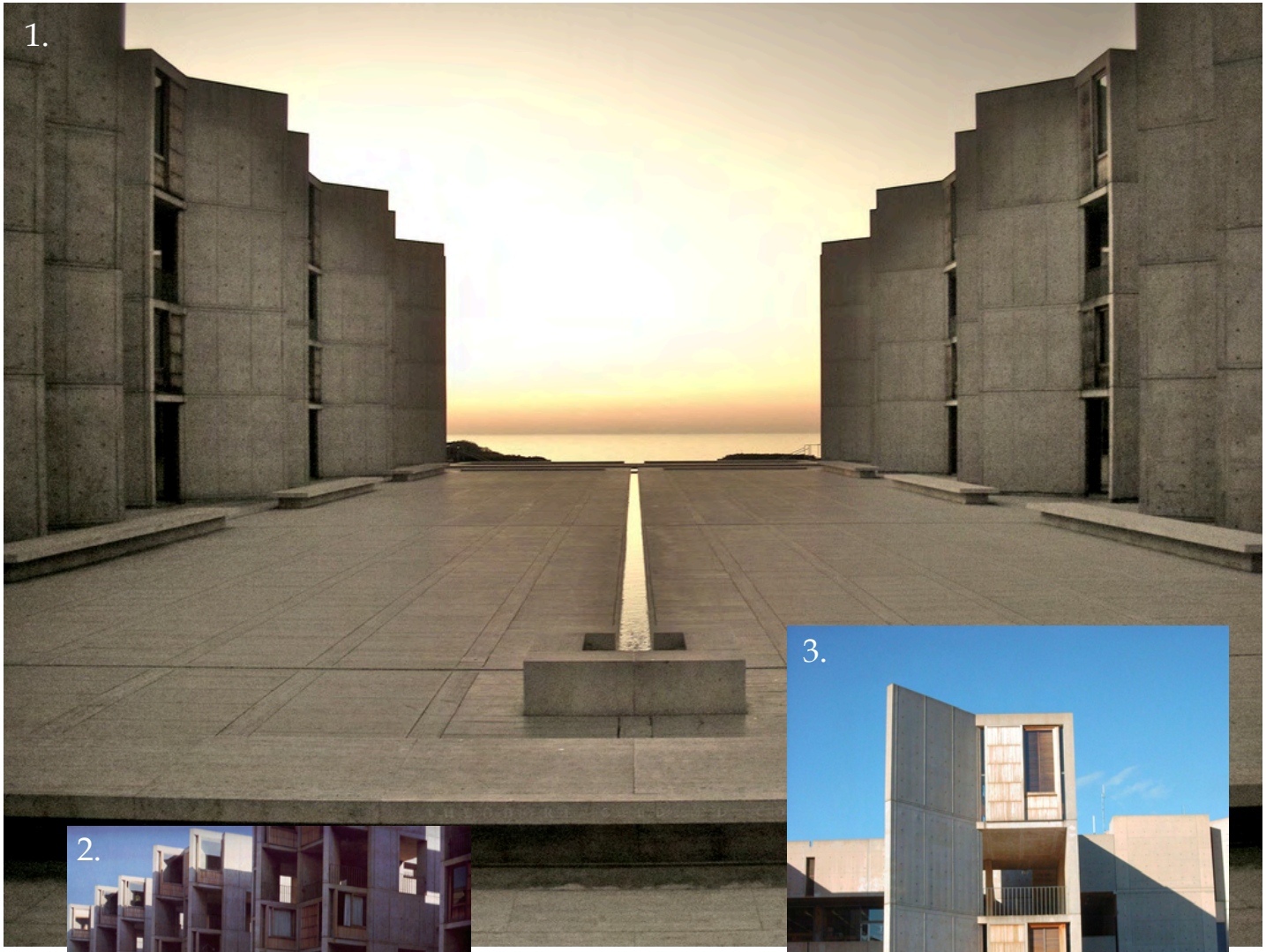
_La Jolla, California

_Science Research Center

_27-acre site

_ 289,800 SF

_The Salk Institute is an excellent example of served and service space. Kahn used service floors between the laboratory spaces to allow for mechanical and electrical chases to stay out of the way of the laboratory work below and above. The added height of the "ceiling to floor" height allows for deep trusses to span the entire width of the building.



1. View toward the pacific
2. Waterfall
3. Science Office Tower

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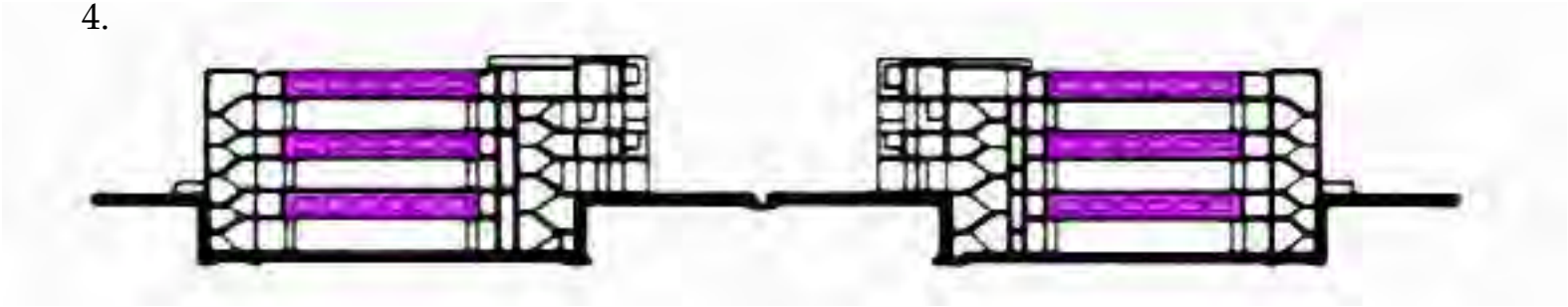
_Salk Institute

_1966

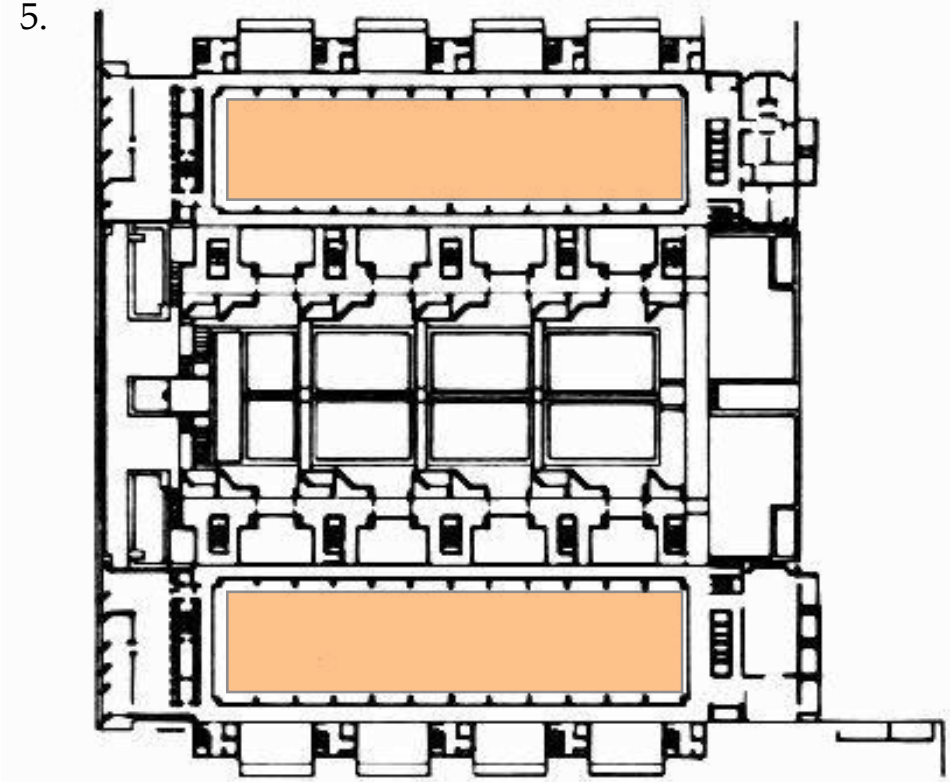
_Louis Kahn

4.



_Mechanical "floors"_Served and Service Space

5.



_The large open floor plan allows the scientist to organize the space to best suit the current experiments.

4. Served vs. Service
5. Open Research Space

_Why This Project?

_The Salk Institute was designed to give a maximum free plan. The Mechanical and Electrical systems are housed in floors that are sandwiched between the laboratory space.

_The space the houses the mechanical and electrical chases also is where the structure is concealed.

_Kahn also designed courtyards that allow natural light to penetrate into the bottom most floors of the facility.

_Details
-Served vs. Service
-Free Plan

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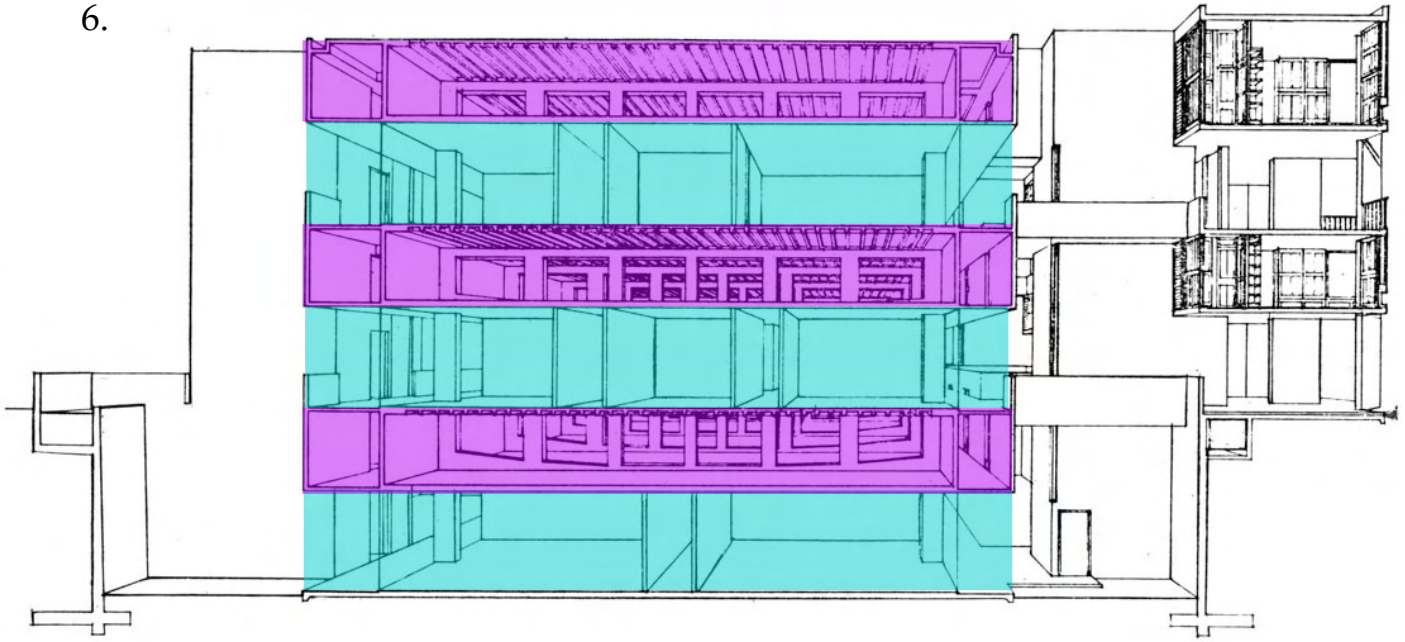
_Salk Institute

_1966

_Louis Kahn

6.



