Veterans Development Project

Innovation District of Levittown
Building Program Architecture (ARC) Plan

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Section A

Program Architecture Plan Overview

Project Introduction and Narrative

After performing an in-depth study and historical research on Levittown, information gathered indicates that the town's historic base was a result of Veterans returning from World War II who required a place to live with their families. The communities offered attractive alternatives to cramped central city locations and apartments. The community was guaranteed by the Veterans Administration and the Federal Housing Administration (FHA) that qualified Veterans could receive housing for a fraction of rental costs. Production was modeled in an assembly line manner and thousands of similar or identical homes were produced easily and quickly, allowing rapid recovery of costs. Sales of the original houses built in Levittown began in March 1947, and 1,400 homes were purchased within the first three hours. It should also be noted that the builders name was "Levit", thus the town was named "Levittown".

Additional information also indicates that today there is a still a high percentage of Veterans who live in Levittown. Similar to times after World War II, our country faces similar challenges today. Both the Veterans who fought in World War II and soldiers the young who fought recently in the Middle East share the same wants and needs. A large percentage of Veterans still require some form of counseling, assistance or therapy. Additional research shows Veterans returning from service have a difficult time finding an affordable place to live with enough space for everyday needs, and a large percentage of Veterans become homeless. However, a fair percentage of veterans would like to own and operate a business.

These figures below are examples of what Levittown's community homes used to look like and the families lived in them.

What Do We Know About Veterans and What Do They Need?

To truly understand Veterans' needs several members of the different branches of the military were interviewed. Many Veterans reported during their time of active duty they had little to no forms of entertainment. The only thing that Veterans have to keep themselves busy is to exercise or work on machinery. Others discussed the difficulties of finding an affordable place to live and raise a family after returning from service.

Additional Veterans who were interviewed, reported poor financial savings due to lack of management education and ability to find a full time career after service. One Veteran from the US Marines reported the need for day care centers to leave their children while they are away at work for the day. The concept of affordable day care with quality service was also stressed during the interview.

In appreciation for the hard work and service that the Veterans provide to keep our country safe, it is important for us to provide them with all the needs they require. Veterans need a place to relax and clear their minds. Due to the high percentage of Veterans who need some form of care or counseling, Veterans need a support facility that offers various forms of care such as mental health, physical health, financial issues and career issues, family issues, housing issues and group therapy. As a result of high amounts of homelessness among Veterans, we know that Veterans need affordable housing. We also know there is currently a large percentage of Veterans who have a need for business space. Veterans would also like a form of entertainment, which would also relate to the community.

Mission Statement

The overall objective of the "Veteran Development Project", is to design a facility that has a main function of catering to all the needs of Veterans, which will help them to reintegrate back into society after their completion of military service. This objective will additionally integrate the surrounding community, which will benefit all of Levittown.

This new innovation establishment will consist of four main components: 1) Incubator, 2) Memorial Park, 3) Dwellings and 4) Support Facilities to cater to Veterans' needs. The incubator will provide a space for Veterans to start and operate a business. The building will also include counseling services for Veterans who require aid mentally, physically, financial, career, family, and housing. A main function of this building will provide a location for the community to come together and offer social support for the incubator to be completely successful. Additionally, located in the building is dwelling space for Veterans to receive a quality place to live and start a family at a fraction of the rental costs. Another main component of the project is to integrate a park to provide a space for members of the community and public to gather and support the veterans.

Meta Architecture

Key Principals of Design, Concepts, Vision and Styles

The content of this project is to design the facility to function in various ways that not only benefit Veterans but also brings the community together. The main concept of this project is to include a business incubator, dwelling space, support facility and memorial park that all function together on the same site.

Our vision consists of a large dwelling space for 20 units. Due to the high amount of homelessness among Veterans, we would like to provide plenty of housing without overwhelming the integrity of the structure as a community center.

We envision a large our door gathering space for the public to enjoy and Veterans to relax and clear their mind. This outdoor space will also be a memorial park to pay tribute to those who served our country.

We envision within our incubator we will incorporate a large formal “flexible space” with the capability to be used for several functions. An example of special use are exhibits of Veterans’ arts and crafts, formal banquet occasions and cinema screening.

Another key concept of the project is to incorporate a “maker space” within the site that offers multiple purposes. The first is for an educational purpose to help Veterans learn a new trade. The second is a form of therapy as research showed many Veterans prefer to work with their hands. And third, completed projects will be displayed in an exhibit which will be open to the public and will help bring the community to provide social support.

We envision a large informal cafeteria for Veterans and members of the community to dine with other coworkers and tenants. This is for convenience of both tenants and workers because they do not have to leave the site. This concept also provides a place for members of the community to get food.

We envision a simple circulation path. Our objective vision is to keep circulation as simple as possible due to the large percentage of occupants who are handicapped. Not only a simple circulation path through the building but also through the site. A key factor is to have a good relationship between the building, the parking lot and the memorial park.

From an aesthetic approach, we recommend that the exterior of the building have a good contextual fit with the surrounding area and local communities’ influence from the Levit home design while similarly bring a modern approach to the project.

Our vision is to feature some glass structural units to maximize sunlight. The building will be oriented in the direction of the sun to capture sunlight through multiple times of the day. Sunlight is important because it creates a sense of emotion with may be beneficial to Veterans who may be dealing with depression or post-traumatic stress disorder.

Project Sorting and Ranking

Something that Veterans would not only benefit from but would also value the most is a support facility. The support facility would be the most important because of the various services the space offers. The support facility is also the most important space because our research showed that support services were among the highest needs of Veterans (physical, mental, financial, family, career, housing, ect).

Other important spaces for the Veterans to enjoy is a "maker space". The maker space is very important role within the narrative of the facility. Veterans who are returning home may find it therapeutic to make and construct objects out of different material. Additionally, the maker space offers an education service where Veterans can acquire a new trade, which could help them become eligible for a new career. Additionally, over periods throughout the year an exhibit will be held to display and auction projects made by the veterans. The money made from the exhibits can be donated to support other Veteran foundations and services.

The charts below illustrates the sorting narrative of the main spaces in the project.

Public	Private
Memorial Park	Dwelling Space
Incubator	Support Facility

Noisy	Quiet
Incubator	Dwelling Space
	Support Facility
	Memorial

Mass	Void
Incubator	Memorial Park
Support Facility	
Dwelling	

Entertainment	Work / Study
Incubator	Support Facility
Memorial Park	Dwellings Space

Project Goals and Recommendations

Provide an Establishment that Helps Veterans Reintegrate back into Society

Provide Various Forms of Entertainment for not only Veterans, but Public as Well

Provide Various Forms of Counseling and Therapy Care

Provide Affordable Living Space for Singles to Live and Families to Grow

Design All Spaces to be Assessable for Any Type of Disability

Provide a Memorial Park to Pay Tribute to Those Who Serviced our Country

Provide a Place for the Community to Interact with the Facility for Social Support

Provide Space for Veterans to Operate Small Business

Provide Veteran Housing at a Fraction of Rental Costs

Complete Project Based on Owners Requirements and Needs on Time and Within Budget

Display a Clear Hierarchy to Establish Values

Decrease Rate of Homelessness amongst Veterans in Levittown

Have Contextual Fit with the Surrounding Community and Levit Home Design

Design the Building to Control Light Throughout

Provide Veterans with Employment Opportunity

Help Business Revival in the Surrounding Community of Levittown

Roles and Responsibilities

ARCHITECT

The architect may help the client to formulate his requirements in an understandable form, bearing in mind any statutory conditions that may apply. It will be advantageous to the client at this stage if he could be shown work of a similar nature so that he could obtain a visual impression of shape, type of materials, size etc. if this is not possible, pictorial sketches and/or model can be used, but it is often difficult for the client to visualize the true structure from these very artistic representations.

Secondly, under the traditional procurement method, the architect may need to help the client to bring together a team to give specific services such as that of a structural engineer, quantity surveyor, builder, mechanical/electrical engineers, etc. Upon assessing cost limits and time scaled, conceptual design can be produced for client to approve or otherwise, before more detailed drawings are prepared. The cost of the building will have been broken down against elements at this stage with approximate values so that if cost is to be adjusted it can be done within elements, e.g, substructure, superstructure, internal finishes, M/E services, and so on. When general agreement has been reached between the client, and the consultants, the architect can now start detail design and preparation of contract drawings, schedules and specifications to enable tenders to be obtained. It is worthwhile to note that the situation whereby architectural drawings would have been completed before the structural and building services engineer's designs are commenced and inputs from a builder are obtained is not ideal and should not be encouraged by any member of the building project team. With the completion of the tender documents, the architect and the other consultants will assist the client in selecting the contractors to be invited to tender for the construction of the building.

During the construction stage, the architect should be visiting site periodically for inspections to ensure that in general, the work being carried out on site is incompliance with architectural design and specifications. Some projects may require the services of resident architect on building project site.

ENGINEERS

The engineers are very important members of the design team whose responsibilities are to assist in the overall design of the project within the scope of their specialist fields. Engineers will carry out various analyses and calculations before arriving at the optimal design solution for a specific building. Thereafter, they will produce drawings, specifications, schedules and other relevant data that may be required for the overall design of the project and to assist the quantity surveyor in the preparation of bills of quantities and costing and the client in his assessment of the suitability of the project, regarding statutory requirements. During project execution stage, engineers should visit the site periodically for inspections to ensure that in general, the work being carried out is in compliance with their engineering drawings, schedules and specifications. They must also be available to modify or re-design their individual aspects as may become necessary. Also some projects may require the services of resident engineers on the building project site.

PROJECT MANAGER

While the responsibility for complying with specifications is firmly placed with the contractor, the unspoken assumption is made that unless a client maintains his own representative on the site to watch and inspect the works, the resultant structure or building will not be in conformity with specified quality standard. While one may agree with the statement, one will like to believe that it is in recognition of this statement of fact that all the standard form of building contracts always has a condition for the client to have a representative on site. The role of the client representative on site is to inspect quality of materials and the workmanship to ensure that they all comply with drawings and specifications. The person capable of inspecting materials and the workmanship of works must be a professional that is well trained in building construction, and with training in project management. However, the size, type and complexity of a particular building project may make it necessary to have in addition to the project manager, a resident builder, resident engineers and a resident architect. When they are all on site representing the interest of the client, their roles are complementary. The contractor should usually cooperate with the project manager and treat him as the senior member of the project team whose assistance and advice as to outstanding project execution information, interpretation of designer's intentions, contract conditions, and so on, cannot be done without. The project manager, as the client's representative must submit reports periodically to the client.

BUILDER

A Builder is the professional at the center of the physical construction of buildings. His role in building development process in general, is to construct the building. He does this by taking charge of the activities on a building construction site in translating designs, working drawings, schedules and specifications into a physical structure. He uses his production management expertise, coupled with the necessary resources such as money, manpower, materials, and machineries, in the site execution of building projects. His expertise in Building production management is the main professional input that he renders on building projects.

Carry out Buildability and Maintainability analysis
Prepare Production Management Documents
Manage the production process on site.

The Builder's role in building development process starts from the planning/design stage but takes prominence at the construction stage. The function of the Builder is the main thrust of this book.

End of Section

Section B

Applicable Standards, Policies, Guidelines, and Strategic Plans

Applicable Industry Standards, Policies, Guidelines, and Strategic Plans

Glossary of Terms and Acronyms
Project Management Standards & Criteria
The Codes Guidebook for Interiors
RS Means Building Construction Cost Data
Ordinances of the Village of Hempstead
The Requirements of the Occupational Safety and Health Act of 1970 (OSHA)
County of Nassau Department of Public Works 1964 Standard Specifications
Child Care Center Design Guide
WBDG Physical Fitness Center Design Standards
Construction Knowledge: Indoor Fitness Facility
ADA Handicap Parking Design
Wisconsin Department of Commerce
Seven Components of a Successful Business Incubator
Levittown Planned Residential District Zone Codes
Town of Hempstead jurisdiction
SunCalc
International Building Code
International Code Council
National Institute of Building Sciences
Information Technology Infrastructure Library Professor Anderson Drop Box
US Department of Veterans Affairs (DVA)
National Business Incubator Association

Governing Federal Laws and Regulations

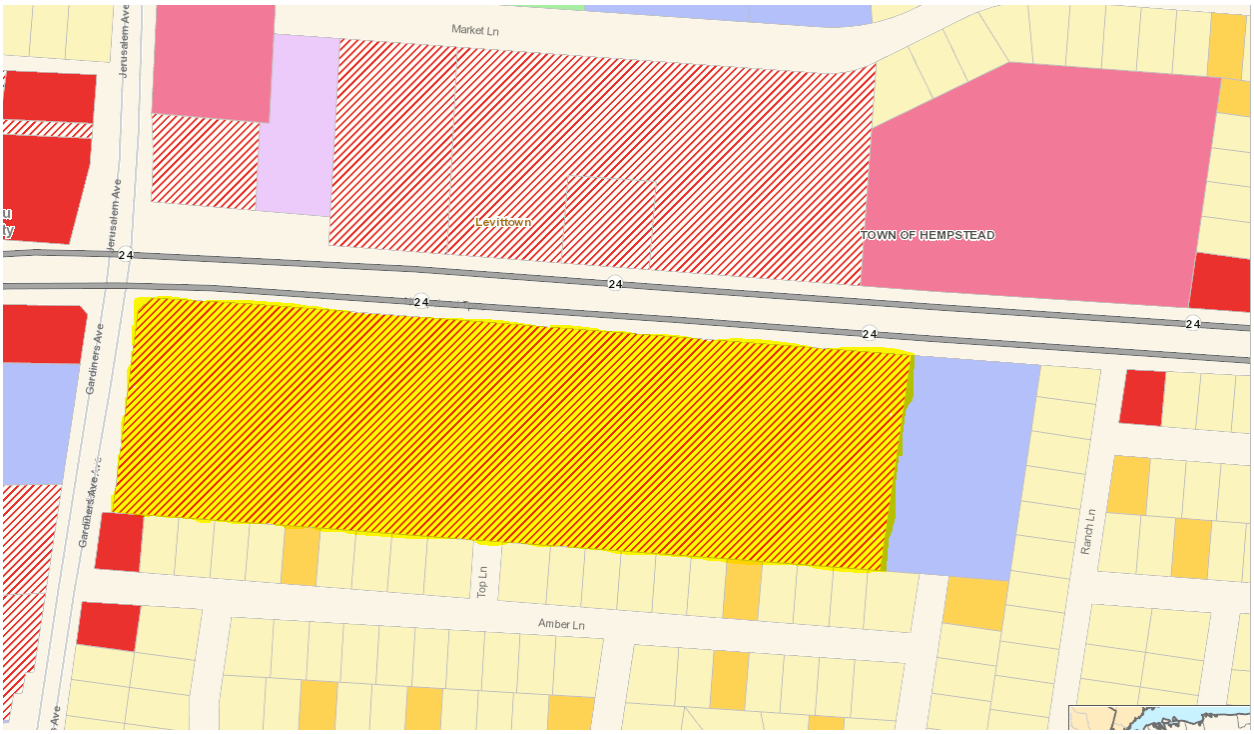
The laws or Regulations Applicable to Specific Requirements for Confidentiality, Integrity, or Availability of Data is Listed Below

Architectural Barriers Act
Americans with Disabilities Act
Energy Policy Act
International Building Code
International Fire Code
Life Safety Code
International Code Council
National Fire Protection Agency
International Plumbing Code
International Electrical Code
International Code Council Building Valuation Data

Zoning

A verity of codes regulate the design and construction of buildings and building interiors. In addition, there are a large number of standards and federal regulations. The jurisdiction chooses which code publications to use and edition of each publication. The project location zoning code and jurisdiction of the governing town will decide if construction will be approved and permitted.

The figure below displays the existing zoning of the project site and nearby surroundings.



This project site location is currently classified as a Business (X) zone. A Business (X) occupancy is for use of retail related establishments. Due to the fact that the project goal requires more than one function, a variance is required.

Zone Impacts

- Dwellings
- Business Incubator
- Veterans Service building
- Veterans Memorial Park

Governing Hempstead Policies, Standards and Guidelines

Multi Family Applicable Zones:

Article XA: CA-S Residence Districts (CA-S)
CA-S Residence Districts (CA-S)

Permitted Uses (Includes attached studio space for a professional to occupy with business.
i.g, Architects, physicians, lawyers.

Height: no building shall be greater than 4 ½ stories and 60 feet in height. ''Height'' shall be defined as applicable to CA Residence Districts (CA)

Building Area: The building area shall not exceed 60% of the lot area, exclusive of all landscaped areas and landscaped courtyards, whether or not constructed above parking areas.

Front Yards: the required front yard depth shall be a minimum of 15 feet. In the case of a corner lot, a front yard shall be required on each street

Advantages of CA-S

- More flexibility on height
- Multi-family including offices/studios
- More flexibility on the size of the building
- Smaller setbacks

Height (Section 108.3)

The building can be built up to 4 ½ stories or 60 feet.

Building Area (Section 108.4)

The building may extend up to 60% of the lot (Excluding landscaped areas or landscaped courtyards)

Setbacks

Front yard setbacks are only fifteen feet
Side yard setbacks are twenty feet on each side

Business Incubator

Office spaces in residential zones are typically not permitted. To gain the ability to utilize office space within a preferred manner, the design would (I.G connecting our dwellings and incubator via a mutually shared space) require a variance. The current design for the project dwelling would be categorized as CA-S zone.

If permitted the variance would;

- Develop ease of access for our disabled Veterans
- Create strong social influence on the incubator
- Increase in productivity and efficiency within the incubator.

Veterans Support Facility

The Support Facility for Veterans will include many features such as psychological help for those in need, a call-in crisis center, a daycare for the young and elderly and more. These office and retail spaces beckon for a business space and it would be wise to follow in suit.

The project zone use for the Veterans Support Facility is currently existing. Business zone (X) works perfectly with the project goal.

Dwellings

By the jurisdiction of the Town of Hempstead zoning code, you may not have more than one family to one plot of land in single-family dwelling zones, two families in a single plot in two family zones and so on. Therefore – to have multiple live-work units on our site; we will need to have a zone classified as 'Multi-family' dwelling applicable.

Multi-Family applicable zones

- CA (Residential)
- CA-S (Residential)
- LM (Light manufacturing)
- Y (Industrial)

For this project, the most appropriate zoning applicable is CA-S.

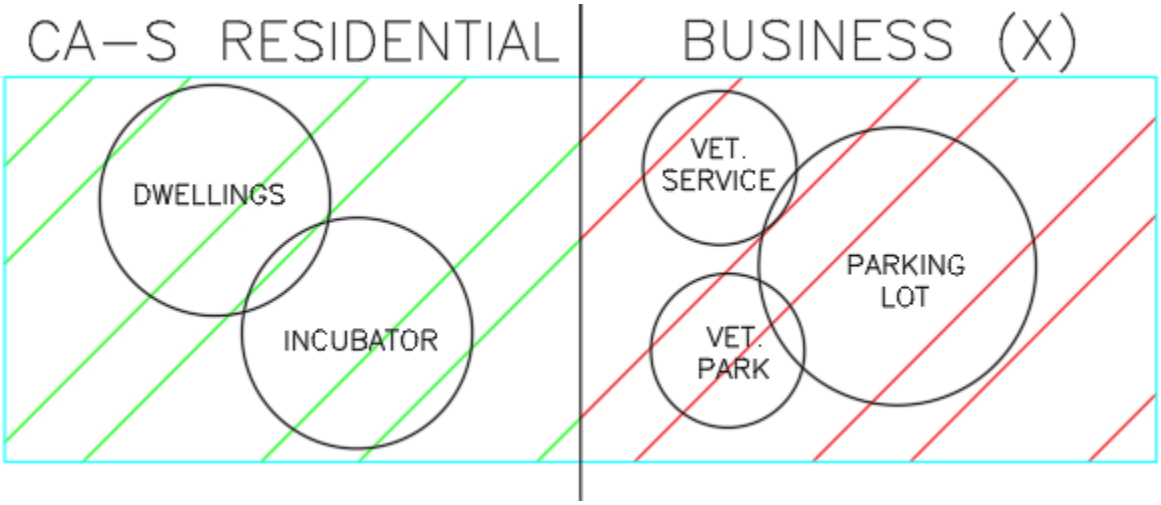
Veterans Memorial Park

The Veterans Memorial Park is a large outdoor space. Because the space is an open area, the zoning is very flexible and permitted in various locations. To have the park within a business (X) zone a variance for a special use must be filed; however, the park can also be placed into a CA-S zone without an issue.

Zoning and Variance Recommendation

- File and receive change of variance
- Design spaces to interact and influence each other
- Create sorting of spaces
- Review zoning regulations and criteria of each zone

Example Site



In the example above, the left side displays CA-S residential zoning and the right displays Business occupancy type X zoning.
With these interactions we experience

- A social and productive integrity between the dwelling and incubator space. Something that will keep the veterans minds busy and them social.
- A relaxing and secure atmosphere bounced between the accessibility of the park to the service building and vice versa.
- Open space created from overlapping and conjoining buildings prevents a crowded and smothered quality of life.

Variance Request

A variance request is an application simply, to be heard by the governing jurisdiction (In this case Town of Hempstead) as to why you cannot comply with the current zoning regulations.

Variance request however can be tricky - Variances can easily be denied and objected to by the town; whether it be on merit alone or the neighborhood fights the appeal.

