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barrier free as the determinant for design

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Abstract

The definition of barrier free consists of the ability to move, as well as to think, freely. The concept of barrier free involves the integration of a variety of people, but most importantly, it stresses the abilities of the individual. It challenges people to break down barriers and to communicate with each other. Barrier free can also be described as the way everyone is capable of thinking. Everyone of us has the potential to make things happen. It is the way the mind thinks that create barriers which keep people from accomplishing their goals. This thesis pertains to the investigation of how the concept of barrier free can influence a building type such as a public library.

A public library is a catalyst for learning through a variety of media. It's a source of old knowledge that can provoke new ideas. The library also serves as a central place of gathering for the community.

The public library is located in Mishawaka, Indiana. Mishawaka is located in northern Indiana adjacent to South Bend. The site is on the Uniroyal Property site. The purpose of adding a public library to this site is to provide a tool for the community to use. People will use the public library to gain information as well as to share ideas.

The answers to this thesis have been found through the involvement of the concept of barrier free throughout the design process. It is important to be aware of just how many barriers exist in the natural and built environments that go unnoticed. Action needs to be done to break down these barriers and to start building environments that accommodate all.

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Dedication

I would like to dedicate this book to Jack Wyman, Todd Buchanan, and all the people who are looked upon as unequal because of race, gender, religion, and disability, but offer more and add more to meaning of life than most other people do.

This world should be...

free of discrimination

and

free of barriers

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I would like to recognize the following persons who made this extensive thesis project just a little more bearable.

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*Image taken from *Small Library Buildings*
Introduction

(Image taken from Small Library Buildings)
Introduction

Through the Americans with Disabilities Act of 1990 (ADA), Congress has voted that discrimination on the basis of physical and mental impairments is unlawful. This civil rights legislation is intended to open a full range of places and services to those with disabilities: from shopping malls to the workplace, from transportation systems to telecommunications. The Americans with Disabilities Act mandates that all new construction must be accessible and that all physical barriers in existing facilities must be removed if readily achievable. For architects, designing accessible buildings is a professional and ethical responsibility.

Still though, architects have often negated the concept of barrier free until the last moment in the design process. It becomes an after thought only to fulfill the obligations and code requirements set forth by the Americans with Disabilities Act. Architects sometimes look at codes as the enemy of design. Codes and regulations are therefore considered barriers as well. Architects need to look at the concept of barrier free, not as a burden, but as an opportunity to make a difference in the environment.
Introduction

Barrier free is a concept based on the way of thinking that revolves around a variety of people. It goes beyond the notion of the physically and mentally disabled. The concept of barrier free takes into consideration the height, weight, mental capacity and mobility of every individual. The basic objective of barrier free is to provide the same opportunities for physically and mentally challenged people as are available to everybody else. The underlying goal is to shift the focus of inability from the person to the natural and built environments. Therefore, the blame is on these environments, and it’s the architect’s moral and ethical obligation to change those environments. It’s nearly impossible to design for all people. There are no perfect solutions.

As a student of architecture, I am guilty of not using the concept of barrier free in my design projects. I have often forgotten that design is for all. Many of my projects have deferred using the concept of barrier free until the end when codes, laws, and regulations are forced into the final design. My feelings toward the concept of barrier free have grown immensely. Therefore, I believe it’s my moral and ethical obligation to investigate the concept of barrier free through the exploration of the design of a public library.

Barrier free will serve as the determinant for design.
Research

(image taken from Small Library Buildings)

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Research

The Definition
As stated earlier, barrier free consists of the ability to move, as well as to think, freely. It involves the integration of a variety of people, but most importantly, it stresses the abilities of the individual.

The Concept
As stated earlier, barrier free challenges people - architects, designers, society - to breakdown barriers and to communicate with each other. It includes the development of relationships - between people, people and the natural environment, and people and the built environment.

Barrier free can also be described as the way people are capable of thinking. Each and everyone of us has the potential and the abilities to make things happen. It is the way in which the mind thinks that creates certain barriers that keep us from accomplishing our goals.

The Interpretations

Barrier free in relationship to...

