

Facility Program for:

Point Lookout Library

Point Lookout
Long Beach, NY



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1. Introduction

Project Vision:

Point Lookout on Lido Beach wants to build a library located on the corner of Lido Boulevard and Parkside Road Drive. The library will provide the community with opportunities for personal reading, a learning environment, small meeting places, and a place to relax.

Overview:

Libraries are essential for any community. They share the same cultural values of the city at which they are located. They also provide access to books, computers, media, entertainment, etc. Point lookout is a fairly small community located at the end of lido beach in the town of Hempstead. Everyone in the community shares the same love for the beach and the summer.

Point lookout already has a small library branch of Long Beach which serves the community but it is very small and doesn't offer them the full potential an actual library would.



Goals:

- Make a bigger and better library in point lookout that serves the community with knowledge and entertainment.
- Create a meeting place for the community

2. Programming Issues

Collection Size:

- This branch will house about 12,000 books. The book genres will be spread out throughout many categories such as children, teen, young adult, adult, reference, and more.
- We will have many different sections in our library for the readers to gather and enjoy their favorite books while feeling relaxed.
- Due to the location of our library, patrons can rent their books and take them to the beach during the summer. We will provide a good amount of paperback books for their convince.
- The younger generations are the most technology proficient. Their preferred method of reading books seems to be by digital copy.
- To please this targeted audience, we will have about 20% of our total collection be available through digital. We will also have DVDs and CDs available for rent through hard copy and digital copy.
- If a patron would like to read their book digitally at the library or at home, we are offering a select number of iPads and Kindles to rent. There will be an additional eight computers that will be loaded with all of our digital collections.

Collection	# Volumes	Shelving Type 45" high DF	Shelving Type 66" high DF	Shelving Type 78" high DF	Shelving Type 90" high DF	Space = units x 18 ASF
Easy Readers	240	0.6667	NA	NA	NA	12
Picture Books	144	0.4000	NA	NA	NA	7.2
Juvenile Fiction	200	0.8547	0.5128	0.4274	NA	7.692307692
Juvenile Non-Fiction	120	0.5128	0.3077	0.2564	NA	4.615384615
Reference	0	0.0000	0.0000	0.0000	NA	
Paperbacks	80	0.2778	0.1667	NA	NA	3
Fiction	2520	17.5000	10.5000	8.7500	7.5000	135
Non-Fiction	2400	16.6667	10.0000	8.3333	7.1429	128.5714286
Young Adult	800	5.5556	3.3333	2.7778	2.3810	42.85714286
Reference	680	6.2963	3.7778	3.1481	3.1481	56.66666667
Paperbacks	3200	14.8148	8.8889	7.4074	6.3492	114.2857143
Current Magazines	36	3.0000	2.0000	2.0000	2.0000	36
Bound Periodicals	40	0.3704	0.2222	0.1852	0.1852	3.333333333
DVDs	960	NA	1.1429	1.1429	NA	20.57142857
Audio Books	50	0.3472	0.2083	0.1736	0.1488	3.125
Video Cassettes	50	0.3472	0.2083	0.1736	0.1488	3.125
CDs	200	NA	0.2381	1.1429	NA	20.57142857
Total Space Requirement						598.6148352
Total Collection Size						11720
Online Collection:						
Easy Readers	60					
Picture Books	36					
Juvenile Fiction	50					
Juvenile Non-Fiction	30					
Reference	0					
Paperbacks	20					
Fiction	630					
Non-Fiction	600					
Young Adult	200					
Reference	170					
Paperbacks	800					
Current Magazines	0					
Bound Periodicals	0					
DVDs	240					
Audio Books	50					
Video Cassettes	0					
CDs	204					
Total Online Collection:	3090					

Occupancy:

- Based on our building, it will fall under occupancy group A.
- The library should be able to fit 100 people inside.
- Our multi-purpose room will be able to accommodate:
 - o 50 Adults for Alcohol Anonymous meetings.
 - o 20 Adults for Narcotic Anonymous meetings.
 - o 25 Adults for the Historical Society.
 - o 50 Adults for the Fire Department Auxiliary.
 - o 20 Adults for the Chamber of Commerce Meetings.
 - o 70 Adults for the Community Church Group.
 - o 80 Adults/children for Family Game Night.
 - o 50 Adults/children for the Reading Club.
 - o 20 Children for the Homework and Study hour.
 - o 50 Children for the Non-Profit After School Recreation Program.
 - o 50 Children for the Summer Reading Program.
- Some of these events will take place at the beach one time per week for the months of May-September. For these events, there will be approximately 20-80 patrons attending.

Gathering:

Point Lookout Civic Groups:

AA Group

Narcotic Anonymous

Historical Society

Fire Department Auxiliary

Chamber of Commerce

Community Church Group

List of Clubs to Start:

Family Game Night

Reading Club

Homework/Study Hour

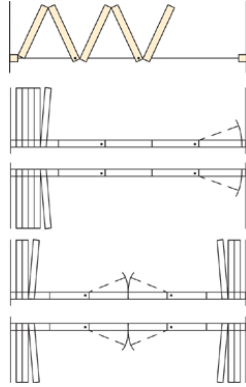
After School Non-Profit Recreation Center Program

Summer Children's Reading Program

Our collection will be housed on moving loaded library shelving units. This relocation service will use specialized pneumatic lift technology that will lift and move the book shelves even if they are full of books. This system uses ecofriendly nitrogen gas to raise and lower the shelving units. Once they are lifted, they can be rolled out of the way to provide more space for gatherings. We will have designated sections for these stacks to be relocated to. They will have a docking station installed into the floor that has a simple lock. This will prevent children from getting injured. The librarian will have the set of keys to unlock the bookshelves.



Civic groups are to be held in the recreation room. One folding partition wall shall be placed on center in the recreation room to divide the space into two. Folding tables and chairs will be stored in the storage room.



3. Research Sources

Presentations

BBS, Architects, Landscape Architects, and Engineers. Roger P Smith discussed the programming and design process in the libraries designed within his firm across Nassau and Suffolk County. He covered spatial planning, circulation, community needs, electronic books vs paper books, gathering places, occupancy, location, budget, site plans, and overall function of a Library.

- Manhasset Public Library

- Connetquot Public Library

- Smithtown Library
 - Commack Branch
 - Kings Park Branch
 - Nesconset Branch

- Peninsula Public Library

Technical Documents and Internet Resources

<http://www.city-data.com/city/Point-Lookout-New-York.html>
<http://continuingeducation.construction.com/article.php?L=314&C=926&P=1>
http://www.toh.li/files/pdfs/bz_rsmappendixA.pdf
http://en.wikipedia.org/wiki/Lido_Beach,_New_York
<http://toh.li/storm-water-management>
<http://ecode360.com/15509744>
http://www.toh.li/files/pdfs/bz_rsmappendixC.pdf
<http://www.city-data.com/city/Lido-Beach-New-York.html>
<http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>
http://pld.dpi.wi.gov/pld_standard
<http://owlsweb.org/l4l/standards>
http://www.dos.ny.gov/dcea/pdf/varianceapp_311.pdf
<http://longislandexpeditors.com/Variances.html>

4. Site Factors

Zoning Issues:

The site is located on two zones. The first 100 feet of the site is located in Business District X and the last 42 are located in Resident District B.

Parking Lot Issues:

Parking requirements

The minimum number of required parking spaces shall be 4.5/1,000 SF of Gross Leasable Area (GLA). Structured parking is permitted as long as no more than 60% of provided parking is proposed as structured parking.

Parking Variance/Appeal

Property:

Town of Hempstead

Nassau County

Address: 26 Lido Blvd. Point Lookout, NY 11569

Tax Map: Section 61 Block 002 Lot 7

Height of Building: 2 Stories

Gross Area: 9914 Sq. Ft.

Construction type 2-A

Occupancy: Other, Library

Occupancy Classification: Building, Fire, Plumbing, Mechanical, Fuel Gas or Property

Maintenance Code of New York State: Assembly A-3

Code Section: Chapter 202, Article 1.

Topic: Parking

Relief Sought: Remove parking requirements for the site on 26 Lido Blvd. Point Lookout, NY 11569.

Reason for Variance/Appeal: Point Lookout is a small community. The library is within walking distance of most of these homes. There is also a bus stop directly in front of the building. Bicycle racks will be installed outside the library entrance. Parking will be provided for handicap/disabled individuals. The business section of the lot will be used for staff parking. There will not be enough space by code to provide parking for all the patrons using the library.

Handicap Spots

Locations

Handicapped-accessible parking locations should be the locations closest to the building and should be on level ground. This aids access by individuals using a walker or wheelchair who may have trouble getting into and out of a vehicle and entering the building. There must be a sign placed at the front of the parking space on a pole that is elevated high enough so it will not be blocked by a vehicle parked in the space.

Nearby Aisles

Handicapped parking spaces must be placed next to an access aisle that is at least 5 feet wide to allow for the larger spaces needed by wheelchair-bound individuals. There must also be a crosswalk or other handicapped-accessible ramp or method of crossing over to the building from the parking space, according to regulations set by the ADA and cities such as Houston. Van-accessible spaces must also be available for individuals who have mobility vans. If there is only one available space in the parking lot for disabled individuals, the law requires it to be a van-accessible space.

