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Space-Time Continuum: A Design Approach for the Built Environment

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SPACE-TIME CONTINUUM: A DESIGN APPROACH FOR THE BUILT ENVIRONMENT

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For My Parents
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# TABLE OF CONTENTS

List of Tables vii

List of Figures viii

Abstract xi

1. INTRODUCTION 2
   The Purpose 3
   A Brief Description of the Design Problem 3
   Goals of the Project 4
   Research Components 4

2. REVIEW OF LITERATURE
   Space-Time Continuum 5
   Visual Perception 6
   The Process of Visual Perception 7
   The Role of the “Dual” Brain 9
   Primitive Conception of Space and Time 10
   The Classical Approach to Space and Time 13
   The Approach during the Medieval Ages 16
   The Absolutist’s Views 17
   The Relativist’s Approach 21
   Philosophical Views of Time 25
3. DESIGN PROGRAM

Project Description

The Intent and the Significance 44
Existing Conditions in the Ybor City 46
The Vision Plan 50
General Physical Conditions of the Ybor City 53

History of Ybor City

The Founding of the City 54
The Development of the Cigar Capital 55
Role of the Ybor City in the Cuban Revolution 56
The Decline of the Ybor City 56

Site Analysis

Site Location and Features 57
The Land Use 60
The Existing usage of the Centennial Park 62
Traffic Flow 63
The Importance of Ybor City State Museum 64
The Importance of the Cigar Worker' Houses 67
Local Architectural Style and Materials 69
Program and the Functional Requirements 70

4. THE PROPOSAL

Design Process 72
Images of the Proposed Development 82

5. FINAL DISCUSSIONS OF THE PROJECT

REFERENCES 94
BIOGRAPHICAL SKETCH 96
LIST OF TABLES

3.1 The number of annual visitors to the Ybor City  
3.2 Design program
LIST OF FIGURES

2.1 The dual nature of the brain 10
2.2 Ouroboros 12
2.3 Temple plan of Archaic Artemision (Euphesus, Turkey) 15
2.4 Temple of Hephaistos 16
2.5 Plan and section of Villa Rotunda 18
2.6 Villa Rotunda 19
2.7 Spatial Sequences 20
2.8 Aimes Cathedral 20
2.9 Atheneum, New Harmony, Isometric View 23
2.10 Atheneum, New Harmony 23
2.11 Atheneum, New Harmony 24
2.12 Heidegger’s relationship between Being, Time and Appropriation 25
2.13 Heidegger’s concept of Time-Space 26
2.14 Conceptual Section, Louvre, Paris 27
2.15 Louvre, Paris 27
2.16 Louvre, Paris 28
2.17 WTC Memorial, New York 29
2.18 WTC Memorial, New York 29
2.20 “The Present”, Diagram of the WTC Memorial, New York 30
2.21 Section, Chora L Works, Peter Eisenman 31
2.22 View, Chora L Works, Peter Eisenman 31
2.23 Chora L Works, Peter Eisenman 32
2.24 Follies, Park de la Villete, Paris 34
2.25 Plan, Park de la Villete, Paris 34
2.26 Follie, Park de la Villete, Paris 35
2.27 Uni-axial symmetry 37
2.28 Bi-axial Symmetry 37
2.29 Sequence 38
2.30 Clustered sequence 38
2.31 Asymmetrical organization 39
2.32 Horizon line as a reference 39
2.33 Vertical plane as reference 40
2.34 Inclined wall as a transformational device in a sequence 41
2.35 Curved wall as a transformational device in a sequence 41
2.36 Series of frames as transformational device in a sequence 41
2.37 Change of form 42
2.38 Extension of spaces 42
2.39 Change in material 43
3.1 Area context map of the Ybor City 45
3.2 Centennial Park Project Location Map 46
3.3 7th Avenue, Ybor City 47
3.4 Street View during the daytime, Ybor City 47
3.5 Centro Ybor Plaza, Ybor City 49
3.6 Centro Ybor Plaza, Muvico Theater, Ybor City 50
3.7 Plan showing the proximity of the proposed project from Centro Ybor 58
3.8 Site Plan 59
3.9 Site-North Side View 59
3.10 Site- South Side View 59
3.11 Site- West Side View 60
3.12 Site- East Side View 60
3.13 Zoning Plan of the Ybor City 61
3.14 Sunday Fresh Market at the Centennial Park, Ybor City 62
3.15 Sunday Fresh Market at the Centennial Park, Ybor City 63
3.16 Streetcar station at Centro Ybor, Ybor City 64
3.17 Streetcar at Centennial Park, Ybor City 64
3.18 Ybor City State Museum façade 65
3.19 Museum’s Exhibit Area 66
3.20 Museum’s Exhibit Area 66
3.21 Ferlita Bakery’s retained earthen ovens 66
3.22 Ferlita Bakery’s retained earthen ovens 67
3.23 The Casitas 68
3.24 Ybor Museum tour at the Casitas 68
3.25 Interior Exhibit Area in the Casitas 69
4.1 Site for the proposed mixed-use development 73
4.2 Grid-iron street pattern of the Ybor City 74
4.3 Representations of grid 74
4.4 Use of cube as an element of reference along the primary axis 75
4.5 Growth of form along the primary axis 76
4.6 Metaphorical representation of the concept of Lector as an open-air theater 76
4.7 Underground passage as an element of transition of the past 77
4.8 Representation of the past through negative subterranean space 78
4.9 Transformational devices 79
4.10 Conceptual elevation and section 79
4.11 Conceptual view 80
4.12 Multiple usage of stage area in the Experimental Theater 81
4.13 Columnar grid as an element of “timelessness” 81
4.14 First floor plan 82
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.15 Section A-A</td>
<td>82</td>
</tr>
<tr>
<td>4.16 Second floor plan</td>
<td>83</td>
</tr>
<tr>
<td>4.17 Section B-B</td>
<td>83</td>
</tr>
<tr>
<td>4.18 Basement floor plan</td>
<td>84</td>
</tr>
<tr>
<td>4.19 Section C-C</td>
<td>84</td>
</tr>
<tr>
<td>4.20 Roof Plan</td>
<td>84</td>
</tr>
<tr>
<td>4.21 Aerial view</td>
<td>84</td>
</tr>
<tr>
<td>4.22 Aerial view</td>
<td>85</td>
</tr>
<tr>
<td>4.23 Aerial view</td>
<td>85</td>
</tr>
<tr>
<td>4.24 Museum Court</td>
<td>86</td>
</tr>
<tr>
<td>4.25 Museum Court</td>
<td>87</td>
</tr>
<tr>
<td>4.26 Museum Court</td>
<td>87</td>
</tr>
<tr>
<td>4.27 View from 8\textsuperscript{th} Avenue</td>
<td>88</td>
</tr>
<tr>
<td>4.28 Open-air Theater</td>
<td>88</td>
</tr>
<tr>
<td>4.29 Approach to the Open-air theater from the underground passage</td>
<td>88</td>
</tr>
<tr>
<td>4.30 Approach to the Open-air theater</td>
<td>89</td>
</tr>
<tr>
<td>4.31 Open-air theater</td>
<td>89</td>
</tr>
<tr>
<td>4.32 Open-air theater</td>
<td>90</td>
</tr>
<tr>
<td>4.33 View of the Open-air theater from the 9\textsuperscript{th} Avenue</td>
<td>90</td>
</tr>
<tr>
<td>4.34 Columnar grid for the fresh market area</td>
<td>91</td>
</tr>
<tr>
<td>4.35 Aerial view of the retail area</td>
<td>91</td>
</tr>
</tbody>
</table>
ABSTRACT

Ever since the advent of modern theories in architecture and design, the concept of Rationalism has revolutionized the process of design in the built environment. Rationalism, being the art of logic, has elevated this profession from decoration to design. A number of designers and theorists have tried to approach and achieve this concept by embracing different means and methods. The intent was to encapsulate logic, function and aesthetics in the formulation of a design approach to develop an architectural vocabulary for the built environment. Space and time, being two important aspects, play crucial role in the perception of built environment. Theorists in conjunction with the designers through the ages have tried to understand and use the dynamics of space and time.

This thesis addresses the concept of space-time dynamics in the built environment and explores its application as an approach to design. The research explores this concept from a multitude of perspectives ranging from scientific to philosophical views. The end result may not be a completely new definition of architecture and design, but is an expanded view from various perspectives bearing the potential of developing new perception. These approaches can be rationally used towards the spatial solutions to enliven the present urban realm.

With these theories as a backdrop, the study explores works and approaches of several contemporary designers and their novel solutions. The thesis culminates with a design project in which these concepts are applied in a real world situation. For the purpose of this thesis, a site was chosen for a mixed-use development project at the Centennial Park in Ybor city, Tampa, Florida. This site provides an opportunity to
provide spatial solution for the present day program in this historically and contextually rich setup.
CHAPTER 1: INTRODUCTION

Design serves as a medium of expression of human feelings. This art of frozen music not only fulfills functional requirements by enclosing the events in the space, but also acts as a medium of representation of time. The monuments of ancient civilizations evoke a sense of time through the immortal representation of the events or the functions through forms and spaces. In contextual design, the designers come across challenges from sites with diverse features. Each site has its own “Genius Locii” or the spirit of place that includes its geographical features, neighbors and history. Architectural design is exclusive to the site (Baker, 1993). Baker (1993) states,

“To Christian Norberg Schulz, architecture belongs to poetry and attains a poetic dimension when buildings gather the properties of the place and bring them close to the man. As such architecture is also art, responding, as Berger insists, to man’s desire to prolong the instantaneous into the permanent and to create order out of the chaos of the nature” (p.10).

Since no two sites can be similar in all respects, their designs cannot be analogous. The resulting design should respond conceptually to the site addressing the factors above. In other words, it is very crucial to approach a project in a rationalistic way to make it site specific. Rationalism fosters the idea of ability to reason the elements and approaches in the design. So, this game of logic is ideally realized when we define terms from multiple perspectives and derive a final approach.