The Americans With Disabilities Act
The Definition of Disability
Universal Design
The Information Processing Theory

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Research
(Americans with Disabilities Act)

The Americans with Disabilities Act gives civil rights protection from discrimination to individuals with disabilities, similar to the Civil Rights Act of 1964 that protects individuals on the basis of sex, national origin, race, and religion. It guarantees equal opportunities for individuals with disabilities in employment, public accommodations, transportation, state and local government services, and telecommunications. No longer can lack of access to a building be the point of denial for employment and use.

The Americans with Disabilities Act is sectioned into five titles:

- Employment
- Public Services: General Services and Transportation
- Public Accommodations
- Telecommunications
- Miscellaneous Provisions
Research
(Americans with Disabilities Act)

Title I: Employment
According to this Title, employers may not discriminate against individuals with disabilities. It requires employers to ensure equal opportunity for disabled applicants applying for jobs, and for current employees seeking transfers and promotions.

The Americans with Disabilities Act provides protection from discrimination in employment for any qualified individual with a disability.

Discrimination is prohibited in all aspects of employment practices and policies, including social activities. An employer cannot discriminate against a person with a disability at any stage of his or her employment, and that coverage extends to the individuals who become disabled while they are employed.

This law applies to a present employee to the same extent it applies to a new applicant.
Research
(americans with disabilities act)

Title II: Public Services
Title II contains two subsections - The first deals with general state and local government services and the second deals with transportation concerns.

Subtitle A of Title II guarantees qualified people with disabilities equal access to all services and programs or activities provided by a public entity. This includes all public meetings, schools, recreational facilities, and libraries. Accessibility in this case may require new construction or alterations that must meet the standards set forth by the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Subtitle B of Title II covers public transportation and is further divided into parts I and II.

Part I concerns public transportation by bus, rail, or any other vehicle that operates on a fixed-route schedule except air transportation. The purpose is to ensure that such systems be made available to individuals with disabilities as rapidly as possible.

Part II deals with the intercity and commuter rail transportation. The same rules governing Part I apply here.
Research
(Americans with Disabilities Act)

Title III: Public Accommodations
The intentions of Title III are to prevent discrimination against disabled people in places of public accommodations. The Americans with Disabilities Act prohibits privately owned and operated businesses from denying services to people who are disabled.

The significance of Title III, from a design perspective, is that the act provides for the full and equal opportunity for disabled individuals to participate in any programs and services in and public business.

It mandates that all new construction must be accessible and that physical barriers in existing facilities must be removed if readily achievable; that is, if the removal is easily accomplished without much difficulty or expense. If the means are not readily achievable, that entity must provide alternative service that is equal in kind. Such access must be offered on an equal basis in an integrated setting.

Auxiliary aids and services must be provided to individuals with vision or hearing impairment or other disabilities so that they can have an equal opportunity to participate or benefit.
Research
(Americans with Disabilities Act)

Title IV: Telecommunications
Title IV of the Americans with Disabilities Act is aimed at the federally regulated telecommunications, such as telephone companies and federally funded public service television.

The significance of Title IV, from a design perspective, is anticipating the needs of the disabled in situations where telecommunications or television may be a part of a person's work or leisure life.

The Americans with Disabilities Act requires telephone companies to provide continuous voice transmission, relay services that allow hearing and speech-impaired people to communicate over the phone through telecommunications devices for the deaf (TDD's). Close-captioned messages for hearing-impaired viewers must be available for public service messages.
Research
(americans with disabilities act)

Title V: Miscellaneous Provisions
Title V addresses several concerns that are pertinent to the rest of the act but they may require further clarification. It is broken into sections.

Section 501 declares that no part of the act should be interpreted as allowing lesser standards to be applied than are otherwise required by existing federal, state, and local laws.

Section 502 waives a state's immunity from prosecution (as established in the 11th amendment to the Constitution), allowing a state to be sued for discrimination under the ADA.

Section 503 protects an individual who is filing a complaint or suit of discrimination from any form of harassment or retaliation.

Section 504 sets the deadline for accessibility guidelines to be issued by the Architectural and Transportation Barriers Compliance Board.

Section 505 allows for attorney fees to be collected for the prevailing party in any judgment.

Section 506 sets guidelines for the creation of technical assistance manuals and programs.

And so on...

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**Research**
*(the definition of disability)*

What is a disability?
Under the Americans with Disabilities Act (ADA), a **disability** is a physical or mental **impairment** that **substantially limits** one or more **major life activities**.

An **impairment** means any physiological disorder, cosmetic disfigurement, anatomical loss, or a recognized mental/psychological disorder.