Staff parking

There will be a maximum of 5 people working in the library at any time. To accommodate this there will 5 parking spot for each staff member. The parking code for the town of Hempstead requires each staff parking spot be 8'6" by 18'

Each parking space shall be a minimum of nine feet in width and 18 feet in depth. Employee parking spaces, which are intended for long-term use with low turnover, need be only 8 1/2 feet in width. Employee parking spaces shall not exceed 15% of the total required or provided parking, whichever is less, for retail or service business or other similar types of uses designed to attract the general public. All parking spaces shall be separated by double painted lines in accordance with specifications as approved by the Department of Buildings.

All parking spaces shall be designated at a ninety-degree angle with a twenty-four-foot-wide two-way maneuvering aisle unless a different angle is permitted by the approving authority based upon the unique size and/or shape of the parking facility. In those circumstances where the approving authority does permit parking at an angle other than 90°, circulation in each maneuvering aisle shall be limited to one-way only. The following is a table of minimum parking space and maneuvering aisle dimensions:

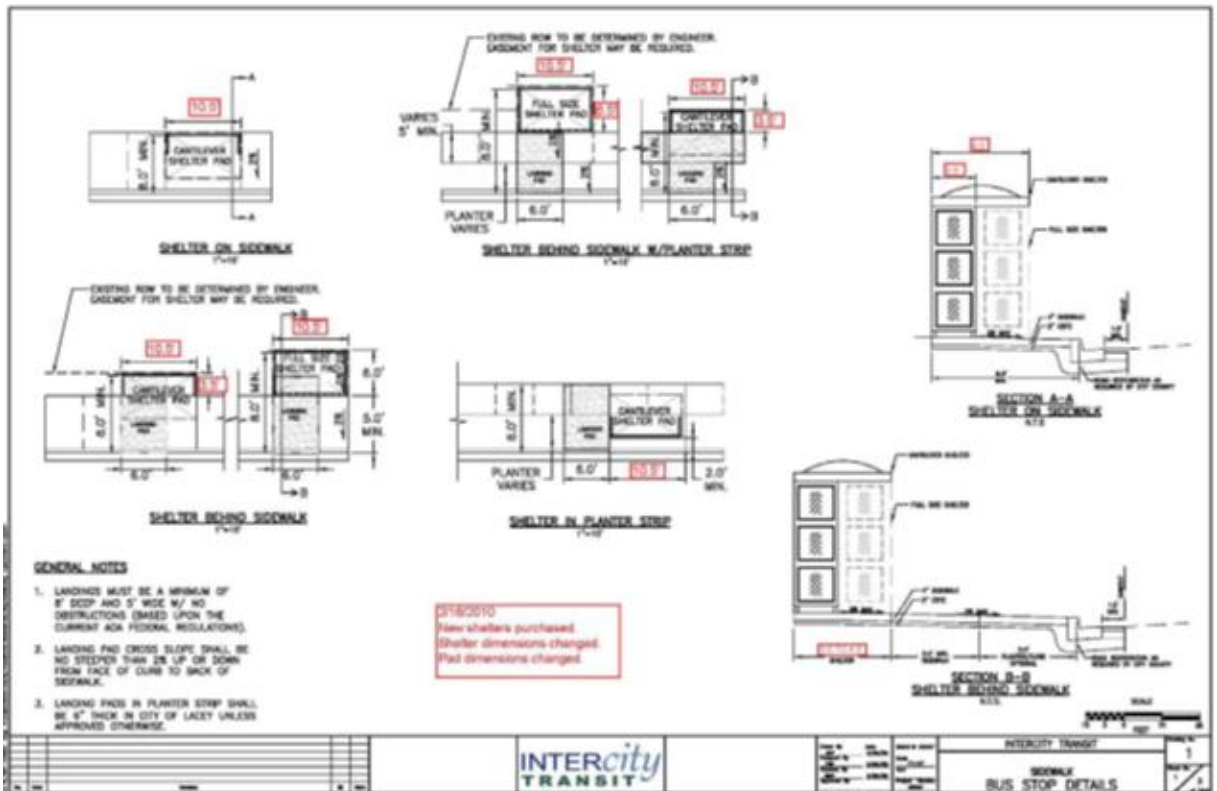
Parking Angle (degrees)	Parking Space Depth to Wall (feet)	Parking Space Depth to Inter-lock (feet)	Maneuvering Aisle Width (feet)	Wall-to-Wall Double Parking Bay Dimension (feet)	Inter-lock to Inter-lock Double Parking Bay Dimension (feet)
90	18	18.0	24.0	60.0	60.0
75	19.5	18.5	21.0	60.0	58.0
60	20.0	17.75	17.5	57.5	53.0
45	19.0	15.75	15.0	53.0	46.5

Bike racks

The community of long beach is close in proximity that a lot of people bike or walk from place to place in town. Bike racks are going to be implemented in the parking lot to accommodate the biking and to encourage greener means of travel

Bus Stop

Must have a minimum of a 6 foot landing pad that connects to the curb.



Loading Dock

The optimal loading dock height is to be at least two feet off the ground due to the general height of a truck bed. The optimal loading dock size is to be 10 feet high by 9 feet wide. This size should accommodate most of the trucks delivering books and other library equipment.

Unfortunately there is not enough room in the building for a separate space for the loading dock. Therefore Nano walls will be used. Nana Walls are custom-made operable glass panel systems that open wide to blur the line between indoors and outdoors. They are easily opened, and the panels stack or stow away out of sight to open the room to the outside. When closed, the panels provide a weather-resistant barrier protecting against wind, rain, snow, and cold temperatures. NanaWalls are used in single-family homes, condominiums, multi-family buildings, restaurants, schools, hotels, stadiums, hospitals, and wineries or any location that benefits from a large opening glass wall.

Soil Conditions

The soil found 10 feet down underneath the site, is fine sand, or loamy sand.

Sand, silty sand, clayey sand, silty gravel, and clayey gravel can generally bear 1,500 – 3,000 pounds per square foot.

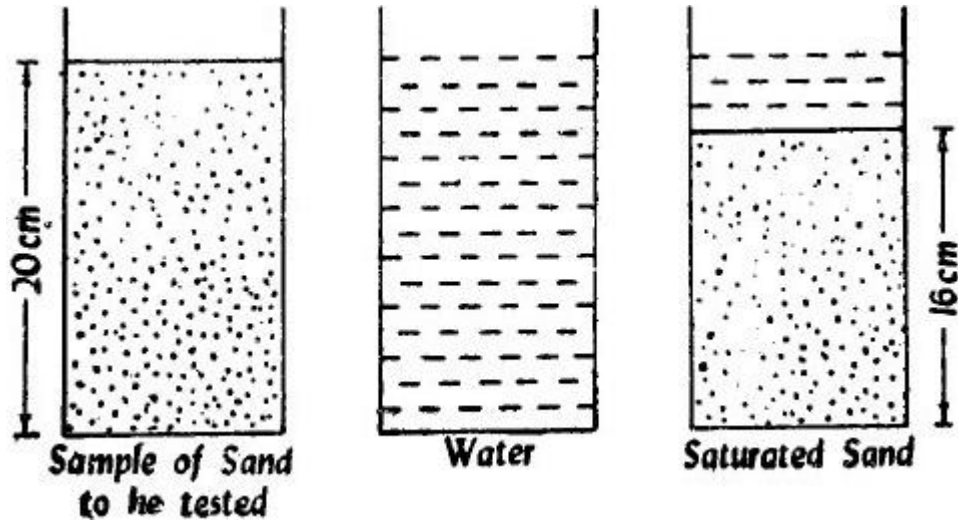
Loam is soil composed mostly of sand and silt, and a smaller amount of clay (about 40%-40%-20% concentration, respectively)

Loamy sand is generally composed of more sand, about 50%-30%-20%

Here is a sieve test for sand

IS Sieve	Percentage passing for			
	Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
10mm	100	100	100	100
4.75mm	90 – 100	90 – 100	90 – 100	90 – 100
2.36mm	60 – 95	75 – 100	85 – 100	95 – 100
1.18 mm	30 – 70	55 – 90	75 – 100	90 – 100
600 micron	15 – 34	35 – 59	60 – 79	80 – 100
300 microns	5 – 20	8 – 30	12 – 40	15 – 50
150 microns	0 – 10	0 – 10	0 – 10	0 – 15

Bulking of sand:



Fine aggregate, when dry or saturated, has almost the same volume but dampness causes increase in volume. In case fine aggregate is damp at the time of proportioning the ingredients for mortar or concrete, its quantity shall be increased suitably to allow for bulking. Table below gives the relation between moisture content and percentage of bulking.