The best ways to get a variance are

- Plead hardships or disadvantages you may have
- Prove the projects positive influence/impact on the community
- Appeal to the people at a hearing

Town of Forest City

Building & Zoning Department
PO Box 728
128 North Powell Street
Forest City, NC 28043
Phone (828) 248-5201, Fax (828) 245-6143

Variance Application-***Please fill out completely or application will not be processed.***

Note: A fee of $250.00 will be required to accompany this application.
Application must submitted and fees paid 30 days prior to meeting

Case #:

1. Property Information

Date of Application_____ Name of Project_____

Location_____ Property Size (acres)_____

Current Land Use_____ Proposed Land Use_____

Tax Parcel Number(s)_____

2. Contact Information

_____
Property Owner

_____
Mailing Address City, State Zip

_____
Telephone Fax

_____
Signature Print Name Date

3. Practical Difficulty and Unnecessary Hardship

Ordinance Name:_____

Applicable Section(s) of the Ordinance:_____

Variance requested: _____

_____

Please describe the following for the Board of Adjustment to find in the affirmative:

A. There are practical difficulties or unnecessary hardships in the way of carrying out the strict letter of the Ordinance:

_____

_____

1. If the property owner complies with the provisions of the Ordinance, he can secure no reasonable return from, nor make reasonable use of, his property.

_____

_____

2. The hardship results from the application of the requirements of the Ordinance.

_____

_____

3. The hardship is suffered by the applicant's property.

_____

_____

Planned Unit Development (PUD)

A planned Unit Development is an area designated with functions and zones prior to being constructed. Within the PUD, guidelines and regulations require:

- A good mix of dwelling zones and other land uses (such as business) – with at least one being regional in nature.
- Clustering of residence zones provides public and common open space (Such as the Levittown Greens.)
- Set aside specified zones for future use.

Planned unit development sites can be used a 'regulation' process in which mid-range, realistic programs in pursuit of physical, social and economic deficiencies for cityscapes or other such areas that are dense in population.

Relationship with Levittown

Planned unit developments relate to Levittown because they share similar concepts and ideas as previously reported.

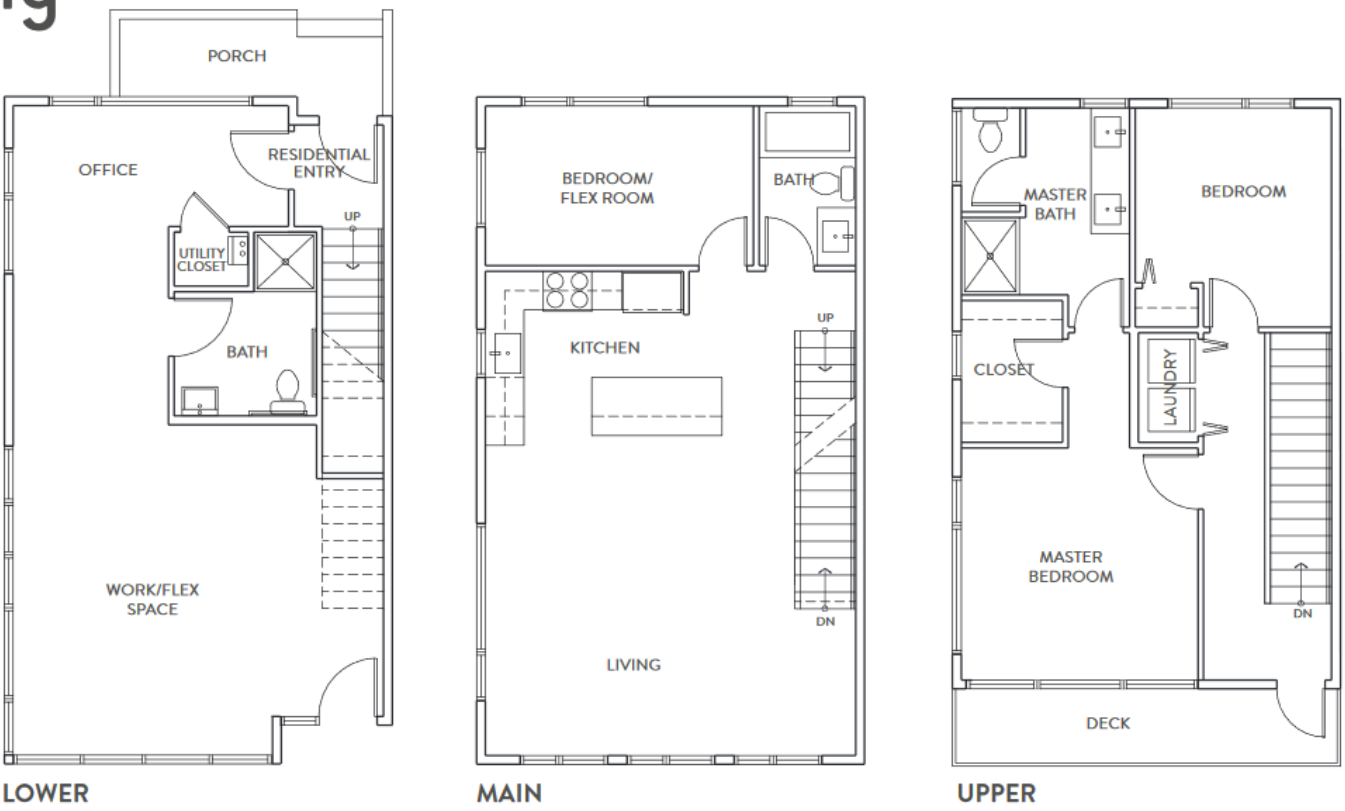
- Specified residential zones and regulations
- Common open spaces provided for and by the nearby residential space (The Five Greens)
- Specified zones for regional use (Golden age Zones)

Live-Work Unit

Live work units are spaces in which the functions of living and working overlap and meet to produce a new space. The units consist of a dwelling or sleeping unit where a significant portion (greater than 10 percent, but less than 50 percent) is used for nonresidential use by the tenant. It has a maximum area of 3000 square feet and must be located on the main floor of the unit. (A typical home office would not be considered a live/work unit.)

The live work unit will be extremely beneficial for small business owners. This style of dwelling will provide veterans and other business owners to operate within their own homes while proving them with enough space for what they need. Live work units provide studio space that a range of professions can utilize. Professions such as lawyers, architects, crafters, artists, photographers and so on; are able to utilize these spaces as offices, professional studios etc.

The figure below shows a typical floor plan of a live-work unit.



For a live-work unit space, a minimum of 660 net square feet is required for occupants. If the unit is to house more than one occupant, the rule is two occupants per 300 square feet and then an additional 150 square feet for each additional occupant. The total however may not exceed ten occupants to one unit. At minimal dimensions/occupants – the live portion may not exceed 220 square feet of the 660 square feet; or 1/3 of the net area.

Below is a chart to exemplify the regulations.

Zoning Criteria For Joint Live/Work Quarters:		
#	**Attribute**	**Interpretation**
1	Size	Minimum 660 sq. ft.
2/3	Work/live ratio	67/33 (25% of work can be dual purpose)
4	Number of occupants	2 per 300 sq. ft., + 150 sq. ft. for each additional occupant. Total not to exceed 10. Minimum live portion not to exceed 220 sq. ft.

ADA Regulations

Size and Clearances – Except as specified in 9.1.2, shower stall and clear floor space shall comlpy with the figures below. The shower stall shall be 36", shower stalls required by 9.1.2 shall comply as shown on the example figures. Additonal space outside the wasll is preferred.

Seat - A seat shall be provided in shower stalls 36" by 36" and shall comply with the figure below. The seat shall be mmounted 17 ' to 19' in from the bathroom floor and shall extend the full depth of the stall. In a 36" by 36" shower stall, the seat shal be on the wall opposite the contorls. Where a fixed seat is provided in a 30" by 60" in minimum shower stall, it shall be a folding type and shall be mounted on the wall adjacent to the controls as displayed in the figure. The strength of seats and their attachments shall comply with 4.26.3.

Accessory Parking

(1) In the case of multiple-family dwellings of three or more units in the Golden Age (GA) Residence District for which the minimum occupancy age is 62 years: five parking spaces for each three units or apartments. In the case of all other multiple-family dwellings of three or more units and apartment houses in all districts, there shall also be provided one common visitor parking space per unit or apartment. Each single-car garage and single driveway shall count as two parking spaces, and each two-car garage and double driveway shall count as four parking spaces.
(4) Theaters: one parking space for each three seats. [Effective 11-29-2005; 4-4-2006]
(5) Places of public assembly, including churches, temples and religious auditoriums, but excluding theaters, bowling alleys, discotheques and cabarets: one parking space for each three authorized occupants of the hall or sanctuary or for each 200 square feet of the hall or sanctuary, whichever is the greater. Additional spaces intended or used for catering, school or other purposes shall have their own parking requirements. Catering spaces shall be provided with parking using the standard for restaurants
(8) Retail stores, cleaning establishments: one parking space for each 200 square feet of floor area.
(11) Shopping centers: Effective January 1, 1982, all shopping centers containing five or more retail stores and providing 20 or more accessory parking spaces shall provide a minimum of 5% of said parking spaces or 10 spaces, whichever is less, for off-street parking spaces for the handicapped. The parking spaces designated pursuant to the provisions of this subsection shall be clearly identified for use by either handicapped drivers or other handicapped persons, which designation shall include permanently installed above-grade signs which display the international symbol of access and may include the use of blue painted lines or markings.
(12) Office buildings: one parking space for each 200 square feet of total floor area or for each three employees, whichever is greater. [Effective 11-29-2005; 4-4-2006]
(16) Restaurants, whether operated individually or as accessory to some other use: one parking space for each three seats or each 100 square feet of total floor area, whichever is the greater, plus one parking space for each four employees.
(19) All commercial uses not otherwise provided for: one parking area for each four employees or each 500 square feet of total floor space, whichever is the greater.
(22) Business, trade or vocational schools: one parking space for each employee plus one parking space for each two students. [Effective 11-29-2005; 4-4-2006]
(23) Day-care facilities: one parking space for each 15 children and one parking space for each employee. Provisions shall also be made for an on-site maneuvering aisle for the pickup and dropoff of children attendees. For purposes of this section a "day-care facility" shall be defined as: a building which provides care for a child on a regular basis away from the child's residence for fewer than 24 hours per day by someone other than the parent, stepparent, guardian.

Handicap Parking Design Criteria

ADA Handicap Parking

The facility must provide parking spaces following ADA standards to make it as easy for handicapped people to reach and utilize a building as a non-handicapped person.

Signage Regulations - The international symbol of accessibility must be posted on all ADA spots at least 60 inches above the ground surface so cars or any other object cannot block the signage.

Signage must be posted so that handicap accessible parking spaces are in full visible view of the driver. Van accessible parking spaces should be marked specifically with additional information clearly indicating they are van accessible.

Parking Space ADA Guidelines

Location of spots - ADA states that parking spaces made for a certain building should be built giving the handicapped the shortest possible route to the entrance after they park the vehicle. Accessible parking spaces should be dispersed throughout the lot and include many accessible ramps onto the pedestrian sidewalk.

Accessible Parking Spaces

ADA Parking Space Size Specifications:

- ADA compliant spaces must be at least 96 inches or 8 feet wide and should have an access aisle beside it.
- For a Van Accessible parking space, there must be an 8-foot isle next to the spot. A standard vehicle parking space for cars must have a 5-foot-wide space next to the spot.
- Two ADA parking spaces next to each other can share the same access isle if possible.
- The access isle must be marked in a way clearly indicating that it is not a parking space.
- 98 inches of vertical clearance for a van must be allowed in all ADA parking spaces as well as the route to the ADA parking spaces on site.
- The parking spaces and access isles cannot have a slope of more than 2%.
- The access isle must be clear at all times and vehicle overhangs cannot reduce a handicapped person's route.

Number of ADA Parking Spaces:

A certain number of ADA accessible spaces must be allowed per number of total parking spaces. In the case of a facility for veterans some being disabled, more ADA accessible parking spaces may be greatly considered.

Total Parking Spaces per Lot	(A) Standard (Car) accessible parking spaces (60 inch wide access aisle)	(B) Van Accessible Parking Spaces (96 inch wide access aisle)	TOTAL minimum number of accessible parking spaces (A + B)
1 – 25	0	1	1
26 – 50	1	1	2
51 – 75	2	1	3
76 – 100	3	1	4
101 – 150	4	1	5
151 – 200	5	1	6
201 – 300	6	1	7
301 – 400	7	1	8
401 – 500	7	2	9
501 – 1000	7 out of every 8 Accessible Parking Spaces	1 out of every 8 accessible parking spaces	2% of total parking provided in each lot
1001 (and over)	7 out of every 8 Accessible Parking Spaces	1 out of every 8 accessible parking spaces	20 plus 1 for each 100 over 100

Table of Minimum Required Parking Spaces

	USE OR USE CATEGORY	UNIT OR MEASUREMENT	ADDITIONAL REQUIREMENT
1	One or two family dwellings	2 per dweling unit	
2	Apartment houses or garden apartments	1.75 per dwelling unit	Plus 1 additional space for each additional bedroom above 2 in each unit
3	Professional office if a dwelling unit	1 per 200 square feet of UFA	Not less than 4 spaces
4	Doctor, dentist or chiropractor in a dwelling unit	4 for each practitioner or suite	Plus 1 for each employee
5	Home occupations (except as noted in No.'s 3 and 4)	1 per 200 square feet of UFA	Not less than 2 spaces
6	Hotels, motels, tourist homes, cabins, lodging houses, apartment hotels, boardinghouses and rooming houses	1 per sleeping room or suite	Plus 1 for each employee
7	Professional offices and office buildings	1 per 200 square feet of GFA	Not less than 8 spaces
8	Medical office buildings	1 per 150 square feet of GFA	Not less than 8 spaces
9	Churches, temples, auditoriums, gymnasiums, arenas, theaters or places of assembly	1 per 4 seats or 1 per 4 persons legally accomodated	Plus 1 for each employee
10	Retail establishments, unattached	1 per 150 square feet of GFA	Not less than 5 spaces
11	Shopping centers, not more than 25,000 square feet	1 per 150 square feet of GFA	
12	Shopping centers, more than 25,000 square feet	1 per 175 square feet of GFA	
13	Manufacturing, industrial, warehouse or wholesale distribution establishments	1 per 600 square feet of GFA	15% of GFA must be computed as office space at 1 per 200 square feet
14	Hospitals, sanitoriums, nursing homes or convalescent homes	1 per bed	Plus 1 per each full time professional or staff member and 1 per each 2 employess on the maximum shift
15	Mortuaries or funeral homes	1 per 200 square feet of GFA or 11 spaces per viewing room, whichever is greater	Not less than 20
16	Indoor tennis, basketball, badminton, volleyball or similar uses not classified	1 per 500 square feet of GFA	
17	Bowling allies	4 per alley	Plus 1 for each employee on the maximum shift

The chart below is the calculated parking lot area of project would require and the amount of stalls that would fit within the space.

Space	SF	Measurement	# of Stalls
Incubator	66,000 SF	1 per 200 SF of GFA	330
Support Facility	18,000 SF	1 per 200 SF of GFA	90
Conf. Exhibit	11,000 SF	1 per 4 persons; 660/4	165
Dwelling - 20 Unit	21,000 SF	2 per dwelling unit	40
		TOTAL STALLS REQ.	**625**
PARKING LOT AREA: 625 Stalls x 300 SF/Stall = 187,500 sf			

Americans with Disabilities Design Criteria

There are numerous requirements and accessories to assist the handicapped population. To create a livable, workable and enjoyable atmosphere for the handicapped, we have to consider solutions for a wide range of problems, since there can be many different issues for each individual. Furthermore, since the project is the world of possibilities for severe disabilities is seemingly endless. With this being said, the design approach must be carefully and methodically developed. Major concerns that must be taken into consideration are: Handicapped accessibility for the wheelchair bound, general handicapped accessories in bathrooms, safety devices for the visually impaired or blind, stairs, elevators, and areas of refuge.

The Americans with Disabilities Act (ADA) guidelines and regulations that must be complied with when designing spaces. The ADA regulations, include wheel chair requirements such as :

- Space requirements for wheelchair users to easily maneuver.
- Differences in heights for functions.
- Means of egress in case of an emergency.
-

The average wheelchair user needs a minimum of 36" of hall space to get from one destination to another. Below is a quick graphic portraying a single wheelchair user.

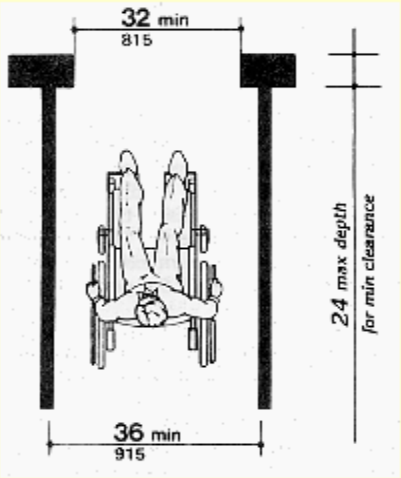


Figure 1
Minimum Clear Width for One Wheelchairs

It should be noted that many public buildings have narrow halls that only can accommodate one person in a wheelchair.

The next graphic demonstrates the new requirements needed for two wheelchairs to pass each other in a hallway. The ADA requires that there be a minimum of 60" for the two to pass side by side.

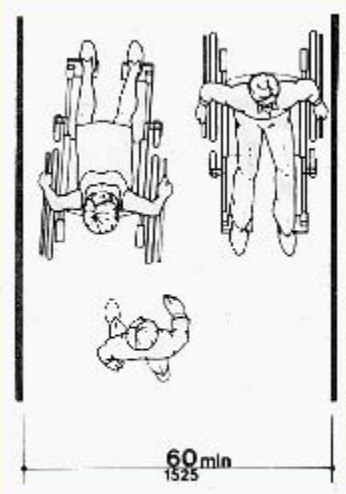
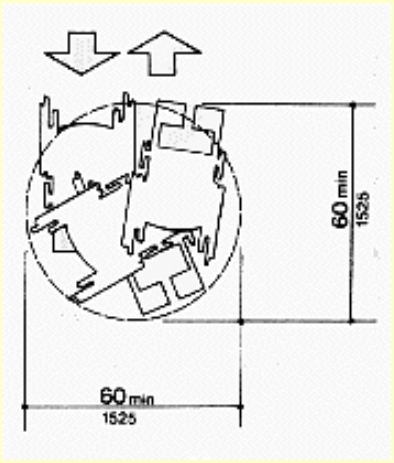
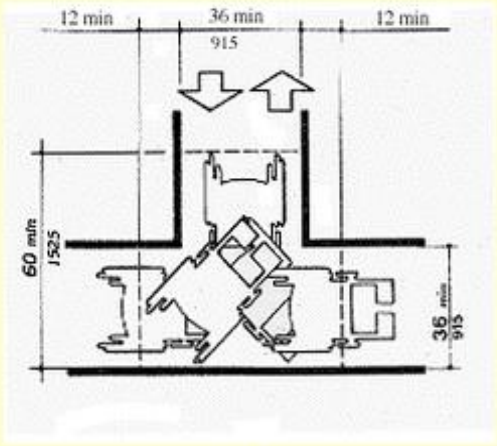


Figure 2
Minimum Clear Width for Two Wheelchairs

For a wheelchair user to rotate their position 360 degrees, that person needs a minimum of 60" on all surrounding sides to be able to maneuver. For that person in a wheelchair to do a 3 point turn' (as one would do in a car) that person will require 36" of room in three different directions all around as shown.



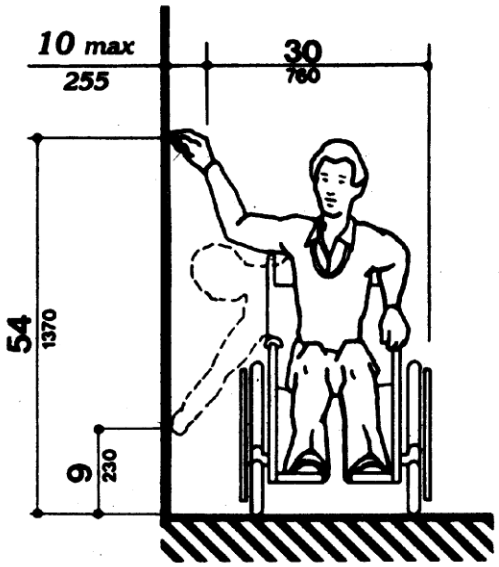
(a)
60 in (1525 mm) Diameter Space



(b)
T-Shaped Space for 180 degree turns

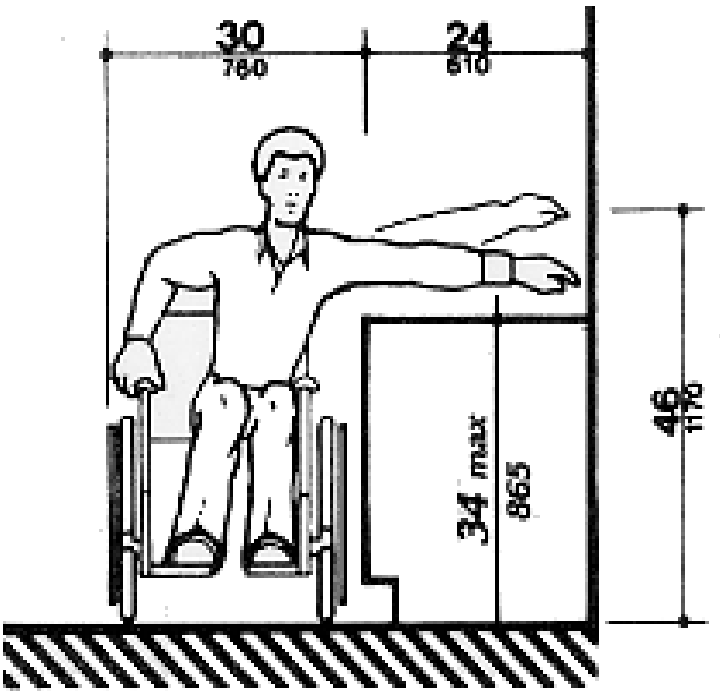
For the differences in the height of various functions, the average reach of the person in the wheelchair in the direction of the function must be taken into consideration.