**Substantially limits** means that for an impairment to be considered a disability it must cause the individual to be unable to perform, or be significantly limited to performing, one or more of the major life activities.

**Major life activities** are walking, talking, seeing, breathing, hearing, learning, caring for self, working, and other things essential for living.

Under the Americans with Disabilities Act (ADA), a **disability** is a **record of such an impairment**.

A person who has a history or record of an impairment is protected under the ADA even if the disability is no longer “active” such as when cancer is in remission.

Under the Americans with Disabilities Act (ADA), a **disability** is **being regarded as having such an impairment**.

A person who is rumored or thought to have an impairment is protected under the ADA from discrimination to the extent as he or she would be if there was actual disability. Therefore, as an example, a person who is rumored to be HIV-positive cannot be discriminated against on the basis of that belief.
Research
(the definition of disability)

For the purpose of this thesis, it is necessary to define particular handicaps, impairments, and restrictive devices so that they may be related to individual design elements. The terminology is generally accepted with the disabled.

Temporary Impairments

Mobility Impairments (Mobility A)

Mechanical Aids (Mobility B)

Manual Impairments

Visual Impairments

Audial Impairments

Mental Retardation

*The Elderly

*The Children

*This category is added to emphasize that not all disabilities are physically or mentally related. This category is also not defined in the Americans With Disabilities Act.
Research
(the definition of disability)

Temporary Impairments
Temporary impairment refers to any and all situations in which people become temporarily restricted in their movements either through a disease or trauma that requires time to heal, or simply in performing the normal functions of everyday life.

Some examples are a pregnant woman, a shopper with his/her arms loaded with packages, or a woman wearing high heel shoes.

We are all "handicapped to a certain degree" in our movements, but the duration of our impairment is relatively short-lived.
Research
(the definition of disability)

Mobility Impairments (Mobility "A")
A mobility impairment is defined as the inability of movement or ambulation. It may be caused by such things as partial paralysis which has not been compensated for by the use of ambulatory aids, or the absence of extremities which have not been replaced by mechanical aids.
Research
(the definition of disability)

Mechanical Aids (Mobility "B")
Brace - Any kind of supportive device for the arms, hands, legs, feet, back, neck, or head, exclusive of temporary casts, slings, bandages, trusses, belts, or crutches.

Artificial Limb - A device to replace a missing leg, arm, hand, or foot. It does not necessarily have moving parts.

Special Shoes - Footwear specifically designed as podiatric aids to be used in assisting people in walking.

Long Cane - The long cane is used for independent travel by persons with visual impairments. Its length is determined by the length of stride taken by the individual when walking freely.

Wheelchair - A chair on wheels normally propelled by the occupant by means of handrims attached to the two side wheels. Wheelchairs may also be motorized or propelled by an attendant.

Crutch - A staff with a crosspiece at the top to support the person in walking. The point of support may be under the shoulder, upper arm, or forearm. For each crutch, a second support is provided at hand level.

Cane - A short staff either straight or curved at the upper end, used to provide some support at hand level.

Walker - A four-legged stand which provides support for the user. It is moved by lifting or by wheeling on casters.
Research
(the definition of disability)

Manual Impairments
A partial manual impairment entails the impairment of either both hands to a certain degree, or total disability of one hand. There is some use of the hands or arms, and some manual dexterity in a partial manual impairment.

A total manual impairment means that the person has no use of his hands or arms. Therefore, he/she is handicapped in those aspects of the environment which require the use of these body parts. It may be the result of arthritis, amputation, or the lack of replacement of a limb by artificial devices.
Visual Impairments
Partial visual impairments are usually caused by dysfunctions such as color blindness, the loss of partial sight in one eye, cataracts, glaucoma, a detached retina, or congenital birth defects. A worsening of some of these problems may cause total visual impairment.

Total visual impairment means that a person has total loss of vision.
Research
(the definition of disability)

Audial Impairments
Partial audial impairments include persons with a limited ability to hear, but who are still able to detect major sounds such as loud noises or audial warnings in their surrounding environments.

A person with total audial impairment cannot hear any sounds at all. Congenital birth defects, disease, or a steady audial deterioration which culminates in total deafness in old age are the typical causes.
Research
(the definition of disability)

Mental Retardation
Mental retardation is defined today as a subaverage intellectual functioning which originates during the development period and is associated with impairments in adaptive behavior.

