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A CONCEPTUAL PLAN FOR THE DETROIT BOOK AND TOWER BUILDING:
EXPLORATION OF THE CONJUNCTION OF HISTORIC PRESERVATION
AND SUSTAINABLE DESIGN CONCEPTS

By

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Thesis

Submitted to the School of Engineering Technology

Eastern Michigan University

in partial fulfillment of requirements

for the degree of

MASTER OF SCIENCE

in

Interior Design

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March 21, 2006

Ypsilanti, Michigan
Dedication

To my father, Chong-Kuei Luo, who always supported me in every way he could in Taiwan during the time of my graduate study in the United States.
Acknowledgments

I am thankful for all of the time and effort taken by my chair and my committee. This design project involved many contrastive issues, such as old and new, east and west. This thesis would not have been realized without their help. I am also thankful to other people who have helped me in my project: Jeremy Galimberti, who lent me his computer a few months after mine broke down, allowing me to render my drawings comfortably in my home; Kirsten Pingle, who helped me edit my thesis even though she too was very busy. She gave me her time with abundant joy; William Boyer, who struggled with his PhD dissertation process, was encouraging and supportive in my own struggles; and God Almighty, who has led and guided me in this process, not only graced me with wisdom but also helped me to grow spiritually. The beauty of his glory inspired the artistic sense in this project.
Abstract

This conceptual project generated an adaptive reuse proposal for the Book and Tower Building in a registered historic district. Louis Kamper designed the thirteen-story Book Building in 1917, in the Beaux Arts style, to create elite shops and offices. In 1926 the thirty-six-story Tower Building extended the leaseable space. This proposal preserved and rehabilitated the historic features in the lobby area and renovated the retail spaces. An Asian Café was designed to contrast, but blend with, the Beaux Arts style. The Secretary of the Interior’s Standards for Rehabilitation were followed in the lobby area so as to make the renovation eligible for federal and state tax credits. LEED for New Construction & Major Renovation Criteria grounded the proposal so as to reduce the potentially negative environmental impact associated with renovation of urban high-rise buildings. The contrast of new and old, East and West, created an intriguing tension in this Detroit landmark.
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Chapter 1: Introduction

Problem Statement

The purpose of this conceptual project was to create an environmentally responsible space in the Book and Tower Building and to preserve its historic features on the basis of the new functions desired by its owner. All of the concepts of renovation were used to achieve the qualifications for the tax credit for historic preservation. The most significant historic features would be preserved, and the new design of this building would follow sustainable design principles.

This project proposed using sustainable design principles and materials in a historic preservation site. There were three ways to approach this renovation: restoration, rehabilitation, and adaptive reuse. In order to gain tax credits and meet its environmental goals, the project followed the Secretary of the Interior’s Standards for Rehabilitation and the LEED (Leadership in Energy and Environmental Design) Green Building Rating System for New Construction and Major Renovations, Version 2.1, from U.S. Green Building Council (USGBC).

Project Scope

There were two specific spaces that were addressed in the project: a café and the public space around the entrances, an area which included the original historic court and the new open court. These two courts were separated by four public elevators. They were connected by the main hallway on the ground floor of the Tower Building. One of these two courts exhibited a number of historic features. The goal of renovating this court was to preserve its significant historic features and bring it into compliance with current codes. The new open court created on the other side of elevators was designed to reflect a
contemporary style. One reason for using a contemporary style was to differentiate between the new court and the historic court, as is recommended in historic preservation projects.

The other space addressed was an Asian café, which was located on the first and second floors near the historic court. Contemporary Asian architectural design features were used in this café, which offered both Chinese and Japanese food. The approach was to use sustainable design precepts to create a healthy and pleasing dining environment. Retail stores were planned to surround the two courts from the first to the third floor. The intent of this design project was to preserve historical elements, support revenue generation, integrate sustainability, and create a pleasant atmosphere. The researcher presented the project, using plan, elevation, section, and perspective drawings.

Historic Significance

The fourteen-story Book Building was built in 1920 (see Figures 1-7) for three brothers, James B. Book Jr., Frank P. Book, and Herbert V. Book. It was located at the intersection of Michigan Avenue and Washington Boulevard in Detroit, Michigan (see Figure 8). The architect, Louis Kamper, designed this building in the Beaux Art style (Building Detroit tower, 1926). As a result of increased demand for downtown, leaseable space, the Tower Building, which was connected to the Book Building, was completed in 1926. It was 470 ft. high from the street to the top but 595 ft. from the foundation to the top of the roof, making it the highest building in Detroit and one of the highest in the world at that time (“Building Detroit Tower”, 1926) (see Figure 9). In 1982, the Book and Tower Building register of Michigan was added to the Historic Sites (“A historic site online,” n.d.). Under the management of the owner, Susan Lambrech, the Book and Tower Building had
the potential for a variety of uses. Due to the age of the building and damage to many of
the spaces, the owner expected to obtain a 25% tax credit to repair the structure and
maintain its historic significance. At her request, the first through third floors of the Book
and Tower were designed as retail space. The remainder of the Book Building was
planned as apartment space, and the remainder of the Tower Building was planned as
office space.