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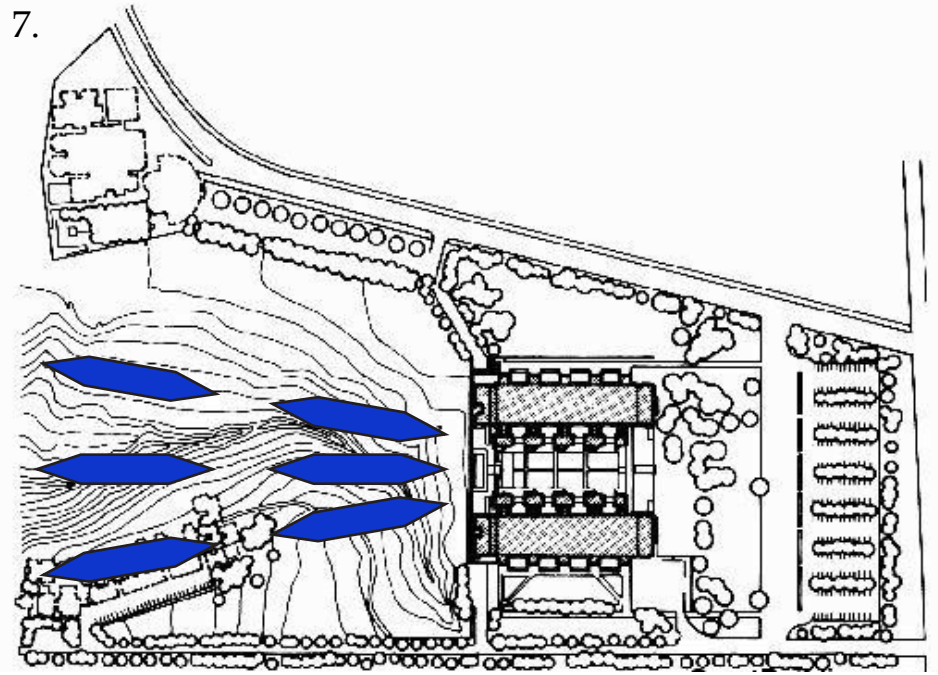

6. Service vs. Served
7. Picturesque view

Diagrams

P_1_3

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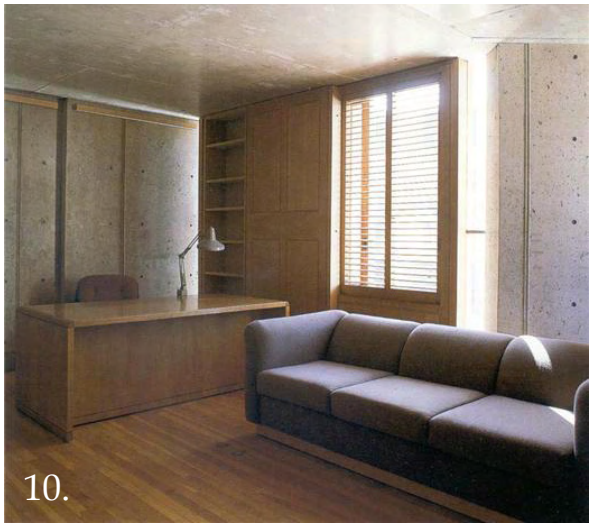
_Salk Institute

_1966

_Louis Kahn


8.


9.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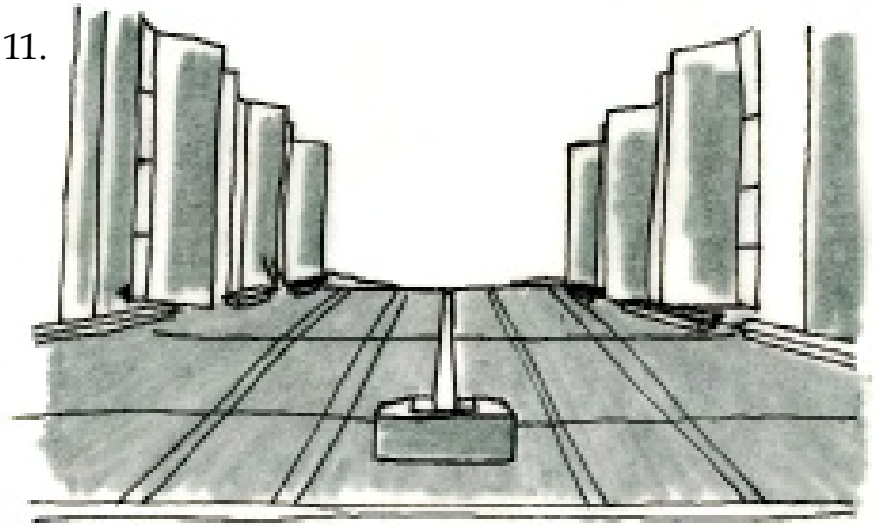


8. Scientist
9. “Light-well” Courtyard
10. Private Office
11. Main Exterior Space

_Lloyd's of London

_1986

_Richard Rogers

_London, England

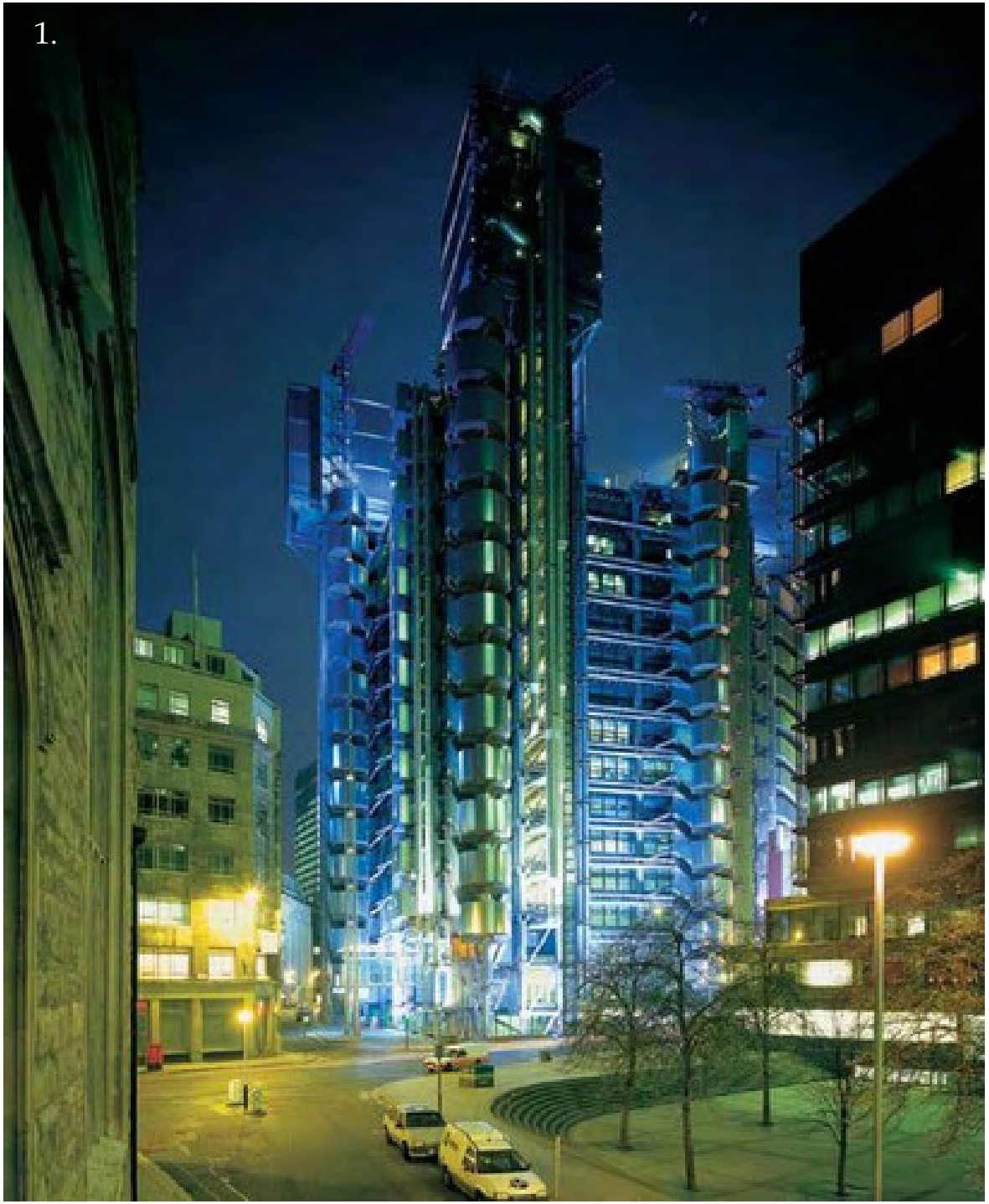
_Insurance Company

_2.8 acre site

_14 story, 522,000 SF (375,00 net)

_ Lloyd's is the perfect example of modular, expandable, construction. The 14 floor building utilizes a simple rectangular floor plan with an atrium reaching from the first floor 200ft up to a glass roof. The goals of the design was to make a building with unobstructed open space, while allowing for flexibility of use, and expansion and contraction with market demands. The staircases were constructed of pre-cast concrete elements and clad in stainless steel.

1. Lloyd's at night



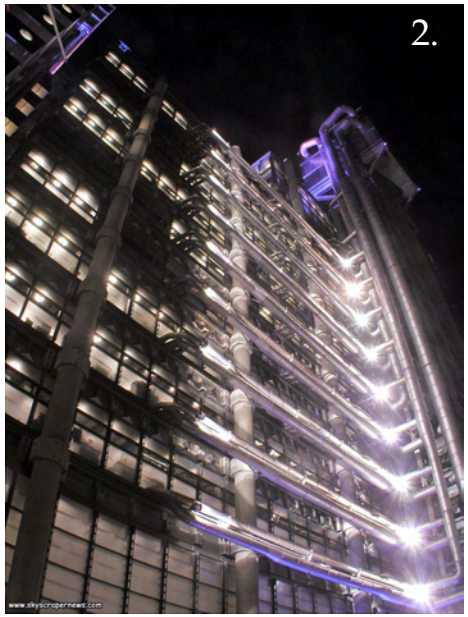
Jonathan T. Archbald

_Lloyd's of London

_1986

_Richard Rogers

"Technology... must aim at solving long-term social and ecological problems"- Richard Rogers



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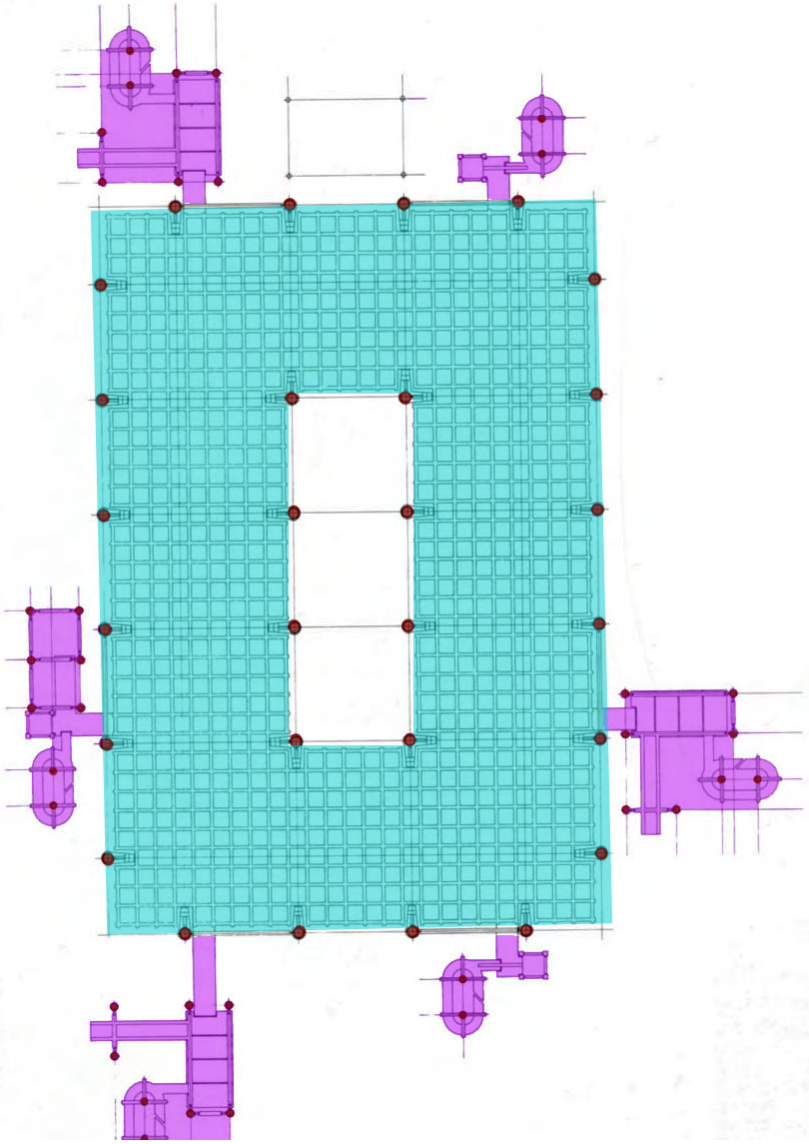


_Why This Project?