In less technical terms, the mentally retarded person is one who, from childhood, experiences unusual difficulties in learning and is relatively ineffective in applying whatever he/she has learned to the problems of ordinary living.

Degrees of mental retardation - mild, moderate, severe, profound - are measured by considering both measured intelligence and impairment in adaptive behavior.
The Elderly
Many problems of accessibility affect elderly people. Older people are often confronted by environmental barriers similar to those encountered by other individuals with physical disabilities.

A design can be enhanced through the accommodations of the individual needs of elderly people. A design should always consider and involve the impact of elderly people in and around the natural and built environments.

(Image taken from Access for All)
Research
(the definition of disability)

The Children
Many of the problems of accessibility and facility use affect children as well. Children are often confronted by environmental and physical built barriers (because of their size, height, mental capacity, etc.) similar to those encountered by other individuals with physical disabilities.

A design can be enhanced through the accommodations of the individual needs of children. A design should always consider the impact of children in and around the natural and built environment.
Research
(universal design)

Universal design is defined as designing for all people. Therefore, all people need to be viewed as equal in nature and all people need to be viewed as deserving of equal opportunities in all aspects of society.

Universal design is the creation of environments that are usable by children, young adults, adults, and the elderly. These environments are to be used by people with normal abilities as well as those people with disabilities. They also adapt to people as individuals and strengthen people's sense of themselves as independent and capable. Universal design is the creation of environments that involve accessibility, adaptability, aesthetics, and affordability.

Ultimately, universal design is a collaboration of...

Supportive Design

Adaptable Design

Accessible Design

Safety Oriented Design

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barrier free as the determinant for design
Research
(universal design)

Supportive Design
The design must provide a necessary aid to function, and it should not, in providing such aid, create any undue burden on any person.

An example - Lighting
Lighting is very important when illuminating a work surface or space. Lack of appropriate lighting can actually cause a decrease in visual acuity. The increased amount of lighting becomes essential as people become older. Different people need to be able to adjust for different directions and levels of light to perform daily activities.

Another example - Ergonomic Chairs
These chairs offer several variations in adjustments depending on the type of work, height of working area, position of head to work material, etc.
Research
(universal design)

Adaptable Design
The design should serve a majority of individuals who have a variety of changing needs.

An example - Adjustable workstations
These workstations consist of desks with adjustable heights and wraparound surfaces or detachable surfaces as well as adjustable stands for keyboards and monitors.

(image taken from Universal Design)
Research
(universal design)

Accessible Design
The design should be free of physical and attitudinal barriers. It should promote accessibility because most barriers (to mobility, communication, or well being) inhibit most people. It means rethinking space to better enable use by all people.

An example - Curb cuts
Curb cuts work well for bicyclists, baby carriages, and wheelchairs, but they don’t always work well with people with visual impairments. The location of, texture, and contrasting color/pattern can alleviate a majority of the accidents that may occur from visual impairments.

Another example - Side-by-side refrigerator/freezer
This type of refrigerator provides easy access for people of all statures and abilities.

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barrier free as the determinant for design
Research
(universal design)

Safety-Oriented Design
The design should promote health and well-being. Safe design should recognize and deal with both physical and psychological challenges.

An example - Universal Kitchen
In this type of environment, a contrast of colors or patterns mark changes in floor levels. Desks and cabinets have rounded edges. Redundant alarms have both audible and visual signals.

(Image taken from Universal Design)
Research
(universal design)

Other Design Benefits

Universal Design is **economical**.
It does not focus at designing environments/products for an individual disability, but it goes beyond specialization, not only by utilizing existing products in different ways but also by standardizing those design elements that can be beneficial to everyone.

An example - The Standard Door Width of Three Feet

Universal Design is **aesthetically pleasing**.
It adapts products that are already accepted by the population at large, or creates ones that will be pleasing to everyone (eliminating the institutional look with new levels of attractiveness.)

An example - Grab Bars

Universal Design is **marketable**.
More people are ready to spend more money to maintain a sense of independence.

An example - Social Relationships
More people will participate in more social activities-theaters, restaurants, grocery stores, public amenities, etc.

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Research
(information processing theory)

The Information Processing Theory
The information processing theory describes how people think. It describes how people interpret and integrate different kinds of information, and how people code, store and retrieve information. The environment-natural, physical, and psychological-is the source of input into the information processing theory. It is very similar to the computer.