Moisture content (%)	Bulking percentage (by volume)
2	15
3	20
4	25
5	30

Loam-Has a relatively even mixture of sands, silt, and clay. A loam feels somewhat gritty, yet fairly smooth and highly plastic. Squeezed when moist, it will form a cast which can be handled quite freely without breaking and it will not form a ribbon

Sandy Loam-Contains much sand, but has enough silt and clay to make it somewhat sticky. Individual sand grains can be seen readily and felt. Squeezed when dry, it will form a cast which will fall apart and not form a ribbon, but if squeezed when moist, a cast can be formed which will bear careful handling without falling apart

Sandy Loam Soil is considered the ideal soil to build a foundation. It maintains a steady consistency/size when wet or dry.

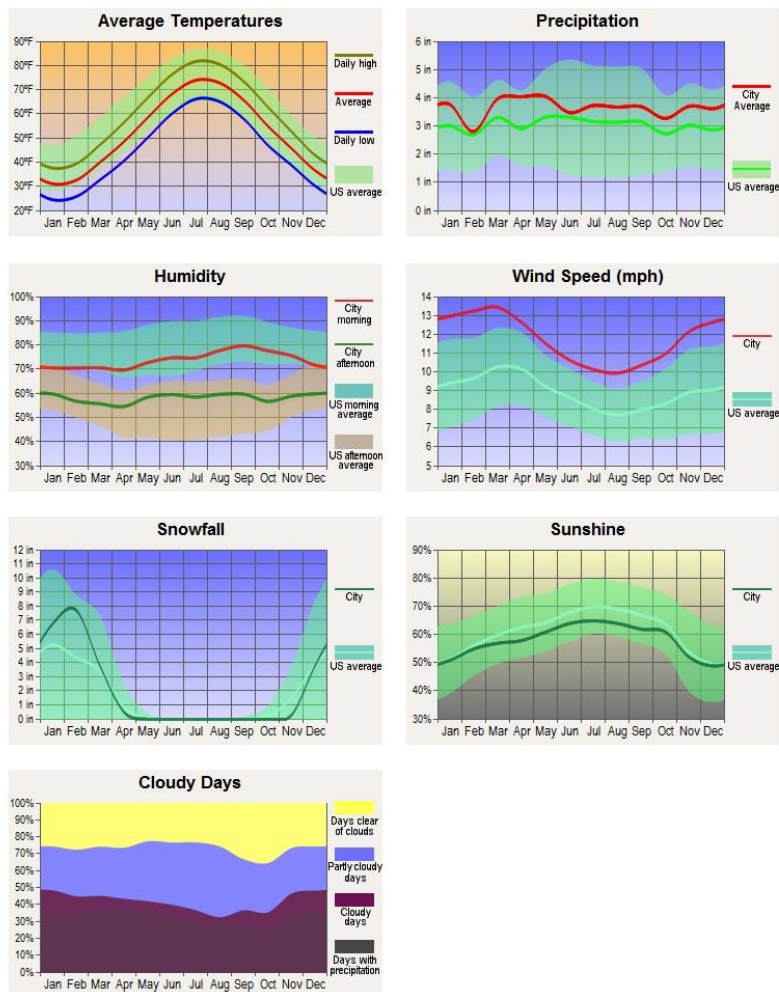
Circulation Issues:

The population of point lookout is 1,219 people as of the 2010 census. About 230 people are under the age of 18. Estimated there are about 1,000 eligible drivers, and about 70% are actual drivers. If 700 people are drivers and pass by at least twice a day going to and from their homes, it is estimated that roughly 2000 cars pass by the site on an average work day.

The site is on a major road especially used during the summer season because there's a marina right next door and a beach entrance and exit about 800 feet down the road.

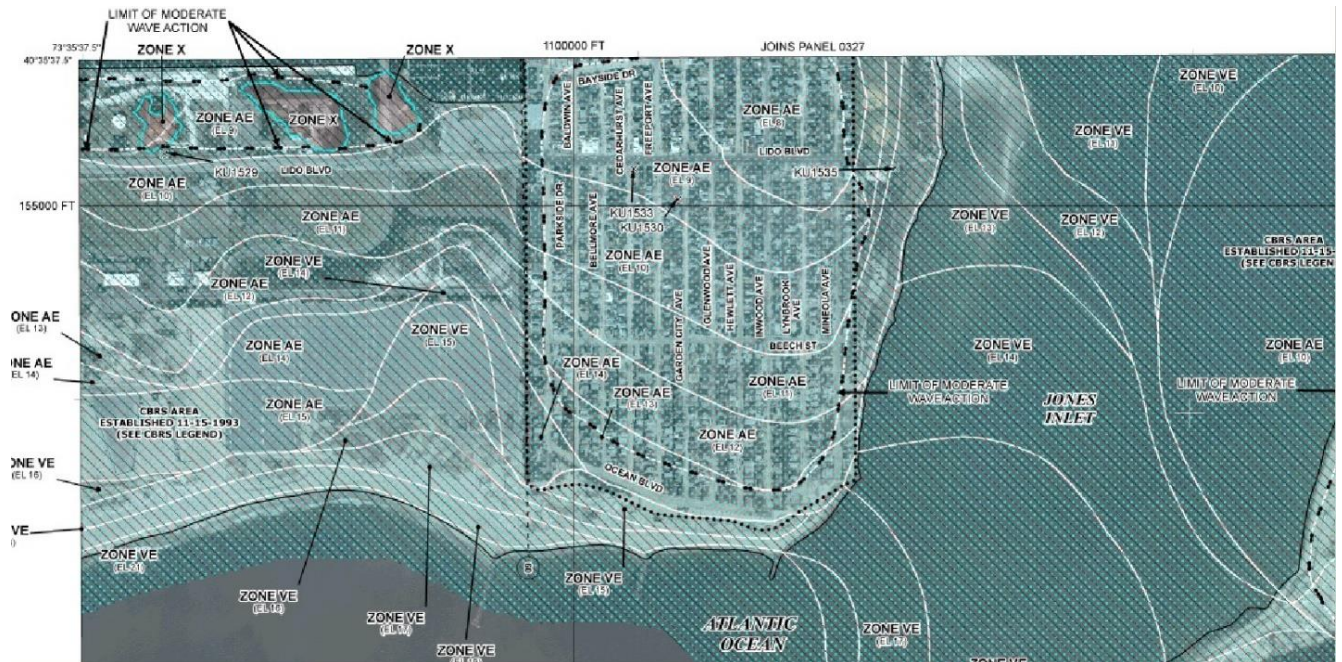


Environmental Issues:



Flooding

The site provided to us in Point Lookout, falls in the flood zoning code class of AE. Point Lookout Long Island is 4-5 ft above sea level. Within the AE zone the BFE (Base Flood Elevation) is 9 ft. Top of the lowest floor must be at or above the BFE, it is recommended that the lowest horizontal structural member of A-zone building be elevated 2 feet (free board) above the BFE, this will give us a DFE (Design Flood Elevation) of 11 feet.

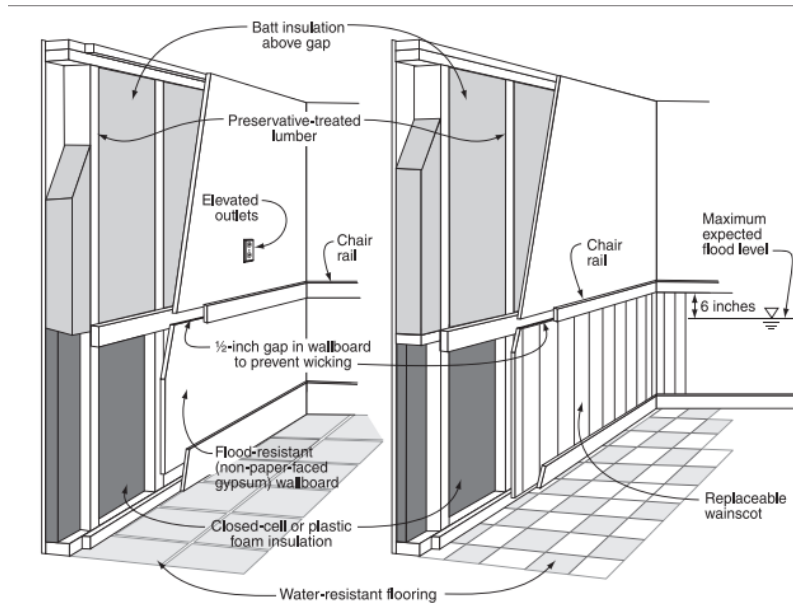


Building Materials:

Due to this building's location in flood zone AE; we will need to use Class 5 building materials. These building materials must be highly resistant to floodwater damage, resistant to moving water, survive wetting and drying, ability to be cleaned after dry, and these materials must be easily cleaned up after a flood to remove all of the harmful pollutants. We will be using concrete construction for this library. Concrete can withstand the salt water erosion. We are incorporating many different Class 5 building materials. We will be picking materials that are water resistant, easy to clean, allows floor and wall systems to drain and dry, easy to remove to allow drying, resistant to mold, does not transport water or moisture to adjacent materials, are stable when exposed to water, and materials that maintain their strength and stiffness after exposed to water.