Time and space, being the essential factors, affect the understanding of the design at the conceptual level. The definition of perception, space and time will aid better
understanding of relationships. The intent of this exercise is to explore space-time dynamics and analyze their implications in the built environment. Furthermore, the research aims to explore this relationship from diverse perspectives including scientific, historical, and philosophical points of view, and attempts to formulate a design language for the built environment. The expression of the language in the built environment could take place through the use of spaces, forms and other architectonic elements. The concepts derived from the research may be applied in real world design projects to justify the use and the approach to design.

The Purpose

The purpose of this study is to understand the concept of space-time continuum and develop awareness in exploring its role as an approach in the design of the built environment. The intent is also to explore the possibility of developing a rational architectural vocabulary that could be used as a paradigm in the real world situations.

A Brief Description of the Design Problem

The design project selected for this thesis includes the development of the Centennial Park in the historic Ybor City, Tampa, Florida. The goal of the project is the revitalization of the Centennial Park area by accommodating multi-functional programs catering to present and future demands. Importance is also placed in enhancing the identity of this space by maintaining the historical and contextual sense as per the visions and goals of the Tampa government. The project encompasses diverse program requirements including the expansion of an existing museum, rentable gallery spaces,
multi-functional experimental theatre, open-air entertainment areas and space for the famous Sunday flea market. The intent of the project is to create a sound solution for this urban setting using the concepts derived from the research.

Goals of the Project

The goal of the Centennial Park project is to design a multi-use space in Ybor City encouraging daytime activity supporting the vision of the Tampa government. This includes enriching pedestrian activity for greater inflow of tourists. The new requirements are to be used as an addendum to the already existing Ybor City Museum adjacent to the park. The primary aim is to cater to the present demands of leisure and entertainment while complimenting the existing urban fabric.

Research Components

The following review of literature outlines the space-time dynamics through the ages ranging from primitive to the contemporary era. The research focuses on the definitions and notions of these components along with their implications on the design of the built environment. Furthermore, the research also explores the understanding of space-time dynamics from a multitude of perspectives including biological and philosophical views that lead to new definitions. Finally, the research explores the understanding and application of the space-time concepts by contemporary designers focusing on their approaches and novel solutions.
Space-Time Continuum

“……… the architectural sensation we experience stems from hundreds of different perceptions. It is the “promenade”, the movements we make that act as a motor for architectural events” (Le Corbusier as cited in, Pauly, 1993, p.29).

Space and time are two key components used to perceive an architectural design. Understanding these components is crucial since they posses the potential to manipulate the experience in a built environment. Many architects, theorists and philosophers have tried to define space and time. These definitions have evolved over time to the present contemporary world. These definitions and the developments are explained in the following chapters.

Herman Minkowski, a German mathematician and teacher of the great scientist Einstein, recognized the relationship between space and time naming it the “space – time continuum”. The new phrase coined for this revolutionary concept of the fourth dimension by fusing together the two words, i.e space and time. His aim was to emphasize a unity that existed between the two concepts when combined together. Minkowski in his speech said

“Gentlemen! The views of space and time, which lay before you have sprung from the soil of experimental physics, and therein lies their strength. They are radical. Henceforth space by itself, and time by itself, are doomed to fade away into mere shadows, and only a kind of union of
the two will preserve an independent reality” (as cited in Shlain, 1991, p.132).

Understanding this concept requires an in depth research from the extent of knowing the functioning of the brain to the definitions of perception, space and time from multiple points of views.

Visual Perception

The definition of the term “visual perception” is crucial in the understanding the space-time continuum. Human body is a complex system in which natural processes happen both knowingly and unknowingly to us. So, it is vital to begin understanding a concept from the natural or the biological perspective exploring both the facets. Visual perception as a natural phenomenon is the way in which we recognize and distinguish visual information. This experience according to William C. Lam (1977) depends on the two factors namely the voluntary and involuntary activity needs.

Conscious Activities or Voluntary Activity Needs

These are elements of the visual environment that provide information needed to perform conscious activities or the activity needs. For example, the letters in the book must be clear to see while reading a book. A good lighting design makes this information clearly perceptible. So, lighting is an activity need for reading book.

Involuntary Activities or Biological Information Needs

These are impulses that relate logically to human beings as biological organisms. This is information that is required by everyone, everywhere, regardless of the kind of
activity indulged. The biological information need is about maintaining contact with the environment and adopting behavior to the environment changes. For example location, time, orientation, neighbors, weather changes, etc can be biological information needs.

Furthermore, according to Lam (1977), contrast, context and prior experience all influence the operation of the biological information needs. A bright element in a dark background, or a moving object behind a static background may be used to grab attention of a person involuntarily. Similarly, a presence or absence of an object to a context based on prior experience can also involuntarily grab attention. Depending on the kind of incoming data, context and experience, each person may react subjectively. If the incoming data is as expected, then it relates to the previous experience and the person displays a relaxed state. If the data is ambiguous, then it provokes a feeling of dissatisfaction, discomfort and the person displays an uncomfortable state. If the data is informationless like dark alleys, or high windowless walls, then it triggers a feeling of weariness due to suspected danger and the person displays a state of tension.

The Process of Visual Perception

According to William C. Lam (1977), we live in a world of a complex matrix constituted of a countless inflow of sensory impulses or data. The brain, the control hub of the human body, comprehends this raw sensory data and impulses, sorts them accordingly, and stimulates us to respond in a certain way. Visual perception is a complicated process, which even though highly sophisticated, works without the intervention of the conscious mind. The degree to which this unconscious biological mechanism of perception functions in sorting and selecting data depends on the time and experience.

Lam (1977) further identifies the human eye as the receptor of visual information in form of light of different wavelengths that pass through its lens and focus on the nerve cells of the retina. The cells of the retina convert the pattern into raw sensory data
constituting a complex matrix of electrical charges of various strengths and send them to brain along the pathways of optic nervous system.

This leads to three interesting stages of perception:

1. The attributive stage
2. The expectation stage
3. The affective stage

Attributive Stage

The attributive stage as defined by Lam (1977), is where raw sensory data in the form of the electrical impulses and patterns are sorted and classified by an interesting phenomenon called the experience filter. The experience filter is a part of unconscious memory that stores and classifies incoming data according to their characteristics and relationship with prior similar situations in the subconscious mind. This process of matching incoming data and classifying them according to the experience filter is called an attribution of meaning in perception. Visual stimuli consisting of the unclassifiable or ambiguous data would be classified as unfamiliar data, which triggers biological defense mechanisms arousing curiosity and demanding further visual attention.

Expectant stage

This stage as defined by Lam (1977) helps to establish associations with the sequence of events. This stage not only outputs the process of perception, but the subsequent selection of sensory inputs by redirecting attentions, scanning patterns and checking incoming data with the experience filter. Expectations also create extensions of the visible world. If we were to walk on a curving road, we would expect to see and visualize that the road will further curve even though it is out of our cone of vision.
Affective stage

According to Lam (1977), the affective stage is concerned with the way in which each stimulus affects our emotional or evaluative response. This stage influences the extent of response that is shown towards any element in the visual field as a result of the previous two stages. The affective stage produces positive or negative responses. When the environment behaves as expected, the associative links established by the previous experience filter is confirmed. This produces a positive emotional response in the perceiver. If the environment behaves differently, then the experience filter is modified and the whole experience is changed in the memory.

The entire complex mechanism of the experience filter is constantly being updated as new stimuli are classified, suggesting new foci and finally filed into the visual memory (Lam, 1977). So, understanding the process of visual perception sheds light on the importance of the role played by the experience factor and the memory in the perception of forms and spaces in the built environment.

The Role of the “Dual” Brain

In addition to the process of visual perception, the concept of the dual characteristic, which is an interesting facet of the brain, plays vital role in the perception of space and time. As Shlain(1991) puts forward, the brain is divided into two lobes, the right and the left hemisphere. The right hemisphere of the brain facilitates emotions, comprehends images, and facilitates mental innovations (like art or poetry), and music. These aspects are better expressed through the metaphor of space. Hence the right side is better for appreciating dimensions and judging distances. These further suggest that the cognition of the right brain is vision-based and dependent on space. Furthermore, the
left side of the brain facilitates abstract thinking, number sense, and the execution of thoughts that are principally processed in time. It helps to develop language, logic, and strategy that need to refer to the lines of past, present and the future. So, the development of sequence happens here, which becomes crucial in the conception of time. In summary, the right side of the brain specializes in simultaneous coordination of information in space, while the left-brain assembles data sequentially perceived in time. As Shlain further says, “this arrangement forces on dual brained humans the illusion that reality is a series of causal events that appear in the three-dimensional spatial extensions in a specific sequence on a conveyor belt of time” (Shlain, 1991, p.411).

![Figure 2.1](image)

**Figure 2.1**
The dual nature of the brain
(Shlain, p.401)

**Primitive Conception to Space and Time**

Since eternity, man has evolved with an ability to think, resulting in a world of diversity through multiple perceptions. The subjective nature of perception, the geographical and cultural factors of the human habitat developed unique approaches to
space and time. Although historical records contain immense variety among civilizations, there have been only a few models of space and time.

Primitive art radically differs from the classical and contemporary views of space and time. Primitivism does not separate the “real space” and the “proper” time of the objective world from the artist’s inner vision. Primitive artists introduced the idea of myth and magic. So, they invested their art objects with magical powers. The ideas of space and time were different to different tribes, cults and civilizations. For example, the Eskimos’ idea of space and time as described by Edmund Snow Carpenter (1960) when he stated,

“They don’t regard space as static, and therefore measurable; hence they have no formal unit of spatial measurement just as they have no uniform divisions of time. The carver is indifferent to the demands of the optical eye, he lets each piece fill its own space, create its own world, without reference to background or anything external to it. The work of art can be seen or heard equally well from any direction” (p.66-67).

In contrast, the idea of time was different to Aborigines and the Hopi community. They did not relate to the concepts of time. Aborigines, a native community in Australia, followed an indivisible concept of time. They did not celebrate birthdays since no one in their tribal culture believes that time can be divided or measured. The same is true in the case of the Hopi, a native Indian community in America. As Whorf (1967) explains “the Hopi language contains no reference to “time” either implicit or explicit. At the same time it is capable of accounting for and describing correctly, in a pragmatic or operational sense, all observable phenomena of the universe” (p.378).