For example, the reach of the average handicapped person over a counter, in distance going back, towards the wall and in elevation of the arms as indicated in the graphic below:

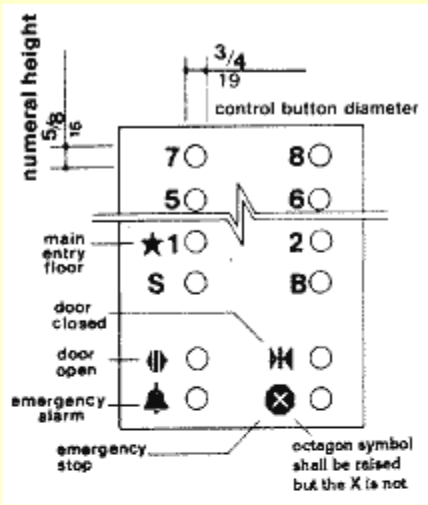


This ADA graphic demonstrates that the average handicapped citizen can reach about 54" off the ground, and 64" in a stretched state and leaned state. The lowest they can reach is near 9" from the floor because of the natural elevation of the wheels of their chair. Note the 30" of minimum width the ADA included. It should be noted that the 30" minimum width is an ADA requirement, and this is in addition to the height requirement for vertical functions.

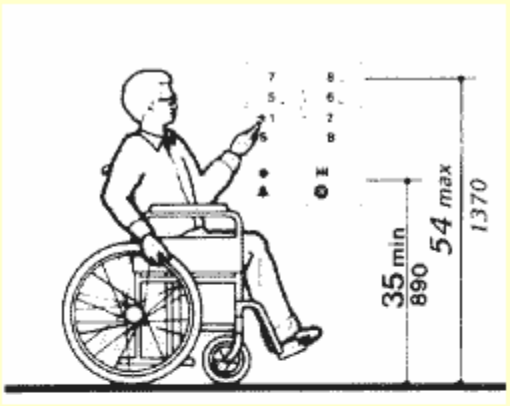
The next graphic demonstrates the over-the-counter reach for the handicapped individual. 24" is the average horizontal extent for the handicapped to utilize the counter efficiently. Again take note of the accountancy in width for his chair.



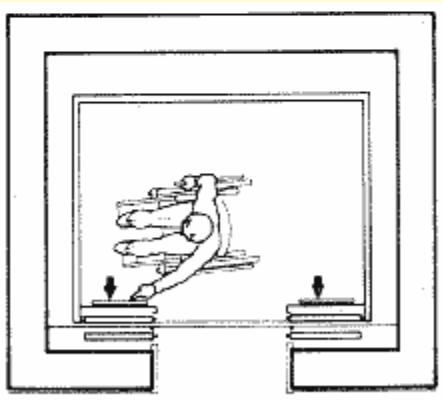
Height requirements are also necessary to consider when designing in elevators. To ensure that those who are handicapped in a wheelchair can access the elevator control panels. The next graphics depict proper elevation for elevator control panels.



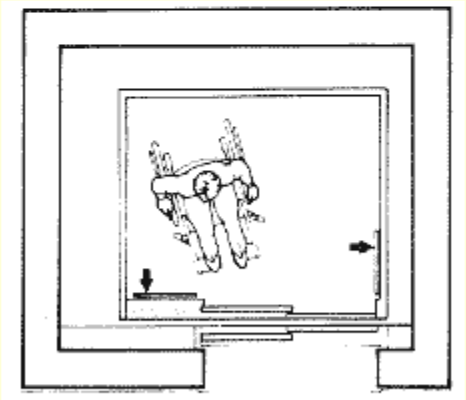
(a) Panel Detail



(b)
Car Control Height



(c)
Alternate Locations of Panel with Center Opeing Door



(d)
Alternate Locations of Panel with Side Opening Door

We see that our operating control panel for the elevator can only extend to a maximum of 54" above the cabs floor. This correlates with the previous example of reaching a bookshelf. Furthermore, the locations in which the panels are placed are also important. The panels should be placed either facing the doors or on the wall adjacent to the doors.

Shower Stalls, Bathrooms and Wheelchair Accessibility

A basic human necessity the necessity to be able to utilize showers and bathtubs, however the wheelchair bound individual is not able to do so in many cases. The ordinary showers are meant to be stood up in – and bathtubs to be climbed into. This is obviously troublesome and quite dangerous for a person in a wheelchair.

Showers must be altered to these factors. To have a functioning shower seats and grab bars must be installed, the size of the stall must be enlarged in all dimensions. Swinging half doors must be installed on the shower stalls accompanied by a floor lip. The floor lip keeps the water from seeping out of the shower. The figure below displays the implantation of a grab bar, additionally below is the proper dimensioning of a shower stall seat and another graphic concerning the combined view of having both in one space.

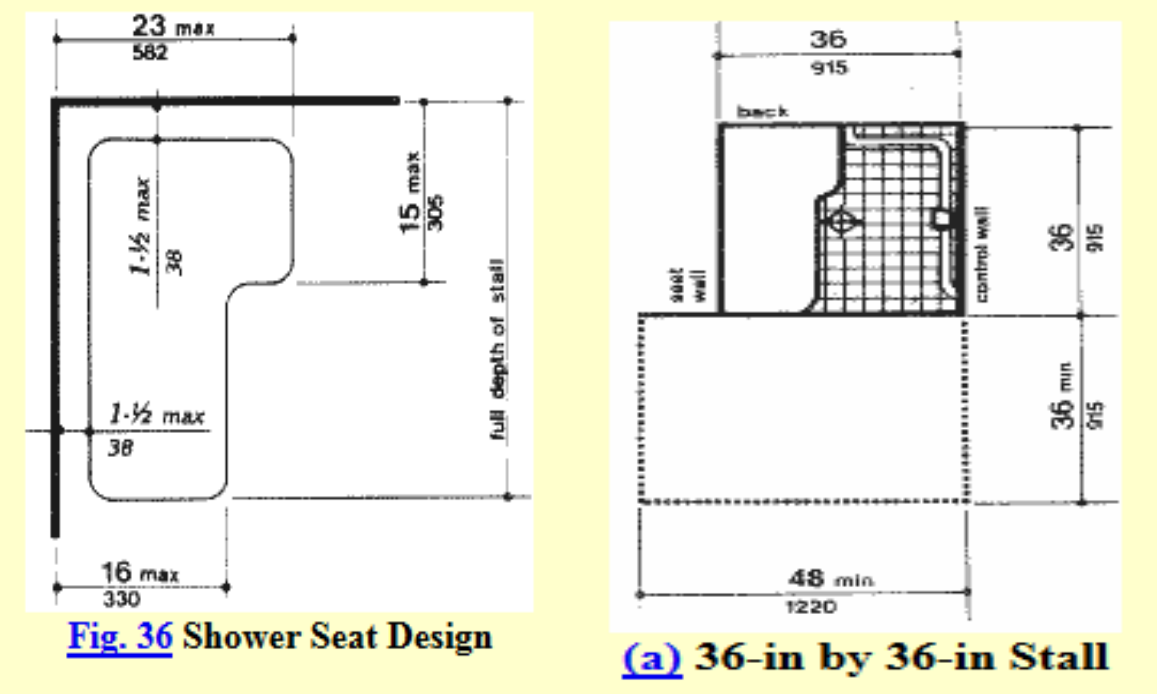


Fig. 36 Shower Seat Design

(a) 36-in by 36-in Stall

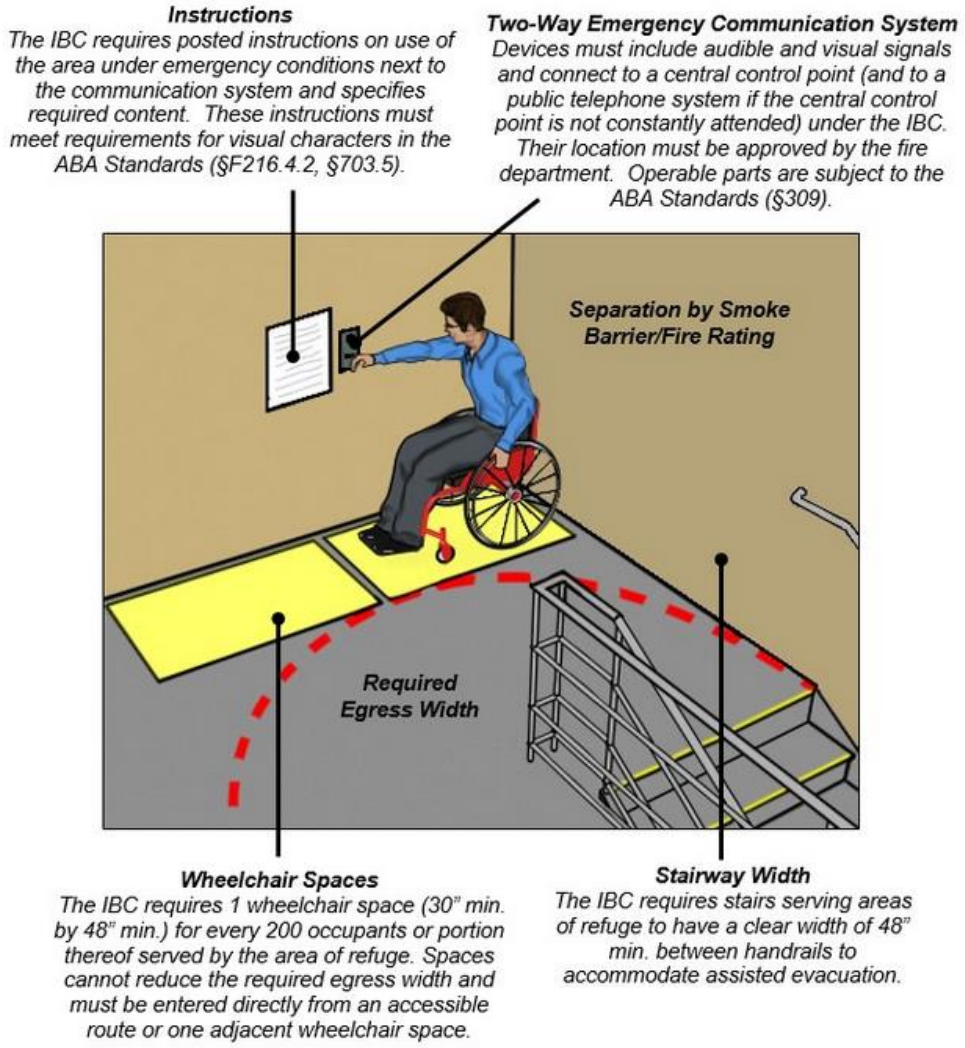
For means of egress several factors must be taken into consideration such as; the inability to use elevators in cases of fires and the inability for the handicaped to use staircases. To help the disabled escape and survive in times of distress and emergency, areas of refuge must be provided. Areas of refuge are designated zones in which the handicapped are meant to gather to wait for rescuing. A plan must be developed for the quickest and easiest means of circulation.

The International Building Code (IBC) provides an excellent demonstration and information portraying this scenarios. Note the extra space within the stairwell for the disabled to wait while at the same time keeping the stairs accessible to others, this is demonstrated on the next graphic.

Areas of Refuge [IBC §1007.6 (2003), §1003.2.13.5 (2000)]

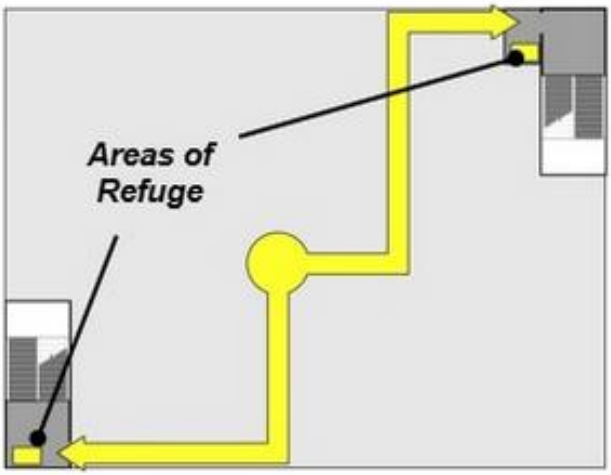
Areas of refuge are fire-resistance and smoke protected areas where those unable to use stairs can register a call for evacuation assistance and await instructions or assistance. They must provide direct access to an exit stairway (or to an elevator equipped with standby power). Horizontal exits can substitute for areas of refuge.

Features of Areas of Refuge



The IBC also provides an excellent example of simple, quick and even multiple means of egress, which in larger buildings is extremely vital in ensuring that as many people can get out in a timely manner as possible.

Areas of Refuge



Areas of refuge, which are required in buildings that are not equipped with sprinkler systems, provide fire and smoke protected areas where those unable to use stairs can register a call for help and await evacuation assistance. These areas must provide direct access to exit stairways and can be located adjacent to stairway enclosures or on stair landings outside the minimum exit width.

Note that the areas of refuge are often in stairwells, the areas that tend to be made purely of concrete in many larger buildings. However, in buildings that the stairwells are not equipped with sprinkler systems and the stairwells are not concrete, ample fire rating/protection must be utilized within these areas.

Construction types are very import at the time a building is being constructed. Sturctural engineeris and architects must be thoroughhly fmsilisr with them to determine the construction systems an materialsthat can be used throughout a building –both exterior and inteior. Several considerations must gop into choosing a structural system and a construction type, including buidling size, height, intended occupany classification, affordibility and sustainability.

The figures below represent the five (5) types of construction in correlation with building elements and minimum fire resistance rating.

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A[d]	B	A[d]	B	HT	A[d]	B
Structural frame[a] Including columns, girders, trusses	3[b]	2[b]	1	0	1	0	HT	1	0
Bearing walls Exterior[f]	3	2	1	0	2	2	2	1	0
Interior	3[b]	2[b]	1	0	1	0	1/HT	1	0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[e]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction Including supporting beams and joists	2	2	1	0	1	0	HT	1	0
Roof construction Including supporting beams and joists	$1^1/_2$[c]	1[c]	1[c]	0[c]	1[c]	0	HT	1[c]	0

TABLE 709.2.1.2
VALUES OF $R_n^{0.59}$ FOR USE IN EQUATION 709.2.1.2

TYPE OF MATERIAL	THICKNESS OF MATERIAL											
	1 1/22 in	2 in	2 1/2 in	3 in	3 1/2 in	4 in	4 1/2 in	5 in	5 1/2 in	6 in	6 1/2 in	7 in
Siliceous aggregate concrete	5.3	6.5	8.1	9.5	11.3	13.0	14.9	16.9	18.8	20.7	22.8	25.1
Carbonate aggregate concrete	5.5	7.1	8.9	10.4	12.0	14.0	16.2	18.1	20.3	21.9	24.7	27.2[3]
Sand-lightweight concrete	6.5	8.2	10.5	12.8	15.5	18.1	20.7	23.3	26.0[3]	Note 3	Note 3	Note 3
Lightweight concrete	6.6	8.8	11.2	13.7	16.5	19.1	21.9	24.7	27.8[3]	Note 3	Note 3	Note 3
Insulating concrete[1]	9.3	13.3	16.6	18.3	23.1	26.5[3]	Note 3	Note 3	Note 3	Note 3	Note 3	Note 3
Air Space[2]	—	—	—	—	—	—	—	—	—	—	—	—

For SI: 1 in = 25.4 mm.

Notes:

1. Dry unit weight of 35 pcf (560.6 kg/m^3) or less and consisting of cellular, perlite, or vermiculite concrete.
2. The $R_n^{0.59}$ value for one 1/2" to 3 1/2" air space is 3.3. The $R_n^{0.59}$ value for two 1/2" to 3 1/2" air spaces is 6.7.
3. The fire resistance rating for this thickness exceeds 4 hours.

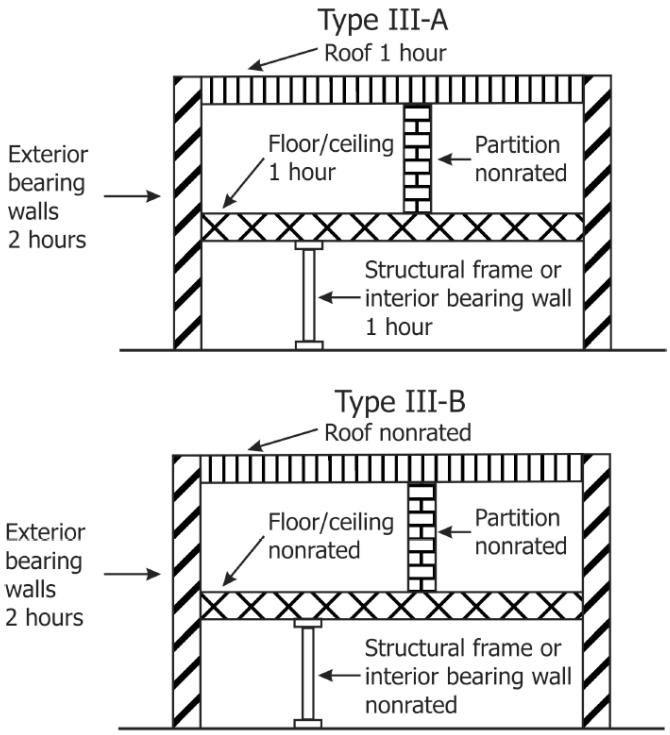
R, MINUTES	$R^{0.59}$
60	11.20
120	16.85
180	21.41
240	25.37

The figure below represents the correlation between contruction type (I-V) and the maximum floor area and maximum height.

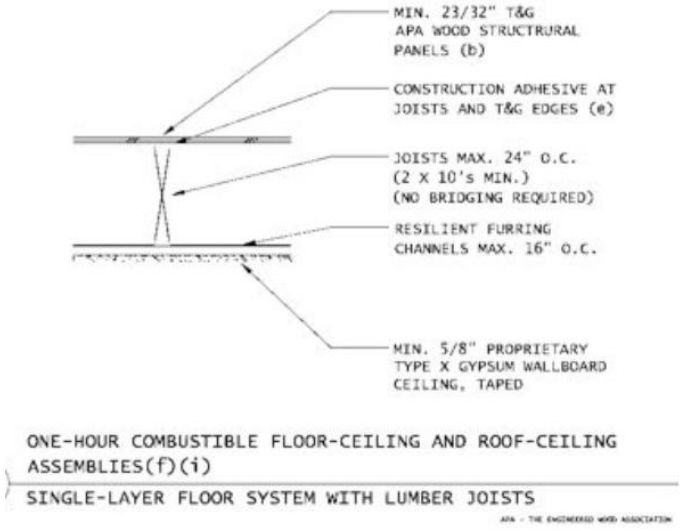
TABLE 503
ALLOWABLE BUILDING HEIGHTS AND AREAS[a, b]
Building height limitations shown in feet above grade plane. Story limitations shown as stories above grade plane. Building area limitations shown in square feet, as determined by the definition of "Area, building," per story

GROUP		TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
	HEIGHT (feet)	UL	160	65	55	65	55	65	50	40
		STORIES(S) AREA (A)								
A-1	S	UL	5	3	2	3	2	3	2	1
	A	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
A-2	S	UL	11	3	2	3	2	3	2	1
	A	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
A-3	S	UL	11	3	2	3	2	3	2	1
	A	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
A-4	S	UL	11	3	2	3	2	3	2	1
	A	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
A-5	S	UL	UL	UL	UL	UL	UL	UL	UL	UL
	A	UL	UL	UL	UL	UL	UL	UL	UL	UL
B	S	UL	11	5	3	5	3	5	3	2
	A	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
E	S	UL	5	3	2	3	2	3	1	1
	A	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9,500
F-1	S	UL	11	4	2	3	2	4	2	1
	A	UL	UL	25,000	15,500	19,000	12,000	33,500	14,000	8,500
F-2	S	UL	11	5	3	4	3	5	3	2
	A	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
H-1	S	1	1	1	1	1	1	1	1	NP
	A	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	NP
H-2	S	UL	3	2	1	2	1	2	1	1
	A	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	3,000
H-3	S	UL	6	4	2	4	2	4	2	1
	A	UL	60,000	26,500	14,000	17,500	13,000	25,500	10,000	5,000
H-4	S	UL	7	5	3	5	3	5	3	2
	A	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
H-5	S	4	4	3	3	3	3	3	3	2
	A	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
I-1	S	UL	9	4	3	4	3	4	3	2
	A	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	4,500
I-2	S	UL	4	2	1	1	NP	1	1	NP
	A	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
I-3	S	UL	4	2	1	2	1	2	2	1
	A	UL	UL	15,000	10,000	10,500	7,500	12,000	7,500	5,000
I-4	S	UL	5	3	2	3	2	3	1	1
	A	UL	60,500	26,500	13,000	23,500	13,000	25,500	18,500	9,000

The figures below detail typical construction of a Type IIIA Construction and Sectional View. Type III-A Construction will be chosen for spaces; Incubator, Support Facility and Exhibit.