Both systems need devices for receiving input. It all begins with what is called the sensory register. The sensory register is described as the starting process of attention - the selective focusing of perception or the process used to focus on one or more aspects of the environment.

People receive input through the sensory register which are the five senses - touch, smell, taste, sight, and hearing. Computers receive input through a keyboard, a mouse, or a modem.

Both systems need components that retain information.
Short Term Memory - People have different types of memories for information that must be retained for a short period of time while computers use RAM - Random Access Memory.
Long Term Memory - People have different types of memories for information that must be retained for a long period of time while computers use ROM - Read Only Memory.

Both systems produce output when processing is completed. Computers use monitor screens, printers, and other devices while people exhibit different types of behaviors such as verbal and physical.
Research
(information processing theory)

Through the use of analogy, the information processing theory is easily defined and related to the concept of barrier free, the design process, and library design. These are the physiology analogy and memory analogy.
Through the use of analogy, the information processing theory is easily defined and related to the concept of barrier free, the design process, and library design. These are the technology analogy and the architectural design analogy.
Research
(information processing theory)

Through the use of analogy, the information processing theory is easily defined and related to the concept of barrier free, the design process, and library design. These are the exterior design and interior design analogies.

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barrier free as the determinant for design
Research
(information processing theory)

Through the use of analogy, the information processing theory is easily defined and related to the concept of barrier free, the design process, and library design. These are the library analogies.

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barrier free as the determinant for design
Research
(information processing theory)

In summary, the information processing theory, in relationship to barrier free, is about the built environment and how it begins with an idea. That idea develops and grows just like a person goes through the different stages of life and learns from his/her environment.

Architects and designers - past, present, and future - have and will always use this approach when designing the built environment.

With so many variables among everyone in the world, there is a need to create a common framework in the way architects, designers, and the rest of society view the built environment.

That's why in barrier free design, it's not just designing for a specific client. The client is all people.
Site Analysis

(image taken from Small Library Buildings)

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 barrier free as the determinant for design
Site Analysis

In the beginning...
Locals preach that it was the most serene place along the river. The tall trees with the thick undergrowth made it almost impassable through the timber. As the river meandered down toward the rapids, the timber became thicker and edged down to the water's edge. The water turned white as it rippled over the rapids. The whispering sounds of the ripples and the rustling of the trees by the gentle breezes brought peace and serenity to many a traveler. This spot on the river called "M'Shehwatatheek" by the Indians (meaning "swift flowing water" or "heavy timbered rapids") was the fording place and camping spot for many people traveling to the Wabash country and south.

Mishawaka began as St. Joseph Iron Works in 1833. Alanson M. Hurd built a factory for the manufacturing of iron. This was just the beginning of Mishawaka as a manufacturing center that included wagons, furniture, windmills, hard woods, beer, and wool boots. In 1835, Hurd completed the first dam and in 1837, he completed the first bridge.

Three other communities, the Town of Mishawaka, Fowler's Addition, and Indiana City, developed adjacent to St. Joseph Iron Works.

It was not until 1838 when the four separate communities were combined to form the city presently known as Mishawaka.
Site Analysis

The present...
The City of Mishawaka is located in north central Indiana, approximately 90 miles east of Chicago, Illinois and 110 miles north of Indianapolis, Indiana.

The downtown district still houses many of the city's federal offices. The post office, police station, present library, etc. are located in the downtown area. Yet, some of the smaller businesses and historical essence have been lost due to the growth in commercial and residential developments in the surrounding area. These strip malls and apartment complexes outline the city's edge. My particular site, Uniroyal Property, consists of 43 acres of land and is presently owned by Uniroyal Technologies, a subsidiary of the Jesup Group (which filed for bankruptcy in 1991 and has caused many burdens for the community of the city of Mishawaka.

The Uniroyal Property site is unique in many ways. The size, the relationship with downtown Mishawaka, and the natural features are three elements that define this site. It is bounded on the north by First Street, on the south by the St. Joseph River, on the east by Main Street, and on the west by West Street. The site is presently covered with either structures or impervious surfaces. There is an excess of fifty buildings on the site, but from the street it is impossible to identify them all because many of them are enclosed in common facades or are additions to buildings. There are, however, five clusters of buildings that are easily identified.
Site Concept

(image taken from Small Library Buildings)

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Site Concept

As a part of this thesis, I felt it necessary to explore an idea that would express barrier free at a larger scale. At the present time, the Uniroyal site has been a major burden on the city of Mishawaka. It has formed a barrier between the St. Joseph River and the heart of downtown.