Shlain (1991) explains a fact that the Hopi tribe created sand painting by allowing the sand to trickle down their fingers without a canvas or a standard orientation as in western styles. The intent here was that the Hopi artist could view and work from different directions defeating the western rules of orienting art on a planar face. Interestingly, from the point of view of time, the painting lives only in the moment and generally cannot be preserved eternally, contrary to western styles. In summary, space and time meandered between myth and reality. Civilizations, whether Egyptian, Hindu or communities like Aborigines had no sharp line dividing the inner space of
imagination, the subjective reality and the objective reality. Myth and the subjective space of imagination with the events of everyday existence characterized every belief system world wide before the Greeks.

Shlain (1991) further attributed the fact that time was approached as a “cyclic” entity in most of the ancient civilizations. The evidence available to corroborate this to the observers was the ideas of resurrection, repeatability, the return of seasons, the rise and fall of river Nile and the periodicity of heavens. The Eastern civilizations exhibited a strong belief in the notion of cycles or the periodic return. Circles were the symbol of unity, oneness and succession in Asia. The concept of symbolizing time began to develop during this period. Aztecs, the natives of Central America, symbolized the circle of time through “Ouroboros”- the snake who has turned around to bite its own tail as shown in figure 2.2. Western civilizations, unlike the eastern, defined time as linear and symbolized it with an “arrow”. The Egyptians and the Hebrews further supported this idea of linear non-repeatable time within a religious context. Interestingly, Indians conceptualized both cyclic and linear notions of time as a single everlasting now. They represented time as a “wheel” being a symbol of progress. Finally, it was the Greek philosophers who introduced the idea of reason formulating a rational system that sharply separated from the others which were based on myths and religious beliefs.

Figure 2.2
The Classical Approach to Space and Time

History recounts the fact that the introduction of logic was attributed to the philosophers of the Greek civilization. They were the first to rationalize and universalize a system of communication, which further led to the development of the science of space. For the Greeks, the nature of reality was “reason” which was the antithesis to the idea of myth and religious beliefs. The introduction of alphabets as the first streamlined means of communication reinforced aspects of comprehension. This was corroborated by McLuhan (1965) who said, “Abstraction, linearity and continuity- these three ideas were also the foundation for the new conception of space, time and light that would emerge centuries later, following a wide acceptance of Greek’s new lettering system” (p.58).

Euclid, a Greek mathematician, codified space into a field of knowledge called “Geometry” around 300 B.C. The Egyptians, Babylonians, Indians and the others had discovered the geometric truths in bits and pieces. But, it was Euclid who gathered all these proofs together in one universal rationale scheme that further laid the foundation for a whole new science. Euclid translated the abstract thoughts into diagrams, defined his terms and formulated his “famous five” postulates. These rules, theorems and corollaries formed a coherent system. Euclid further organized space in the form of points that could be connected by an imaginary web of straight lines. Euclid’s way of representation of space was based on mental abstraction which did not exist in nature. So the entire field of geometry was based on the system of virtual abstraction. Euclid assumed space to be totally empty which did not interact with mass or form because it was essentially nothing. It was defined as an empty container where the Greeks arranged their mortal things (Shlain, 1991). Further, Democritis corroborated this idea by defining “space as a container in which objects exist” (Taylor, 2001, p.208).

Archimedis, the famous Greek philosopher with the fame of introducing concepts of buoyancy was next to support the ideas of Euclid. He declared that the shortest distance between two points is a straight line. This rule indirectly implied that Euclid’s space was uniform, consistent and continuous. This further meant that Euclid’s space
was linear and measurable. So, summing it up, space during this period was perceived as static, uniform, linear and measurable. The concept of “nothingness” was associated with space (Shlain, 1991).

Aristotle conceptualized time in a similar way in which his counterpart Euclid developed a coherent system of geometry. He codified time as an arrow or a straight line. This concept was contradictory to the crooked, curved and the serpentine form of time from myths and religious beliefs. According to Shlain (1991), Aristotle demythologized the three daughters of necessity to the following three fates. The Lachesis guarded what had been, that is termed as the “past”. The Clotho guarded what is present, that is termed as the “present”. Finally, the Atropos oversaw what is yet to come, that is termed as the “future”.

Once Aristotle had created linear time, the rules of rational thinking could develop into a powerful problem solving technique. Using the concepts of the abstract, linear and continuous time and space, he went on to develop a standardized system of rational thinking by formulating the rules of logic. Furthermore, he introduced the idea of syllogism using the simple tool “if-then”. This became a powerful tool to reveal truths without referring to myths and religious beliefs. So, logic became a primary tool to address the issues of space and time. The application of logic as an art of reasoning can still be seen in the present day in almost all fields. McLuhan (1965) supports this relationship between time and logic saying “Although logic itself is timeless, the process of logic depends heavily upon time. Logic proceeds one step after the other” (McLuhan, 1965, p.58). Sequence became the key to time. Each event followed the other to form a progressive time-space, which was non-returnable. Since the proper time was linear, it was proper to chronicle the events in a sequential order. As Arguelles (1975) corroborates the Greeks acknowledgement of the absolute uniqueness of historical events is one of history’s unique events. It could have been possible only in a civilization that adhered to linear time. The Euclidean space and the Aristotellean time became the basis of a paradigm that ruled the Greek world of art and architecture. Order and linearity were the basic concepts of their designs. John White (1987) substantiates this by highlighting that all forms were in the same plane and the movement was unidirectional.
Using the above principles and advantages, the Greek architects strictly formalized the uniform measurable space. The Greek artists positioned their figures in a linear orientation that depended upon the horizon. The architects later used these principles as a new aesthetic ideal to calculate the visual effects of their buildings. Greek sculptors accurately estimated the proportions of the human figure, which was used not only in sculpture but also in their buildings. Polyclitus wrote a book named *Kanon* (rule) that established the basis of an entire aesthetic based on measured relationships of the human body (Shlain, 1991).

These principles promoted the development of classical architecture that dominated the built environment. The figures 2.3 and 2.4 support the idea of linearity and unidirectional nature of the built spaces in Greek architecture.

![Figure 2.3](http://www.archaeology-classic.com/Map/images/plans3.jpg)

Figure 2.3
The Approach During the Medieval Ages

In Europe at around 400 A.D, notable changes took place in the understanding of the space-time dynamics. This period saw chaos in both the social and intellectual part of the life of a common man. Religion took over the rationality. The laws of logic were dismissed during this time between 400 A.D to 1250 A.D. The earth was considered flat with the heaven above it and hell below it. These regions were spiritual spaces that were beyond the reach of human abstraction, which could not be addressed by the postulates of Euclid’s system of geometry. Illiteracy was the norm in the monarchs and laymen defeated the idea of reason. Space during this period fragmented under the weight of the authority of the religion that was the Old and the New Testaments (Shlain, 1991). Marcea Eliade says that, “For religious man, space is not homogeneous; he experiences interruptions, breaks in it”. (as cited in Clark, 1969, p.17). The space lost its homogeneity and so could not be measured. This conceptual fragmentation of space led to the acceptance of disconnected regions.

Similarly, the concept of time also drastically changed during the medieval ages. Time was no longer perceived as a straight arrow. Instead, it was broken into different zones, the profane and the divine (Shlain, 1991). “For the man of the Middle Ages, then,
there was not one duration only. There were durations, ranked one above another, and not only in universality of the exterior world but within himself, in his own nature, in his own human existence” (Poulet, 1956, p.7). Logic and reason could no longer be relied upon to sort out the events in their proper order. Logic was useless if the events did not have a correct sequence.

According to Shlain (1991), the repercussions of these factors were seen in both art and architecture. The antirational thoughts, the dismissal of old traditions forced the artists to introduce new forms. Their beliefs of space and time were reflected in their work. Early churches contained walls with minimal aesthetic features. Since illiteracy was rampant, they had to tell their stories through simple figures. So large compositions of mosaic works started on high walls and domes of the churches. Through the use of mosaics, spaces were represented as discontinuous, but connected at a grander spiritual level.

The Absolutist’s Views

After the confusion and chaos during the medieval period, normalcy and peace returned at the end of the 15th century. During this period, a lot of issues were given order, which led to the development of systems in administration, science and literature. The famous Laws of Physics were formulated and new approaches to science made vital changes in the understanding of the space-time dynamics. As Shlain (1991) pointed out

“Both art and physics are unique forms of language. Each has a specialized lexicon of symbols that is used in a distinctive syntax. Their very different and specific contexts obscure their connections to every day language as well as to each other. Nevertheless, it is noteworthy just how often the terms of one can be applied to the concepts of the other” (p.19).

The conception of space and time were static. This meant that both space and time were conceived as independent in nature without any relation to any other entities in the
real world. Newton’s Absolute Theory further supported this where he defined “space as a real entity, which existed independently of the material objects it contained” (Taylor, 2001, p.208). Time was also perceived as an independent parameter following the definition in Newton’s Absolute Theory, which said “absolute time flows by itself, and from its own nature, flows equably without relation to anything external, and by another name is called duration” (Taylor, 2001, p.208).

Corroborating the above definitions, the three-dimensional space was static and absolute. In the Renaissance, built space followed the rules of Euclidian geometry that could be viewed from one or two vantage points. Architecture was an edifice to view or an object of contemplation (Giedon, 1940). The bilateral symmetry used in the Villa Rotunda built in 1566 A.D and designed by Andrea Palladio as illustrated in figures 2.5 and 2.6 serve as ideal examples.

Figure 2.5
During the Renaissance, architecture was controlled by the power of the ruler. The direct cause and effect can be seen in the way the monuments were built that reflected solidity, firmness, hierarchy and structure. They echoed the prevalent social structure by being the medium of their representation. Tschumi (1991) supported this by saying “In the past, architecture gave linguistic metaphors (the castle, the structure, the labyrinth) to the society. It may now provide a cultural mode” (p. 50).