Some of these materials include, but are not limited to:

- Tapered wood piles preservative-treated for ground contact
- CMU foundation walls that are flood resistant
- High-capacity shear wall sheathing rated "exterior"
- OSB subflooring rated "Exposure 1"
- Hollow metal doors
- Foam or closed-cell insulation
- Glass Blocks for natural light
- Concrete tile



Utilities

All maintenance rooms and utilities including electrical, heating, ventilation, plumbing, air conditioning, and ductwork must be designed above the DFE that is given. If a proposed building site is in an SFHA, the building support utility systems for all new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and located so as to prevent water from entering or accumulating within the components during conditions of flooding.

HVAC

The NFIP requires that the HVAC system in a new or substantially improved structure located in a Special Flood Hazard Area (SFHA) be designed so that floodwaters cannot infiltrate or accumulate within any component of the system. With most outdoor HVAC equipment, the main issues presented by floodwaters are inundation, velocity flow, and debris impact. In this design the HVAC will be on the roof in order to save room within the structure. This will also keep the HVAC systems high above the DFE and will thus keep the systems dry and away from any water penetration from flooding.

Fuel Systems

A fuel tank located below ground in a flood-prone area can be anchored to a counterweight in order to counteract the buoyancy force that is exerted by saturated soil during a flood. One effective method is to anchor the fuel tank to a concrete slab with (non-corrosive) hold-down straps, as shown in Figure 3.2.3C. The straps must also be engineered to bear the tensile stress applied by the buoyancy force. With the fuel tank being fastened underground we can save more outside space which will help with the lot size provided.

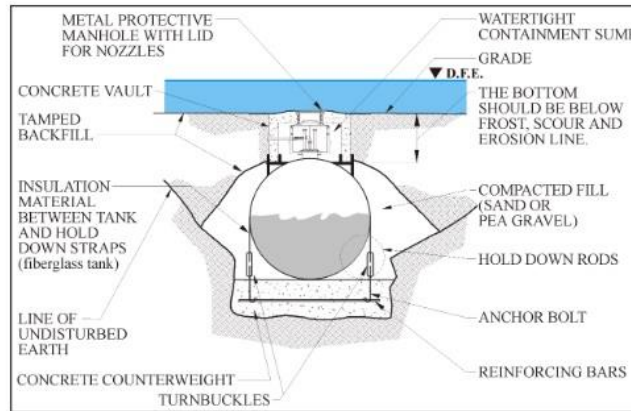


Figure 3.2.3C: An underground fuel tank anchored to a concrete counterweight
Courtesy of Adamson Global Technology Corp.

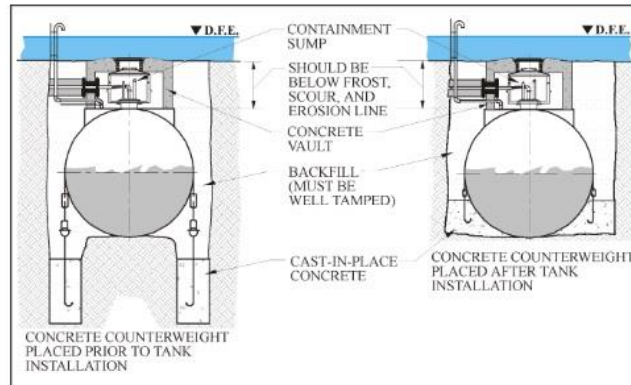


Figure 3.2.3D: An underground fuel tank anchored onto poured-in-place concrete counterweights

In order to prevent fuel lines from breaking at wall penetration points as a result of velocity flow, the fuel pipes should be designed to penetrate walls above the DFE. Ideally, each fuel line should be kept completely above the DFE. Where it is not possible to elevate the whole length of a fuel line above the DFE, the pipe can be protected by strapping it to the landward downstream side of the vertical structural member. In coastal areas the straps must be composed of non-corrosive materials. Shafts can also be used to protect fuel piping.

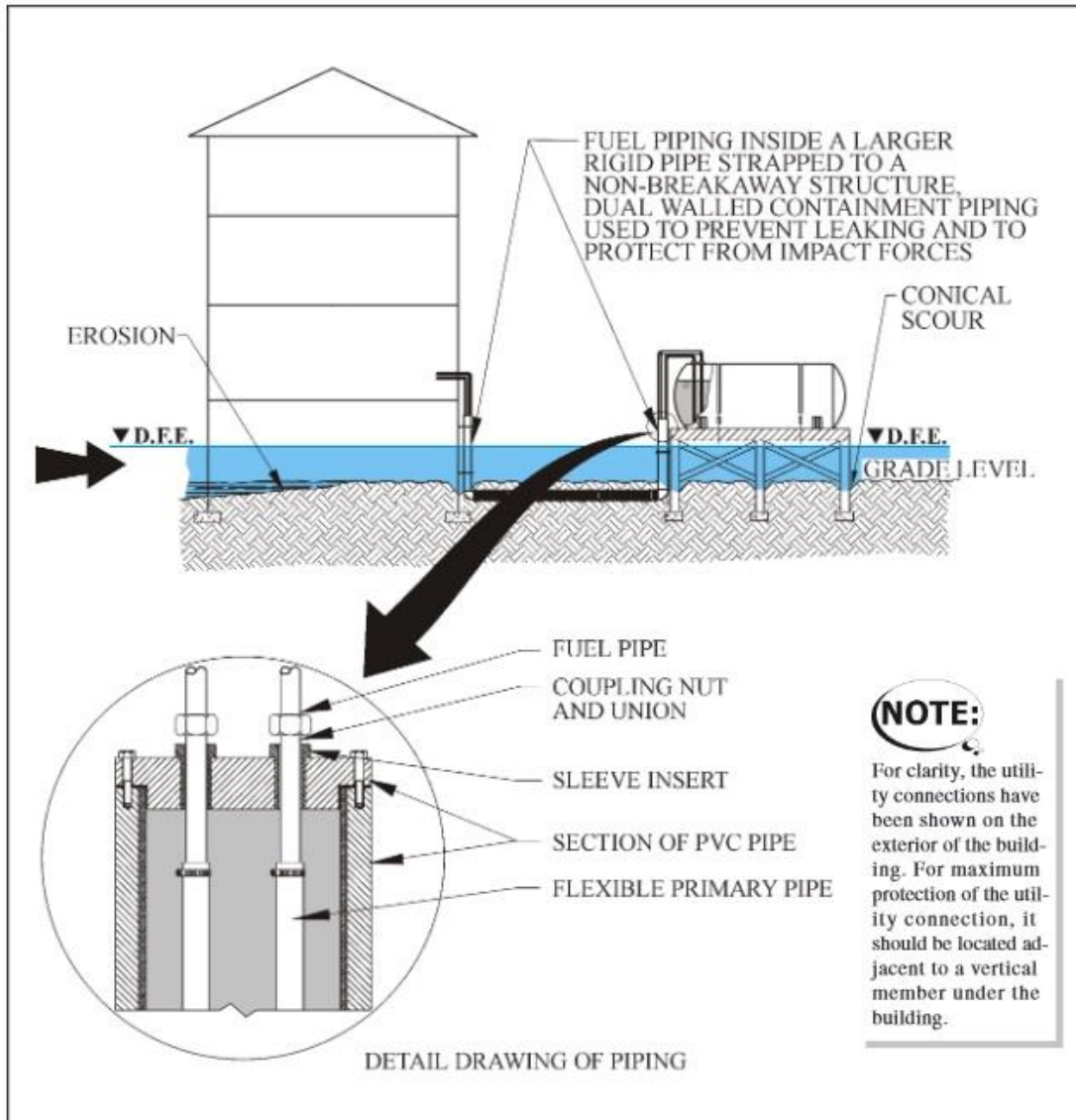


Figure 3.2.4B: The vertical runs of fuel piping embedded in utility shafts strapped to non-breakaway structures

Foundation

When designing in zone AE a normal foundation will not be used, instead piles will be driven into the ground and the library will be built on top of them. Steel piles are used for commercial/business buildings. An open foundation allows water to pass through the foundation of an elevated building, reducing the lateral flood loads the foundation must resist. An open and deep foundation will be used in our design.

Foundation Type	Base Flood Condition Present		
	Wave Heights Between 1.5 and 3.0 Feet*	Velocity Flow, Erodeable Soils	Large Debris
Fill	no	no	no
Slab on grade	no	no	no
Crawlspace, shallow footing	no	no	no
Foundation walls, shallow footing	no	no	no
Stemwall, shallow footing	yes	no	yes
Stemwall, deep footing**	yes	yes	yes
Pier, shallow footing	yes	no	no
Pier, deep footing**	yes	yes	no
Post, shallow embedment	no	no	no
Pile/Column, deep embedment**	yes	yes	yes

*Wave heights greater than 3.0 feet mapped as V Zone: fill, slab, crawlspace, wall foundations not permitted.

**Deep means sufficiently deep to withstand erosion and scour, including that induced by the presence of the foundation itself.