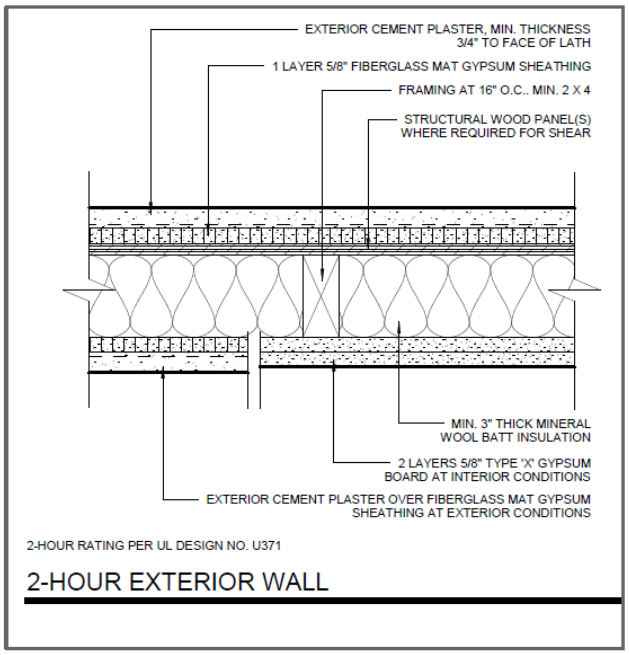
1hr rated floor assemblies – Type IIIA/VA



Common issues with UL approved assemblies:

- Shallow Floor depth-
  - Use prescriptive assemblies - IBC 721.1(2) assembly 14-1.1
  - Or use the CAM method in IBC 722

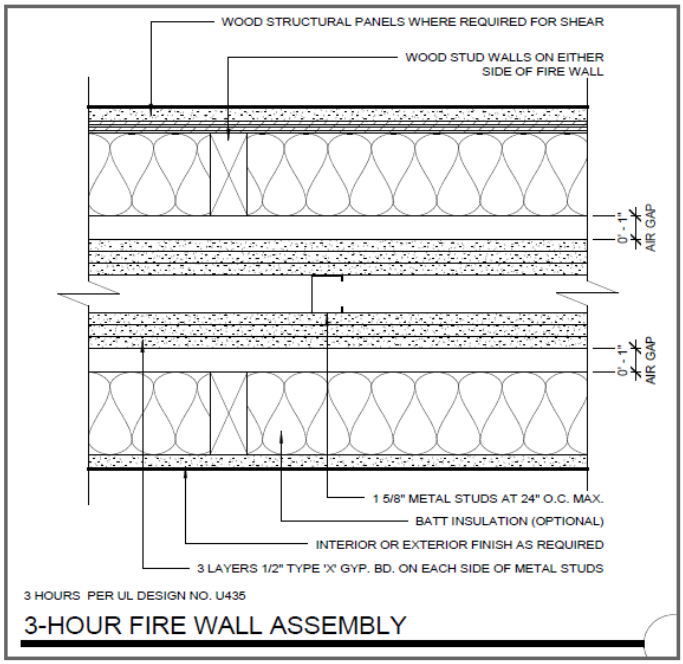
2 HR Exterior Wall Assembly – Type III



Common issues with tested assemblies:

- Assembly Asymmetry- separate assemblies for each side

3hr Fire Wall Assemblies – Type III



Other options:

- NFPA 221 6.5.1

Mechanical systems

Plumbing Design Criteria

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

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *INTERNATIONAL PLUMBING CODE*)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE *INTERNATIONAL PLUMBING CODE*)	OTHER
				Male	Female	Male	Female			
1	Assembly	A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink[e]
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service sink[e]
7	Residential	R-1	boarding houses (transient)	1 per sleeping unit		1 per sleeping unit		1 per sleeping unit	—	1 service sink
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-2	Apartment house	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per 20 dwelling units
		R-3	One- and two-family dwellings and lodging houses with five or fewer guest rooms	1 per dwelling unit		1 per 10		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit
		R-3	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, store-houses and freight depots, low and moderate hazard	1 per 100		1 per 100		See Sec tion 411 of the *Interna tional Plumbing Code*	1 per 1,000	1 service sink
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		I-2	Hospitals, ambulatory nursing home care recipient[b]	1 per room[c]		1 per room[c]		1 per 15	1 per 100	1 service sink
			Employees, other than residential care[b]	1 per 25		1 per 35		—	1 per 100	—
			Visitors, other than residential care	1 per 75		1 per 100		—	1 per 500	—
		I-3	Prisons[b]	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
		I-3	Reformatories, detention centers and correctional centers[b]	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink
			Employees[b]	1 per 25		1 per 35		—	1 per 100	—
		I-4	Adult day care and child day care	1 per 15		1 per 15		1	1 per 100	1 service sink

The chart below shows the fixture requirements for the Dwelling and Incubator space.

Fixtures		PLUMBING - NYS IPC 2015, CHAPTER 4			
Space	Water Closets	Lavatories	Bath/Showers	Drinking Fountain	Other
DWELLINGS	4	3	0	2	1 service sink
20 Untis	5	3	4 showers	2	1 service sink
	9	9	0	2	1 service sink
	3 male 6 female	4	0	2	1 service sink
	2	1	0	1	1 service sink
	1 male 1 female	1	0	1	1 service sink
	3	3	0	1	1 service sink
	20	20	20	0	20 Kitchen Sinks, 20 auto clothes washer connections
Total:	99	44	24	11	7 service sings, 20 kitchen sinks, 20 auto clothes washer connections

Fixtures		PLUMBING - NYS IPC 2015, CHAPTER 4		
Space	Water Closets	Lavatories	Bath/Showers	Drinking Fountain
Day Care	2	2	0	1 service sink
Fitness	12	10	1 male 1 female	2 service sink
Exhibit	4 male 6 female	5	0	1
Business	17	17	0	2
Mercantile	4	3	0	1
Maker Space	2	1	0	1
Total:	41	38	2	8

Mechanical System Space

Function	Gross SF	Net SF	Remainder	Plumbing (8%)	Electrical (2%)	Circulation (10%)	Structure (10%)
Incubator	66000	46000	20000	5280	1320	6600	6600
Dwelling	23000	13800	9200	1840	460	2300	2300
Support Facility	18000	10800	7200	1440	360	1800	1800

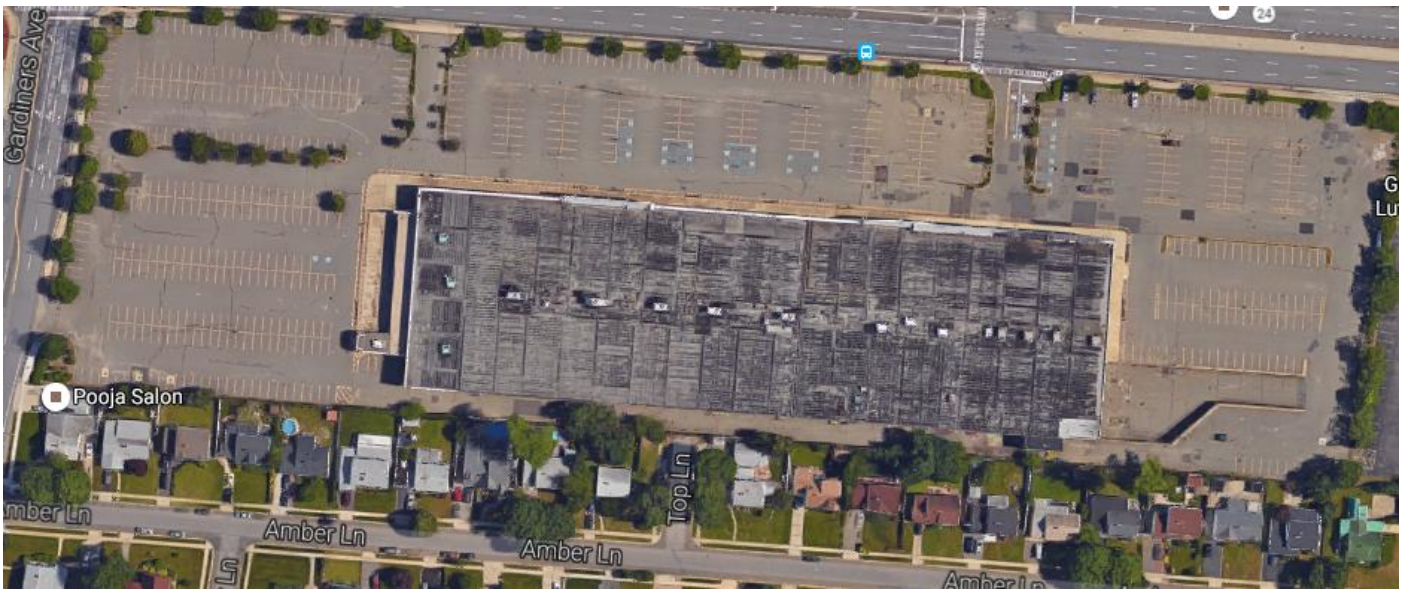
End of Section

Section C

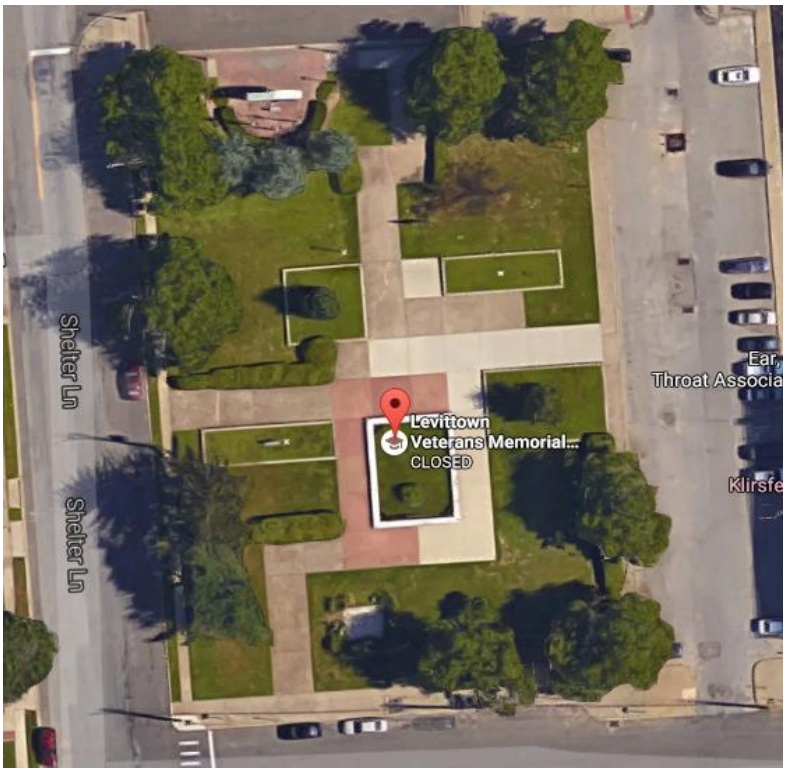
Project Location & Existing Conditions

The existing building on the site was demolished in September of 2016. The site is currently now vacant and cleared of all debris. The project site is located near the center of Levittown and is 11.46 acres in size.

The figure below is the project site's existing location and conditions.

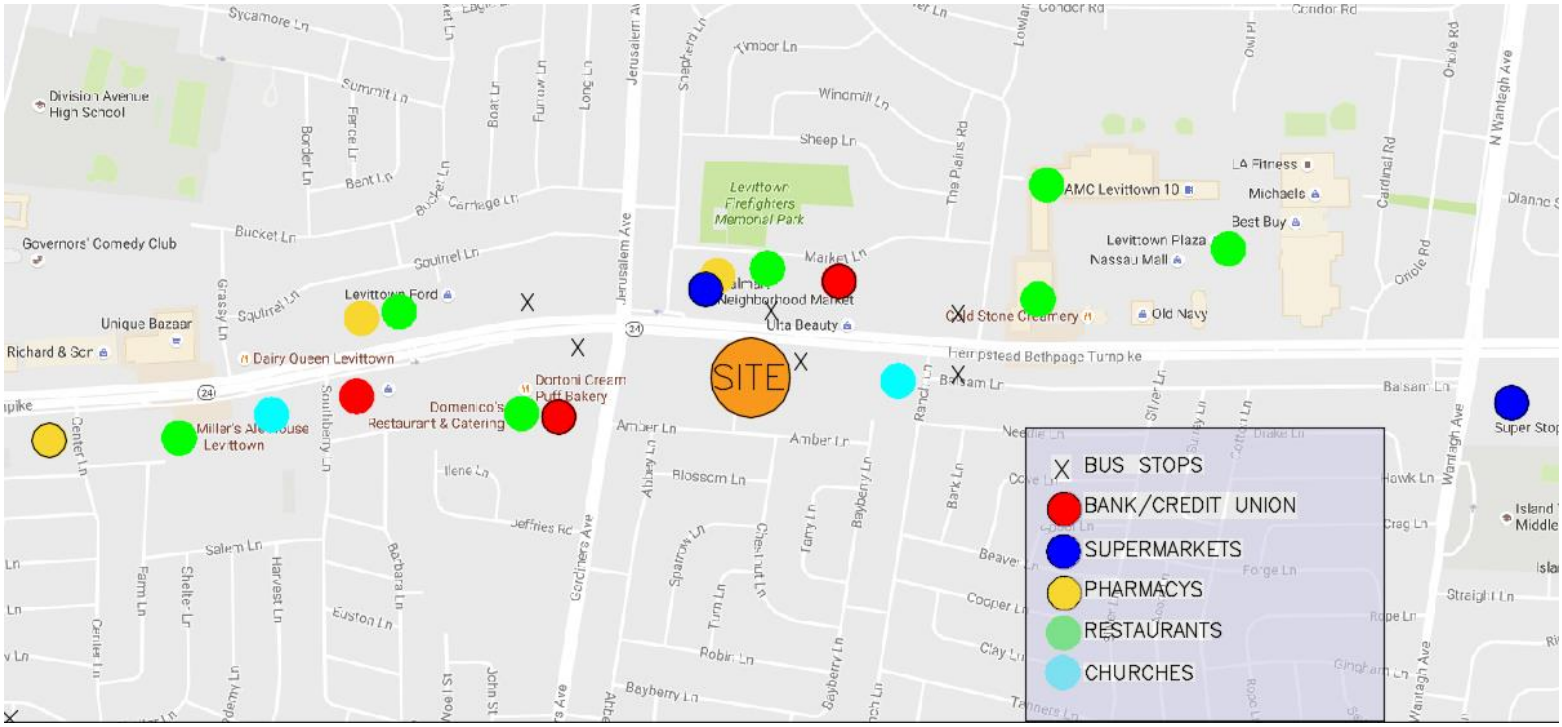


The figure below is the memorial park for Veterans. This park is one of the four main components of the project and will be located on the site.



Project Location Summary

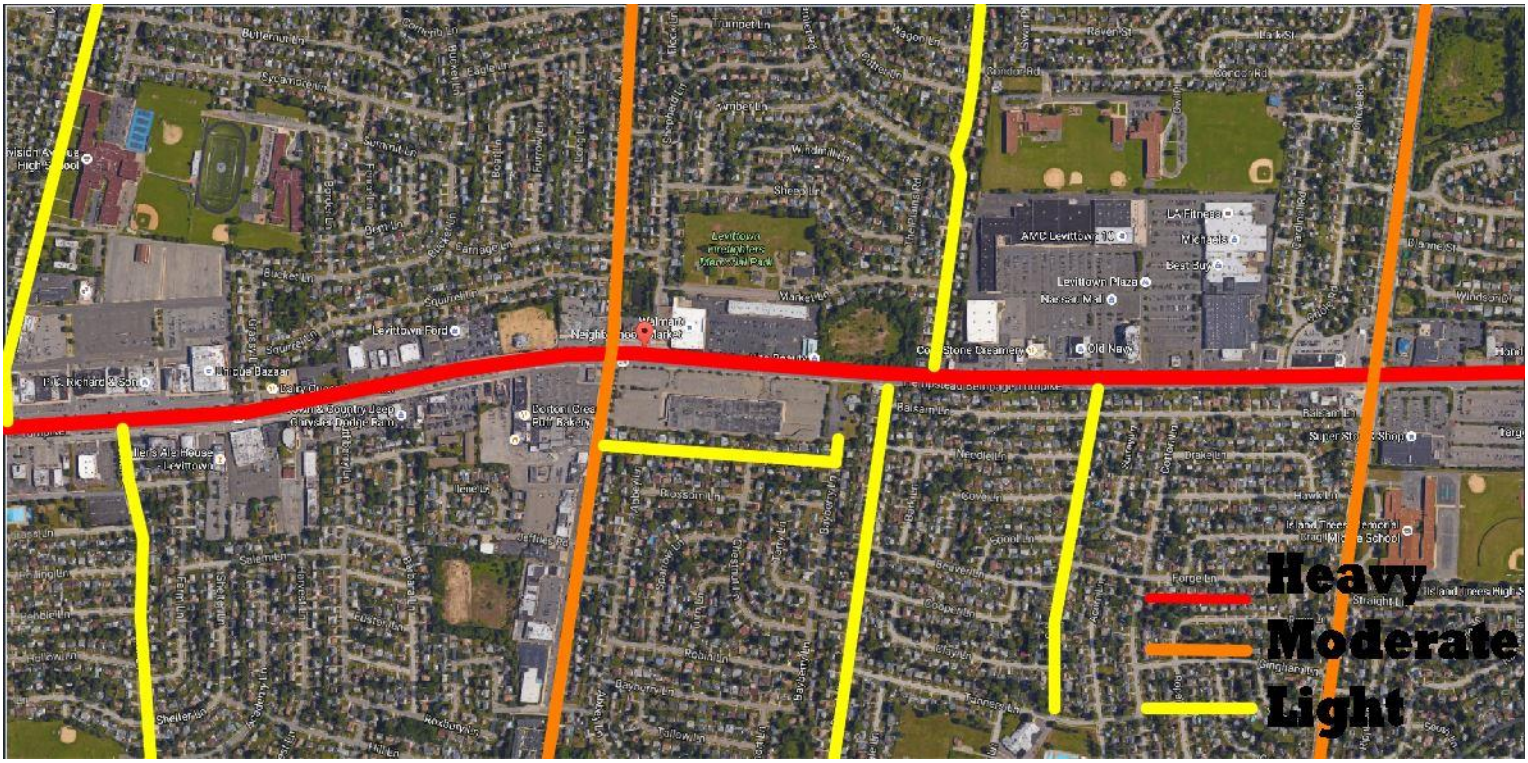
There are many accessible stores, banks, pharmacies and restaurants directly near our site on Hempstead Turnpike. It would be unnecessary to incorporate a bank or credit union on our site because there is a bank right across the turnpike, as well as one across Jerusalem Avenue. The pharmacy in the Walmart superstore located across the street from the project site would already be convenient for Veterans to acquire any of the medications they require. Multiple other pharmacies are only a short bus ride down the turnpike making it unnecessary to incorporate a pharmacy on site. Additionally, Veterans can accomplish daily grocery shopping at the Walmart. There is presently a large amount of restaurants nearby, which provide local residents a variety of dining choices. Nearby churches give veterans the option of attending service. After preforming this project site analysis, it would be unnecessary to incorporate any of the previously mentioned due to nearby proximity.



Existing Site Circulation

According to statistics reported in 2010, Levittown has a population of 51,881. A large percentage of this population uses Hempstead Turnpike to travel to and from their homes in Levittown. If 22.9% of the population are under 18, that give us approximately 77.1% who are eligible to drive in Levittown. If 70% actually do drive and have automobiles that would give us a possible 36,316.7 people who would drive past our site on any given workday.

Route 24 or Hempstead Turnpike is our main source of traffic passing our site. Route 24 runs from Queens Village all the way to Wellwood Avenue in Farmingdale. It crosses under major parkways and highways such as the Meadowbrook Parkway, Wantagh State Parkway and Seaford Oyster bay Expressway. This makes it a convenient area to get to and from all points in the Long Island and Queens if traveling from the East or West of Long Island and New York City, as well as North and South on Long Island. Jerusalem Ave and Wantagh Ave are roads running north/south with moderate traffic running close to our site. These roads can bring people to our site from the surrounding communities near Levittown. Small streets with light traffic such as Ranch Ln, Hamlet Rd. and Center lane help bring the surrounding locals from their homes to Hempstead Turnpike towards our site.