Spatial sequences (as illustrated in figure 2.7), displayed a formal approach to their visualization. The three parameters for a spatial sequence were space, event and movement. Since the event or the function did not change its characteristics, the spatial sequences were similar in the related types of buildings. Spatial sequence was considered as a custom or a ritual. As Tschumi (1999) states, "It implies a near frozen relationship between space and event. Nothing strange or unexpected must happen. The control must be absolute. Here the route is more important than any one space along it” (p. 163).
The formal approach towards the organization of spaces can be seen in a cathedral. The ceremonial entry through the entrance flanked by bell towers lead to nave, which finally culminates at the chapel as a focal point. The illustration in figure 2.8 depicts this concept in the Aimes cathedral.
This notion holds well not only at the micro level but also at the macro level. An ideal example is the urban space in a Roman forum, which was built around 300 A.D in Rome, Italy. This constitutes piazzas or the open courtyards with overlooking colonnaded corridors adjoining the main buildings. These smaller courtyards combine with dominant town squares, which in turn form larger interaction spaces. The clock towers, spires of the churches and the dominant public buildings dominate the skyline leaving an indelible impression.

The Relativist’s Approach

The relativist’s approach, which emerged at the beginning of the 20th century holds a key role in the perception of space and time since it opens an altogether new chapter of views. The new laws and theories in physics brought vital changes in the field of science, thereby revolutionizing the whole world. The older theories seemed to lose their validity as the people of the new age began to look at the world with newer and transformed perspectives. The concept of space-time dynamics also got a new reformed. Space and time in modern physics are conceived as relative in nature rather than static or an absolute entity. Space according to “Leibniz’s relative view is defined as a set of relationships between the objects. This was further supported by Einstein’s theory of relativity that defined space as a medium connecting these objects” (Taylor, 2001, p.208). The essence of space conceived today is its multiple facets with unlimited possibility for relations within it. The crucial insight of Einstein’s special theory of relativity is the notion that space is interactive with the volume, shape and size of the objects residing within it.

Time is also conceived from a relative perspective, which is dynamic in nature. From the Leibniz’s point of view,” time is defined as a set of relationships between the events. It is the system of relations amongst the changing objects in the world” (Taylor, 2001, p.208). Shlain (1991) added that time, according to Einstein, was subjective in nature. This means that everything in the world is not totally relative, but is observer
dependent. Einstein further emphasized the subjective nature of time when he said, “You have to accept the idea that subjective time with its emphasis on now has no objective meaning. The distinction between past, present and the future is only an illusion, however persistent” (Davies, 1983, p.128).

This change in conception of space and time brought its repercussions on the perception of the built environment. Architecture was no longer an object of contemplation. The observer is no longer static, but projects himself through the built environment to experience the space. This concept, which was put forward by cubists broke the renaissance perspective and started to view objects relatively from different points. In addition to the viewing of the buildings from a relative perspective, it explored the visualization of the internal composition of forms by dissecting them. Geidon (1940) corroborated this by stating,

“And in dissecting the objects, it sees them simultaneously from all sides- from above and below, from inside and outside. It goes around and into its objects. Thus to the three dimensions of renaissance which have held good as constituent facts throughout many centuries, there is added-a fourth dimension. The poet Guillaume Apollinaire was the first to recognize this in the 19th century” (p. 436).

Simultaneity is the key principle in this concept, which aims at presentation of objects from several points of view. Shlain (1991) further added that simultaneity contrasted with the sequence, which was the primary approach to the design. So, the opposite of sequence is simultaneity. A perfect example for this could be the Chapel at Ronchamp built in 1955 designed by Le Corbusier. Le Corbusier visualized this church against the classical notion of a church. This church building is known for its unique sculptural nature as it can be interpreted in different ways from different points of view. The built environment was no longer considered as a sequence of frozen spaces. This formal composition of spaces was first broken during the time of the Industrial Age, when people started questioning everything, which further led to innovations. This broke the autocratic monopoly of the rulers on the built environment. The city and architecture lost their formal order in representation like axial symmetry, hierarchy etc. The formal
sequences were manipulated in interesting ways to create elements of surprise, shock and suspense. These manipulations were done by the use of transformational devices like addition or subtraction of volumes, walls or spaces to an existing sequence or by the addition of a frame. The manipulation impacted the way of experiencing the sequence and the space. Frames were also used as transformational devices. As Tschumi (1999) points out, “A frame permits the extreme formal manipulation of the sequence, for the content of the congenial frames can be mixed, superimposed, dissolved or cutup, giving endless possibilities of narrative sequence” (p. 166).

The use of angular walls and frames to affect the sequence was seen in the works of architects like Alvar Alto and Richard Mier. The conscious usage of bold walls to regulate a sequence can be seen in the Mier’s work of The Atheneum, New Harmony completed in 1979 as illustrated in the figures 2.9 - 2.11.

Figure 2.9
Atheneum, New Harmony, Isometric view  
(Baker, p.222)

Figure 2.10
Atheneum, New Harmony  
(Jencks, p.239)

22
The buildings became bolder in exhibiting their internal compositions and structural elements. The ideal example to support this is the Pompidou Center in Paris, designed by Renzo Piano in 1972, where the expression of structural elements became a novel concept. The conventional orders of spatial sequences were also influenced by contracting or expanding them in order to create an impact on the memory of the user, thus affecting the overall experience.
Philosophical Views of Time

The role of philosophical views in understanding time is crucial, since it questions and looks at the core meaning of the concept from different perspectives simultaneously. Martin Heidegger, in his book “Time and Being” tried to define time and its relationship with being and appropriation. The term “Being”, is defined as a form or an idea. Appropriation is defined as an “activity” or a non static process (Heidegger, 1972, p. 11). It is also the relationship between man and his related activities. Appropriation also defines the identity of the being or an idea that in turn strives to recognize time on the basis of an event or an activity.

Time is defined as “existence” and is represented in the sense of a succession of a calculable series of nows (Heidegger, 1972, p.11). The term “now” as defined by Aristotle is the aspect of time, which is present now and is the “actual now”. Time is further represented by the past, present and the future as its three dimensions. It is the unity of past, present and future in terms of series of nows. This further analyzes present as an entity, which lacks past and future. That is to say in the present, past is defined as “no longer now” and future is defined as “not yet now”. So further, this interesting relationship between being, time and appropriation led to unearth the term “presencing” (Heidegger, 1972). This relationship can be better understood in the figure-2.12 below.

![Diagram](Image)

**Figure 2.12**
Heidegger’s relationship between Being, Time and Appropriation

According to Hiedegger, “presencing means to last or to unconceal” (Heidegger, 1972, p.12). In this case, “to last” means to not being present for a mere duration, but over a time span. The term “presencing “ and hence the “sense of presence” reminds us
of an event or an activity over a time period. Here, the “time-space” is not duration, but is an extending time zone represented by a continuous openness that opens into the self-extending past, present and future. Figure 2.13 illustrates this relationship.

![Figure 2.13](image)

**Figure 2.13**
Heidegger’s concept of Time-Space

This leads us to a new aspect of time called “true time”, which Heidegger defines as “the nearness of presencing of past, present and future and this nearness unifies times threefold opening and extending. True time is four dimensional due to the nearing of nearness of three dimensions” (Heidegger, 1972, p.12).

On further analysis, we can conclude that there is a sense of presence of the past in the present. This can be felt in two ways: the “presence of past” and the “absence of past”. A sense of presence through the presence of the past is experienced in a situation where the elements of the past are physically present for a viewer to understand the continuity of the time-space, hence visualizing the continuous flow of past, present and the future. The ideal example is the Pyramid Du Louvre by I.M.Pei built in 1989 at the famous Louvre in Paris. Here, the transparent pyramid addresses
the sense of presence of the dominant past, which is in the form of monumental buildings enclosing the Piazza. This brings in a sense of participation of past with the present. These aspects can be better understood in the illustrations figures 2.14 - 2.16.

Figure 2.14
Conceptual Section, Louvre, Paris

Figure 2.15
Louvre, Paris
(Jencks, p.189)
Therefore, the sense of participation between the past and the present opens a viewer into a continuous time zone. The elements of the past act as reference to the present and future, which are in turn, are represented as negative spaces below the earth.

Sense of presence through the absence of the past is experienced in a situation where a strong memory supersedes the absence of physical elements. It is a situation where the memory of the past haunts the present through its absence. A perfect example for this could be the new design proposal of a memorial at the site of the World Trade Center in New York. The indelible memory of the Twin Towers still persists, which influences the design proposal for the site. It is very difficult to give a new design solution to the site through a dominant built form due to its strong past. So, the design proposal by Micheal Arad and Peter Walker in the year 2004 put forward “reflecting absence” as the concept. He proposed retaining the footprints of the past and the
present and future by addressing the absence of the past. The proposal aimed to retain the old foundations of the tower and create a memorial below the ground level as a negative space. So the present and future in this site is represented by the negative space below the earth that are illustrated in the figures 2.17 - 2.20 below.

Figure 2.17
WTC Memorial, NewYork.

Figure 2.18
WTC Memorial, NewYork.
Role of Reference in the Physical Representation of Time

The perception of elements of past, present and future require a system of reference for the experience. The elements and the events of the past act as reference to the vocabulary of the present and the future. The absence of the contextual reference breaks the perception of continuity of time, which in turn curbs the experience of the space-time. The reference could be the style of architecture, the sequence of spaces, the massing of forms, or the organization of spaces, like hierarchy etc. It can also be the proportions like golden sections used in some architectural styles. The ideal example for the physical representation of time would be the Chora L works of Peter Eisenman.
created in the year 1997. In this work the past is represented by negative space below
the earth while the future is shown as a bold positive space above the ground level. The
present is represented by a thoroughfare, which passes through these positive and
negative spaces representing the passage of time. The ground or the horizon is used as
a reference. Figures 2.21 - 2.23 illustrate Eisenman’s work.