Table 10-3. Advantages and Special Considerations of Three Types of Pile Materials

Material	Advantages	Special Considerations
Wood	<ul style="list-style-type: none"> • Comparatively low initial cost • Readily available in most areas • Easy to cut, saw and drill • Permanently submerged piles resistant to decay • Relatively easy to drive in soft soil • Suitable for friction and end bearing pile 	<ul style="list-style-type: none"> • Difficult to splice • Subject to eventual decay when in soil or intermittently submerged in water • Vulnerable to damage from driving (splitting) • Comparatively low compressive load • Relatively low allowable bending stress
Concrete	<ul style="list-style-type: none"> • Available in longer lengths than wood piles • Corrosion resistant • Can be driven through some types of hard material • Suitable for friction and end-bearing piles • Reinforced piles have high bending strength • High bending strength allows taller or more heavily loaded pile foundations to be constructed without grade beams 	<ul style="list-style-type: none"> • High initial cost • Not available in all areas • Difficult to make field adjustments for connections • Because of higher weight, require special consideration in high seismic areas
Steel	<ul style="list-style-type: none"> • High resistance to bending • Easy to splice • Available in many lengths, sections, and sizes • Can be driven through hard subsurface material • Suitable for friction and end-bearing piles • High bending strength, which allows taller or more heavily loaded pile foundations to be constructed without grade beams 	<ul style="list-style-type: none"> • Vulnerable to corrosion • May be permanently deformed if struck by heavy object • High initial cost • Some difficulty with attaching wood framing

In order to find the correct embedment depth, and pile diameter size a series of formulas must be used in order to compensate for scour and erosion factors. The material used will not guarantee no failure if the piles are not embedded correctly.



Formula 11.2 Design Flood Velocity	
Lower Bound:	$V = d_s / t$
Upper Bound:	$V = (gd_s)^{0.5}$
Extreme (tsunami):	$V = 2(gd_s)^{0.5}$
where:	V = design flood velocity in ft/sec
	d_s = design stillwater flood depth in feet
	$t = 1$ sec
	g = gravitational constant (32.2 ft/sec ²)

Table 11.4
Scour Factor for Flow Angle of Attack, K (Angle = 0 corresponds to flow perpendicular to building face.)

Angle of Attack (degrees)	Width/Length Ratio of Building in Flow			
	4	8	12	16
0	1	1	1	1
15	1.15	2	2.5	3
30	2	2.5	3.5	4.5
45	2.5	3.5	3.5	5
60	2.5	3.5	4.5	6

Localized scour around vertical walls and enclosed areas (e.g., typical A-zone construction) can be greater than that around vertical piles, and should be calculated with Formula 11.10b.

Formula 11.10b Localized Scour Around Vertical Enclosure (Non-Tsunami Condition)	
$S_{max} = d_s \{2.2(a/d_s)^{0.65}[V/(gd_s)^{0.50}]^{0.43}\}K$	
where:	S_{max} = maximum localized scour depth in feet
	d_s = design stillwater flood depth in feet (upstream of the structure)
	a = half the width of the solid foundation perpendicular to the flood flow
	V = average velocity of water in ft/sec (see Formula 11.2)
	g = gravitational constant (32.2 ft/sec ²)
	K = factor applied for Flow Angle of Attack (see Table 11.4)

After using these formulas we find that our piles should be imbedded 15 feet down with a 10 inch diameter. This will create the most reliable foundation for our building when incorporating erosion and scour factors.

Table 10-10. Example Analysis of the Effects of Scour and Erosion on a Foundation

Pile Embedment Before Erosion and Scour	Erosion and Scour Conditions	Pile Diameter (d)		
		8 inches	10 inches	12 inches
10 feet	Erosion = 0, Scour = 0	P, E	E	OK
	Erosion = 1 foot, Scour = $2.0d$	P, E	E	E
	Erosion = 1 foot, Scour = $2.5d$	P, E	E	E
	Erosion = 1 foot, Scour = $3.0d$	P, E	E	E
	Erosion = 1 foot, Scour = $4.0d$	P, E	P, E	E
15 feet	Erosion = 0, Scour = 0	P	OK	OK
	Erosion = 1 foot, Scour = $2.0d$	P	OK	OK
	Erosion = 1 foot, Scour = $2.5d$	P	OK	OK
	Erosion = 1 foot, Scour = $3.0d$	P	OK	OK
	Erosion = 1 foot, Scour = $4.0d$	P, E	P, E	E
20 feet	Erosion = 0, Scour = 0	P	OK	OK
	Erosion = 1 foot, Scour = $2.0d$	P	OK	OK
	Erosion = 1 foot, Scour = $2.5d$	P	OK	OK
	Erosion = 1 foot, Scour = $3.0d$	P	OK	OK
	Erosion = 1 foot, Scour = $4.0d$	P	P	OK

Two-story house supported on square timber piles and located away from the shoreline, storm surge and broken waves passing under the building, 130-mph wind zone, soil = medium dense sand.
 d = pile diameter
 E = foundation fails to meet embedment requirements
 OK = bending and foundation embedment criteria are both satisfied by the particular pile size/pile embedment/erosion-scour combination
 P = foundation fails to meet bending

Flood Proofing

Flood proofing is the process of making a building resistant to flood damage, either by taking the building out of contact with floodwaters or by making the building resistant to any potential damage resulting from contact with floodwaters. Flood proofing can be subdivided into several categories but for our design Dry flood Proofing will be used.

Dry-flood proofing requires use of special sealants, coatings, components and/or equipment to render the lower portion of a building watertight and substantially impermeable to the passage of water. Because of potential harm to building occupants, dry-floodproofing of spaces below the DFE (in A zone buildings) is only permitted for non-residential occupancies. Dry Floodproofing Certification must be completed. The certification must state: 1) the elevation to which the building has been dry-floodproofed, 2) that the building, together with utilities and sanitary facilities, is watertight to the floodproofed elevation, with walls that are substantially impermeable to the passage of water, and 3) that the structure is capable of resisting hydrostatic and hydrodynamic and debris impact forces, including the effects of buoyancy

Site Drainage

Within flood-prone areas new sewage systems can be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters; an onsite waste disposal systems should be located to reduce contamination.

Snow Loads

The weight of 1 foot of fresh snow ranges from 3 pounds per square foot for light, dry snow to 21 pounds per square foot for wet, heavy snow. Point lookout most snow during the year is 8 inches. The roof must be designed strong enough to hold the values given from snow loads.

Roofing

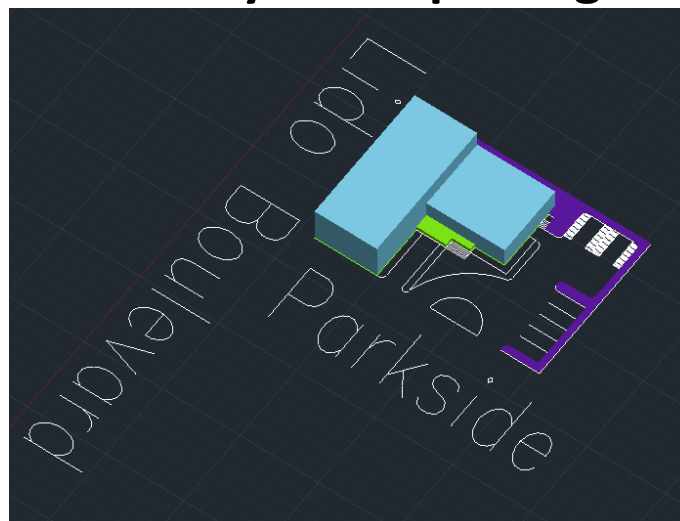
Steel roofing must be used in order to best resist the environmental issues give in a location like point lookout. Standing-Seam Hydrostatic (i.e., water-barrier) these panel systems are designed to resist water infiltration under hydrostatic pressure. They have standing seams, which raise the joint between panels above the water line. The seam is sealed with sealant tape or sealant in case it becomes inundated with water backed up by an ice dam or driven by high wind. Heated drain holes can be provided on the roof in order to melt snow buildup. If the roof is to be design sloped snow guards should be used to keep large amounts of snow from falling off the roof.

http://www.fema.gov/media-library-data/20130726-1644-20490-8474/757_apd_7_metalroof.pdf