Assuming that the city of Mishawaka were able to obtain funding to clean up this area, a new development could be created which may offer tremendous opportunities for commercial growth and outdoor leisure.

This type of situation called for a concept for creating an active recreation park surrounded by small businesses and public amenities. This use would allow a site which has been cleared, but for which permanent marketable use has not been defined. This concept would allow the property to become an active part of the community.

In addition, a proposed riverwalk could be implemented onto the site that would connect the several park areas together. In the plan for the riverwalk, the St. Joseph River is given back to the community and reserved for public use along its entire edge. There are a variety of activity points (such as a pier, a historical marker, fishing nodes, a boardwalk, and a reconstructed mill) that can be proposed to give back the river to the city of Mishawaka.
Site Concept
(riverwalk sketches)

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Schematic Design

(image taken from Small Library Buildings)
Schematic Design

The schematic design phase began with looking at the site and seeing what it had to offer. There were three factors that determined the form in which the library would take shape. They were the relationship to the river, the relationship to the curve in the road, and the relationship to the cross traffic at the intersection of Church Street and Main Street.

With these factors, I began to look at different forms that incorporated just one of those determinants, then two of them, and finally all three of the determinants. Through the use of study models, the solution became more easily recognizable. By using the study models, I was able to explore many ideas and incorporate the concept of barrier free at a larger scale.

It was apparent that the entrance into the site should be located at the intersection of Church Street and Main Street. Therefore, vehicular traffic patterns would not have to change drastically. This would also create a visual attraction for any user to the location of the entrance onto the site and the location of the entrance to the library.

In response to the curve in the road, the building form, as well, ought to respond to the curve in order to keep the continuity of the flow of vehicular and pedestrian traffic. A curved form also adds to the views of the downtown area.

Speaking of views, the best views from this site are the ones that look onto the river. Therefore, a majority of the internal functions of the library should focus on the relationship of the river in order to maximize its potential to connect the design all together.

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barrier free as the determinant for design
**Schematic Design**

These two study models exemplified all three issues in determining the form of the building.

Both study models reflected the relationship to the intersection of Church Street and Main Street. They allowed for vehicular and pedestrian traffic to flow into the site. This intersection would serve as the main entrance into the site.

Both study models explored the use of a curved facade along Church Street. The curved facade also added a different dimension to a unique building form that often resembled an ax that could breakdown barriers. The curved facade responded to and complemented the curve in the road.

Both study models began to connect the river to the building by allowing for several options to views of the river by means of setbacks, cantilevers, glass walls, and different level changes. It also allowed for many opportunities for exploration to outdoor activities such as access to the proposed riverwalk.

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barrier free as the determinant for design
Schematic Design

These next four drawings began to explore the spatial relationships found within the building. Because of the size of the site and the size of the building, the amount of space needed to incorporate all the functions of the library added up to four different levels - lower, ground, second and third. The different colors and shapes showed how the different departments of the library were related. The library provides an array of services to a varied constituency. An open, flexible structure that can respond to changing needs was very important.

The lower level would serve three functions. The first function would service the mechanics of the building such as air conditioning and heating units. The second function would service the storing of bulk, heavy, and miscellaneous equipment. The third function would allow for the library to be open twenty four hours so that the community could have access to meeting rooms and computer terminals.

The ground level would serve as the main entrance to the library. The circulation desk would be visible upon entering the library. The book stacks, as well, ought to be visible. In this design, study rooms were located at the extreme ends of the curved form for views to the river and downtown as well as for privacy. The media department, periodicals department, adult fiction collection, and young adult collection were grouped together to fill the rest of the floor space. These different departments were placed together because patrons tend to want to come in and quickly checkout videos and CDs as well as to browse through recent periodicals and new books without having to travel very far upon entering the library.