Figure 2.21
Section, Chora L Works, Peter Eisenman
(Kipnis & Lesser, p.120)

Figure 2.22
View, Chora L Works, Peter Eisenman
(Kipnis & Lesser, p.120)
According to Bernard Tschumi (1999), the present age is the Age of Deregulation. The built environment is constantly subject to redefinition and reinterpretation. The quote, “form follows function” has become obsolete. The history, memory and tradition that defined the parameters of the built environment have lost their hold. The speed of scientific inventions altered the role of architecture. “Speed expands time by contracting space. It negates the notion of physical dimension” (Tschumi, 1999, p.163). Architects and designers have started dissecting the meaning of the built environment and redefining it. The art of looking at the built form in totality is replaced by the multiplicity of meanings. The relation between the program and the built space has been redefined. Tschumi (1999) further says:

“The aim here is to reconstruct architecture along different axes, to indicate that space, movement and event are inevitably part of minimum definition of architecture, and that the contemporary disjunction between

Figure 2.23
Chora.L.Works, Peter Eisenman
(Jencks, p.281)
the use, form and social values suggests an interchangeable relation between object, movement and action. In this manner the program becomes an integral part of architecture and each element of this program becomes an element of permutation akin to solid elements” (p.186).

The relation between the event and the structure is negated resulting in the radical shift in the organization of spaces without the use of the formal principles of design like sequence, hierarchy etc. Disjunction, deconstructivism and cross programming have replaced the existing type of architecture. The above design approach has unsettled the user due to the sudden shift. The abstractness and anti-contextual nature has unsettled the memory of the user, since they cannot be related to any reference system. This radical shift has breached the continuity of time-space in the real world. The lack of relation due to the abstractness has created a sense of timelessness.

The perfect example for this new approach can be the Follies in Park de Villete in Paris, France designed by Bernard Tschumi in 1982. The intent here was to create a design that had multiple uses but went against the formal conception of a park. Follie was defined as “a space free from its historical connotations placed on an abstract plane as an autonomous object, which in future will be able to receive new meanings” (Tschumi, 1999, p.176). Each Follie is derived from a 10mx10mx10m cube, which is transformed into shapes of different permutations and combinations. The function and the program are not defined so that it can be used in diverse ways. These are arranged on the grid acting as points of reference. The grid here is used as an infinite element without origin. Since follies are arranged on the points of a grid, they have no formal sequence or order of approach and can be viewed from multiple points. This lack of order in the organization and lack of formal meaning to the space has created an absence of reference that in turn has created a sense of timelessness as illustrated in the figures 2.24 - 2.26.
Figure 2.24
Follies, Park de la villette, Paris
(Jencks, p.287)

Figure 2.25
Plan, Park de la villette, Paris
(Jencks, p.286)
Summary

“Rational architecture becomes a selected vocabulary of the architectural elements of the past, with their oppositions, contrasts and redistributions. Not only does it refer to itself and its own history, but function- the existential justification of the work that becomes virtual than real. So the language is closed in itself, and architecture becomes truly an autonomous organism. Forms do not follow functions, but refer to other forms and functions to relate to symbols” (Tschumi, 1999, p. 37).

The above statement on Rational Architecture implies that the design solution is specific to a given situation considering all the aspects discussed in the preceding chapters. This creates design solutions that are exclusive and unique to the situation and its relationships. The relation between space and time assists in analyzing the
elements of past, present and the future further formulating a universal vocabulary, as an approach for the design of the built environment.

The definition of prime importance in the physical representation of time is “change”. The physical representation of “change” can be viewed in different ways. Some of the ways that aid in the representation of change in time-space are spatial usage, reference, transformational devices and material variations. These will be discussed at length below.

Spatial Usage

Spatial usage in the built environment is of prime importance in the representation of time. In the past, spaces were dedicated to single functions. So, the memory associated with the space was based on the solitary function for which it was designed. Spaces in the present and future are more diverse than that in the past. The advent of the concept of de-constructivism has revolutionized dynamics between space and associated function. Spaces are now designed with multiple uses, which means that a single space can be used in different ways at different periods of time. For example, a single multipurpose hall can be used for entertainment, sports, and educational activities in different periods of time. Bernard Tschumi (1999) termed the usage of multiple programs under a single roof as “Cross Programming”. This adaptable space evokes a feeling of “timelessness” due to its versatility in its usage with time.

Reference

Identification of a logical reference is vital in realizing the space-time continuum in the built environment. The elements and events of past act as reference to the vocabulary of present and the future. The absence of the contextual reference breaks the perception of the continuity of time, which in turn curbs the experience of time-space. Reference could be the form of architectural style, spatial organization and use
of positive and negative volumes along a plane. These aspects are further elaborated below.

**Architectural Style** acts as a primary reference to any given situation. The importance of the architectural style of the built environment has to be studied before responding with a design solution. The elements of design, the proportions, the forms can be adapted to represent the elements of past.

**Spatial Organizations** of the past were static in nature dictated by the formal rules of organization. Symmetry, balance, sequence and hierarchy were the main tools used in the spatial compositions. The spatial experience is “ritual” with similar compositions for the related spaces. This led to linear, radial, clustered and symmetrical organizations. These organizational tools can still be used to represent the past depending on the organizational fabric and context of the surroundings. The figures 2.27 - 2.30 are the examples of the spatial organizations of the past.

![Uni-axial Symmetry](image)

**Figure 2.27**
Uni-axial Symmetry
Figure 2.28
Bi-axial Symmetry

Figure 2.29
Sequence

Figure 2.30
Clustered Sequence
Contemporary spatial organizations have become more diverse with the incorporation of changes in sequence in order to manipulate the spatial experience. The compositions are more asymmetrical and non sequential with the use of spaces and also the transformational devices. Figure 2.31 is an example of a manipulated sequence that represents the vocabulary of the present.

Positive and Negative Volumes along the Reference also act as parameters to realize the continuity of the time. A reference line or plane has to be ascertained as do the volumes falling on either side of it. Negative volumes evoke a sense of past and positive volumes refer to the present. But depending on the contextual importance of the surroundings, this might vary.

For example as shown in the Figure 2.32 the ground or the horizon line is the line of reference. The negative spaces refer to past and the positive spaces denote the present.
A vertical plane may also act as reference with volumes on either side of it representing the past, present and future. Figure 2.33 illustrates the same.

Transformational Devices

Transformational devices can be used as supporting tools along with spatial organizations and the reference. These are the manipulative devices to physically represent a shift in the built environment to make a statement of change. For example,
the devices could include blank walls interrupting a sequential organization, frames enclosing focal elements or change in ceiling heights. The examples below illustrate transformational devices in figures 2.34 - 2.36.

Figure 2.34
Inclined wall as a transformational device in a sequence

Figure 2.35
Curved wall as a transformational device in a sequence

Figure 2.36
Series of frames as a transformational device in a sequence
The gradual change in form can also represent the transformation hence depicting change in time. The figure below illustrates the same.

![Figure 2.37](image)

Figure 2.37
Change of form

Extensions of spaces with varying ceiling heights also define transition hence defining physical representation of the time, which is represented in figure 2.38.

![Figure 2.38](image)

Figure 2.38
Extension of spaces
Material Variations

Material variation is a crucial aspect to realize the journey through time and space. The nature of form can remain the same to experience the origin and the materials can be varied from natural to man-made materials. The figures below conceptually show the change in materials on cuboids that relate to change in time.

Identifying the importance of time-space helps in rationalizing the response in terms of a design solution, which brings in the participation of the past, present and future. This exercise is an attempt or a step towards idealism, a dream to achieve "Utopia" in to the real world.
CHAPTER 3: DESIGN PROGRAM

Program Description

The Intent and the Significance

The aim of the design project is the application of a design approach derived from the analysis of space and time in a real world situation. The project chosen for this is the proposed development at the Centennial park at Ybor City, Tampa, Florida. The Centennial Park project is a mixed-use development designed primarily to increase daytime activity in order to contribute to the efforts towards the revitalization of the historic Ybor City district in downtown Tampa, Florida. Ybor City possesses a distinctive status as one of only two National Historic Districts in Florida. After a half-century of neglect, followed by narrowly focused attempts at revitalization, numerous significant changes and investments still need to be made to bring the quality services necessary for a fully functional community. In 1975, the Florida State Legislature designated Ybor City a historic district. The City of Tampa made allowances to encourage business development this area. To attract tourists and visitors, Ybor City was made an “entertainment district” and the relaxation of zoning laws was permitted to allow nighttime uses such as bars and clubs to stimulate economic development. Barrio Latino Commission, an architectural review board, was assigned the task of approving any construction activity in the area.

Ybor City is located less than two miles northeast of the strong and vibrant Downtown/ Channel District area in Tampa that is connected by the TECO street car.
service. The Downtown serves as the focus for many regional attractions such as the convention center, the aquarium and the Forum in Tampa. This helps to diversify the mix of people and activities in the area, and establishes the downtown area as more than a place to do business. The Port of Tampa, located just to the south of Ybor City, is the largest port in Florida, accounting for about half of the total tonnage moving through all the ports of the state. As the region grows, port activity is expected to increase. The cruise industry has been growing, with new facilities located near the downtown area. This brings additional tourists to the region and presents an opportunity for Ybor City to attract them.

Figure 3.1
Area Context Map of Ybor City.
From Ybor City Development Corporation. Retrieved March 13, 2006 from http://www.tampagov.net/dept_YCDC/images/Maps/Ybor%20Findings/Area_Context_Map_2_2_Map1.jpg
Existing Conditions in the Ybor City

Ybor City was made into an “entertainment district” in order to stimulate economic development. However, what seemed at that time to be a remedy has since become a hindrance. The public perception of Ybor City is that of a place solely for drinking, rowdiness and roaming young people. This is reinforced by the image of a “drinking mall” on the weekend nights at the closure of 7th Avenue. This reputation, as well as actual crime problems, keeps many potential visitors away. It has become clear to the City of Tampa that Ybor cannot succeed based on nighttime entertainment alone. At present, there is a very limited daytime activity, and the bars contribute to a ghost town
appearance until they open at night. Fortunately, interest in owning a business, working, and living in Ybor City has recently grown. This change is evident in new restaurants, the TECO streetcar line, and the revitalization of historic buildings.