_ What makes Lloyd's notable for my thesis is the Combination of Served and Service space and the modular aspects of the service towers. As Rogers would say the building is designed to "wear" the services on the exterior of the building. This frees up the interior of the building allowing larger open floors for more important program. This also makes servicing the elevators, HVAC, and the rest rooms more easily accessible.

_Lloyd's of London has several techniques that were put in place by Rogers to allow the building the change over time to fit the needs of the company within.
The simplicity of the floor plan clearly shows the served and service space. All vertical circulation and mechanical chases are pulled out of the building to allow for a clear space within. This move also makes repair and upgrades easier to do.

_The roof holds the HVAC and 6 cranes for maintenance expansion and the eventual dismantle

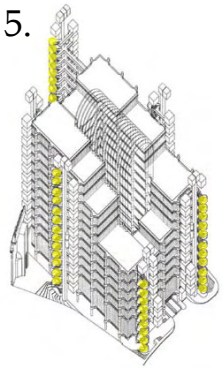
2. Mechanical Systems
3. Served Vs. Service space
4. Roof Top AC unit

_Lloyd's of London

_1986

_Richard Rogers

5.



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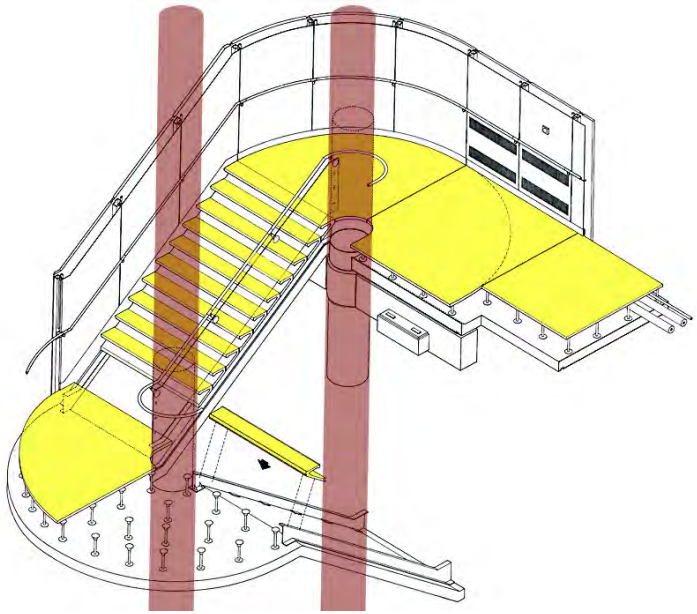

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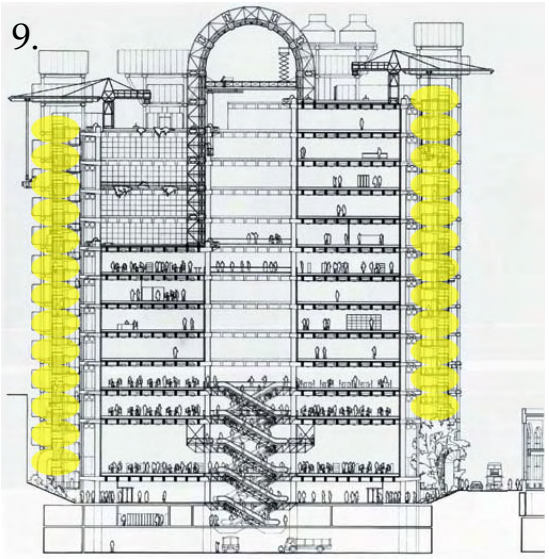
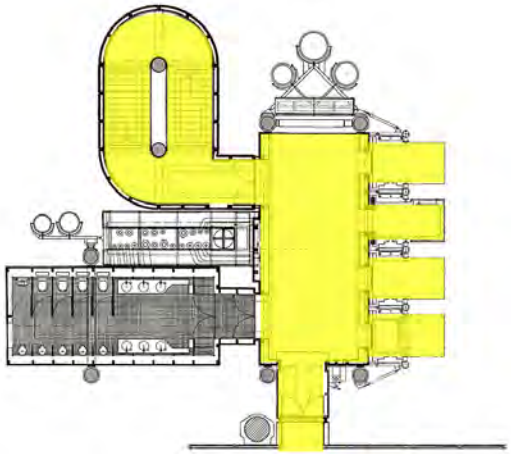


-Buildings today serve a different purpose then they did 100 years ago. Ever changing technologies mean that buildings must be ever changing as well. Obstruction-free space with a modular "plug-in" of service spaces allow for maximum flexibility while providing easy access for Maintenance and upgrades to the services.

- The satellite towers in Lloyd's of London allow for the program to occupy the main building uninterrupted by service. To do this there are 6 towers surrounding the building. Three minor towers have fire stairs and mechanical chases while the other three have stairs, lobbies, rest rooms, as well as the vertical and horizontal HVAC.

7.



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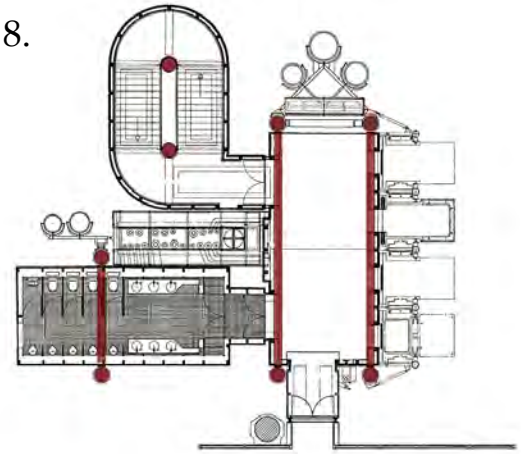


5. Axon_Circulation
6. Modular Stair Unit
7. Vertical Tower Circulation
8. Tower Structure
9. Vertical Circulation in Section

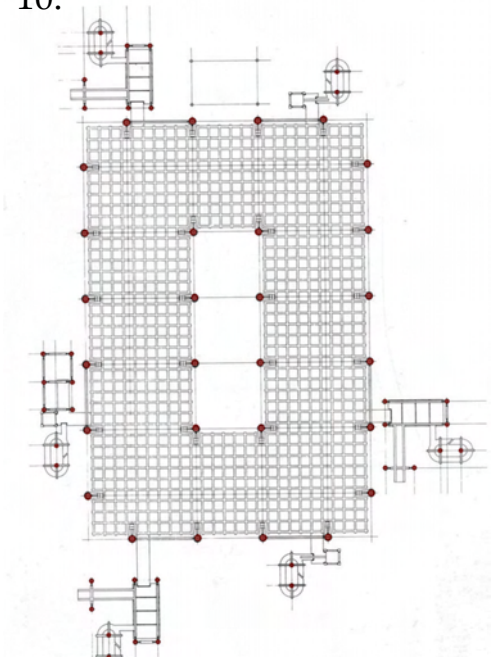
Jonathan T. Archbald

_Lloyd's of London

_1986

_Richard Rogers

10.



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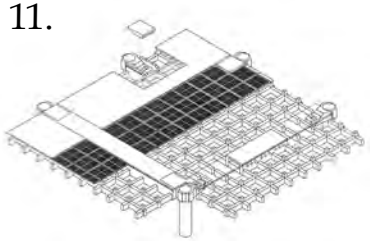

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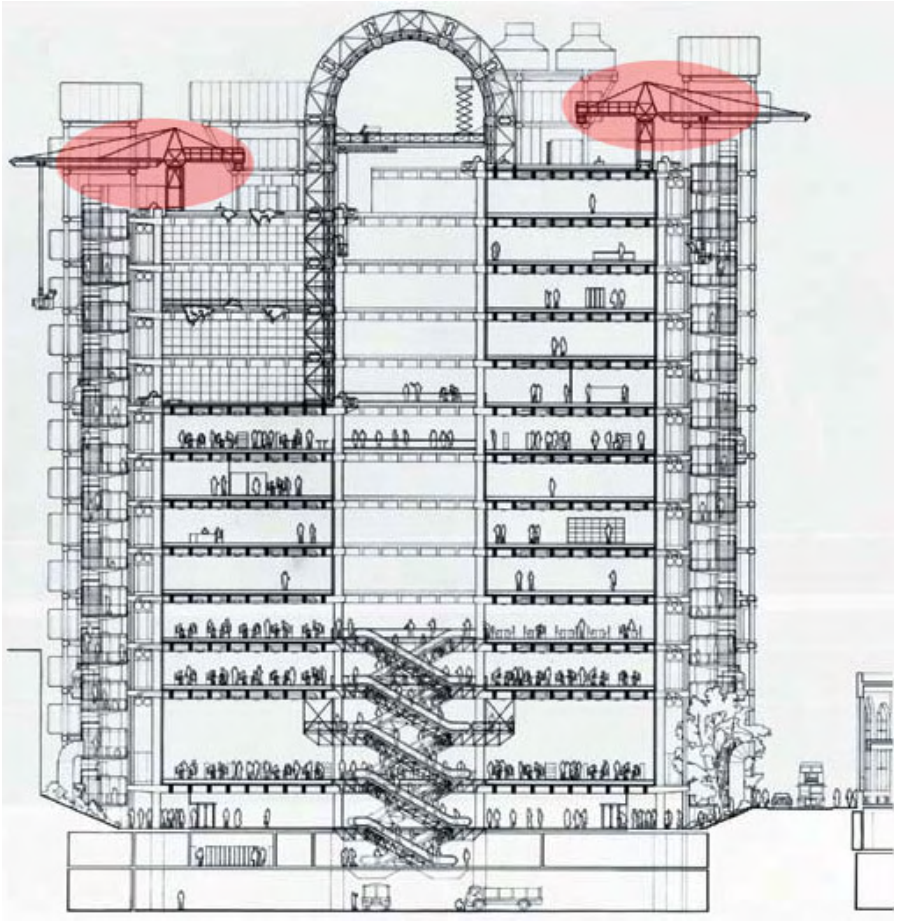