Use of Light

Light is an extremely crucial element with the project and can influence spaces. Light can play an enormous role in setting an atmosphere for the environment of spaces and emotions for Veterans. The lighting in a room has a direct correlation to the environment it is exposed to. For example, in churches prefer somber, dim lit lighting promote an emotional and psychological response of sacredness, security and peace. The dim light promotes a peaceful, resting atmosphere for people, although in some spaces, dim lighting can have negative effects in spaces where the main function is work related. Having dim lighting in spaces such as our Veteran business incubator would negatively affect our clients. Additionally, overly strong lighting can strain the eyes, and cause restlessness or overall stress. Due to the fact that a large majority of business owners experience stress, it is important that we control the element of light throughout the project.

The chart below displays different types of light and their positive and negative relationships

Natural Light	
Pro	Con
Promotes Energy	Affected by Weather
Provides Natural Healthy Atmosphere	Challenge to Control Natural Light
Flexibility of Space Depending on Time of Day	
Important Element to Create Sense of Emotion	

LED Lighting – Well Lit	
Pro	Con
Great for Office and Work Space	Intense Lighting can Strain Eyes
Important in Exhibit Space	Over Exposure Lighting can Result in Stress
Flexibility of Space Depending on Time of Day	

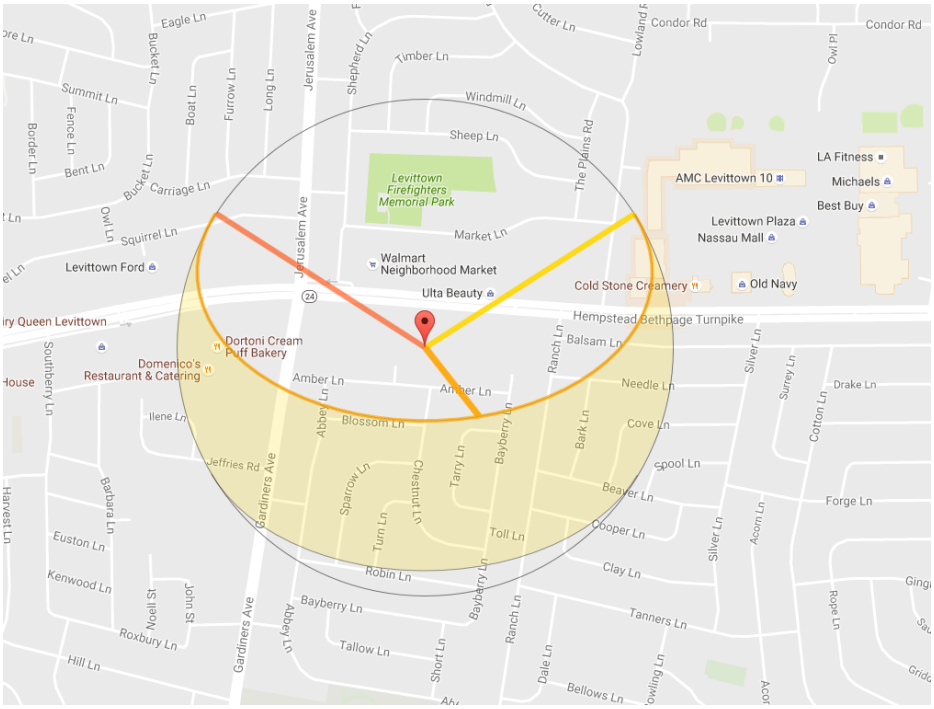
LED Lighting – Dim Lit	
Pro	Con
Promotes peaceful, resting atmosphere	Most Spaces Require Well-Lit Areas
Reduces Stress	
Flexibility of Space Depending on Time of Day	

Importance of Light and Influence on Project

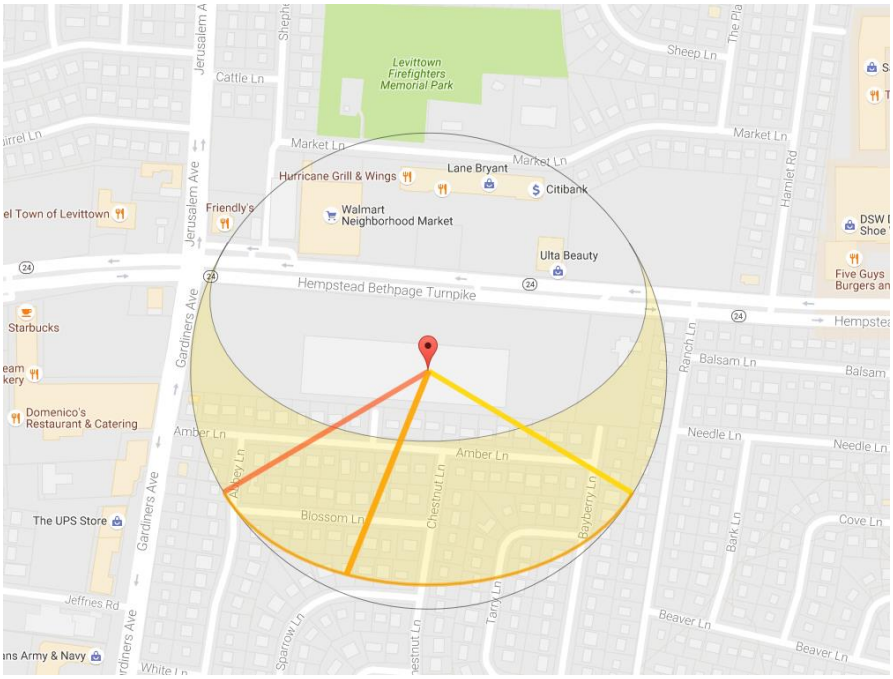
Due to the fact that lighting is an important element within the project, it is important to know the location of the sun throughout different times of the day and seasons. The Graphs below display sun-path diagrams demonstrating the relationship of the project site to the suns locations on specified days of the year. The legend indicates different times of the day such as sunrise, noon, and sunset. Take note that the sun is orientated on the southern face of our site.

Mapping the summer solstice (The longest day of the year; giving us the most hours of light) and the winter solstice (The shortest day of the year; giving us the fewest hours of light) will provide the two most extremes the project would be exposed to.

Summer Solstice



Winter Solstice

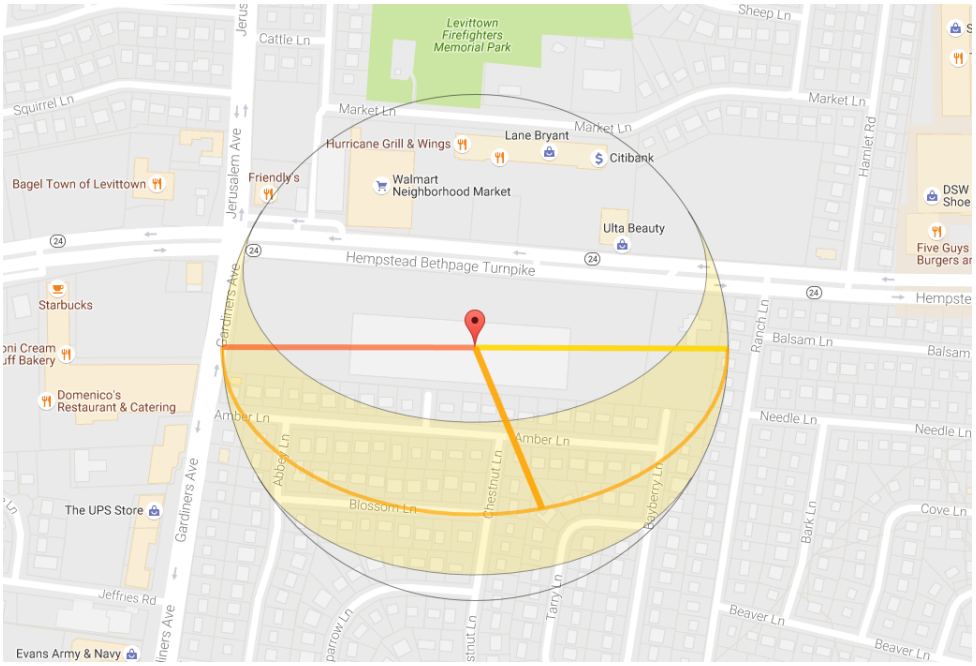


06:45 — dawn
07:16 — sunrise
11:53 — solar noon
16:31 — sunset
17:02 — dusk

Observing the two and disregarding the somber light from dawn and dusk, it can be seen that the summer solstice for 2016 was approximately fifteen and a half hours of direct sun light; However, the winter solstice provided nine and one-quarter hours of direct light. This diagram provides a gradient of six and one-quarter hours for just the (direct) sunlight coming into the site.

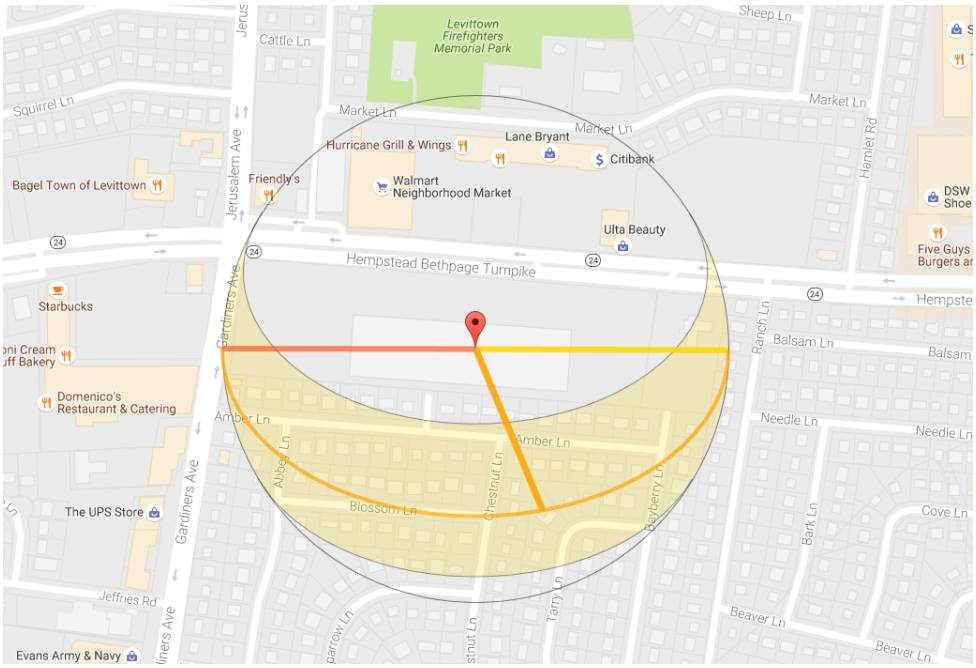
Furthermore, we should investigate how light interacts at more than just two days in the year. The fall and spring equinoxes will help us do just that. Within the equinox there is roughly the same amount of hours of daylight as there is nighttime. This will help average out our design scheme.

Fall Solstice



06:15 — dawn
06:43 — sunrise
12:47 — solar noon
18:52 — sunset
19:19 — dusk

Spring Solstice



06:28 — dawn
06:56 — sunrise
13:02 — solar noon
19:08 — sunset
19:35 — dusk

End of Section

Section D

Four Main Components of Project

Incubator

Business Incubators help start-up companies develop and continue success by providing them with the necessary advisory and administration services to become successful and financially stable businesses. With the space and equipment provided to them in the facility endless business opportunities are possible. Management guidance and financial help on site will give Veterans the best possible opportunity in starting their own desired business. Experience entrepreneurs or retired executives can be brought in to give advice and guidance to the Veterans. The incubator will accommodate companies with a variety of business and manufacturing needs. The Incubator will ultimately help reacclimatize Veterans into civilian life and keep them motivated to do more.

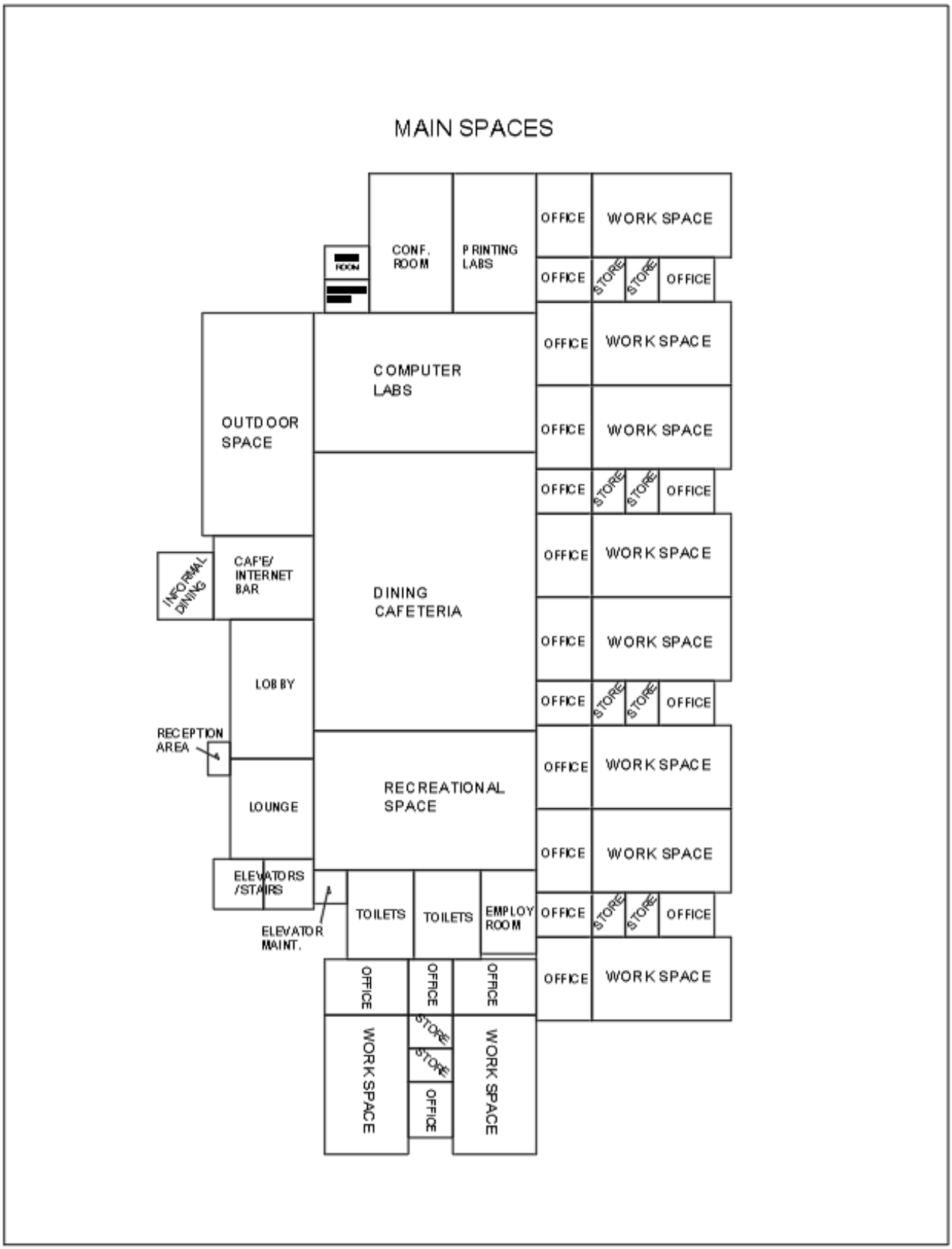
The business incubator will help with the revival of business in Levittown. The Local community will be more willing to support Veteran owned businesses. The community will be more willing to buy the products they made or services they are offering. Locals will want to give back to the Veterans for their service by helping them make a living and become successful. Veteran made products can help non Veteran owned businesses in the surrounding area as well. Local Businesses can sell Veteran made products to the community so that both the veteran and non-Veteran business owners can make a profit.

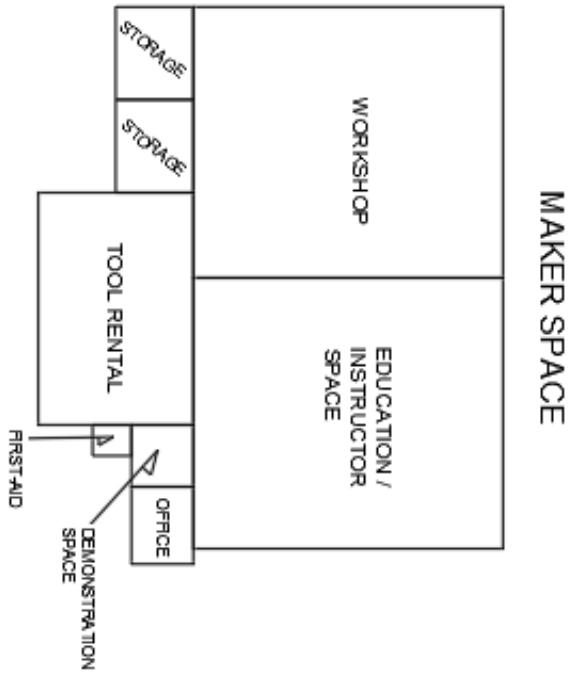
Although there are some business incubators on Long Island, not many cater directly to returning Veterans. It is very close proximity to the rest of the veteran support services on site will make it more convenient for veterans to receive business help.

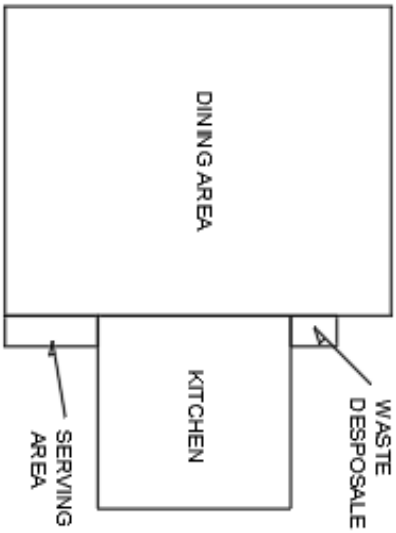
Business Incubator Size Factors:

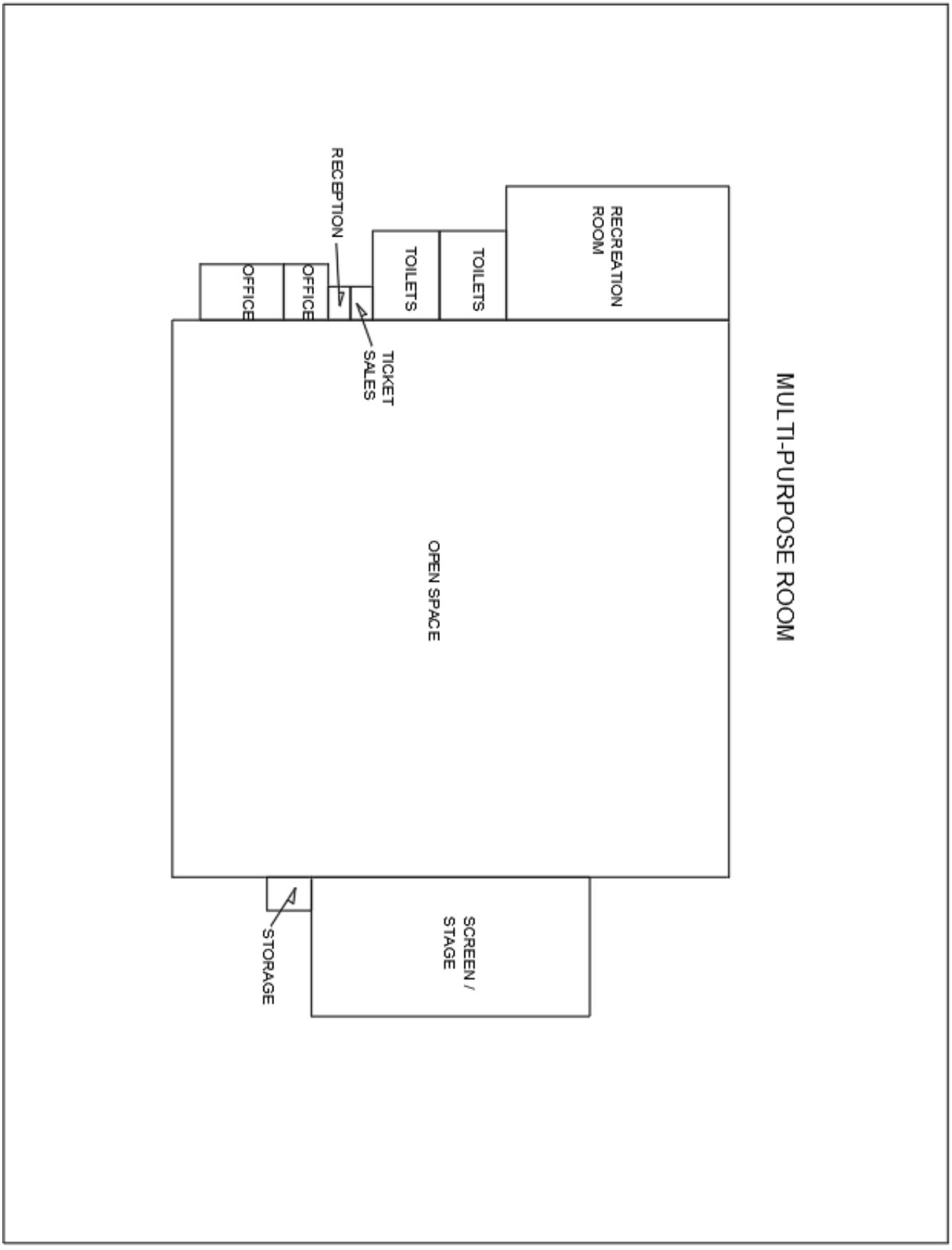
- Program must be sized on market demand. Approximately 25% of returning Veterans of the 2,703 in Levittown are looking to start their own business.
- 20,000 to 30,000 square feet is considered a minimum to achieve financial success in an incubator.
- 5% to 10% of the space shall be left for expansion and growing companies.
- Incubator has a mixed use. It contains a variety of office spaces and larger work rooms for research and prototyping.