MISHAWAKA PENN PUBLIC LIBRARY

barrier free as the determinant for design
Schematic Design

The second level would serve as the frequently used sections of the library. These sections were the local history department, adult non fiction collection, and the reference department. These three areas required the largest amount of square footage. Upon exiting the elevator or stairs, the reference department would be clearly visible with the other book collections on the other side of the vertical circulation core. Once again, study rooms would be place on the extreme ends of the curve because of views and privacy.

The third level of the library would service three important functions. Technical services would be located on this level. Administration would also be on this level. The children's department as well would be located on the third level. Technical services and administration are interrelated, therefore creating their own node. As a result the children's department has a sense on independency from the other departments of the library. A restroom designed for children will also be located within the department.

As for other design elements, public restrooms will be located near the elevator cores, all stairwells will serve as forms of egress, book stacks, electrical fixtures, and public equipment such as public telephones, xerox machines and water fountains will comply with ADAAG guidelines.

MISHAWAKA PENN PUBLIC LIBRARY
barrier free as the determinant for design
Schematic Design

The library should be a significant and permanent representation of a community's values. The building's design should engender a sense of pride and permanence. A warm and technological atmosphere should invite the community to enter and feel at ease and know that the information they're looking for is there through the use of the services and resources.

These sketches began to show the form of the building at a more detailed level. The idea of a canopy system was introduced to serve as a protective screen on the exterior of the building. Other ideas of cantilevers, glass walls and sunscreens were explored to add to the final building form.

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barrier free as the determinant for design
Schematic Design

These sketches were then drawn to explore relationships between the building and the river and the building and the street. They were also useful in determining elevation and section details that would ultimately connect the entire building to the site as well as the functions of the library. Therefore, the notion of several physical and psychological barriers would be eliminated.

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Final Design

(image taken from Small Library Buildings)

MISHAWAKA PENN PUBLIC LIBRARY
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Final Design

For the final design as in function, this was how the library was broken down into the four different levels.

SECOND LEVEL
ADULT NONFICTION (8041 sqft) - This space makes available to patrons the different segments of the circulating adult print collections. This includes activities such as study seating and seating for leisure reading.

LOCAL HISTORY DEPARTMENT (3120 sqft) - The local history collection is an important accumulation of print and non print materials documenting the history of the area.

REFERENCE DEPARTMENT (6730 sqft) - The reference department assist the public in locating materials in both the non-circulating and circulating materials in this area as well as the other collections.
Final Design

For the final design as in function, this was how the library was broken down into the four different levels.

THIRD LEVEL
TECHNICAL SERVICES (2165 sqft) - Technical services provides for the acquisition and maintenance of materials for the collections and bibliographic records.

ADMINISTRATION (3210 sqft) - Administration provides for the preparation of budgets, policies, processing payments, service programs, material orders, and administration reports.

GENERAL STORAGE (1088sqft - all four levels total) - The library needs a large space in order to store book sale books, historical library operational records, and other bulk items.

CHILDREN’S DEPARTMENT (8121 sqft) - This space provides the collections and services designed for library user’s from birth to elementary school as well as parents, teachers, and caregivers.

As for all the levels and the building as a whole, the library and its furnishings (tables, carrels, counters, sofas, chairs, etc.) shall comply with all applicable laws, codes, and ordinances. Attention should focus on the ADA and ADAAG which has specific requirements applicable to public libraries. For example...

Shelving Aisle Widths of 36 inches to 42 inches
Shelving Heights of 48 inches to 54 inches
Signage should be uniform as in contrast, symbology, size, braille, and other requirements that apply to permanent designations.

MISHAWAKA PENN PUBLIC LIBRARY
barrier free as the determinant for design
Final Design

The east elevation shows the entrance doors into the library. It is located under the mural of two books with the words “public library” carved into them. A portion of the second and third floors cantilever over the entrance to provide a covered walkway into the glass vestibule. The elevation also shows the drop off canopy that protects users while outside. The long cantilever of the children’s and reference departments is visible as well.

The northeast elevation shows what is seen from the riverwalk. A glass wall (approx. two stories high) looks over the river. A portion of the building, where the children's and reference departments are located, cantilevers out to give an even closer view of the river. There are possibilities for the proposed riverwalk to go under this cantilever.

The south elevation is the first contact of vision for people approaching the library from the south (mainly Church Street and Main Street). A mural of four stacked books with the name of the library carved into them serves as an icon for the library. People will know that this building is a public library. The drop off canopy is also visible from this view. This elevation starts to show how the sunscreens affect the look of the building.