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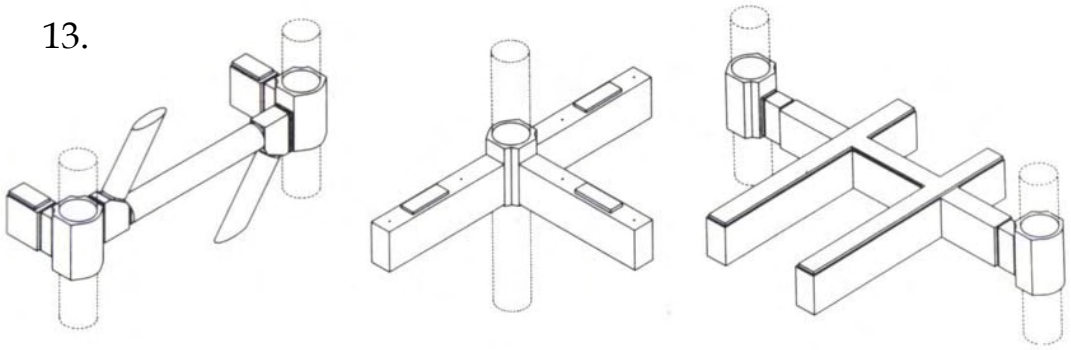


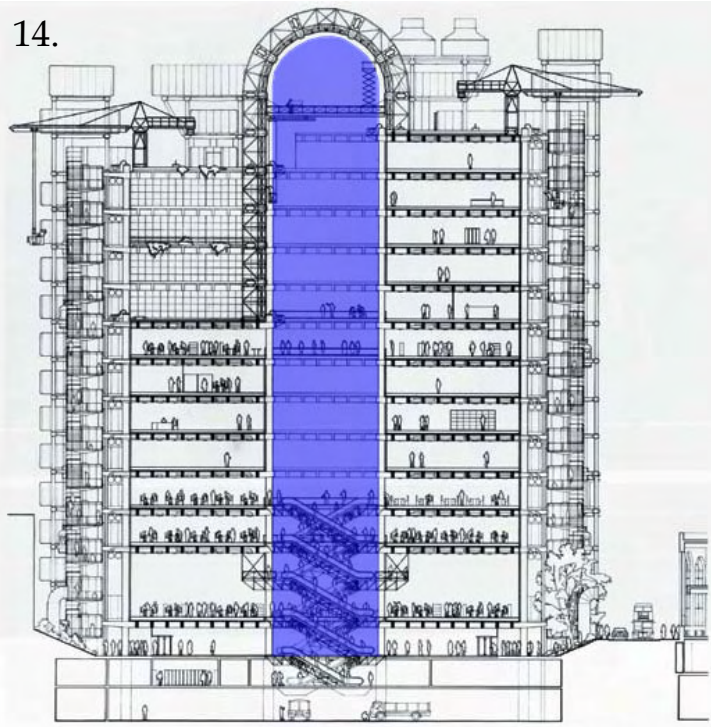
10. Structure Diagram (Floor Plan)
11. 2-way Structure System
12. Cranes
13. Concrete Column to floor Connection types

_Lloyd's of London

_1986

_Richard Rogers

14.



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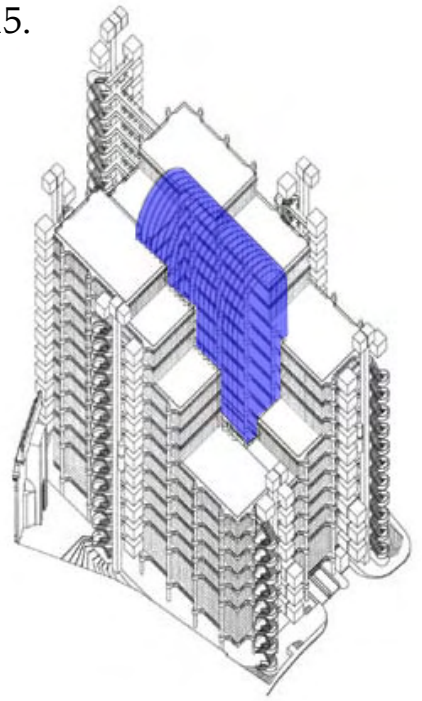

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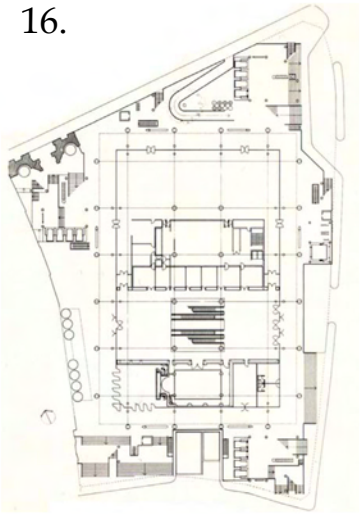
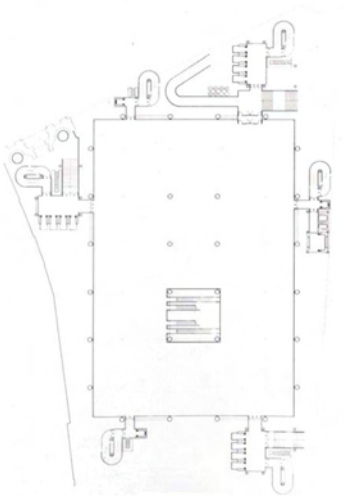
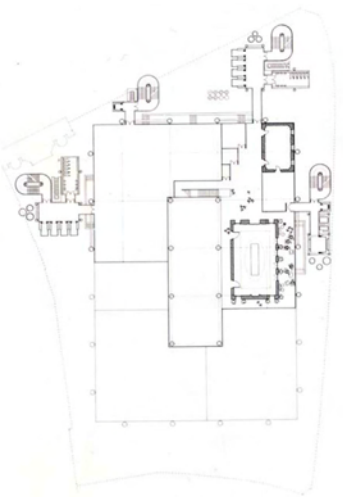






14. Section _ Atrium
15. Axon _ Atrium
16. Typical Floor Plans

Jonathan T. Archbald

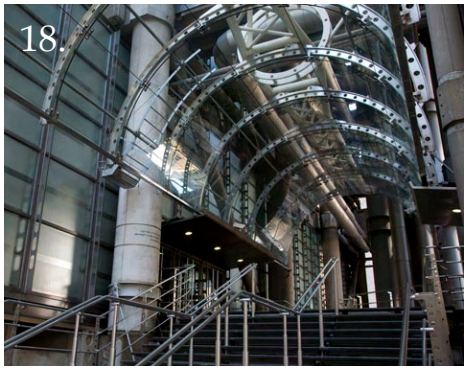
_Lloyd's of London

_1986

_Richard Rogers

17.

18.

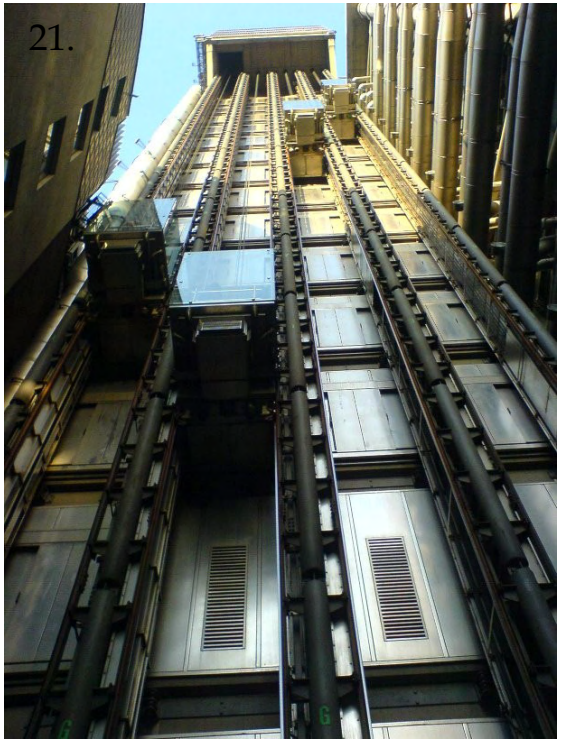


17. Atrium
18. Entrance
19. Roof of the Atrium
20. Lots of Cranes
21. Elevator Core
22. Looking up the Service Tower

19.

20.

21.



22.

Jonathan T. Archbald

Information

_The Big Dig House

_2005

_Paul Pedini
(Single Speed Design)

_Lexington, Ma

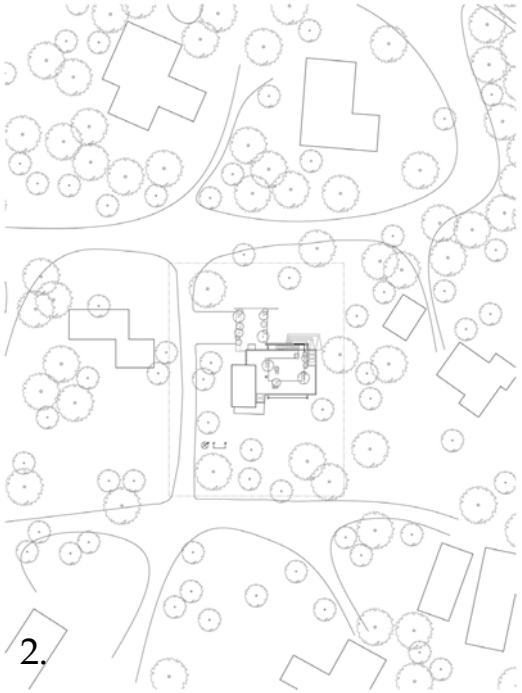
_House

_.5 acre site

_3,400 SF

_The big dig house is an excellent example of materials transcending scale for the purpose of reuse. Several wide flanges and temporary on-ramp parts were uses in the construction.


1.


2.


3.


4.

1. Front of the house
2. Site Plan
3. Interior_Living Room
4. The Big Dig

P_3_1

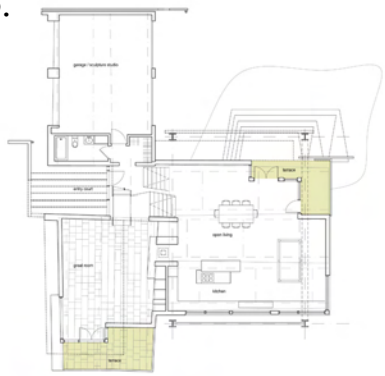
Jonathan T. Archbald

_The Big Dig House

_2005

_Paul Pedini
(Single Speed Design)

5.



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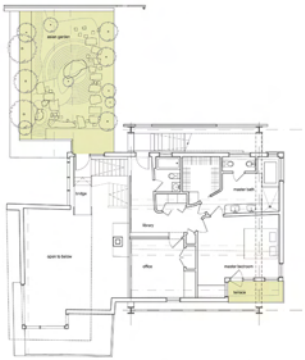