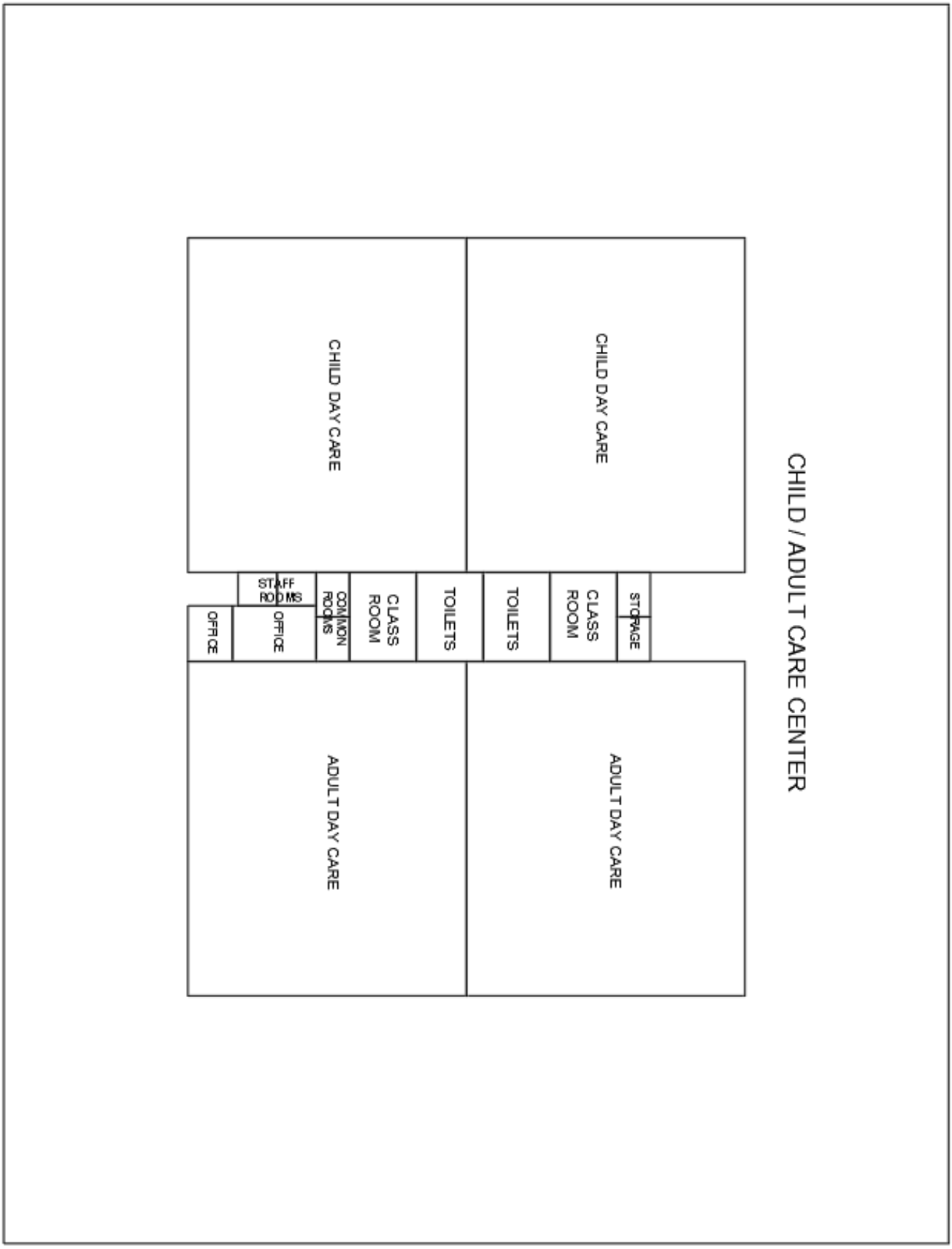
The figures below represent proposed space diagrams for the incubator

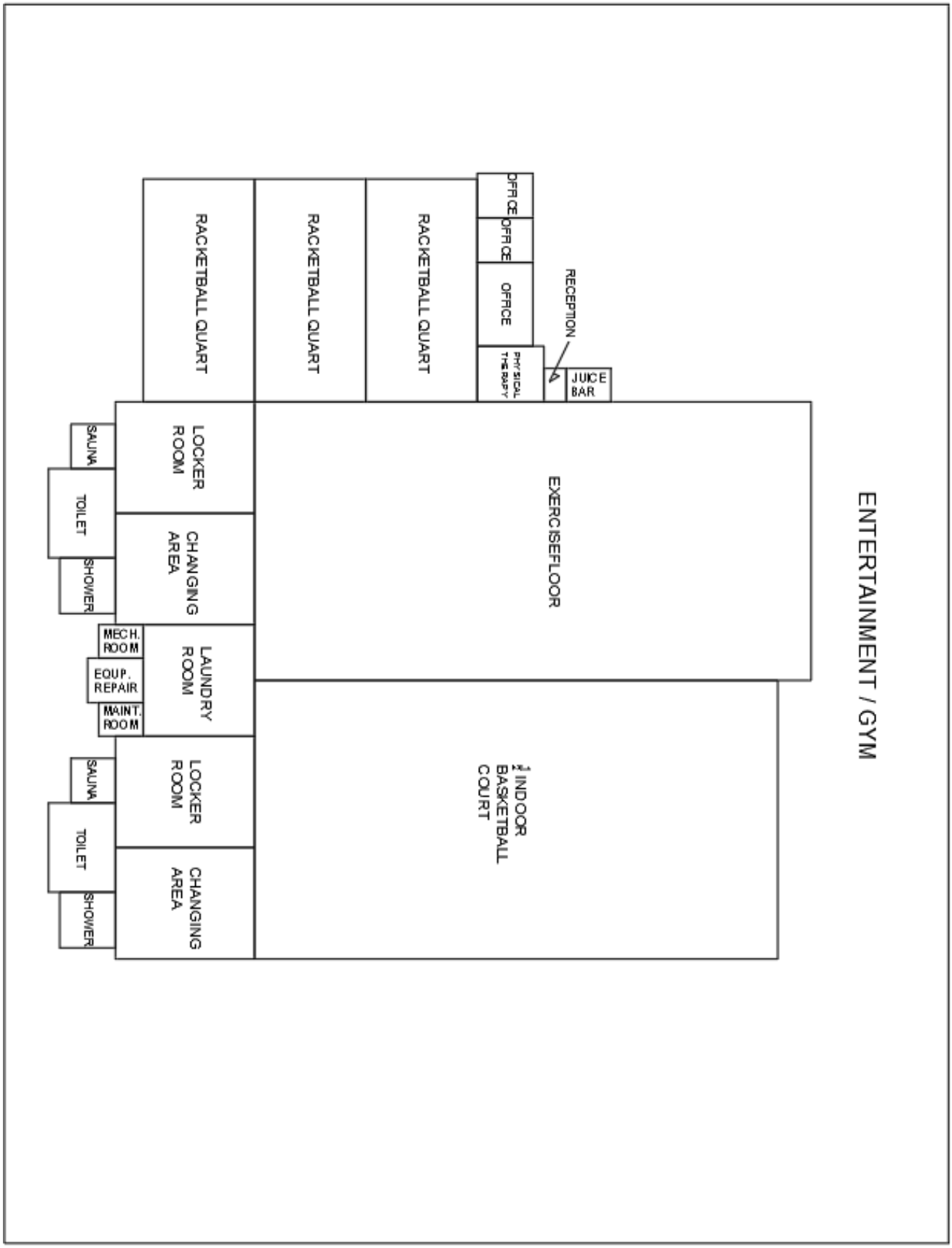



MAKER SPACE
STORAGE
STORAGE
WORKSHOP
TOOL RENTAL
EDUCATION / INSTRUCTOR SPACE
FIRST-AID
DEMONSTRATION SPACE
OFFICE

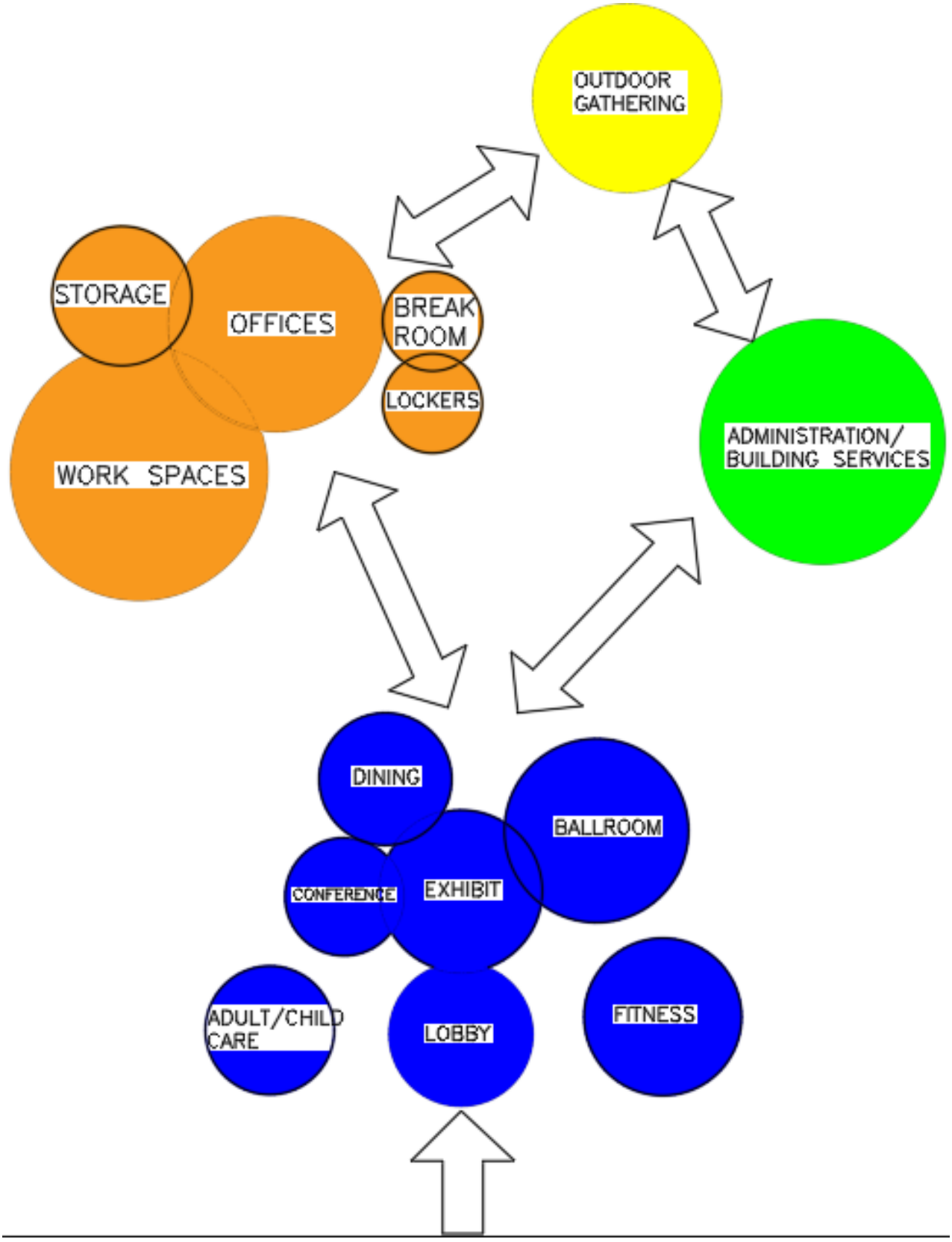

DINING CAFETERIA
DINING AREA
KITCHEN
WASTE DESPOSALE
SERVING AREA


MULTI-PURPOSE ROOM
RECREATION ROOM
TOILETS
TOILETS
RECEPTION
OFFICE
OFFICE
TICKET SALES
OPEN SPACE
STORAGE
SCREEN / STAGE


CHILD / ADULT CARE CENTER
CHILD DAY CARE
CHILD DAY CARE
STORAGE
CLASS ROOM
TOILETS
TOILETS
CLASS ROOM
COMMON ROOMS
STAFF ROOMS
OFFICE
OFFICE
ADULT DAY CARE
ADULT DAY CARE


ENTERTAINMENT / GYM
RACKETBALL QUART
RACKETBALL QUART
RACKETBALL QUART
OFFICE
OFFICE
OFFICE
PHYSICAL THERAPY
RECEPTION
JUICE BAR
EXERCISEFLOOR
1/2 INDOOR BASKETBALL COURT
LOCKER ROOM
CHANGING AREA
LAUNDRY ROOM
LOCKER ROOM
CHANGING AREA
SAUNA
TOILET
SHOWER
MECH. ROOM
EQUP. REPAIR
MAINT. ROOM
SAUNA
TOILET
SHOWER

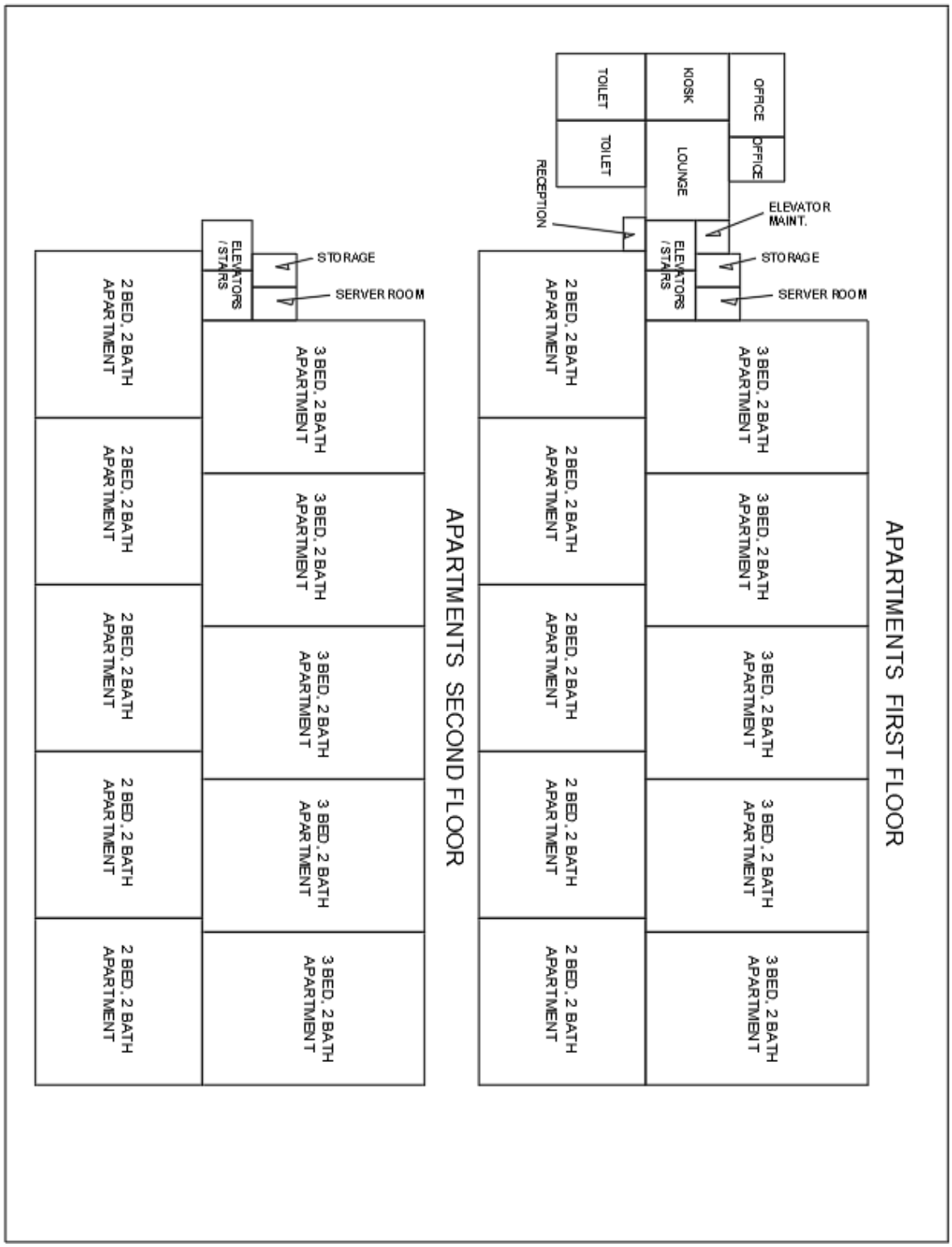
Spacial Interaction Diagram



Dwelling Units

The dwelling space on this project ties in with the history of Levittown. The town was originally developed for Veterans returning from service who required a place to live. Additionally, through government aid, housing was offered at a fraction of the cost for Veterans. Currently today, a common need among Veterans is a quality place to live and start a family at a fraction of the rental costs.
That it is why it is important for us to incorporate the same principals within our project. The dwelling space will also be beneficial because it will help decrease the amount of homelessness among veterans. The goal for the dwelling space is to have a minimum of 20 dwelling units: 10 units of single bedroom and 10 units of 2-bedroom apartments. All dwellings will be designed in accordance with specifications and standards.

The figures below represent proposed space diagrams for the Dwelling Units



Support Facility

It would greatly benefit the project to have Veterans Support Services within the community. Through research, we have determined that counseling services is one of the most frequently requested need.

Support Services Include;

- Counseling Services
- Mental Health
- Family/Marriage
- Housing, Educational, Work, Financial, General
- Physical Therapy
- Veterans Honor Society

Veteran Counseling Services

These services would help reintegrate Veterans back into normal life, and it would complement the idea of having a business incubator within the community. The counseling services would help with family life, becoming more financially stable, and guiding Veterans towards an educated within their desired fields. Among these different services are a few common areas that could be shared between them, such as Library, Conference/Group meeting rooms, Staff break room, first aid station, Computer lab, and Administration offices. For this space on the project, the element of light is important due to its relationship with emotion.
The mental health service is to help Veterans with issues such as Post Traumatic Stress Disorder (PTSD), depression, or behavioral problems. These services, when properly implemented have been found to greatly help Veterans to cope with their issues. To make patients more comfortable, the facilities should be a home like environment rather than an institutional one. For a better environment, offices should all have at least one window, some plants, and use light pastel colors.

Veterans must leave their friends and family when they go off to serve our country. During this time many become emotionally hardened, and upon returning they have trouble reconnecting with their friends and loved ones. A family counseling service would help Veterans reintegrate back into their normal lives.

The crisis center is mainly a call in service for Veterans dealing with an immediate problem. In a case like PTSD, Veterans deal with anxiety issues, flash backs, and depression. Having someone they can contact during an episode would be greatly beneficial for them. This type of service would probably be best served with volunteer Veterans who can sympathize with the Veteran using the service. There is a potential for walk-ins to seek immediate help as well.

After returning from service many veterans require physical therapy. This space can be shared with the personal fitness locations.

The conference room and group meeting rooms are multi-purpose rooms that can be used for group therapy, conferences, or social event for the Veterans Honor Society (VHS). The use of movable partitions would also allow for smaller group meeting rooms.

These services are for helping Veterans with other various services they may need. The facilities are made of simple offices to efficiently help Veterans with Housing, Education, Work, Financial, and General forms (H.E.W.F.G.).

Veterans Honor Society (VHS) is a place where a community group can get together and develop ways to honor veterans within the community. This is not limited to but could include social events, raising awareness about veterans, or organizing charity events.

Administration offices will be required when offering various forms of support. It would be beneficial to have someone for the up-keep and coordination of all the services. An administrative office would do just that, they could also help change or expand departments based on needs and use. This would help the department change with the times to hopefully keep it going long into the future.

Library 'A' would be a small library used for the H.E.W.F.G. services as well as the VHS. This will generally be a good quiet place for people to come and read, do research, or reflect on things.

A staff break room would be a place for the staff to take a break and get something to eat. This is essential for a well-functioning staff.