With the momentum building, Ybor City has a potential to be transformed to a healthy community with a mix of uses and a spectrum of age groups. Table 3.1 corroborates the potential of Ybor City on the basis of its tourism.
Table 3.1
The number of annual visitors to the Ybor City. From the Ybor City Development Corporation. Retrieved August 14, 2005 from http://www.tampagov.net/dept_ycdc/general_information/visitor_data.asp

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<th>DATE</th>
<th>EVENT</th>
<th># OF VISITORS</th>
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<tr>
<td>February 12, 2005</td>
<td>Krewe of the Knights of Sant’ Yago Parade and Red Baron Pizza Family Fiesta</td>
<td>120,000</td>
</tr>
<tr>
<td>February 25, 2005</td>
<td>Hillsborough County Property Appraiser's &quot;Run For Shelter&quot;</td>
<td>1,000</td>
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<tr>
<td>February 26, 2005</td>
<td>Fiesta Day and Flan Fest</td>
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</tr>
<tr>
<td>March 12, 2005</td>
<td>St. Patrick's Day Parade</td>
<td>80,000</td>
</tr>
<tr>
<td>April 2-3, 2005</td>
<td>Festa Italiana</td>
<td>25,000</td>
</tr>
<tr>
<td>April 24, 2005</td>
<td>Puerto Rican Cultural Parade and Festival</td>
<td>20,000</td>
</tr>
<tr>
<td>May 7-8, 2005</td>
<td>Ybor City Arts and Crafts Fiesta</td>
<td>1,500</td>
</tr>
<tr>
<td>May 9, 2005</td>
<td>Cuban Club's Mothers Day Dinner</td>
<td>2,000</td>
</tr>
<tr>
<td>September 2005</td>
<td>Paws in the Park</td>
<td>1,000</td>
</tr>
<tr>
<td>Sept. 17-18, 2005</td>
<td>Main Street Arts and Crafts Festival</td>
<td>5,000</td>
</tr>
<tr>
<td>Oct. 15, 2005</td>
<td>TECO Line Streetcar Celebration</td>
<td>10,000</td>
</tr>
<tr>
<td>October 29, 2005</td>
<td>Guavaween and Family Fun Festival</td>
<td>120,000</td>
</tr>
<tr>
<td>November 2005</td>
<td>Race for Cure</td>
<td>750</td>
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<td>November 2005</td>
<td>James E. Rooster and Doodle Do Parade</td>
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<td>Nov. 19-20, 2005</td>
<td>Ybor City Arts and Crafts Festival</td>
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<tr>
<td>Nov. 28-29, 2005</td>
<td>Espiritu de Ybor Festival</td>
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</tr>
<tr>
<td>December 3, 2005</td>
<td>Santa Fest</td>
<td>50,000</td>
</tr>
<tr>
<td>December 31, 2005</td>
<td>TECO Energy Parade and Outback Bowl Blast</td>
<td>50,000</td>
</tr>
<tr>
<td>Every Saturday in Centennial Park</td>
<td>Ybor City Fresh Market (300 patrons per Saturday)</td>
<td>15,600</td>
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Table 3.1 Continued

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<th># OF VISITORS</th>
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<td>Non-Event Visitors</td>
<td>Weekday and Fri/Sat Evenings-average 20,000/weekend</td>
<td>1,040,000</td>
</tr>
<tr>
<td></td>
<td>TOTAL ANNUAL VISITORS</td>
<td>1,597,850</td>
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</table>

The area has undergone extensive redevelopment over the past decade. While degrading conditions still exist, progress has been made. There has been retail and entertainment development throughout the area. The most notably is the Centro Ybor, a 240,000 square foot entertainment complex, historic quality renovation of many existing structures, a new office development and a 454-unit urban apartment complex adds to this momentum. The figures 3.5 and 3.6 illustrate the plaza areas of the Centro Ybor, which include food courts, restaurants, retail outlets and the Muvico, a high-tech entertainment and movie complex flank the main plaza area.

Figure 3.5
Centro Ybor Plaza, Ybor City
The Vision Plan

To plan for the future of Ybor City, The Ybor City Development Corporation Visioning committee decided upon a community visioning process called Section III. This visioning process lasted over a period of several weeks in December, 2004, with workshops, meetings and group interviews. This was to solicit as many ideas possible to mold a comprehensive vision plan.

The Vision statement was finally distilled to the following:
“Ybor City, a National Landmark Historic District, is a unique urban community melting beautiful historic architecture, a celebrated multi-cultural heritage, a bustling “main street”, creative business, and liveable neighborhoods into one of Tampa Bay’s most desirable places to live, work, entertain, and visit". (Ybor City Vision Plan, 2005)
The Vision for Ybor City is guided by the following principles:

1. Any new development or redevelopment should be compatible with the historic urban form. This is not limited to structures but also applies to the basic street grid.

2. Land use mix should strive for maximum diversity and integration of disparate uses, with a view to creating a round-the-clock activity cycle. In particular, creative and artistic enterprises are to be targeted for growth.

3. Tightly integrated, dense, and multi-functional urban districts and their activities are to be coordinated to a larger entity.

4. Pedestrian and transit activity to be emphasized with a view of making historic core more pedestrian friendly.

5. The character of the district should continue to build on its multi-cultural heritage, emphasizing its history as the Latin Quarter of Tampa.

6. The diverse, funky mix of activities should be carefully monitored to ensure that no one element dominates at the expense of the others. A balance is to be ensured.

(Ybor City Vision Plan, 2005)

General Characteristics of the Vision: Ybor City doesn’t desire a radical transformation, but is seeking to take corrective action against several issues that are hindering its progress. Most people that know Ybor City well understand that it offers a unique and historically authentic urban environment that is attractive to many. It has already made many prudent moves as a redevelopment area to enhance its future potential. Clearly the negative image has to be addressed. But, it must also be recognized that the negative image is the result of a relatively narrow set of activities confined to a relatively small portion of the overall area. The vision has to encompass all of Ybor City with the areas surrounding the historic core seen as moderating influence that should help to dilute the focus on the negative aspects. (Ybor City Vision Plan, 2005)

Importance of the Centennial Park in the Vision Plan: Eight Avenue, and the streetcar, lead past Centennial Park, but not many make the journey. Despite being
only a block north of Seventh Avenue, Centennial Park receives only a small fraction of the pedestrian traffic that Seventh Avenue does. This end of the historic core is also not as highly developed as the area around the Centro Ybor, and does not offer as much for the visitor to do, despite the Museum and the State Park being located across the north side of the park.

There are several options in the vision plan that may serve as a remedy for this issue. Centennial Park has been the subject of a design study to explore ways of reconfiguring and reprogramming to cater to a wider variety of functions. The museum and the Casitas across from the east side of the park are occupied by galleries and creative retailers that should add interest to this area (Ybor City Vision Plan, 2005).

This part of the historic core is too far from the two existing parking garages, so that pedestrian activity is markedly less than one sees further west. The need for a consolidated parking structure at this end of the historic core has long been identified as a priority, but has not been viable as long as the two existing garages are not operating near capacity. This lack of parking has inhibited the redevelopment of a number of properties at this end, while a significant amount of land is tied up as surface parking.

Another proposition was to redevelop the two existing surface lots across the south side of the park to mixed-use buildings compatible with the historic character and fill in two large gaps in the fabric along the Eight Avenue. The streetscape along 18th and 19th Streets is scheduled to be improved to enhance the connection between Seventh Avenue and Centennial Park, as well as to improve pedestrian movement between Seventh and Eight Avenues and complete an attractive pedestrian circuit.

General Physical Conditions of Ybor City

Ybor City retains many of its original buildings and its traditional urban street grid designed in the mid 19th century. Ybor City has the distinction of being one of the only two National Landmark Historic Districts in the entire state of Florida by the virtue of the
significant number of contributing historic structures. The other is St Augustine, settled by the Spanish in the mid 16th century. Many of the original brick streets have been restored with the aim of restoring the rest. The original layout is in the typical grid or block pattern. A typical block measures 350 feet by 200 feet, with a mid-block alley running parallel to the long sides. The long sides are the principal orientation of the blocks that face the Avenues running the east and west. This historic grid is still very much in evidence near the historic core with the signs of present day erosion. Interstate 4 is a major intrusion into the grid, and presently forms the northern boundary of the historic district that was uninterruptedly connected East Tampa neighborhood. The historic grid has been disrupted over the years to create super blocks, mainly by the larger institutional landowners in the Ybor City.

The new diversity in the built environment in this area has until now continued to mirror its rich and fortunate past. The residential and the commercial buildings survive as the Ybor City’s multicultural history. The conditions of the buildings continue to range from restored to marginal to neglect. The streetscapes along the 7th, 8th and the 9th Avenues and the commercial side streets have been restored with wide sidewalks, historic lampposts, street trees and flowers. The residential streetscapes are less consistent in their beautification and maintenance. Therefore, the overall effect is spotty and inconsistence. Several contemporary developments have impacted the historic character of the Ybor City through their designs and patterns. Many of the larger institutional buildings do not sensitively integrate into the historic fabric, using planning and design vocabularies more suited to suburban, campus like environments.

The largest influence of the modern times on the community has been the necessity to provide parking. The historic fabric of the Ybor City was created in a time when modern vehicles didn’t exist. So, the streets were lined with dense and low scale structures that covered a substantial portion of the lot area and formed continuous and consistent street frontages. Ybor City has recognized this reality and has taken steps to consolidate its parking supply in several large garages. Though it is a logical contemporary solution in a historic district, its not viable due to the cost factor and its under usage. Therefore, a significant amount of parking still remains in surface lots.
History of Ybor city

The Founding of the City

Tampa was just a small swampy and sandy village before the Spanish born Vicente Martinez Ybor arrived in 1886 establishing a center for cigar manufacturing. The two main reasons for the development of the cigar capital were the ideal climatic conditions and the development of port and railroad facilities in Tampa by Henry B. Plant. These factors made the area an ideal location for the development of the cigar industry since Cuban leaf tobacco, being the best in the world, could easily be imported and then exported in the form of cigars. According to Fernandez and Beltran (1976), Martinez Ybor was going through labor unrest in his cigar factory in Key West and was intending to establish a new setup. Based on the recommendation of his friend Gavino Guiterrez, Martinez Ybor was impressed with the location and bought the land to set up a factory. Based on previous experiences, Martinez Ybor had a hope of providing a good living and working environment so that the cigar workers would have fewer grievances against the owners. Therefore, with a clear vision of future for the city, he organized various commercial endeavors. Included in the endeavors was the acquisition of thousand acres of land near his factory on which he constructed homes to sell on installment plans giving preference to his employees. This attracted thousands of immigrant workers: Spaniards, Cubans, Italians, Germans and Jews. The immigrant population produced a unique population moving into these boarding houses also known as “Casitas” or the shot gun houses.
The Development of the Cigar Capital

From a small “factory town”, Ybor City was quickly transformed into the “Cigar Capital of the World”. Hundreds of cigar makers from different places immigrated to Tampa. According to Fernandez and Beltran (1976), the inflow of workers was so great during 1886-1887 that each time the ship arrived in Tampa usually twice a week, it would unload at least two hundred cigar makers. Along with the industrial growth, social and infrastructure developments also reached its peak. Prominent in that environment were the social clubs, whose subscription included cradle-to-grave health care, death benefits, recreational facilities, and yearly social events. The first move towards the building of the social clubs was made by Martinez Ybor himself when he donated the first building he had occupied to the cigar workers for reunions and fiestas. This was later converted into a small theater. The clubs were organized to serve specific ethnic groups, which preserved and transmitted the cultural heritage through generations. The social clubs also functioned as benevolent associations or mutual aid societies. The people of Ybor City had to go to other places like Key West for medical issues due to the scarcity in physicians. So, the social clubs covered the costs of medicines, visits and trips. In addition to the social clubs, theatres presenting opera, vaudeville, ethnic comedy and drama also developed.