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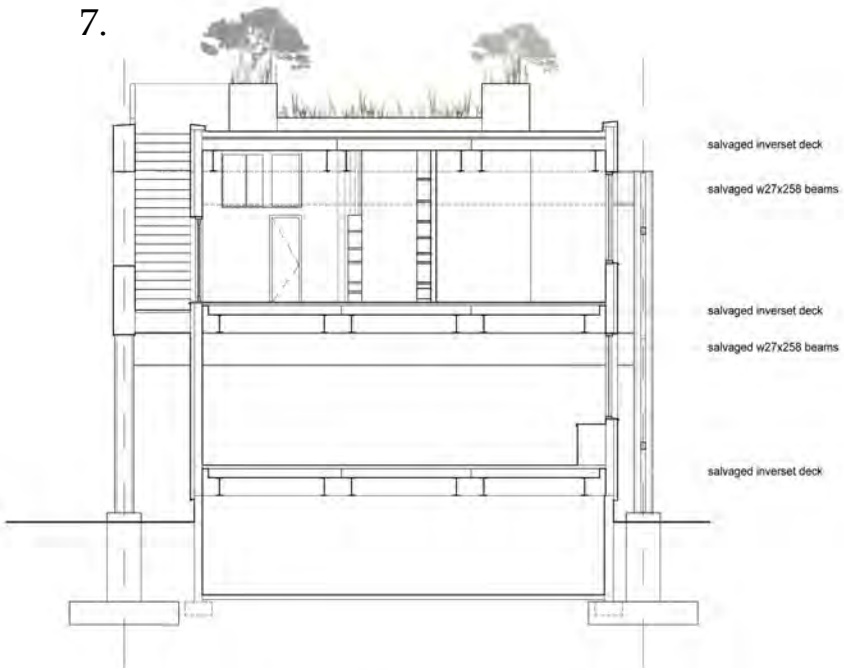
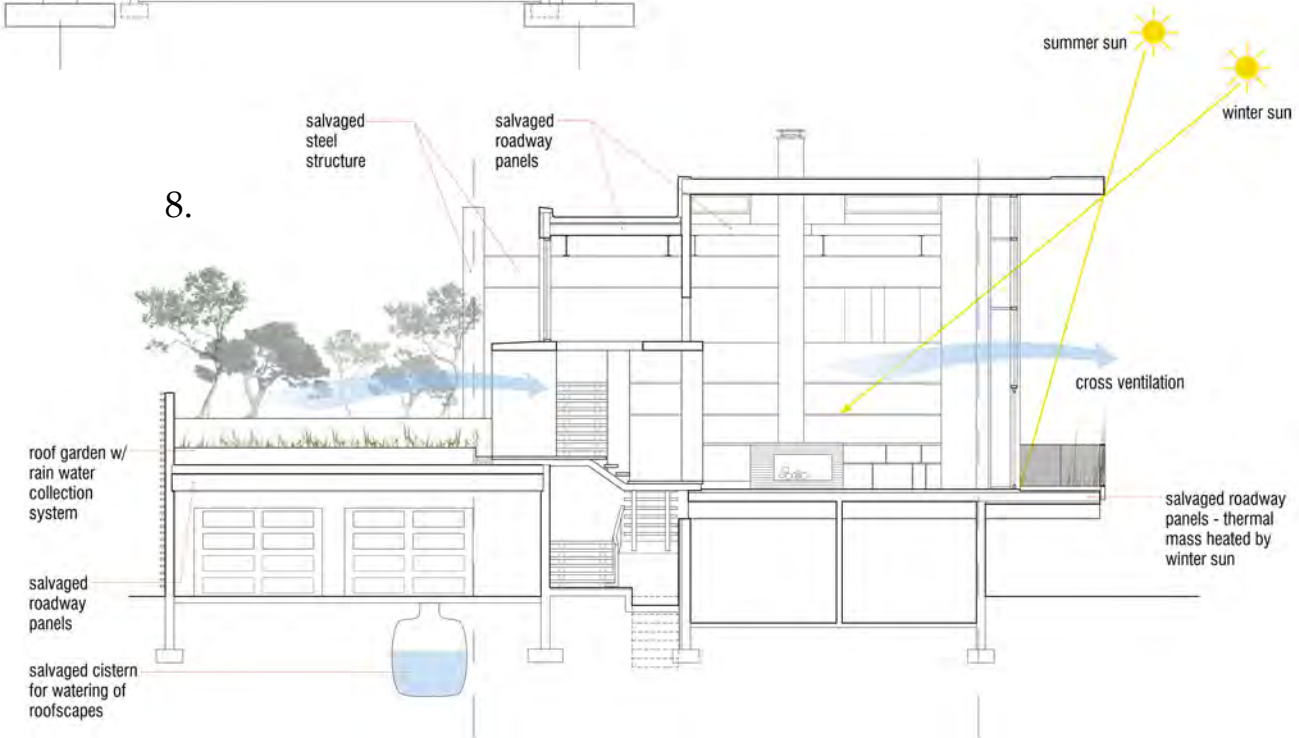


9.

_Why This Project?

_The Big Dig house took salvaged materials originally designed to back earth and to hold up traffic and gave the material a second useful life. The construction was very fast and 60,000 pounds of construction waste was kept out of a landfill.

8.



5. Ground Floor Plan
6. Second Floor Plan
7. Lateral Section
8. Longitudinal Section
9. Reused Materials

Jonathan T. Archbald

Information

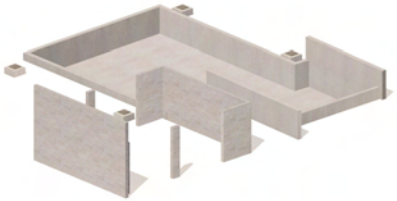
P_3_2

_The Big Dig House

_2005

_Paul Pedini
(Single Speed Design)

10.



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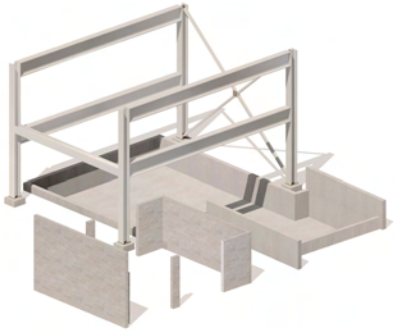

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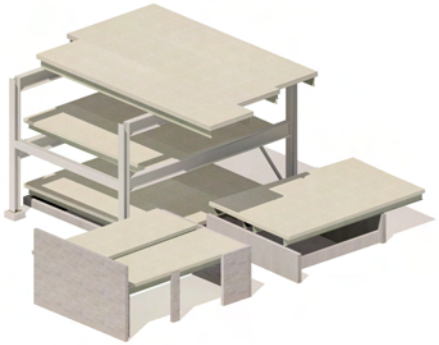

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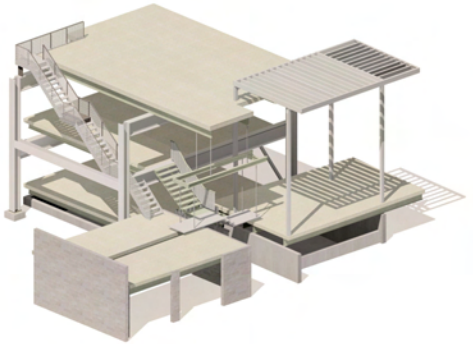

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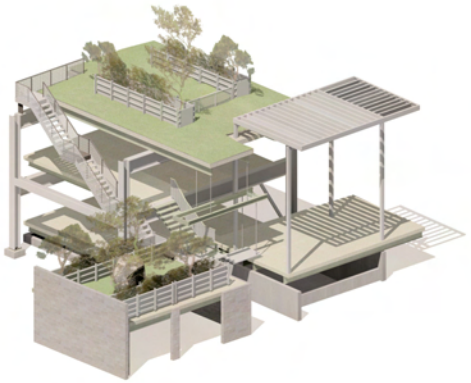

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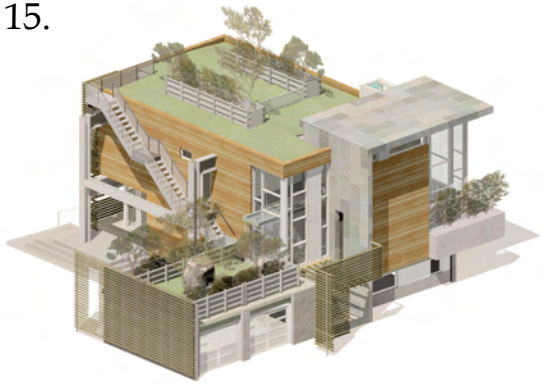


10. Foundation
11. Reused Wide Flanges
12. Reused Concrete Slabs
13. Reused Stairs and Light Steel
14. Green Roofs
15. Enclosure

Jonathan T. Archbald

_The Big Dig House

_2005

_Paul Pedini
(Single Speed Design)


16.


17.


19.


18.


20.

16. Reused Stairs
17. Bedroom
18. Living Room
19. Roof Garden
20. Rear Elevation

Information

_Bank of America Tower

_2009

_Cook+ Fox Architects

_NYC, New York

_Sky Scraper (offices)

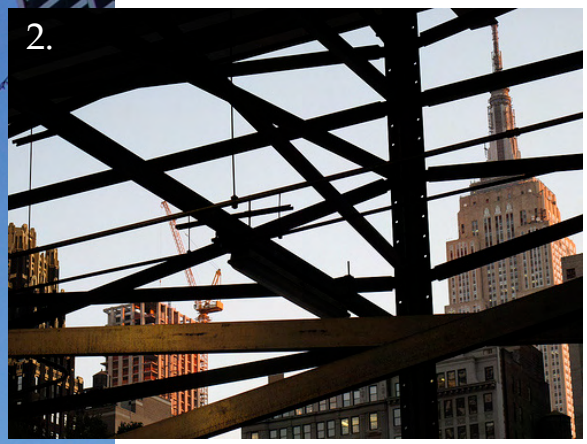
_2 acre site

_54 floors, 2.1 million SF

_The new tower for Bank of America is set to become one of the most sustainable skyscrapers in Manhattan. The building is owned 50:50 between Bank of America and The Durst Organization.

Bank of America

1. From Bryant Park
2. During Construction
3. Section Cut Typical Floor
4. Lobby



P_4_1

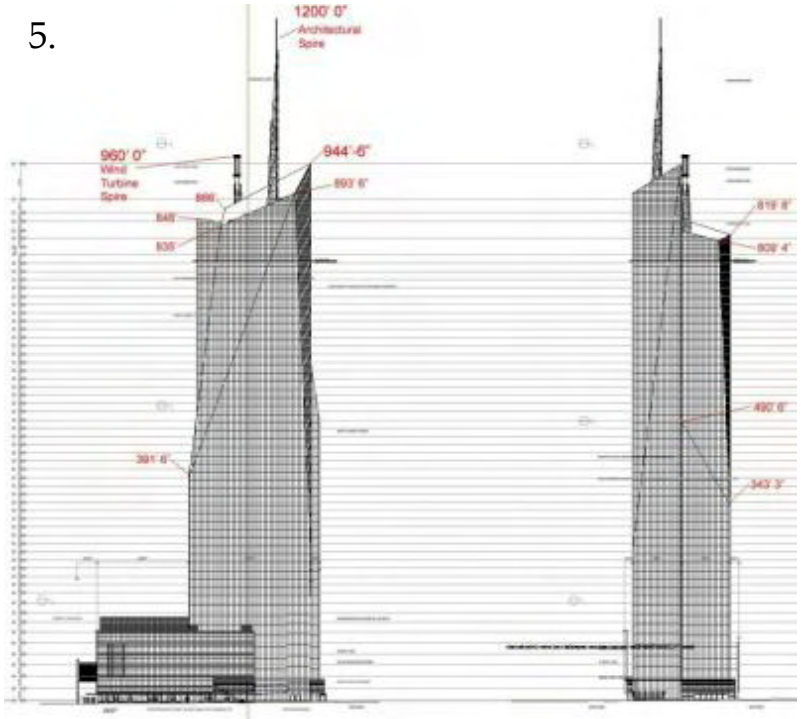
Jonathan T. Archbald

_Bank of America Tower

_2009

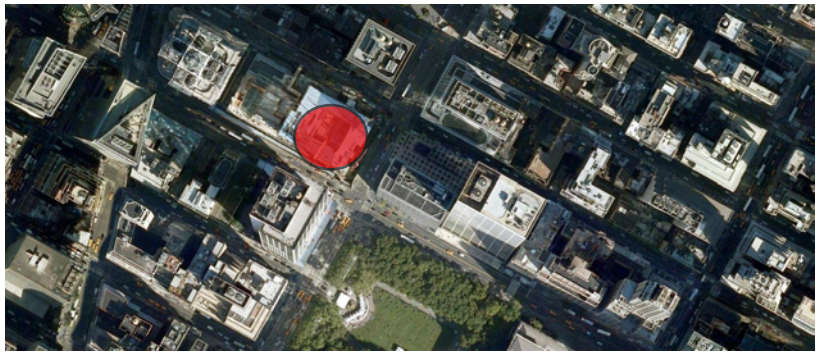
_Cook + Fox Architects

5.



5. Elevations
6. Site

6.



_Why This Project?

_The Bank of America Tower in NYC has taken a new look at what being sustainable actually means. They see these advancements as economical as much as sustainable. It is estimated that the building's sustainable features will have paid for themselves in 5 years.