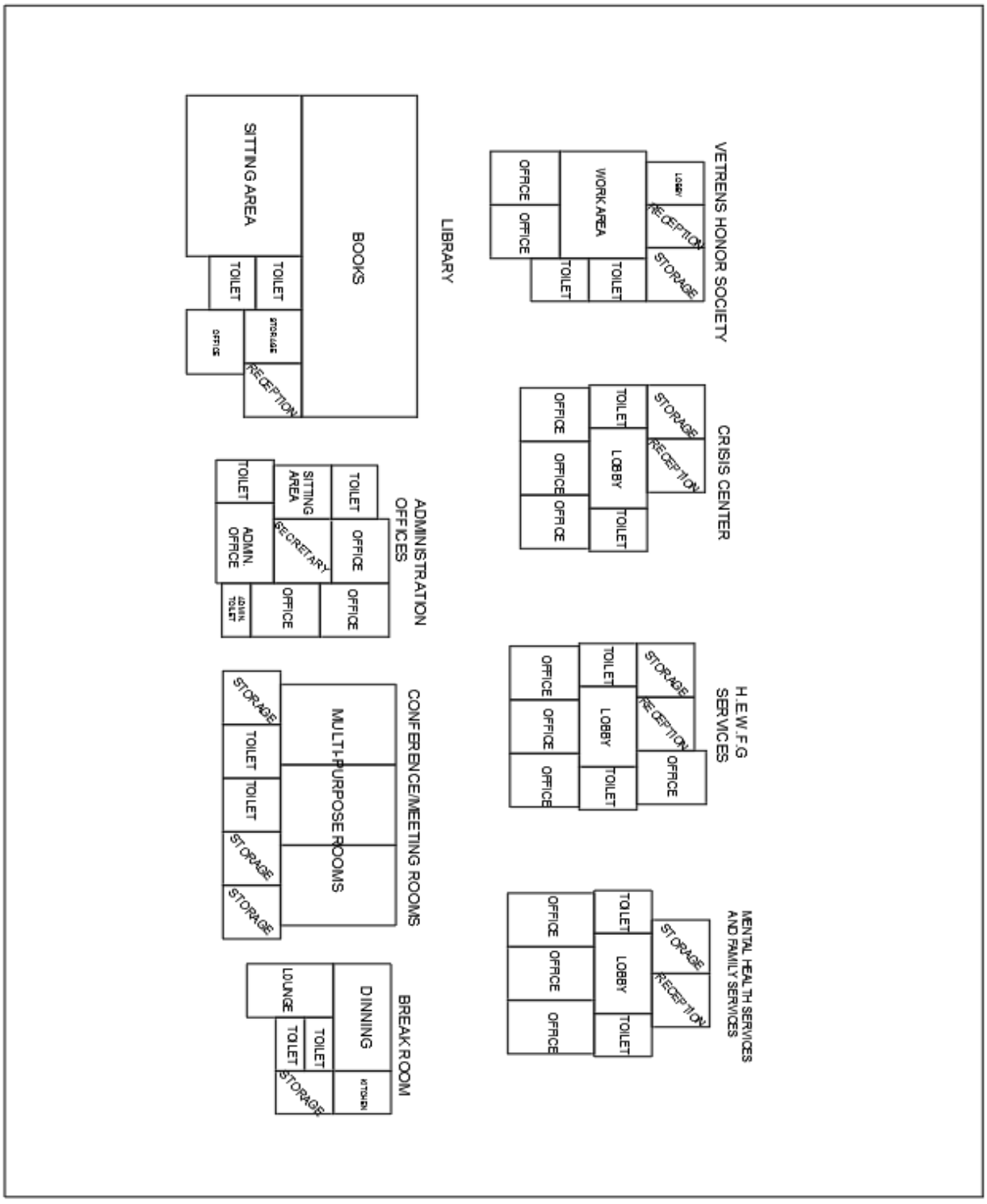
A first aid station would be used for Veterans with medical issues. Having a proper first-aid station would greatly benefit first responders if something should occur. Also for general safety and injuries (cuts, scrapes, bump on the head) it would be good to have a station on hand.

A computer Lab 'A' computer lab would be a good education/work resource, as well as a source of entertainment for those who don't have the funds to purchase their own computers.

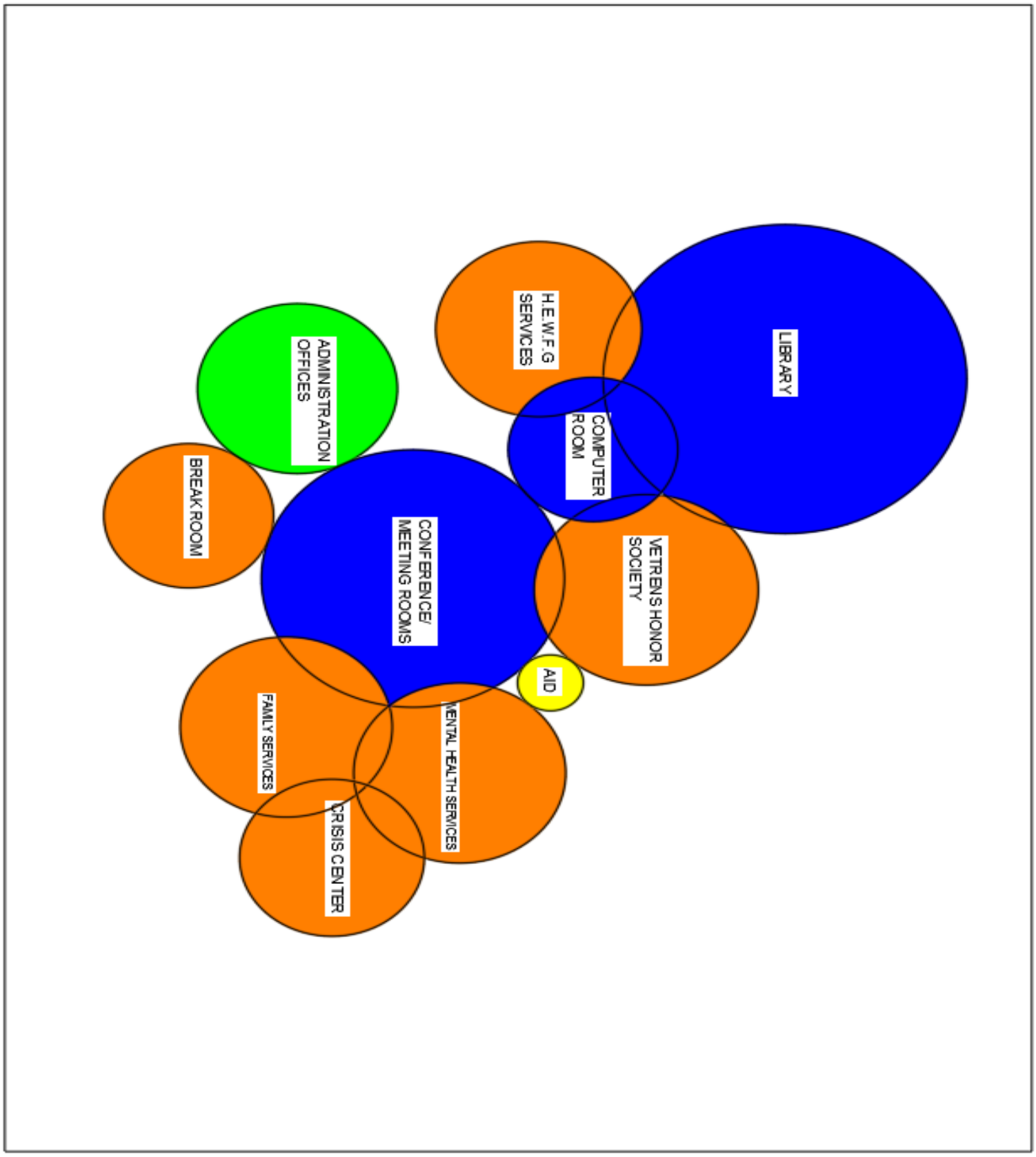
There are potential Issues to consider during construction, such as fire safety and ADA requirements. The recommended construction type for this project is 1A which is explained in the building code section. The ADA has its own set of requirement for construction, as there are many disabled Veterans this will be a big factor in the design. Included in the reference section is the web page for the ADA Construction Guide.

Spatial Relationships

Spatial relationships of the different services could benefit the flow from one to the other. This would make them better equipped to meet the needs of Veterans. Below are some scaled rooms to get an idea on the size of the rooms and possible relationships to one another. Below is a preliminary layout for the interactions of all the components of the project.



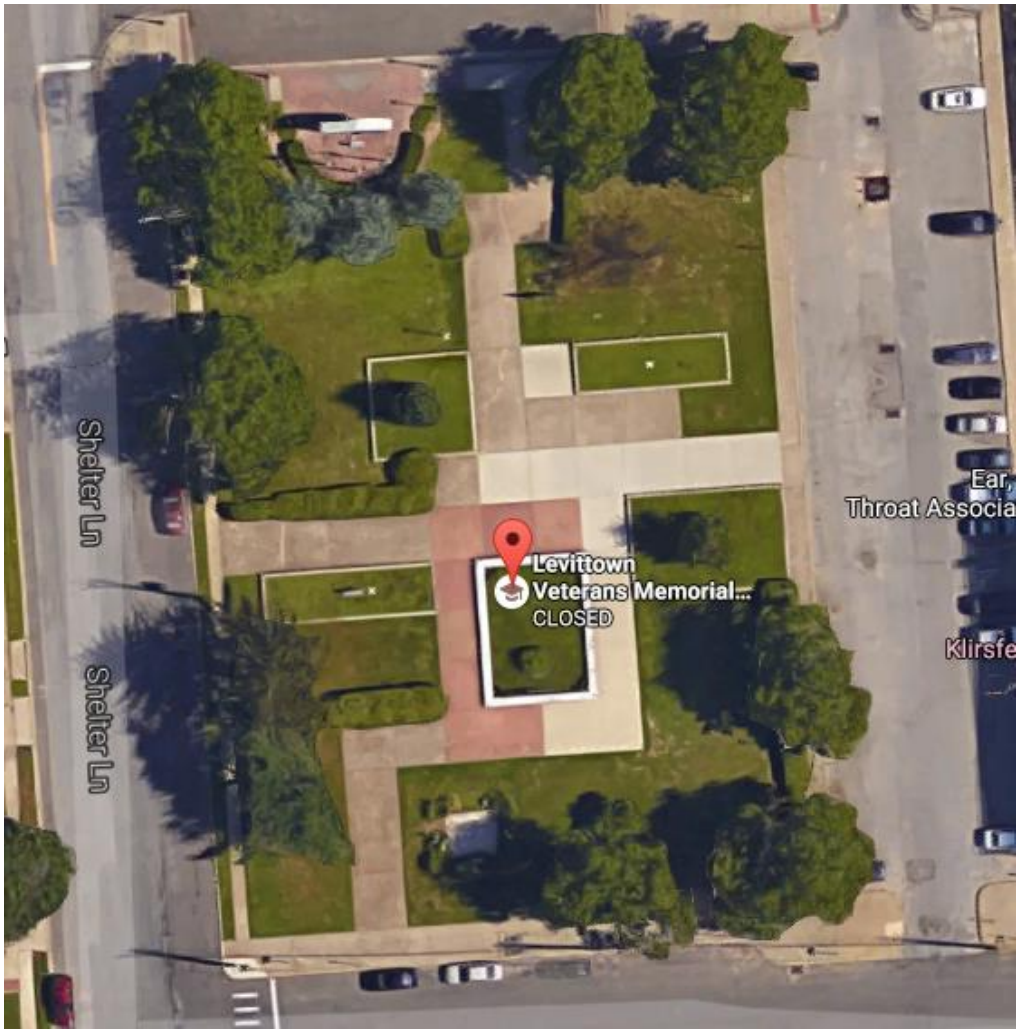
Spacial interaction Diagram



Memorial Space

A key component of the project is a memorial park to pay tribute to the men and women who served our country to protect our freedom. The park will serve to give back to the Veterans for their service. Additionally the park offers a relaxing space where Veterans can sit and relax. The memorial park would also create a space for public gatherings, which would result in social support. Within the park, there will be several memorial structures.

The figures below displays the memorial park that will be located on the project site



The figure below is an elevation view of the memorial monument that will be constructed on site

End of Section

Section E - Project Data Space Summary and Construction

Project Space Data

Incubator

Occupancy	Space	Dimension	Total SF	# of spaces	# of Occ.	Construction Type
Main Spaces	Main lobby space	15 x 25'	375			Type III-A
	Elevator / stair space	9' x 9'	81	2		Type III-A
	Elevator Maintenance	6' x 6'	36			Type III-A
	Lounge space	15' x 18'	270			Type III-A
	Office	10' x 8'	80	10		Type III-A
	Administration / Lrg Office	10' x 15'	150	10		Type III-A
	Printing labs	15' x 25'	375			Type III-A
	Conference rm	15' x 25'	375			Type III-A
	Reception area	6' x 4'	24			Type III-A
	Informal dining space	10' x 20'	120			Type III-A
	Work Space	15' x 25'	375	10		Type III-A
	Mechanical rm	6' x 8'	48			Type III-A
	Network infrastructure	6' x 8'	48			Type III-A
	Storage	6' x 8'	48	4		Type III-A
	Outdoor gathering	20' x 40'	800			Type III-A
	Café / internet bar	15' x 18'	270			Type III-A
	Dining cafeteria	40' x 50'	2000			Type III-A
	Toilets	12' x 16'	192	2		Type III-A
	Employee Room	15' x 10'	150			Type III-A
	Computer lab	25' x 40'	1000			Type III-A
	Recreational space	25' x 40'	1000			Type III-A
		TOTAL SF	**13679**		**137**	

Occupancy	Space	Dimension	Total SF	# of spaces	# of Occ.	Construction Type
Entertainment:	Locker room (70 lockers)	20' x 25'	500	2		Type III-A
Personal Fitness / Gym	Shower space (4 Showers)	10' x 10'	100	2		Type III-A
	Dressing space	20' x 25'	500	2		Type III-A
	Toilet space	12' x 16'	192	2		Type III-A
	Suana	8' x 8'	48	2		Type III-A
	Juice bar	6' x 8'	48			Type III-A
	Physical therapy	10' x 12'	120	2		Type III-A
	Exersize floor	50' x 100'	5000			Type III-A
	Recption area	6' x 4'	24			Type III-A
	Mechanical rm	6' x 8'	48			Type III-A
	Equipment repair rm	10' x 8'	80			Type III-A
	Maintenance rm	6' x 8'	48			Type III-A
	Laundry rm	20' x 20'	400			Type III-A
	Racket ball quart	20' x 40'	800	3		Type III-A
	1/2 Indoor basketball Court	94' x 50'	4700			Type III-A
	Administration office	10' x 15'	150			Type III-A
	Office	10' x 8'	80	2		Type III-A
		TOTAL SF	**15978**		**159**	

Occupancy	Space	Dimension	Total SF	# of spaces	# of Occ.	Construction Type
Care Center	Child Day Care	60' x 50'	3000	2		Type III-A
	Adult day car	60' x 50'	3000	2		Type III-A
	Toilets	12' x 16'	192	2		Type III-A
	Office	10' x 8'	80			Type III-A
	Storage	6' x 8'	48	2		Type III-A
	Class rm space	12' x 16'	192	2		Type III-A
	Staff / parent area	6' x 7'	42	2		Type III-A
	Common space	6' x 8'	48	2		Type III-A
	Administration / Lrg Office	10' x 15'	150			Type III-A
		TOTAL SF	**13274**		**133**	
Occupancy	Space	Dimension	Total SF	# of spaces	# of Occ.	Construction Type
Multi-Purpose RM / Ball rm	Open space fit for non fixed seating max 500	100' x 100'	10,000			Type III-A
	main screen space / stage	25' x 50'	1250			Type III-A
	Recreation Room	24' x 40'	960			Type III-A
	Toilets	12' x 16'	192	2		Type III-A
	Receptional area	6' x 4'	24			Type III-A
	Ticket sales area	6' x 4'	24			Type III-A
	Storage	6' x 8'	48			Type III-A
	Office	10' x 8'	80			Type III-A
	Administration office	10' x 15'	150			Type III-A
		TOTAL SF	**12920**		660	

Occupancy	Space	Dimension	Total SF	# of spaces	# of Occ.	Construction Type
Maker Space	Education / Instructor Space	35' x 40'	1024			Type III-A
	Demonstration Space	8' x 8'	64			Type III-A
	Workshop Space	35' x 40'	1400			Type III-A
	Large Stoarge Space -materia	10' x 12'	120			Type III-A
	Large Stoarge Space - tool	10' x 12'	120			Type III-A
	First Aid Station	4' x 5'	20			Type III-A
	Office	10' x 8'	80			Type III-A
	Tool rental	15' x 40'	600			Type III-A
		TOTAL SF	**3548**		**36**	
Occupancy	Space	Dimension	Total SF	# of spaces	# of Occ.	Construction Type
Dining Cafeteria	Kitchen space	25' x 25'	625			Type III-A
	Serving space	4' x 12'	48			Type III-A
	Waste dep./ remv space	4' x 6'	24			Type III-A
	Dining space	40' x 50'	2000			Type III-A
		TOTAL SF	**2697**			

Support Facility

Occupancy	Space	Dimension	Total SF	# of spaces	# of Occ.	Construction Type
Support Facility	Human resources	10' x 12'	120	4		Type III-A
	Library	40' x 30'	1200			Type III-A
	Information center	15' x 25'	375			Type III-A
	Reception area	6' x 4'	24			Type III-A
	Waiting rm	8' x 10'	80			Type III-A
	Consling rm	10' x 12'	120	6		Type III-A
	Group meeting rm	14' x 16'	224	4		Type III-A
	Toilets	12' x 16'	192			Type III-A
	Storage	6' x 8'	48			Type III-A
	Mechanical rm	6' x 8'	48			Type III-A
	Offices	10' x 8'	80	10		Type III-A
	Administration	10' x 15'	150	4		Type III-A
	Medical storage	6' x 8'	48			Type III-A
	Employee break rm	12' x 16'	192			Type III-A
		TOTAL SF	**18000**		**99**	

Dwellings

Apartments	2 bedrm apt. 2 bath		900	10		Type V-A
	3 bedrm apt. 2 bath		1100	10		Type V-A
	Living space	Included				Type V-A
	Work space	Included				Type V-A
	Dinnig space	Included				Type V-A
	Sleeping space	Included				Type V-A
	Entertainment space	Included				Type V-A
	Toilets	12' x 16'	192			Type V-A
	Storage	6' x 8'	48			Type V-A
	Reception area	6' x 4'	24			Type V-A
	Office	10' x 8'	80			Type V-A
	Administration	10' x 15'	150			Type V-A
	Kiosk	15' x 12'	180			Type V-A
	Lounge	15' x 18'	270			Type V-A
	Network server rm	6' x 8'	48			Type V-A
		TOTAL SF	22992			

Memorial

Park	Park & Relaxing Space		65,000			

Occupancy Functions, Load Factors and Number of Occupants

Occupancy Data			
SPACE	Total Square Feet	Occupancy Factor	Occupants
Incubator Main Space	13,679	100 Gross	137
Gym/Fitness	15,898	100 Gross	159
Care Center	13,274	100 Gross	133
Multipurpose / Ball Room	9,900	15 Net	660
Maker Space	3,548	100 Gross	36
Cafeteria	1,724	15 Net	115
Support Facilities	9,820	100 Gross	99
Dwellings	22,992	200 Gross	115

Project Construction Cost Data

Space	Occupancy Type	Type Construction	Gross SF	Net SF	Cost / SF	L.F. 28%	Project Total	Occupant Load
INCUBATOR	B	Type III-A	50,000	35,000	$ 194.00	12.8 M	16.4 M	580
SUPPORT FACILITY	M	Tyype III-A	18,000	10800	$ 192.00	3.5 M	4.4 M	99
CONF. EXHIBIT	A-3	Type III-A	13,000	11,700	$ 304.00	3.9 M	5 M	660
DWELLING	R-2	Type V-A	23,000	13,650	$ 159.00	3.7 M	4.7 M	115
SITE			104,000	71,150			30.5 M	1,454

NOTE: All Estimated Quantities are Refererenced from The International Code Council Building Valuation Data - AUG 16'. All Construction Brick on Stud Frame.
Hicksville, Long Island NY Location Factor - 28% increase.