Illiteracy was a common problem that existed among the workers before the development of schools. In order to counter that, lectors or the readers were employed who became the most important representative of culture in the average worker’s experience. According to Harner (1975), each of the workers in the factory had to contribute 25 cents a week for the services of a “lector” or the official reader. The reader spent the whole day in loft above the heads of the cigar makers, reading from newspapers or on works of Spanish poets like Cervantes each day. The reader had to be a good actor too, for when he told the age-old story of Don Quixote, he had to wait while the ripples of laughter flowed the otherwise quite room.
According to Fernandez and Beltran (1976), the first streetcar line that was run by steam began to function between Tampa and Ybor City in 1886. Martinez Ybor was one of the founders of this enterprise. As the tobacco industry grew, a narrow-gauge railroad joined this city with Jacksonville and the rest of Florida. So, by that time, Ybor City was accessible by both land and sea making it accessible to all visitors.

Role of the Ybor City in the Cuban Revolution

Due to the large number of Cubans living in the Ybor City, the area was involved in the struggle for Cuban’s independence from the Spanish rule. Cuban patriots, most famously Jose Marti, came to Tampa frequently to inspire enthusiasm and generate funds for the movement. A large part of the enduring fame of Ybor City is attributed to Marti. Ybor City residents formed revolutionary clubs and encouraged cigar workers to donate a day’s salary of each week for the cause. As revolutionary fervor grew in 1895, plans to invade Cuba from the U.S shores were formed under the orders of Marti. After Marti’s death, the precipitating event that led to the culmination of war, was the destruction of the USS battleship Maine in Havana harbor in 1898. This prompted the U.S. Congress to declare war, which finally ended with the independence of Cuba.

The Decline of the Ybor City

According to Fernandez and Beltran (1976), at the end of World War I, the American government modified immigration laws. It introduced new reforms, so restrictive that they practically denied admission to the foreign worker. At that point, Cuban immigration ceased completely and the Cubans, along with the Spaniards and
Italians, no longer received the constant reinforcements that were important for the vitality of various groups and organizations. In spite of such mishaps, the Latin community remained united to preserve their culture. There were five Spanish language publications in Ybor City, which after several years of struggling were finally able to make the cigar factories in Tampa close their shops. Finally, the third general strike in 1920, paralyzed the tobacco industry with labor unrest, economic and political upheavals.

Site Analysis

Site Location and Features

The site is located in close vicinity to the Historic Core of Ybor City, which spans across the famous 8th and 9th Avenue. The site for the proposed mixed-use development is spread across 8th and 9th Avenues in three parts. The three parts of the site are located between 18th and 19th Streets. As shown in Figure 3.7, the site is within walking distance from the famous Centro Ybor and the Hilton Garden Inn. The first part (marked A in Figure 3.8) is located between the Ybor City State Museum and the Casitas across the 9th Avenue. This extends to the second part (marked B in Figure 3.8) which is the Centennial Park placed between 8th and 9th Avenues. This third part of the site is the presently used parking area beyond 8th Avenue (marked B in Figure 3.8).
The first part of the proposed site (designated as A in Figure 3.8) is presently used as a park, which is flanked by the Ybor State Museum on the east, the Casitas on the west and further, extends to Centennial Park in the south. The Centennial Park (designated as B in Figure 3.8), is flanked by a residence on the east and a commercial building on the west. This further extends in the south beyond the 6th Avenue to an existing parking lot (designated as C in Figure 3.8). The areas A, B, C combine to form the site for the proposed mixed-use development. Figures 3.9 through 3.12 illustrate views in different directions from the proposed site.
Figure 3.8
Site Plan

Figure 3.9
Site-North Side View

Figure 3.10
Site-South Side View
Land Use

The land use and the other aspects of zoning are comprehensively addressed in Article V of the Second Amendment to the Ybor City Community Redevelopment Area (CRA) Plan of the year 2004. This was developed by the Ybor City Development Corporation for the City of Tampa. The Comprehensive Plan recognizes Ybor City as a Regional Attractor, which defines the area as a major tourist destination of interest to visitors from all over the world. It also designates Ybor City as one of five Urban Villages in the City, recognizing its unique and distinctive character. The Urban Village concept anticipates that Ybor City will redevelop as both a living and working environment, while remaining respectful of the area’s historical character.

The Future Land Use Categories for Ybor City reflect the vision for Ybor City’s Urban Village designation, encouraging mixed-use development, urban densities, and the potential population and visitor base necessary to justify rail transit services.
connecting Ybor City with the Central Business District. Bario Latino Commission, an architectural review board has established land use for different areas with a special series of zoning (see Figure 3.13). The main intent was to encourage development consistent with the existing historic fabric of the area, while allowing more intense commercial and mixed-use development envisioned by the Comprehensive Plan. According to the plan, the Centennial Park project site (see Figure 3.13) falls under YC-4, which is designated for a mixed-use development. According to the Article V, Centennial Park, Ybor State Museum, and Casitas, should continue to be recognized and used as a cultural and community focal points for the area. It further adds consideration for further improvements and refinements including the addition of new museum facilities.

Figure 3.13
Zoning Plan of the Ybor City.
City of Tampa Urban Development Department. Retrieved August 14, 2005 from http://www.tampagov.net/dept_ycdc
The Existing Usage of the Site

Centennial Park is presently used as an open public space and ceremonial location. The site has a landscaped area, a statue and engraved writings of names of prominent people who contributed to Ybor City. This space is also used as a venue for the Sunday Fresh Market as illustrated in Figures 3.14 and 3.15. During this event, vendors and artists erect canopies and tents to sell their products. On a grander scale, the park hosts the annual arts and crafts festivals during the months of May, September and November. The figure shows the usage of Park during the arts and crafts festival. During the Art Festivals, 8th and 9th Avenues adjoining the Centennial Park are blocked so that additional space can be provided for the vendors. Part C (parking lot) of the proposed site can be used in the program as spill over areas (see Figure 3.8).

Figure 3.14
Sunday Fresh Market at the Centennial Park, Ybor City
Traffic Flow

The proposed site has roads on all the sides with a streetcar line on the south. The streetcar system (as illustrated in Figures 3.16 and 3.17), being a 2.5-mile vintage electric car system by the TECO line is the main source for moving people. This streetcar system provides a transit link connecting the Central Business District, the Channel side and the Ybor City. The streetcar runs past the Centennial Park through to 20th Street. The other source of traffic is through surface transport especially the light motor vehicles. There is a prominent flow of pedestrian traffic from the Centro Ybor and the famous 7th Avenue due this proximity and prominence of this location.
The Importance of the Ybor City State Museum

According to Gonzalez (1994), the present day Ybor State City Museum was formerly known as the Ferlita Bakery, built in 1923. This one story, light yellow brick building was used as a bakery for many years. The original ovens, which reflect the past, are still retained in the part of the museum depicting the past as shown in figures 3.21 and 3.22. The front of the museum building is made of decorative bricks with a
large arched parapet wall as illustrated in figure 3.18. The museum is presently run by the State of Florida, which believes in retaining the history of Ybor City, and contains permanent exhibits on Vicente Martinez Ybor, the founding and early history of Ybor City, and the Ferlita Bakery itself. It also houses a museum store with a variety of items for sale reflecting the ethnic heritage of the community, the cigar trade and the site’s history. For a change in atmosphere, the exhibition space in the museum is changed twice a year. A cigar worker from Cuba who demonstrates cigar-making techniques for the visitors’ further enriches the experience.

The Ybor Museum Society is currently undertaking the modernization of its exhibits in the museum. It is also looking forward to reflect the image of a contemporary museum, with better design of space, graphics and lighting. The Museum Society has also shown interest in the publication of selections from the Oral Histories Selection. To add to this, the museum’s permanent collection is more diversified with vital information about the people, life style, trade and folkways. Therefore, a high-priority initiative of the museum staff is the cataloguing and preservation of objects in these collections with goals of exhibiting and making them available to scholarly study. The future plans include addition of a museum theater, a living history, field trips and museum publications. Clearly, the museum needs to be expanded to meet future needs.

Figure 3.18
Ybor City State Museum Facade
Figure 3.19
Museum’s Exhibit Area

Figure 3.20
Museum’s Exhibit Area

Figure 3.21
Ferlita Bakery’s retained earthen ovens
The Importance of the Cigar Workers’ Houses (Casitas)

The Casitas (as illustrated in figure 3.23) include three shotgun houses that were relocated from other parts of Ybor City. These structures were originally built around 1895 and were located on 5th Avenue before being relocated. Preservationists wanted everyone to experience the way the street looked before 1900. According to Gonzalez (1994), these houses were built for the cigar workers to live in. The cigar factory owners rented or leased them to the workers as they paid a part of their pay each month to live in them. The houses are modified shotgun houses built from Florida pine with cypress or cedar wood shingles. From the design point of view, there were three rooms in a row with doorways. The houses were planned in relation to the local climate with very good cross ventilation, being built so that air could circulate with windows across each other. Windows with louvers gave them privacy. Until 1910, these houses lacked electricity, indoor plumbing and a link to the city sewer system. The most important part of these houses was the porches where the family spent most of their time. The porch was also the place where the bread was delivered every day. Today, these houses contain exhibits of every day life of the people as shown in Figure 3.25. The coffee filters and
the ice pack are some interesting exhibits. The Ybor City State Museum offers daily tours for the visitors through the Casitas with an experienced guide (see Figure 3.). The importance of the Casitas is that they form an integral part of the experience of Ybor City as an expansion of the museum.