_Details

-The Concrete is made with 45% slag in place of cement. This technique uses a by-product to replace a manufactured material.

-Insulating floor to ceiling glass reduces thermal loss/gain

-Like The RWU Library the tower uses a ice based cooling system which allows off-peak energy use.

-The tower produces 4.6-megawatt of energy.

-Automatic dimming system

-A graywater system uses the rain water and the water pumped away from the foundation to run toilets and the HVAC system.

-Cleaner air leaving the building then entering

Information

_Centre Pompidou

_1977

_Renzo Piano &
Richard Rogers

_London, England

_Convention Center

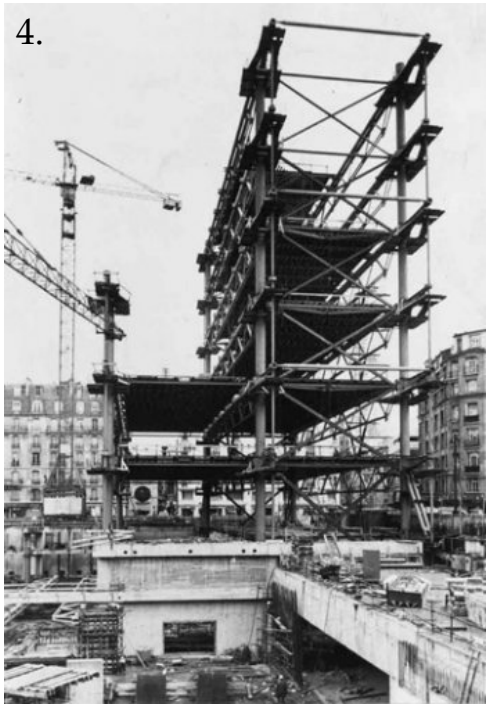
_ 5.3 acre site

_7 floors, 1,112,000 SF

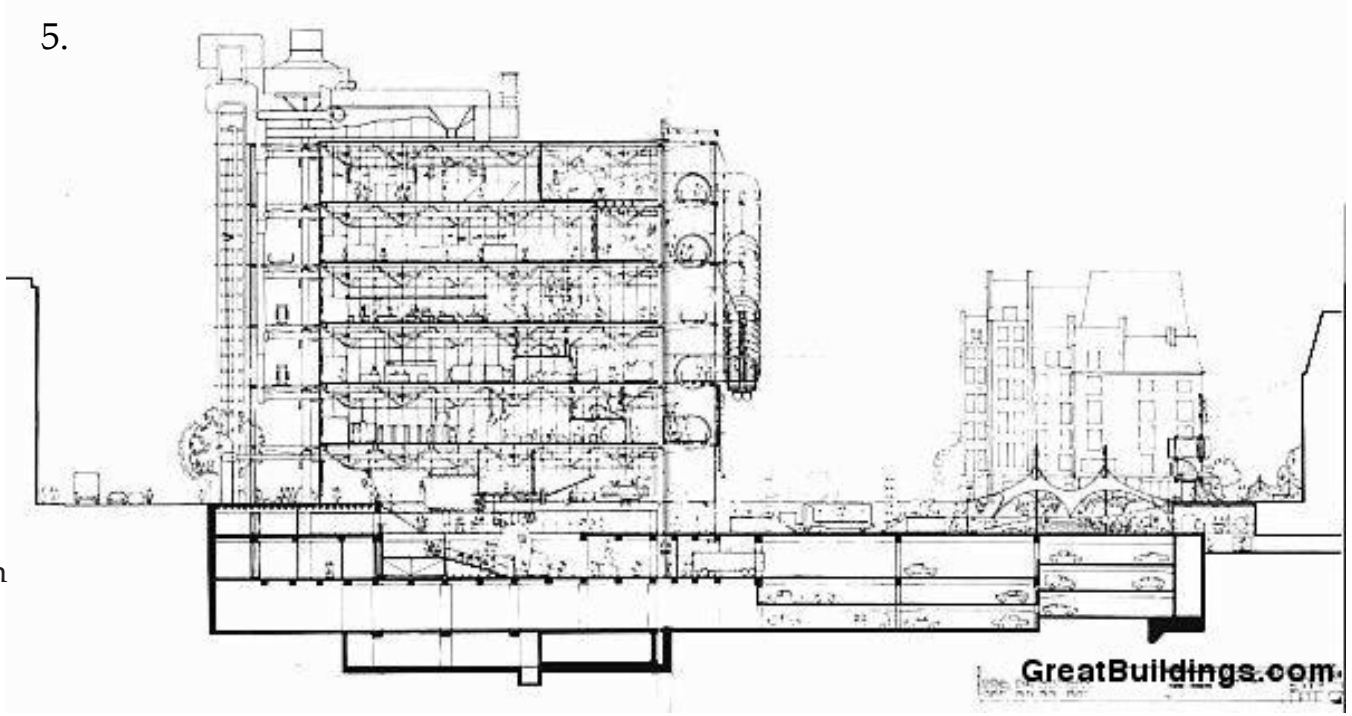

1.


2.


3.


4.

_The Centre is another good example of Served and Service space. In plan the overall program organization is very simple. A large exterior open plaza is kept separate from the interior space by the service cores and the building structure.



1. From a Distance
2. Stairs
3. HVAC ventulation System
4. During Construction
5. Section_building and Pavilion

P_5_1

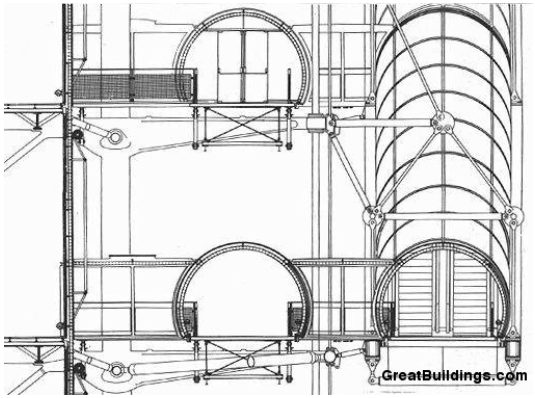
Jonathan T. Archbald

_Centre Pompidou

_1977

_Rienzo Piano &
Richard Rogers

6.



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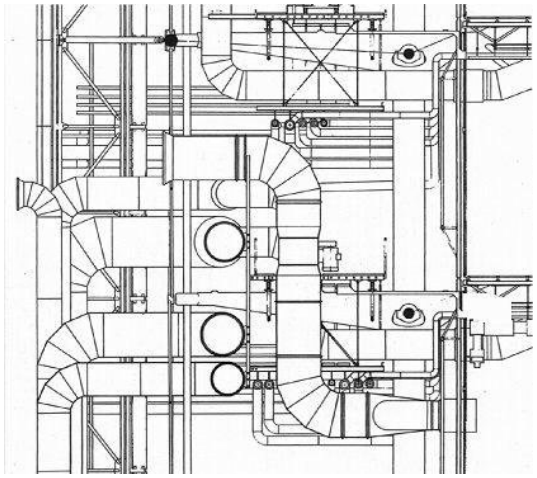
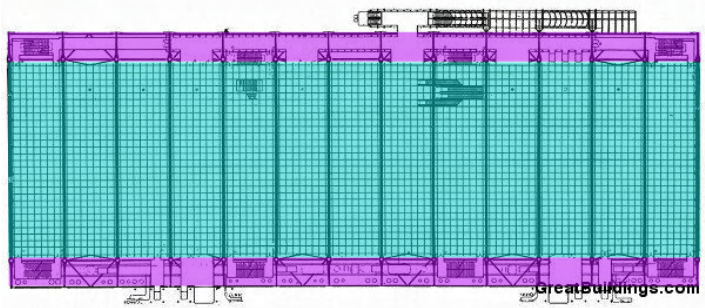


6. Stair tube detail
7. Mechanical Dtrail
8. Served vs. Service Space
9. Circulation
10. Structure



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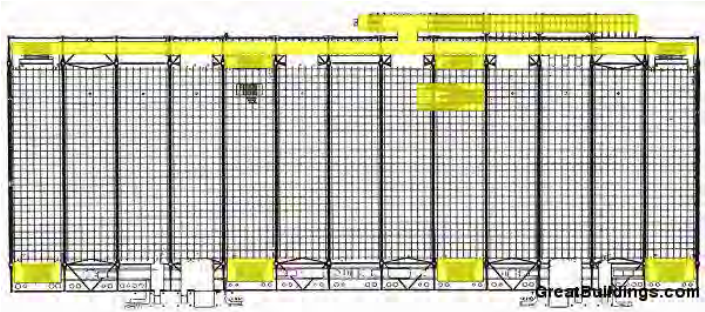

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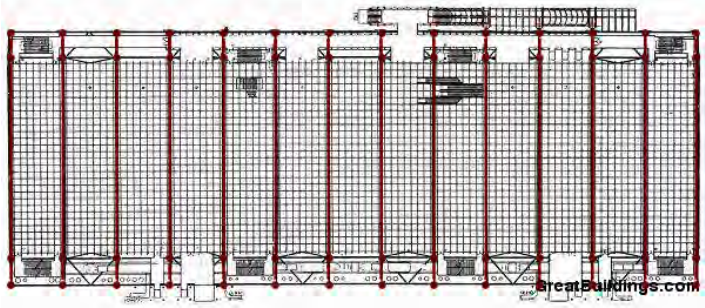


10.

_Why This Project?

_Separation of Programmatic Elements

_Exterior mechanical systems and circulation

_The centers large open space that allows a large variation of activities to take place within the building.

Details
- Modular
- Expandable
- Served vs. Service
- Exterior Mechanical

_Bahrain World Trade Center

_2008

_Shaun Killa (Atkins)