Wind Speeds

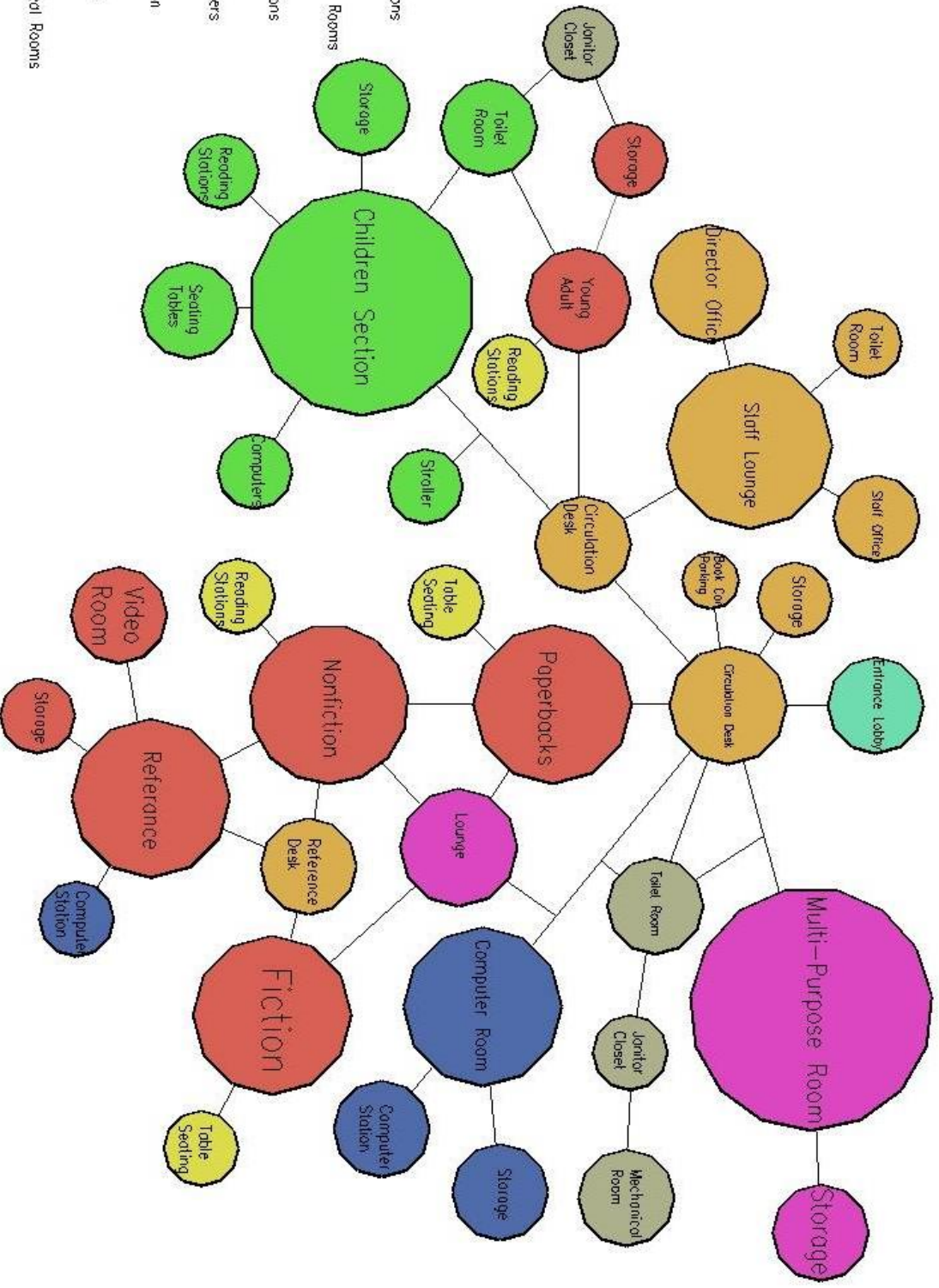
Since the wind speeds can go up to 13 mph it is important to orient the building in the most ideal way to block wind currents from the front entrance of the library. By doing this we will be able to make the entry for patrons coming to the library to be more welcoming even during the cold winter months.

5. Facility Concept Diagrams



Space Planning				
Gathering			Collection	
Occupance x80	1200		Staff Cubicle (4)	160
			Collection Size	43
Total Area	1200		Reading Station (2)	60
			Table, Rectangle (4)	100
			Lounge Chairs (2)	140
Functional			Bean Bag Chair (2)	40
			Table, Rectangle (8)	250
Staff Lounge	500		Reading Carrel (4)	120
Director Office	300		Youth Floor (10)	80
Photocopy Machine	30		Collection size	35
Print Station	30		Collection Size	43
Circulation Desk	120		Fiction	135
Entrance Lobby	200		Non Fiction	128
Toilet Room x2	200		Reference	57
File Cabinet x4	80		Paperbacks	114
Photocopy Machine	50		Computer Station x8	280
Print Station	30		Computer Station (4)	140
Storage Closet	50		Magazine collection	36
Storage Closet	120		Computer Station (2)	60
Storage Closet	100		Reading Station (10)	300
Service Desk	120		Table Round (4)	100
Stroller Parking	100		Lounge Chair	60
Toilet Room x2	200		Table Rectangle (10)	250
Mechanical Room	200		Recliner Chair x4	140
Electrical Room	100		Coffe Table x2	50
Janitor Closet x2	40			
Building Storage	120		Total Area	2921
Book Truck Parking	32			
Storage Closet	100			
Total Area	2822			
		Total Net Area	7043	
		Circulation 35%	2465	
		Total Area	9508	
		FEMA Parking Area	5600	
		Total Gross Area	15108	

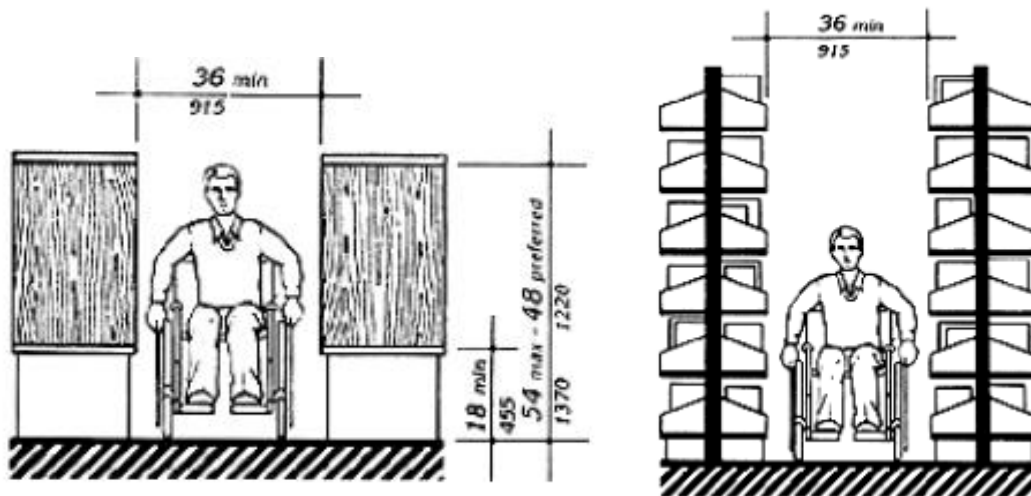
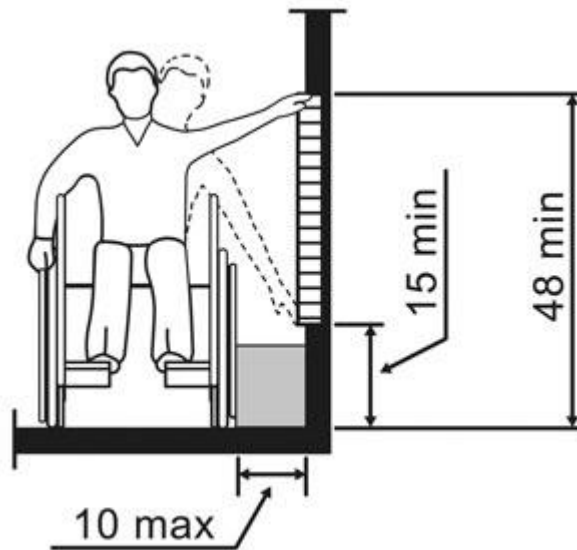
- Library Entry
- Staff Workstations
- Public Meeting Rooms
- Public Computers
- Children Section
- Public Seating
- Toilet/Mechanical Rooms



7. ADA Codes

Our library will be compliant to the ADA legislation. If our library fails to meet the ADA requirements, we will be fined by the Department of Justice \$55,000 for the first offence. The fines will double every offense after that.

As of 2010, the new reach ranges for the ADA Standard changed. The intent of these changes is to make sure that a disabled person, who is either using a cane or in a wheelchair. The range is 15"-48" for vertical reach, and 10" max for horizontal reach. In front of every fixture, accessory, or an operable piece of hardware, there should be a 30"x48" area of clear space; not touching anything.

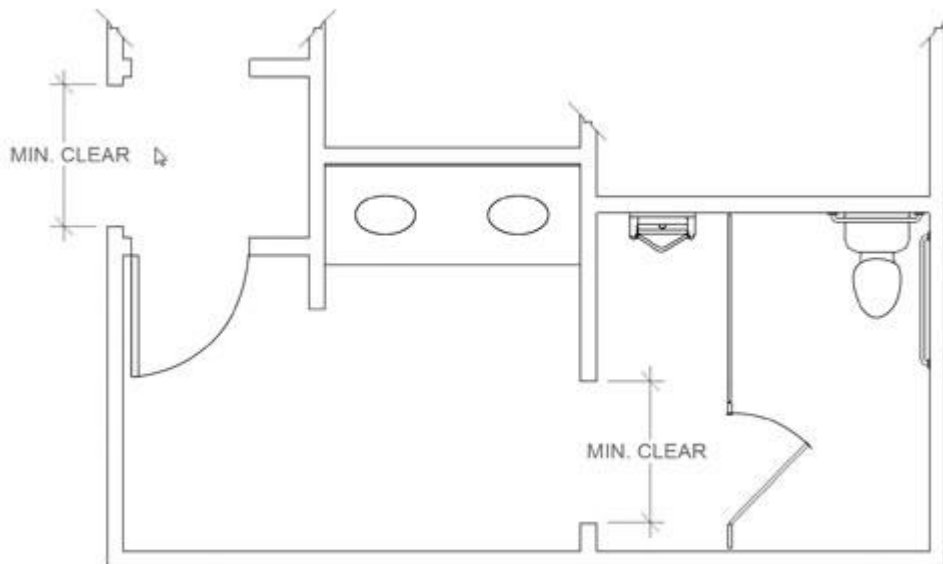


For our library, the space between bookshelves must be at least 36". There must be 18" minimum between the columns of stacks, but 48-54" is the preferred distance. There is no limit to the height of the book stacks as long as a willing and able librarian is available to help.