Figure 3.23
The Casitas

Figure 3.24
Ybor Museum Tour at the Casitas
Local Architectural Style and Materials

The built environment in Ybor City has a governing contextual sense due to the presence of the existing architectural style. Since the founders of the city were from a Spanish background, elements of their vernacular architecture can be seen in the built forms. Brick was the locally available building material in the Tampa Bay area, which led to its predominant use in the cigar factories. The roads were also paved with brick that can be still seen in many parts of the area, mainly on 7th and 8th Avenue. The built forms clad with bricks had decorative motifs and coping. Balconies, which opened towards the street front at the upper level, had ornamental metal railings. Metal columns with ornate bases and capitals were used to support the balconies along with the decorative brackets. The houses of the cigar workers were much simpler in structure and materials with the use of cedar wood.
## Program and Functional Requirements

### Table 3.2
Design Program

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<td></td>
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</tr>
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<td>RENTABLE GALLERY</td>
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<td>Seating Area</td>
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<tr>
<td></td>
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Total site area = 55,608 sft
CHAPTER 4: DESIGN PROPOSAL

1. Design Process

The intent of the project was to create a mixed-use built environment complimenting the existing program, which includes Ybor City State Museum and the Centennial Park. The design proposal aims to apply the design tools derived from the review of literature of this thesis to the existing urban setup. The design approach includes logical identification elements of reference, analysis of the elements of past and then using them through logical manipulation to enhance the spatial experience of the user. The design process is divided into:

1. Segregation of zones
2. Use of reference
3. Positive and negative spaces
4. Transformational devices
5. Multiple usage of space

1. Segregation of Zones

The journey through different time zones begins from the existing Ybor City State Museum. The design response aims to augment this visual experience by transition through the different time zones. The courtyard between the Museum and the Casitas as shown in Figure 4.1, possesses the ambience of the past, making it a potential area
for the Museum expansion. The Centennial Park area as shown in Figure 4.1 is used as a transition zone from past to present and present to future. So, the prospective programs for this area are rentable art gallery, open-air theatre and experimental theatre with restaurant facility. The existing parking lot along 8th Avenue is identified as a zone for the future catering to retail spaces and the Sunday Fresh market. The primary axis begins from the courtyard area, transits through Centennial Park and then ends at the existing parking lot.

Figure 4.1
Site for the proposed mixed-use development

2. Use of Reference

For visual transformation or change, it is very important to identify contextual elements of reference in the present urban setup. The first element of reference is the
“Grid”. Ybor City planners visualized the city in form of a grid-iron street pattern. Hence, the layout of the city shows rectangular zones between the perpendicular roads in two directions as shown in Figure 4.2. Therefore, at the macro level, the existing grid is a vital element of reference.

A grid can be represented in diverse ways like perpendicular roads, lines, or an array objects as shown in Figure 4.3. The array of objects can be solids arranged in a grid.
A 24'-0"x24'-0" cuboid is identified as the element of reference, which is placed along the primary axis in a grid as shown in the Figure 4.4. The cuboids act as crucial nodes of transition in the design scheme.

![Figure 4.4](image)

**Figure 4.4**  
Use of cube as an element of reference along the primary axis

The cuboid is subjected to transformation along the primary axis as illustrated in the Figure 4.5. The sloping roof grows along the primary axis indicating the transformation with time. The exterior of the cuboid is made of locally available brick and the growing form holding the sloping roof is clad with glass. The change of form and material portrays the change in time.
The concept of Lector has the potential to be used as a metaphor in the design. Lector was the source of entertainment in the factory for the cigar workers during their working hours. He used to occupy a higher position so as to be seen by every worker as shown in the Figure 4.6. The usage of the stage at higher level in the open-air theatre as indicated can be the present day metaphor of the Lector with activities below and around it.
The every day museum tour organized by the Ybor City State Museum highlights the presence of the secret underground passages in the parts of the historic core. These passages were used for storing illegal liquor and Mafia activities during the prohibition time. So, the underground passage has a potential of being a part of this tour for a better visual experience. This is used as an element of transition from past to present. The underground passage is used as an element of surprise connecting two main courtyards as shown in Figure 4.7.

![Figure 4.7](image)

Underground passage as an element of transition from the past

2. Positive and Negative Spaces

The idea of underground passage is improvised to connect the Museum Court and the Open-air Theater. There is a shift in the direction of the underground passage from the primary axis to emphasize its use as an element of surprise as shown in Figure 4.8. Therefore, the ground level is used as the element of reference and the user makes a
transition from the lower Museum Court to the higher Open-air Theater through the passage that houses exhibits. The past is represented through negative spaces.

Figure 4.8
Representation of past through negative subterranean spaces

4. Transformational Devices

Transformational devices are used to accentuate the transition through different time zones. A colonnade of freestanding circular columns begins at the culmination of the underground passage (as shown in Figure 4.9) which increase in height along a path of an arc showing transformation from past to present. Frames are also used as transformational devices along the overhead bridge connecting the experimental theatre and retail area along the primary axis. The Experimental Theater is intentionally rotated to create a sense of dynamism from the preceding static ambience. Frames are used
along the inclined wall of the theatre as a transformational device to lead the visitors towards the museum, which is the origin of the journey.

Figure 4.9
Transformational devices

Figure 4.10
Conceptual elevation and section
5. Multiple Usage of Space

Timelessness can be achieved by the use of cross programming and multiple uses of a single space. The Experimental Theater is designed to cater exhibition and restaurant activities. The balcony area on the first floor of the theatre can be used as an extension of the restaurant overlooking the stage. So, the balcony is a combination of the dining and theatrical experience. Furthermore, the stage area is used to accommodate the activities of a gallery when there are no theatrical performances (see Figure 4.12). This is achieved by suspending movable partitions from space frame or by the use of partitions with wheels. The intent here is to make a single space be used in different ways over different periods of time.

The futuristic space is viewed as a timeless space, which can cater to different activities in different periods of time. A grid of columns is provided for Sunday’s Fresh
Market area so that they can build temporary shelters by connected fabrics. The composition of the stall layout for the market can change in different ways for the same column grid as illustrated in the Figure 4.13.

Figure 4.12
Multiple usage of stage area in the Experimental Theater

Figure 4.13
Columnar grid as an element of “timelessness”
2. Images of the Proposed Development

Figure 4.14
First floor plan

Figure 4.15
Section A-A
Figure 4.16
Second floor plan

Figure 4.17
Section B-B
Figure 4.18
Basement floor plan

Figure 4.19
Section C-C
Figure 4.20
Roof Plan

Figure 4.21
Aerial View
Figure 4.24
Museum Court

Figure 4.25
Museum Court
Figure 4.26
Museum Court

Figure 4.27
View from the 8th Avenue
Figure 4.28
Open-air theater

Figure 4.29
Approach to the Open-air Theater from the underground passage
Figure 4.30
Approach to the Open-air Theater

Figure 4.31
Open-air Theater
Figure 4.32
Open-air Theater

Figure 4.33
View of the Experimental Theater from the 9th Avenue
Figure 4.34
Columnar grid for the fresh market area

Figure 4.35
Area view of the retail area
CHAPTER 5: FINAL DISCUSSION OF THE PROJECT

The proposed Centennial Park project fulfills the intent to serve as an example for the application of space-time continuum, as a design approach. The design logically identifies, uses diverse tools derived from the literature review in the proposed built environment by addressing the present contextual setup. The project fulfills the idea of the journey from past to present and future through the use of design tools in the built environment.

Revitalization of the Present Urban Setup

The Centennial Park project successfully fulfills the idea to revitalize the existing contextually rich urban setup. The design approach addresses the past by incorporating logical metaphors of its history in the built environment in a view to link the past with the present. This is realized in the approach for the museum expansion and open-air theater. The design elements, massing, segregation of areas and architectural forms are designed to compliment the existing built environment. Brick is used as a dominant building material in the design to maintain the fabric of the Ybor City. Combination of glass and concrete is used a contemporary building materials. Furthermore, the design also meets the criteria of the “Vision Plan” of the Tampa government by proving innovative solutions to increase the daytime pedestrian activities through the use of multifunctional spaces. Additional spaces are added to the existing program to attract higher inflow of visitors and tourists. These spaces include experimental theater, art gallery space, open-air theater and retail areas.
Design for the Future

The Centennial Park project provides multiple options in the usage of space by providing non-suggestive urban spaces. For example, the steps of the open-air theater can be used to view a street play or as a seating area. The columnar grid in the fresh market area provides unlimited options in organizing events for varied events in different periods. The use of stage area in the experimental theater as a gallery space also corroborates the idea of multiple facets of a single space. These spaces will aid to accommodate future activities.

Conclusion

The Centennial project in Ybor City fulfills the application of the concept of space-time continuum in a real world historically rich urban setup. The design solution derived by addressing complex site-specific issues not only makes it an explicit design solution, but also a step towards the realization of rationalism in the built environment.
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BIOGRAPHICAL SKETCH

Raghavendra S. Shanbhag completed his Bachelors in Architecture from B M S College of Engineering, Bangalore, India. Upon graduation, he pursued a Diploma in Advanced Computer Arts from the Center for Development of Advanced Computing (C-DAC) in Bangalore, India. Raghavendra also worked as an assistant architect in Gayathri and Namith Associates Pvt Ltd, a nationally acclaimed architecture firm in India. He also setup a firm of with his colleagues named Utopia, where he was involved primarily with residential. He was awarded Master of Science in Interior Design from Florida State University, Tallahassee, Florida, and is further interested in pursuing a career as a designer.