_Manama, Bahrain

_Office building with attached Shopping Center

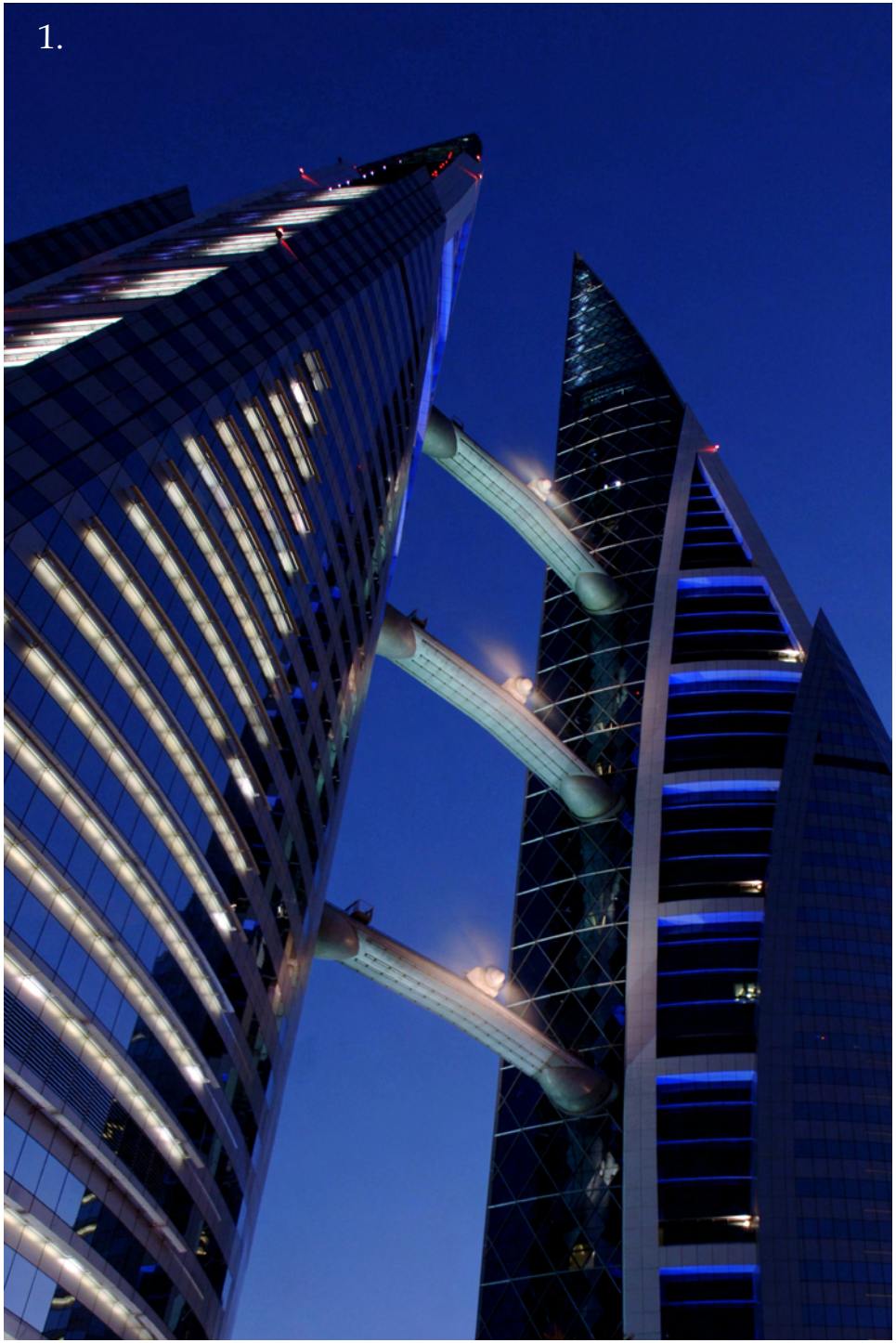
_21 acre site

_

_A first of it's kind, The BWTC was designed to take advantage of its location. The two 50-story towers provide high-tech leasable office space. This is the first project to successfully integrate wind turbines with a building. The turbines only added 3.5% to the bottom line and provide up to 15% of the buildings energy needs.

BAHRAIN WORLD TRADE CENTER

1. Looking up at the Turbines

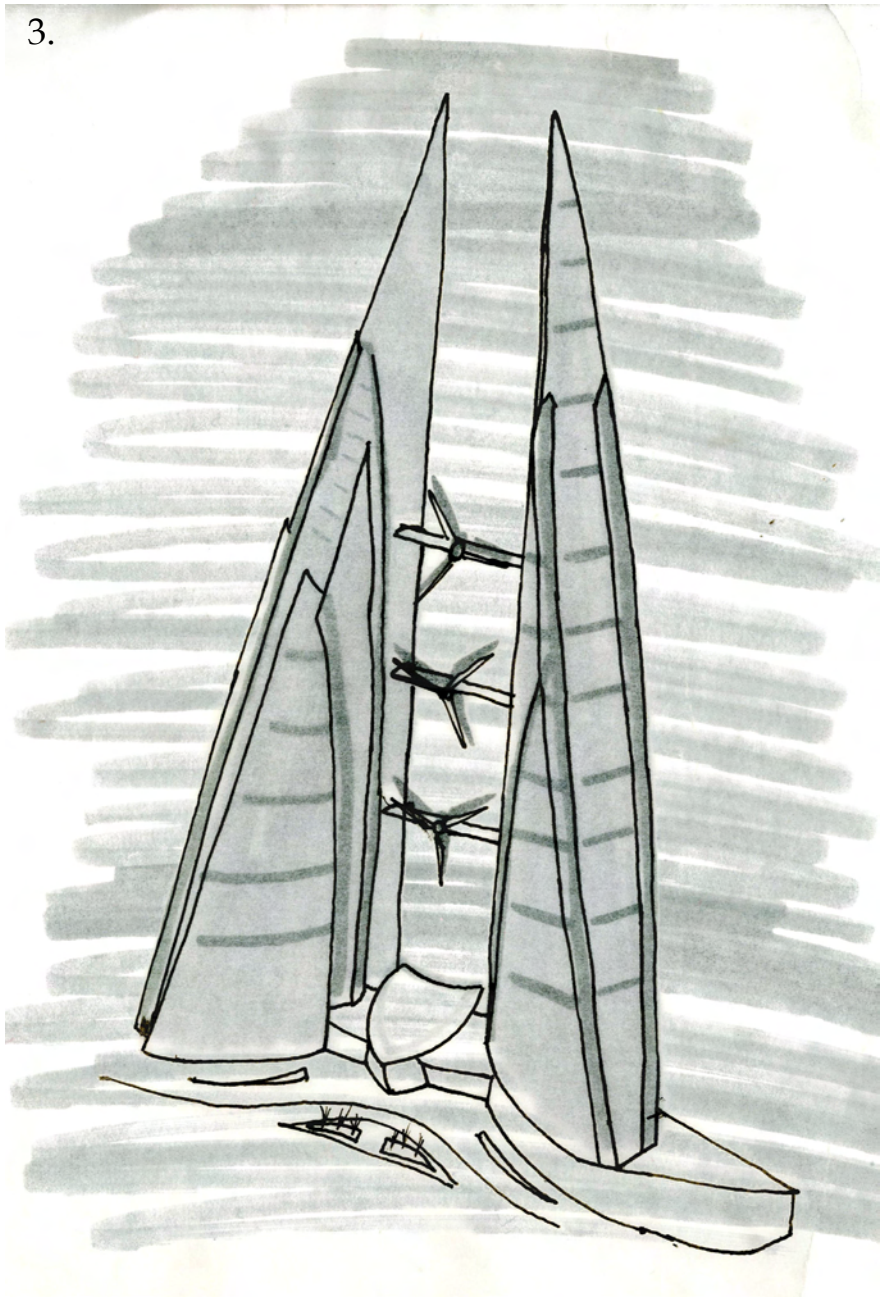


Jonathan T. Archbald

_Bahrain World Trade Center

_2008

_Shaun Killa (Atkins)



_Why This Project?

_This project utilizes several new technologies that improve the working conditions within the leasable space.

_The BWTC's exterior shape was designed to funnel the wind in between the two towers and power the three wind turbines that are suspended on bridges from one tower to the other.
_Other sustainable features that are incorporated into the building are as follows

- Deep gravel roofs (insulation)
- Sun Shading
- Water recycling
- Evaporative pools
- Glass with low solar gain

2. Map of Manama, Bahrain
3. Sketch of the WTC
4. Wind Turbine

P_Summery_1

Information

_Salk Institute	_Centre Pompidou	_Lloyd's of London	_The Big Dig House	_Bank of America Tower
_1966	_1977	_1986	_2005	_2009
_Louis Kahn	_Piano + Rogers	_Richard Rogers	_Paul Pedini	_Cook+ Fox Architects
_La Jolla, California	_London, England	_London, England	_Lexington, Ma	_NYC, New York
_Science Research Center	_Convention Center	_Insurance Company	_House	_Sky Scraper (offices)
_27-acre site	_ 5.3 acre site	_2.8 acre site	_.5 acre site	_2 acre site
_ 289,800 SF	_7 floors, 1,112,000 SF	_14 story, 522,000 SF (375,00 net)	_3,400 SF	_54 floors, 2.1 million SF
_The Salk Institute is an excellent example of served and service space. Kahn used service floors between the laboratory spaces to allow for mechanical and electrical chases to stay out of the way of the laboratory work below and above. The added height of the "ceiling to floor" height allows for deep trusses to span the entire width of the building.	_The Centre is another good example of Served and Service space. When looking at the site plan one can see the overall program organization. A large exterior open plaza is kept separate from the interior space by the service cores and the building structure.	_ Lloyd's is the perfect example of modular, expandable, construction. The 14 floor building utilizes a simple rectangular floor plan with an atrium reaching from the first floor 200ft up to a glass roof. The goals of the design was to make a building with unobstructed open space, while allowing for flexibility of use, and expansion and contraction with market demands. The staircases were constructed of pre-cast concrete elements and clad in stainless steel.	_The big dig house is an excellent example of materials transcending scale for the purpose of reuse. Several wide flanges and temporary on-ramp parts were uses in the construction.	_The new tower for Bank of America is set to become one of the most sustainable skyscrapers in Manhattan.

Jonathan T. Archbald

_Bahrain WTC

_2008

_Shaun Killa (Atkins)

_Manama, Bahrain

_Office building

_21 acre site

_50 floors large complex

_A first of it's kind, The BWTC was designed to take advantage of its location. The two 50-story towers provide high-tech leasable office space. This is the first project to successfully integrate wind turbines with a building. The turbines only added 3.5% to the bottom line and provide up to 15% of the buildings energy needs.

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_Eicker, Ursula. Low Energy Cooling for Sustainable Buildings. 2009 A John Wiley and Sons Ltd.
(GOOD) this book has a lot of information in chart form about sustainable technologies. R-values etc.

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THE CITY OF NEW YORK

THE CITY OF NEW YORK
Michael R. Bloomberg, Mayor

CITY PLANNING COMMISSION
Amanda M. Burden, Director

Article X: Special Purpose Districts

Chapter 2: Special Scenic View District

Effective date of most recently amended section of Article X Chapter 2: 10/24/74

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CITY PLANNING COMMISSION
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DEPARTMENT OF CITY PLANNING

10/24/74

Article X - Special Purpose Districts

Chapter 2
Special Scenic View District

10/24/74

102-00
GENERAL PURPOSES

The "Special Scenic View District" (hereinafter also referred to as the "Special District"), established in this Resolution, is designed to promote and protect public health, safety, and general welfare. These general goals include, among others, the following specific purposes:

(a) to preserve, protect and prevent obstruction of outstanding scenic views as seen from a mapped public park or an esplanade or a mapped public place directly accessible to the public; and

(b) to promote the most desirable use of land and direction of building development, to assure the maintenance and enhancement of the aesthetic aspects of scenic views, to conserve the value of land and buildings and to protect the City's tax revenues.

10/24/74

102-01
Definitions

Definitions specially applicable to this Chapter are set forth in this Section. The definitions of other defined terms are as set forth in Section 12-10 (DEFINITIONS).

Scenic view

A "scenic view" is an outstanding or unique view from a mapped #public park# or an esplanade or a mapped public place which is protected by the regulations of this Chapter. #Scenic views# shall be limited to:

(a) distant landscapes of scenic grandeur which contain natural features such as hills, palisades or similar features;

(b) outstanding views of large bodies of water such as rivers, streams, lakes, harbors, waterfalls or similar aquatic features; or

(c) panoramic views of the waterfront profile of the skyline formed by built and natural elements.

The minimum horizontal distance between the #scenic view# and a #view reference line# shall be at least 1,500 feet and shall not contain distractions which reduce the quality of such view. The specific view to be preserved under the regulation of this #Special Scenic View District# shall be described and made part of this Chapter.

Special Scenic View District
(repeated from Section 12-10)

The "Special Scenic View District" is a Special Purpose District designated by the letters "SV", in which special regulations set forth in this Chapter apply to all #developments#, #enlargements# and #signs#. Each #Special Scenic View District# shall appear on the #zoning maps# superimposed on other districts, when designated, and its regulations supplement or modify those of the districts on which it is superimposed. The #Special Scenic View District# is that portion of the area, as specified in Section 102-60, beneath a #view plane# where the regulations of this Chapter shall apply. The #Special Scenic View District# includes any district whose designation begins with the letters "SV". The boundaries of each #Special Scenic View District# shall be described and made part of this Chapter.