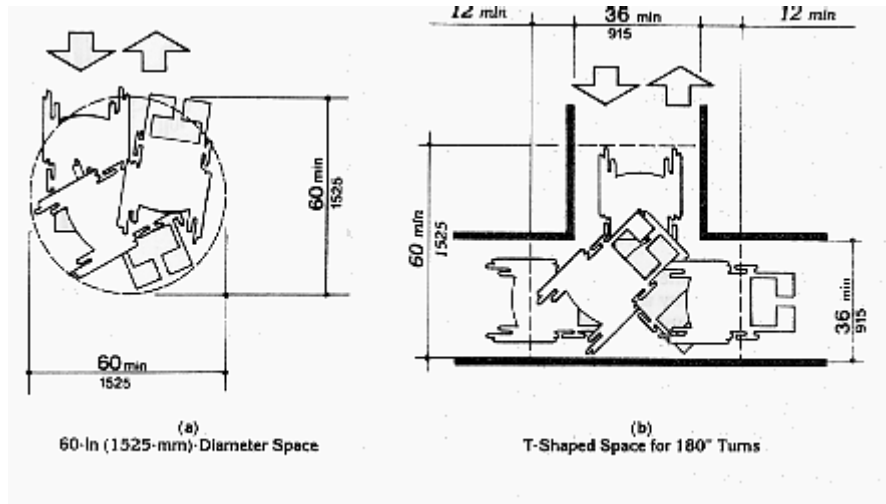
Bathrooms

Fixture/Accessory	Ages 3 and 4	Ages 5 through 8	Ages 9 through 12
Water Closet Centerline	12 inches (3055 mm)	12 to 15 inches (305 to 380 mm)	15 to 18 inches (1120 mm)
Toilet Seat Height	11 to 12 inches (280 to 305 mm)	12 to 15 inches (305 to 380 mm)	15 to 17 inches (380 to 430 mm))
Grab Bar Height	18 to 20 inches (455 to 510 mm)	20 to 25 inches (510 to 635 mm)	25 to 27 inches (635 to 685 mm)
Dispenser Height	14 inches (355 mm)	14 to 17 inches (355 to 430 mm)	17 to 19 inches (430 to 485 mm)

Clear floor space is the clearance needed to accommodate a wheelchair. There must be 60" of clearance measured perpendicular from the side wall, 56" minimum space measured perpendicular from the rear wall for a water closet hung on the wall, and 59" minimum from the rear wall for water closets mounted on the floor. This floor space is used for grab bars, toilet paper holders, shelves, coat hooks, and room to turn. For regular rooms, the ADA requires an accessible route that is 36" minimum. Door openings should be at least 32" wide. Any opening that is over 24" deep should have a clear opening of 36" minimum.



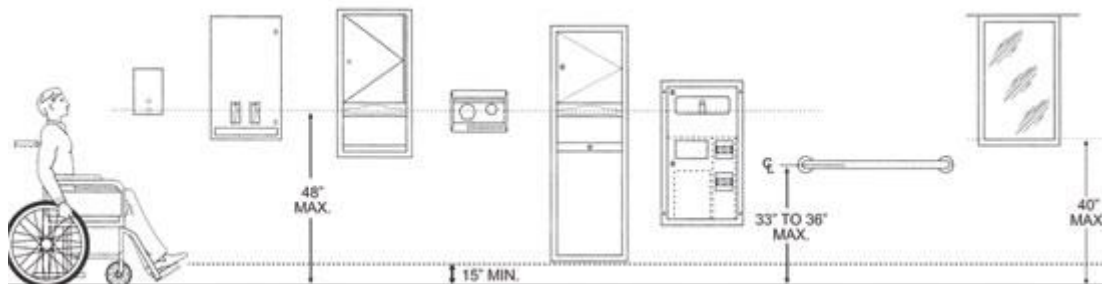
There are three different types of rooms that have turning regulations. They are hospital patient rooms, dressing rooms, and restrooms. Turning circles are required only in the toilet room and not in the accessible stall. To meet this ADA requirement, the designer can either use the turning circle diameter or the T-shaped space to meet the regulations. The turning circle diameter is 60" and is to include knee and toe clearance. Knee and toe clearance is between 9"-27" with a depth requirement of 11" and 8" for toe depth. For the T-shaped space, it must be 60" minimum with arms and a base that is at least 36" wide. Each arm should be at least 12" in each direction. The base should be at least 24".



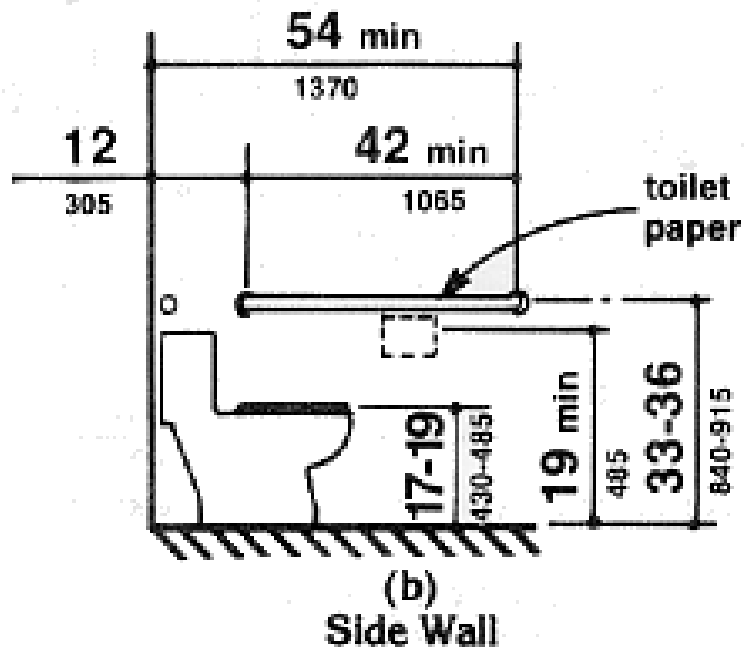
To accommodate the ADA requirements, there should be a width of 32" to get through a restroom door. This space should accommodate for a 36" door swing. Restroom doors should be ADA compliant and be easy to open. They need to be opened without requiring pinching or twisting of the wrist, or without a tight grip.



In the bathroom stall, grab bars must be installed. These grab bars should be able to resist 250 pounds of vertical load. These grab bars should be placed between 33"-36" off the ground. They should be at least 42" long and be a maximum of 12" away from the rear wall. Sinks should be placed no more than 34" above finish floor. Knee to toe clearance is the vertical space between 9" and 27" high with a depth of 11" deep.

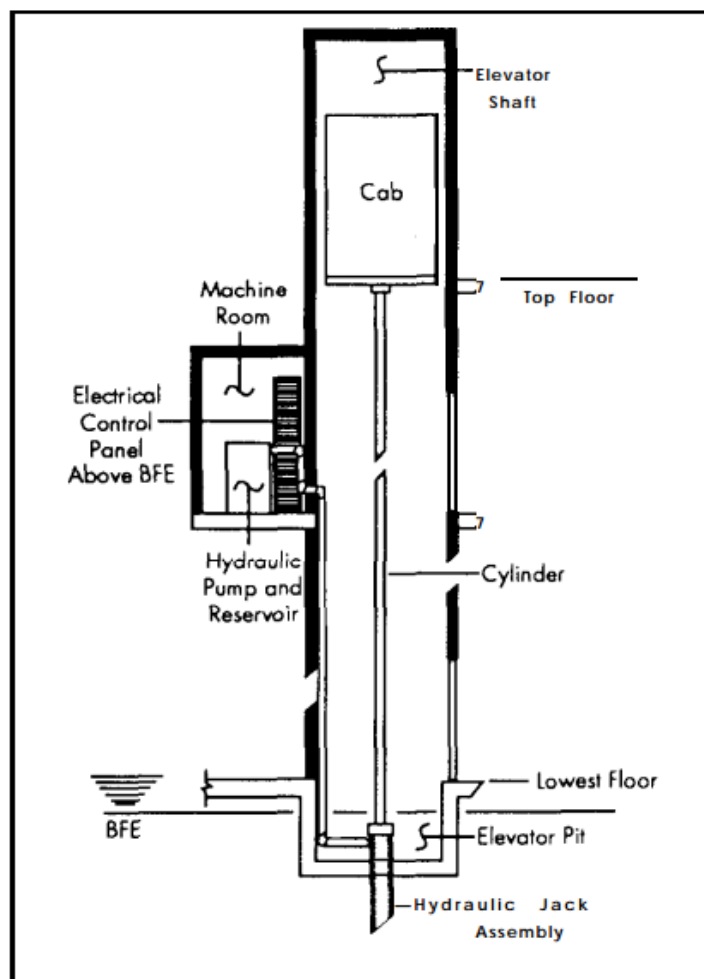


Capacity of Seating in Assembly Area	Number of Required Wheelchair Locations
4 to 25	1
26 to 50	2
51 to 300	4
301 to 500	6
over 500	6 plus 1 additional space for each total seating capacity increase of 100



Elevator Design:

- Our elevator will need to be flood resistant. We decided to use a hydraulic elevator. This consists of a cab attached to the top of the hydraulic jack. This jack is similar to the one used for a car lift in a mechanic shop. The hydraulic jack assembly is normally below the first floor and uses a hydraulic pump and reservoir.
- Our HydroFit elevator can rise up to 26' 6" and moves at 125 feet per minute. It can hold anywhere from 2,100 pounds to 5,000 pounds.