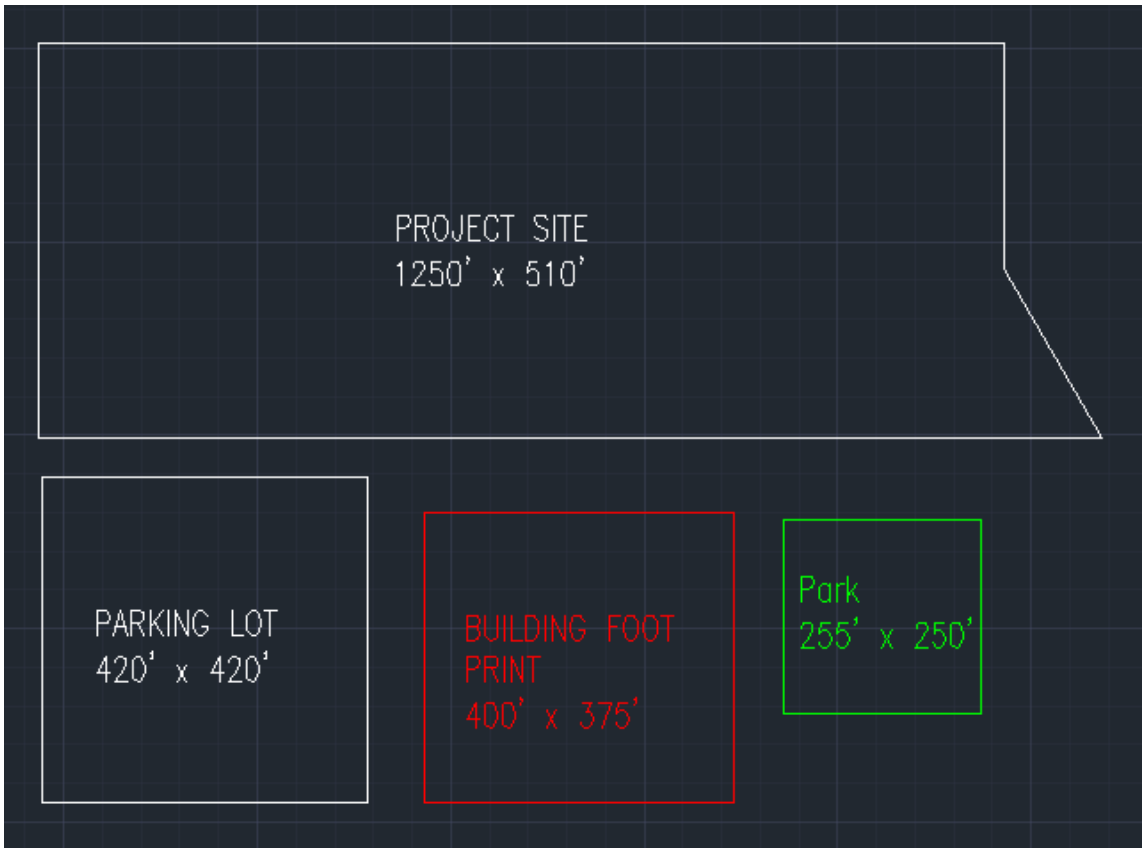
Square Foot Construction Costs [a, b, c, d]

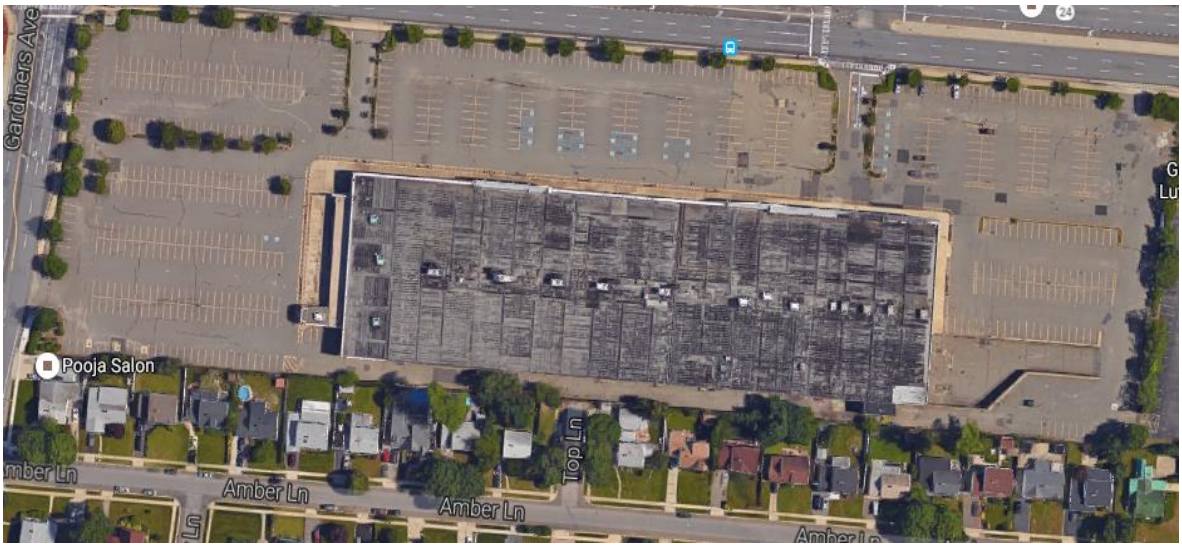
Group (2015 International Building Code)	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
A-1 Assembly, theaters, with stage	226.92	219.10	213.80	205.04	192.95	187.36	198.56	176.18	169.73
A-1 Assembly, theaters, without stage	207.97	200.15	194.85	186.09	174.15	168.55	179.61	157.38	150.92
A-2 Assembly, nightclubs	177.49	172.34	167.98	161.18	151.95	147.76	155.52	137.58	132.93
A-2 Assembly, restaurants, bars, banquet halls	176.49	171.34	165.98	160.18	149.95	146.76	154.52	135.58	131.93
A-3 Assembly, churches	209.94	202.13	196.83	188.07	176.32	170.72	181.59	159.54	153.09
A-3 Assembly, general, community halls, libraries, museums	175.12	167.31	161.01	153.25	140.50	135.90	146.77	123.72	118.27
A-4 Assembly, arenas	206.97	199.15	192.85	185.09	172.15	167.55	178.61	155.38	149.92
B Business	181.12	174.43	168.67	160.26	146.18	140.70	153.97	128.34	122.72
E Educational	192.29	185.47	180.15	172.12	160.72	152.55	166.18	140.46	136.18
F-1 Factory and industrial, moderate hazard	108.53	103.54	97.56	93.81	84.17	80.36	89.86	70.57	66.08
F-2 Factory and industrial, low hazard	107.53	102.54	97.56	92.81	84.17	79.36	88.86	70.57	65.08
H-1 High Hazard, explosives	101.60	96.60	91.63	86.88	78.44	73.62	82.93	64.84	N.P.
H234 High Hazard	101.60	96.60	91.63	86.88	78.44	73.62	82.93	64.84	59.35
H-5 HPM	181.12	174.43	168.67	160.26	146.18	140.70	153.97	128.34	122.72
I-1 Institutional, supervised environment	180.72	174.14	169.28	161.12	149.06	145.04	161.12	133.69	129.43
I-2 Institutional, hospitals	304.80	298.11	292.36	283.95	268.92	N.P.	277.65	251.09	N.P.
I-2 Institutional, nursing homes	211.20	204.51	198.75	190.34	177.26	N.P.	184.05	159.42	N.P.
I-3 Institutional, restrained	206.08	199.38	193.63	185.22	172.62	166.14	178.93	154.78	147.16
I-4 Institutional, day care facilities	180.72	174.14	169.28	161.12	149.06	145.04	161.12	133.69	129.43
M Mercantile	132.23	127.09	121.73	115.92	106.18	102.99	110.26	91.82	88.16
R-1 Residential, hotels	182.28	175.70	170.83	162.68	150.87	146.84	162.68	135.49	131.23
R-2 Residential, multiple family	152.86	146.27	141.41	133.25	122.04	118.01	133.25	106.66	102.41
R-3 Residential, one- and two-family	143.93	139.97	136.51	132.83	127.95	124.61	130.57	119.73	112.65
R-4 Residential, care/assisted living facilities	180.72	174.14	169.28	161.12	149.06	145.04	161.12	133.69	129.43
S-1 Storage, moderate hazard	100.60	95.60	89.63	85.88	76.44	72.62	81.93	62.84	58.35
S-2 Storage, low hazard	99.60	94.60	89.63	84.88	76.44	71.62	80.93	62.84	57.35
U Utility, miscellaneous	77.82	73.48	69.04	65.52	59.23	55.31	62.58	46.83	44.63

a. Private Garages use Utility, miscellaneous
b. Unfinished basements (all use group) = $15.00 per sq. ft.
c. For shell only buildings deduct 20 percent
d. N.P. = not permitted

CONTINGENCY FACTORS	Percent
Site Constraints	5-15%
Labor	5-10%
Material	0-10%
Documentation Quality	0-20%
NOTE: All data is based off field estimates provided by applicable Industry Standards and sources. All final calculations may be altered by market demands and contingencies.	

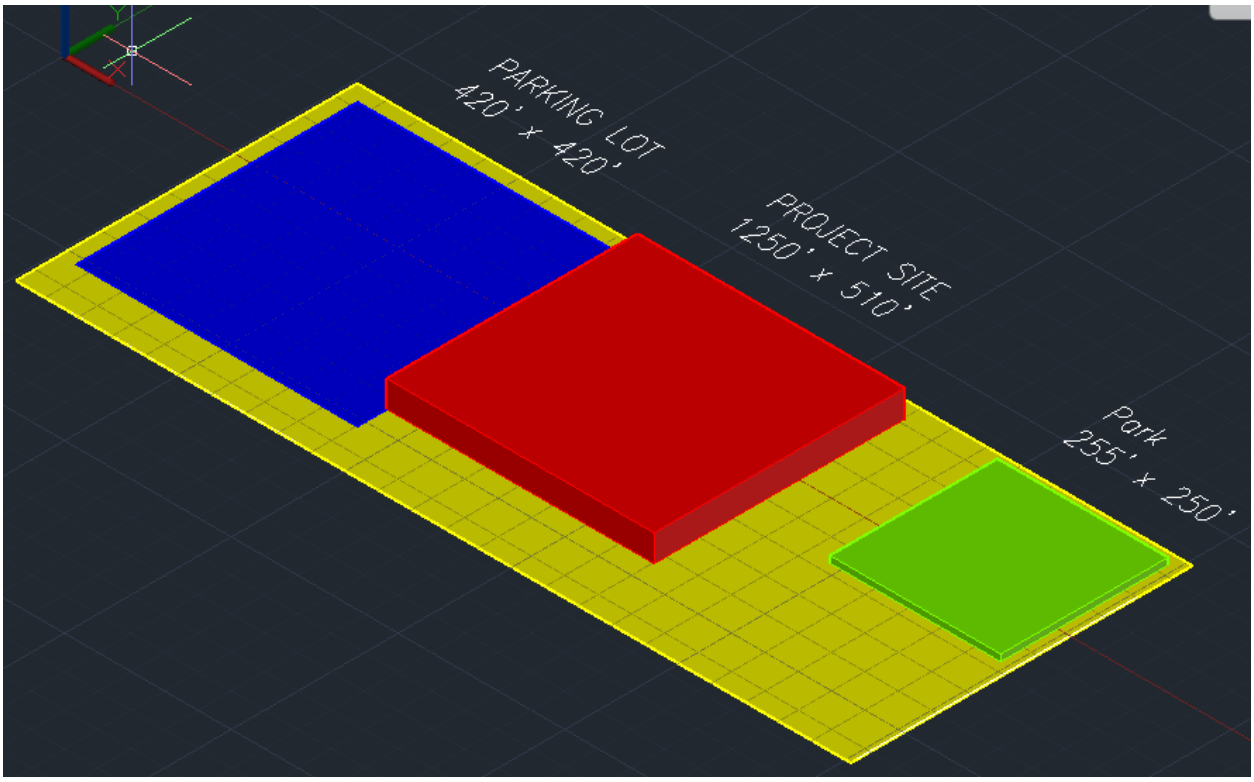
The figure below represents sizes of main space on the project site

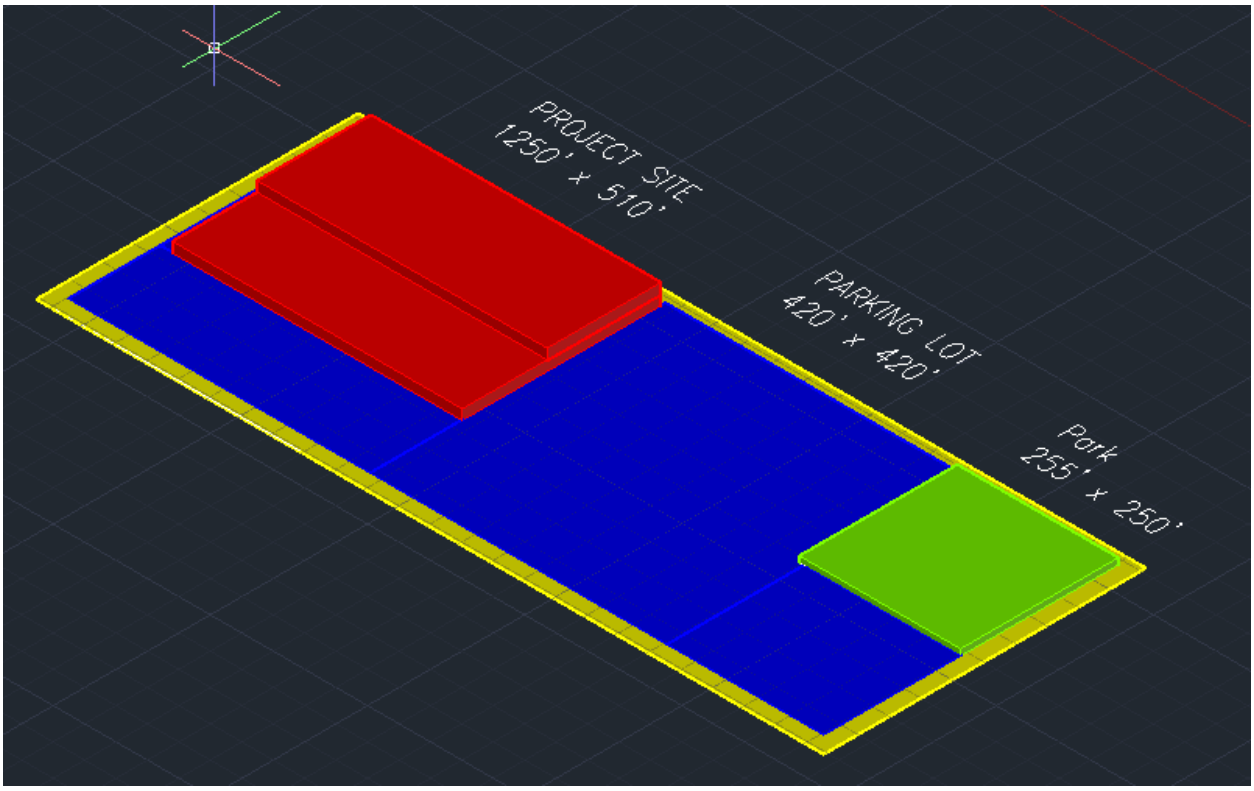


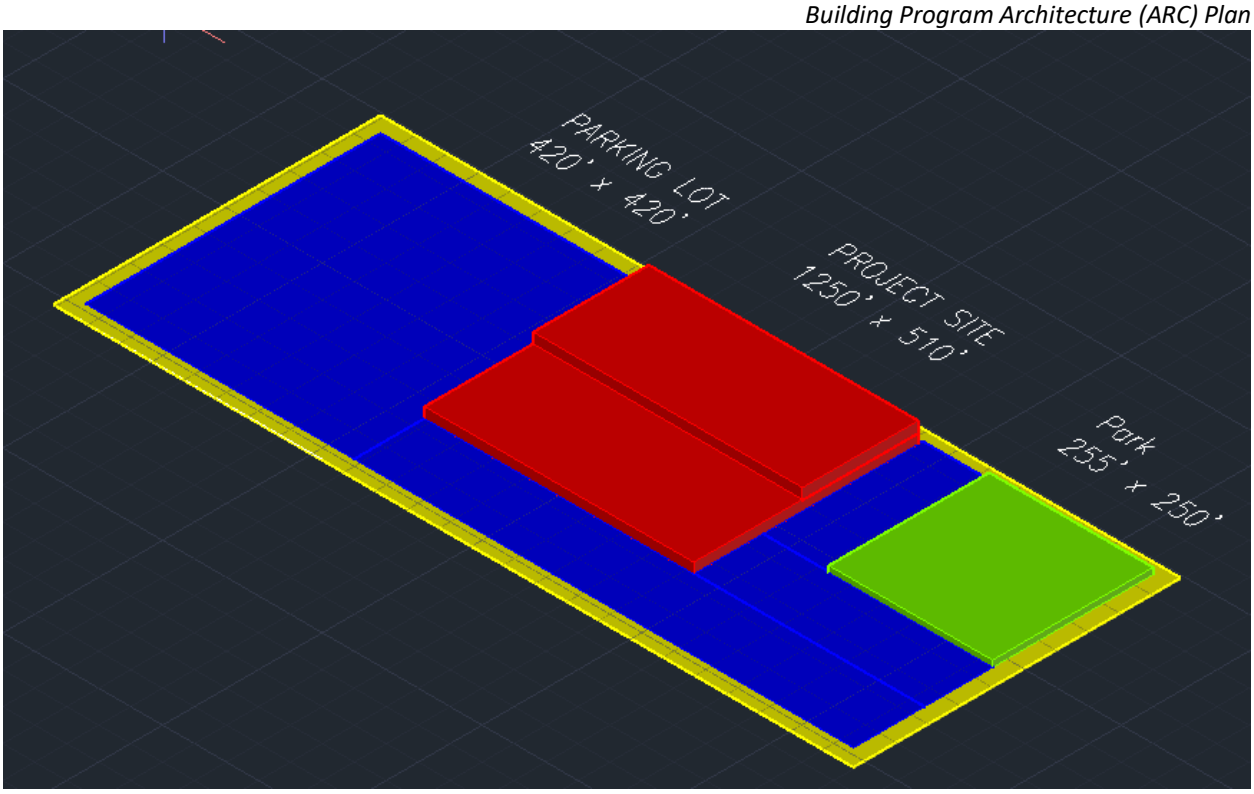


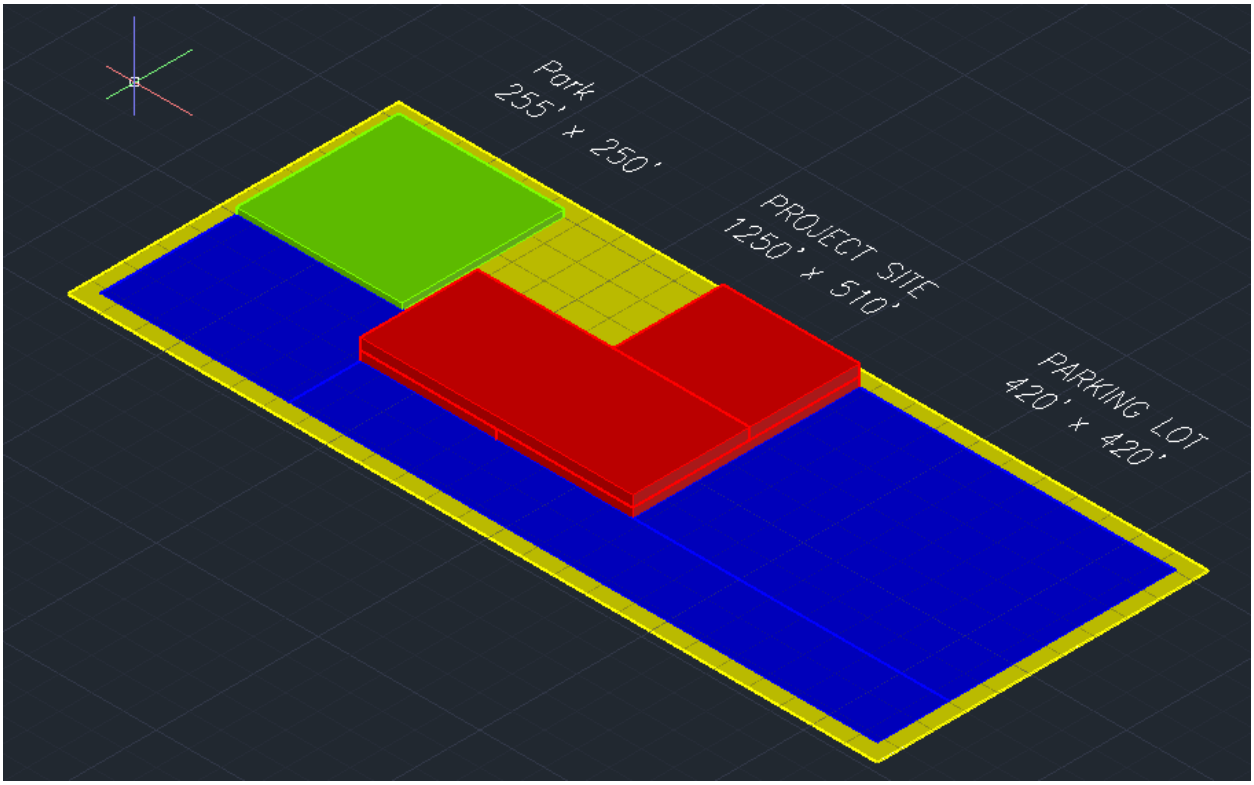
The figures below display typical sizes of each space that will be found in the incubator

Proposed Systems









End of Section

Section F

Proposed Project Visions

Maker Space

Personal Fitness / Physical Therapy

Support Services / Counseling

Exhibit Space / Multi-Purpose Rm

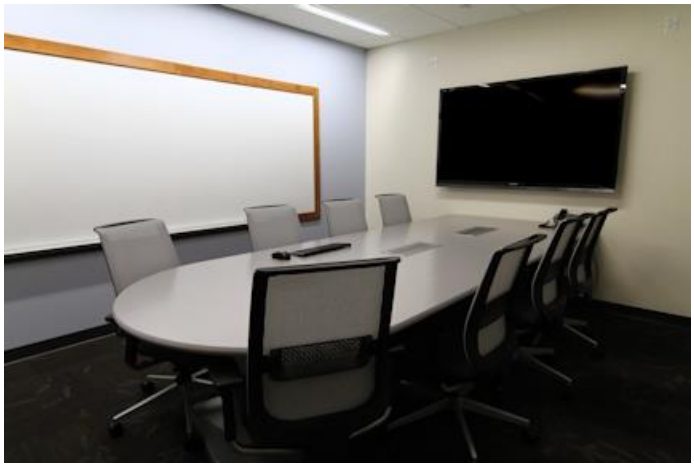
Library

Child Day Care

Lounge Space

Informal Dining Cafeteria

Conference Room



Exterior View of Business Space on Main Floor & Dwellings Above

Interior View of Incubator

End of Section

Section G

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