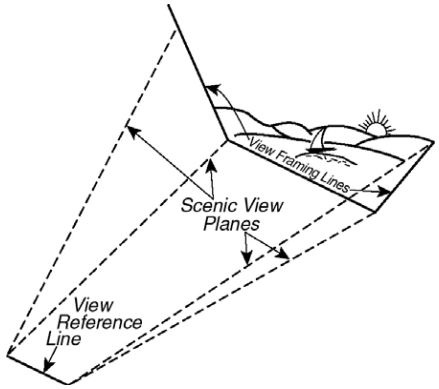
#Special Scenic View Districts# may be mapped only in areas where the control of the height of a #building or other structure# or #signs# is necessary to preserve outstanding #scenic views# from a mapped #public park# or an esplanade or a mapped public place.

View framing line

The "view framing line" is a line or lines which establish the outer edge of the #scenic view# to be protected. For each #scenic view#, the #view framing line# or #lines# and their elevation are to be located and identified and made part of this Chapter.

View plane

A "view plane" is an imaginary plane above which no obstruction shall be permitted within a #Special Scenic View District# unless authorized by the City Planning Commission. Position of the #view plane# may be conical surfaces. Such #view plane# or #planes# are established by joining the #view reference line# with the #view framing lines# as illustrated below:



#View planes# and their elevation, length and slopes applicable to each #Special Scenic View District# are to be located and identified and made part of this Chapter.

View reference line

The "view reference line" is a line within a mapped #public park# or an esplanade or a mapped public place from which at any point an outstanding #scenic view# may be observed. A #view reference line# and its elevation applicable to each #Special Scenic View District# are to be located and identified and made part of this Chapter.

The mapped #public park# or an esplanade or a mapped public place in which such #view reference line# is located shall be directly accessible from a #street#.

10/24/74

102-02
General Provisions

In harmony with the general purpose and intent of this Resolution and the general purposes of the #Special Scenic View District#, the regulations of the districts upon which this Special District is superimposed are supplemented or modified in accordance with the provisions of this Chapter. Except as so modified, each #development# or #enlargement# within a Special District shall be subject to all the applicable regulations of the underlying districts.

10/24/74

102-021
Requirement for application

An application to the City Planning Commission for a special permit respecting any #development#, or #enlargement#, pursuant to Section 102-30 within the Special District, shall include maps, plans or other documents showing topography, elevations, and site plans showing arrangement and spacing of #buildings or other structures#, and other information necessary to determine the impact of this #development# proposal on the #scenic view# to be protected.

10/24/74

102-023
Relationship to public improvement projects

In all cases, the City Planning Commission shall deny a special permit application whenever the #development# will interfere with a public improvement project (including highways, public #buildings# and facilities), redevelopment or renewal projects, or rights-of-way for sewers, transit, or other public facilities) which is approved by or pending before the Board of Estimate, the City Planning Commission, or the Site Selection Board as determined from the calendar of each such agency issued prior to the date of the public hearing on the application for a special permit.

10/24/74

102-10
HEIGHT REGULATIONS FOR BUILDINGS, SIGNS OR STRUCTURES

Notwithstanding any other provisions of this Resolution, the highest projection of any #building or other structure# hereafter constructed, or of any #sign# hereafter erected, or of any existing #building or other structure# hereafter relocated, #enlarged# or reconstructed, shall not penetrate a #view plane# unless authorized by the City Planning Commission pursuant to Section 102-30 (SPECIAL PERMIT PROVISIONS).

10/24/74

102-11
Damage, Destruction or Demolition

If an existing #building or other structure# which penetrates the #view plane# of a #Special Scenic View District# is damaged, destroyed or demolished by any means, such #building or other structure# may be reconstructed provided that such reconstruction shall not create a new #non-compliance# nor increase the pre-existing degree of #non-compliance#.

10/24/74

102-20
MANDATORY LANDSCAPING PLAN

The requirements of this Section shall apply to #zoning lots#, any portion of whose finished ground elevation is within 30 feet of the elevation of the #view plane# located above the #zoning lot#. At the time of filing with the Department of Buildings, for any application for an excavation permit or a building permit for a #development# or #enlargement# or site improvement on such #zoning lots# within a #Special Scenic View District#, a landscaping plan shall be submitted to the City Planning Commission indicating that future landscaping on the site will not impair #scenic views# from the #view reference line#. Such plan shall indicate existing topography, trees, shrubs, #buildings or other structures# and proposed landscaping. All future landscaping on the site shall be in accordance with the

approved landscaping plan on file with the Commission. The Commission shall submit a copy of the approved landscaping plan to the Department of Buildings or other appropriate city agency having jurisdiction.

10/24/74

102-30
SPECIAL PERMIT PROVISIONS

On all #zoning lots# located entirely or partially within a #Special Scenic View District#, the City Planning Commission, by special permit, may allow penetration by a #sign# or #building or other structure# of a #view plane#; allow, in R1 and R2 Districts, attached and semi-attached #single-family residences#; and allow, in R3-1 Districts, attached #single-family# or #two-family residences#; and grant minor modifications of #open space#, #lot coverage#, #yards# and height and setback regulations of the underlying district. As a condition for such modifications, the Commission shall find:

(a) that any penetration of a #view plane# shall not significantly obstruct the #scenic view# which is to be protected by the provisions of this Chapter;

(b) that any penetration of a #view plane# will cause the minimal obstruction consistent with reasonable #development# and #bulk# distribution on the #zoning lot#; and

(c) that any #use# and #bulk# modifications on a #zoning lot# will not affect adversely any other #zoning lots# outside the #development#, by restricting access of light and air.

In reaching a determination for such modifications, the Commission shall be guided by the description of the #scenic view# to be made part of this Chapter at the time of the designation of a #Special Scenic View District#.

The Commission may prescribe appropriate conditions and safeguards to protect the #scenic view# and to minimize the adverse effects on the character of the surrounding areas.

10/24/74

102-40
SPECIAL DISTRICT DESIGNATION ON PUBLIC PARKS

When a #Special Scenic View District# is designated on a #public park# or portion thereof, any future landscaping, erection of new #signs# or #buildings or other structures#, thereon, shall not penetrate a #view plane# unless authorized by the City Planning Commission. As a condition for such authorization, the Commission shall find that any penetration of a #view plane# shall not significantly obstruct the #scenic view# which is to be protected by the provisions of this Chapter.

10/24/74

102-50
SPECIAL PROVISIONS FOR CITY-OWNED LANDS

For any #development# or site improvement on a city-owned #zoning lot# located within a #Special Scenic View District#, the provisions of this Chapter shall apply except that modifications permitted under Section 102-30 (SPECIAL PERMIT PROVISIONS) may be approved by authorization of the City Planning Commission.

10/24/74

102-60
SPECIAL SCENIC VIEW DISTRICTS SPECIFIED

10/24/74

102-61
SV-1 Brooklyn Heights Scenic View District

The SV-1 "Brooklyn Heights Scenic View District" is hereby established. The regulations of Sections 102-00 to 102-50, inclusive, as well as the regulations of this Section, inclusive, shall be applicable in this Special District.

10/24/74

102-611
District boundary description

The boundaries of the SV-1 District as shown on the #zoning maps# shall be interpreted in accordance with the following description.

The SV-1 District is bounded by:

(a) the #view reference line# located along the westerly face of the Brooklyn Heights Promenade;

(b) the northwesterly edge of the #view plane# which forms an angle of 160 degrees measured in a horizontal plane with respect to the #view reference line# at point A;

(c) the southwesterly edge of the #view plane# which forms an angle of 145 degrees, measured in a horizontal plane, with respect to the #view reference line# at point A1; and

(d) the pierhead line which is located between the intersection of the northwesterly and southwesterly #view framing lines# and the pierhead line.

10/24/74

102-612
View reference line

The #view reference line# of the SV-1 Special District is a line at an elevation of 66 feet located along the westerly vertical face of the Brooklyn Heights Promenade and which is approximately 4 feet above the Promenade. The #view reference line# is formed by joining two end points, A and A1, as shown in Diagram 1.

Point A is located at the intersection of the westerly face of the Promenade and the prolongation of the north side of Orange Street.

Point A1 is located 50 feet north of the intersection of the westerly face of the Promenade and the prolongation of the north side of Remsen Street.

10/24/74

102-613
View framing line

The #view framing line# of the SV-1 Special District is a line which establishes the outer edge of the #scenic view# to be protected. The two extreme ends of the #view framing line# are points B and B4 (Diagram 1).

The elevation of the #view framing line# at all points between B and B1 is 2.5 feet as shown in Diagram 2.

10/24/74

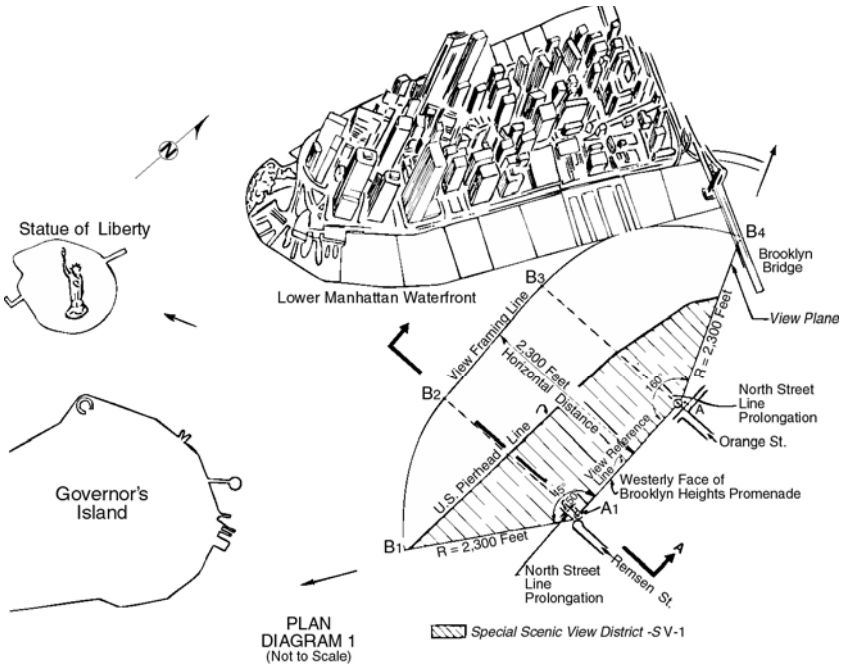
102-614
View plane

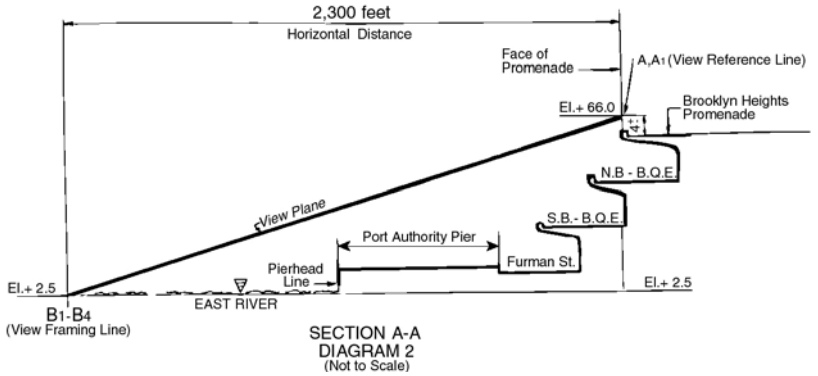
The #view plane# of the SV-1 Special District is an imaginary plane formed by joining the elevation of the #view reference line# with the elevation of the #view framing line# as shown in Diagram 2. The horizontal distance between the #view reference line# and the #view framing line# is 2,300 feet. Those portions of the plane formed by points A, B3, B4 and A1, B1, B2 are conical surfaces.

10/24/74

102-615
Description of scenic view

The #scenic view# to be protected pursuant to the provisions of this Section includes: the panoramic view of the lower Manhattan skyline which includes such landmarks as the Brooklyn Bridge archway, the South Street Seaport, the Whitehall Ferry Terminal, and the vistas of the Statue of Liberty and Governor's Island.





SV-1 BROOKLYN HEIGHTS SCENIC VIEW DISTRICT

Jonathan T. Archbald