8. Fire Code

Means of egress is the way out of a building during an emergency; may be by door, window, hallway, or exterior fire escape; local fire codes will often dictate the size, location, and type according to the number of occupants and the type of occupancy.

Exits

According to the IFC because our occupant load will be under 500 persons, two exits and two stairways will be necessary for the building.

TABLE 1021.1
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD

OCCUPANT LOAD (persons per story)	MINIMUM NUMBER OF EXITS (per story)
1-500	2
501-1,000	3
More than 1,000	4

Exit signs must be provided at all exits leading to the exterior of the building. Exit signs are not required within rooms that have one way entry and exit. An exit sign must be provided adjacent to an area of refuge. It is highly recommended that all exit signs be illuminated.

Area of Refuge

This concept was established to provide a location for building occupants, who cannot traverse the stairs without assistance, to be able to assemble by an exit and await assistance or instructions by the first responders. These areas are required on each floor above and below the ground floor and must be clearly marked and provide a two way communication system to a central control point within the building.

Stairways

Two stairways must be provided. All stairways must be designed with railings on both sides. They must have clear width of 48 inches between handrails and incorporate an area of refuge. The stair risers should be designed at 7 inches max and 4 inches minimum, and a tread depth minimum of 11 inches. Floor landing width at the bottom of the stairway will not be smaller than the width of the stairway (48 inches). The entrance and exit to the stairway door should not project more than 7 inches into the landing.

Elevator

Elevator must be accessible from the area of refuge. It must also provide a standby power switch in case of emergency. Automatic fire detectors installed for elevator emergency operation shall be installed.

Ramp

As a means of egress the ramp slope will not be steeper than an 8 percent slope. Other ramps in this design can have a slope up to 12.5 percent slope. The vertical rise for any ramp run is 30 inches and the width of the ramp in-between handrails should be at least 36 inches. The ramp landings will not be steeper than a 2 percent slope and changes in level are not permitted.

Fire Extinguisher

TABLE 906.3(1)
FIRE EXTINGUISHERS FOR CLASS A FIRE HAZARDS

	LIGHT (Low) HAZARD OCCUPANCY	ORDINARY (Moderate) HAZARD OCCUPANCY	EXTRA (High) HAZARD OCCUPANCY
Minimum Rated Single Extinguisher	2-Ac	2-A	4-Aa
Maximum Floor Area Per Unit of A	3,000 square feet	1,500 square feet	1,000 square feet
Maximum Floor Area For Extinguisher ^b	11,250 square feet	11,250 square feet	11,250 square feet
Maximum Travel Distance to Extinguisher	75 feet	75 feet	75 feet

For 51: 1 foot = 304.8 mm, 1 square foot = 0.0929 m², 1 gallon = 3.785 L.

- Two 2½-gallon water-type extinguishers shall be deemed the equivalent of one 4-A rated extinguisher.
- Annex E.3.3 of NFPA 10 provides more details concerning application of the maximum floor area criteria.
- Two water-type extinguishers each with a I-A rating shall be deemed the equivalent of one 2-A rated extinguisher for Light (Low) Hazard Occupancies.

Sprinkler Systems

Group A-3. An automatic sprinkler system shall be provided for Group A-3 occupancies where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m²).
2. The fire area has an occupant load of 300 or more.
3. The fire area is located on a floor other than a level I of exit discharge serving such occupancies.

Within libraries it is more ideal to use water less fire suppression, this will cause less damage to the books within the library. FM-200® systems reach extinguishing levels in 10 seconds or less, stopping ordinary combustible, electrical, and flammable liquid fires before they cause significant damage. That's the fastest fire protection available, period. When fire is extinguished this quickly, it means less damage, lower repair costs, and an extra margin of safety for people. It also means less downtime and disruption of business.

Smoke Detectors

Single- or multiple-station smoke alarms shall be installed in all of the following locations:

1. In each mechanical equipment, electrical, transformer, telephone equipment or similar room which is not provided with sprinkler protection.
2. In each elevator machine room and in elevator lobbies.
3. In every room in the path of the means of egress.
4. In each story, including basements.

Alarm

Activation of any single smoke detector, the automatic sprinkler system or any other automatic fire detection device shall immediately sound an alarm at the building at a constantly attended location from which emergency action can be initiated.

9. Project Cost

Project Cost Planning			
Design Group #4			
Project 2 - Live/Work Architectural Studios			
Allocations			
Project Total			\$ 8,762,436
	% Project	% Construction	
Construction	75%		\$ 6,571,827
Design Contingency	4%	5%	\$ 328,591
Project Contingency	7.5%	10%	\$ 657,183
Architects Fees	5.3%	7%	\$ 460,028
Permits	2.3%	3%	\$ 197,155
Reimbursable Expenses	1.5%	2%	\$ 131,437
Equipment	4.5%	6%	\$ 394,310
	100%		\$ 8,740,530
		GSF	cost per GSF
Project construction cost per GSF		15,108	\$ 435
Project costs per GSF		15,108	\$ 580
Construction Cost			\$6,571,980
Project Cost			\$8,762,640

10. Appendix

Codes

Chapter BZ. BUILDING ZONE ORDINANCE

Article XVI. X Business Districts (X)

§ 195. Applicability.

§ 196. Permitted uses.

§ 199. Signs.

§ 200. Height.

§ 201. Building area.

§ 202. Front yards.

§ 203. Rear yards.

Chapter BZ. BUILDING ZONE ORDINANCE

Article XXXI. General Provisions

§ 319. Accessory parking.

Chapter BZ. BUILDING ZONE ORDINANCE

Article VII. B Residence Districts (B)

§ 62. Applicability.

§ 63. Permitted uses.

§ 64. Accessory uses.

§ 68. Height.

§ 69. Building area.

§ 70. Front yards.

§ 71. Side yards.

§ 72. Rear yards.

§ 76. Minimum lot area and width.

Lupton File

Week 4- EEALibraryProgramFinal.pdf

Week 4- BuildingProgramExample.pdf

Week 4- Dahlgren-Library Standards.pdf

Week 4- LibrarySpacePLanning.xls

Week 4- Simple-Space-Planning-Spreadsheet.xls

Week 4- SpacePlanning.pdf

Week 4- Program, Site, and Building.pdf

Week 6- Class presentations- Accessibility-Universal Design.pdf

Week 6- Class presentations- Building Codes and the Design Process.pdf

Week 6- Class presentations- Designing Project Budgets.pdf

Week 6- code references- 2009_i_code_floodprovisions.pdf
Week 6- code references- 2010ADASTandards_prt.pdf
Week 6- code references- ADA-ABA2004.pdf
Week 6- code references- BldgOff InteractReg Archit NCARB.pdf
Week 6- code references- fema_quick_ref_guide_flood_areas_022713_508.pdf
Week 6- code references- NYS Codes
Week 6- cost references- AIA 14-04-03 CostFactors.pdf
Week 6- Public_Library_Standards_July03.doc

FEMA Flooding

Flooding, Erosion, Wind speeds, Snow, Rain drainage.

<http://www.fema.gov/frequently-asked-questions-building-science#f5>

Coastal Construction Manual-

<http://www.fema.gov/media-library/assets/documents/3293?id=1671>

Foundations-

http://www.fema.gov/media-library-data/20130726-1828-25045-8178/fema_quick_ref_guide_flood_areas_022713_508.pdf

http://www.fema.gov/media-library-data/20130726-1510-20490-9375/fema55_volii_ch10rev.pdf

Flood Damage resistant materials –

<http://www.fema.gov/media-library/assets/documents/2655?id=1580>

Roofing-

http://www.fema.gov/media-library-data/20130726-1644-20490-8474/757_apd_7_metalroof.pdf

Protecting Utilities-

http://www.fema.gov/media-library-data/20130726-1514-20490-7165/p_348.pdf

Design in coastal A-zones-

https://www.fema.gov/pdf/rebuild/mat/coastal_a_zones.pdf

Base Flood elevations zone AE

http://media.northjersey.com/images/fixing_flood_damaged_homes_012613dng.jpg

http://www.fema.gov/sites/default/files/images/faq_ques16.jpg