The southwest elevation shows how the vertical sunscreens break up the horizontal feel of the building. They also serve as structural columns that are bought to the outside for ornamentation. The sunscreens also provide a visual attraction through the use of rhythm. They also help delineate from the office building appearance and give the library a total sense of unity.

MISHAWAKA PENN PUBLIC LIBRARY
barrier free as the determinant for design
Final Design

The first two sections (top-two) are cross sections of the library. The first is a north-south section, and the second is a east-west section. They show the relationship the building has with the street and river. Both sections also show the light well inside the building that looks over the entrance lobby area. A statue of Princess Mishawaka sits at the bottom of the light well.

The other four sections show areas of the building of great importance. All four sections show a raised floor in which the mechanics (the air ducts, computer and telephone wiring, etc.) are located. This design idea allows for adaptability and accessibility for future changes and expansions.

The first section (top-left) shows how light can enter the lower level of the library where the computer department and custodial services are located. Light enters this space because of a sloped-cut into the ground. A drainage system would need to be designed in this area of the building.

The second section (bottom-left) shows the relationship of the drop off canopy to the building entrance. This canopy provides protection while outside of the library.

The third section (top-right) shows how light can enter the atrium of the library. The three story atrium is located on the north side of the building and can be seen from the balconies of the second and third levels. It also serves as a lobby area for the meeting rooms.

The fourth section (bottom-right) shows the relationship of the building to the river where the library cantilevers out to get a bird's eye view of the river.

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barrier free as the determinant for design
Final Design

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Final Design

Aerial View from the Southwest

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Final Design

Bird's Eye View from the Southeast

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Final Design

Aerial View from the Northeast

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Final Design

Bird's Eye View from the West

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Final Design

MISHAWAKA PENN PUBLIC LIBRARY
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Aerial View from the West
Reflection
Reflection

It is my conclusion that, in order for architects, designers, and the rest of society are to be true to the definition and concept of barrier free, we must think freely. We must begin to think about free space - space without barriers.

The definition and concept of barrier free does not start with laws, codes or regulations. It’s a sense of understanding who people are and what their capabilities are. Therefore, the underlying meaning of barrier free is to shift the focus of inability from the person to the natural and built environments. Then, the blame is on the environments, and it’s the obligation of others to change the natural and built environments.

Barrier free is a way of thinking design. It is a way of thinking about a new architecture that is inspired by computer technology and the exploration of the workings of the human brain.
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(Image taken from Small Library Design)

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barrier free as the determinant for design
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Appendix

(image taken from Small Library Buildings)

MISHAWAKA PENN PUBLIC LIBRARY
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SITE ANALYSIS

BARRIER FREE AS THE FORM DETERMINANT FOR THE DESIGN OF A PUBLIC LIBRARY
SITE CONCEPT
BARRIER FREE AS THE FORM DETERMINANT FOR THE DESIGN OF A PUBLIC LIBRARY
RIVERWALK

RIVERSIDE PATH, FISH HABITAT, FISHING NODE, AND BOARWALK

RIVERWALK, THE MILL, ST. JOSEPH IRON WORKS MARKER, AND THE PIER

BARRIER FREE AS THE FORM DETERMINANT FOR THE DESIGN OF A PUBLIC LIBRARY
ABLE-BODIED MAN AND WOMAN

MAN WITH A WALKING AID

MAN AND WOMAN W/ CRUTCHES

VISUALLY-IMPAIRED MAN W/ DOG

REACH OVER COUNTER

AREA OF REACH

TURNING POINT FROM CENTER

TWO WHEELCHAIRS PASSING

BASIC HUMAN DIMENSIONS

BARRIER FREE AS THE FORM DETERMINANT FOR THE DESIGN OF A PUBLIC LIBRARY
LIBRARY DETAILS

BARRIER FREE AS THE FORM DETERMINANT FOR THE DESIGN OF A PUBLIC LIBRARY
ELEVATIONS

BARRIER FREE AS THE FORM DETERMINANT FOR THE DESIGN OF A PUBLIC LIBRARY
SECTIONS

BARRIER FREE AS THE FORM DETERMINANT FOR THE DESIGN OF A PUBLIC LIBRARY
SECTIONS

BARRIER FREE AS THE FORM DETERMINANT FOR THE DESIGN OF A PUBLIC LIBRARY