Contribution to the Discipline

This project provided an example of solutions that create an environmentally
sensitive interior space that was eligible for tax credits for historic preservation. The
conceptual design for the Book Building included restoration, rehabilitation, adaptive
use, and environmentally sustainable design precepts. The process of balancing the
contemporary and historic styles, as well as environmentally responsible concepts and
rehabilitation guidelines, may provide solutions to other designers. Owners of historic
buildings can learn how sustainable design can be used to create more pleasing and
environmentally sensitive interiors in their buildings. The findings of this project are of
interest to interior designers, historic preservation researchers, and USGBC in their on-
going refinement of LEED.
Figure 1. Book Building east elevation in 1918 (before Tower building was constructed)

Figure 2. Book Building in 1918 as seen from the intersection of Washington Boulevard and Michigan Avenue in 1918.


Figure 3. Book Building in 1918 as seen from the intersection of Washington Boulevard and Michigan Avenue in 2003.

*Note.* This picture was taken by the researcher.
Figure 4. Book Building entrance elevation in 1918.


Figure 5. Book Building entrance elevation in 2003.

*Note.* The picture was taken by the researcher.
Figure 6. Book Building Lobby in 1918.


Figure 7. Book Building Lobby in 2003.

Note. The picture was taken by the researcher.
Figure 8. Book and Tower Building site plan.
Figure 9. Book and Tower Building exterior perspective as seen from intersection of Grand River Avenue and Washington Boulevard.

From “Developing a High-Class Retail Shopping Center.” (1925) *Building and Building Management*, 25(23), p. 35.
Chapter 2: Review of Literature

The Book and Tower Building

Historic Significance

One of the important architects in Detroit in the twentieth century, Louis Kamper (1861-1953), designed the thirteen-story Book Building in 1917. The Book Building provided elite shopping and office spaces (“Developing a high-class retail shopping center,” 1925). He took elements from antiquity to provide decoration and building details, such as the twelve nude caryatids that support the exterior cornice (Hill & Gallagher, 2003). In 1926, the thirty-six-story Tower Building was built adjacent to the Book Building. It was designed to be in harmony with the structure of the Book Building and to provide more office and retail space in order to meet the needs of the expanding business community.

In 1982, the Book and Tower Building was placed on the register of Michigan Historic Preservation Sites, along with the Washington Boulevard Building, the Industrial Bank Building, and the Book-Cadillac Building. They composed the Washington Boulevard Historic District (site ID number P25278) (“A historic site,” n.d.). As the highest building in Detroit when it was built, the Tower Building with its elaborate details influenced the Detroit skyline. Kamper used the design elements of the Beaux Arts style for the exterior and for the three-story lobby.

According to the Statement of Significance from the State Historic Preservation Office in Michigan:

The Washington Boulevard Historic District was an intact streetscape of
architecturally distinguished commercial buildings dating from 1901 to 1930 with
the majority having been built during the 1920s. The buildings represent some of
the finest early twentieth-century architecture in Detroit and as a group illustrate the
evolution of the commercial style in Detroit as it was practiced by some of
Michigan’s master architects. The district was also significant as a product of a
planned real estate development inspired by the City Beautiful movement and
carried out as the private artistic endeavor of one patron family and their architect,
Louis Kamper. ("A historic site", n.d., para. 9)

The “one patron family” was in reference to the Book family, the first owners of
the Book and Tower Building.

*Preservation, Restoration, or Adaptive Reuse*

Preservation, restoration, and adaptive reuse and rehabilitation all refer to the
renovation process. However, they identify four different concepts:

1. Preservation: “The act or process of applying measures necessary to sustain the
   existing form, integrity, and materials of an historic property” (National Park
   Service, 2005a, para. 1).

2. Restoration: “The act or process of accurately depicting the form, features, and
   character of a property as it appeared at a particular period of time by means of the
   removal of features from other periods in its history and reconstruction of missing
   features from the restoration period” (National Park Service, 2005b, para. 1).

3. Adaptive Reuse: Create new functions for the space in historic buildings for new
   users (Fitch, 1982).

4. Rehabilitation: “The act or process of making possible a compatible use for a
property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values” (National Park Service, 2005c, para. 1).

Beaux Arts

Beaux Arts means fine arts in French. The name came from a school, the Ecole des Beaux-Arts in Paris. It was a private school founded by Cardinal Mazarin in 1648 to provide training in architecture, drawing, painting, sculpture, engraving, modeling, and gem cutting. This school came under government authority for the training of painters, sculptors, architects, and medalists in 1863 (“Ecole des Beaux-Arts,” n.d.). Abundant art resources were provided by the French government. The students who wanted to enter this school needed to pass exams and show their work in order to demonstrate their artistic talent. Following the guidance of teachers who came from professional fields, students instructed and disciplined themselves. Students were trained in the artists’ studios instead of school rooms (Harris, 1988). This teaching method allowed them to attain higher levels of skill. The design style that was developed by this school was called the Beaux Arts style (Pile, 2005). “The training of Beaux Arts is eclectic, although the emphasis was on the classical” (Pile, 2005, pp. 301-302).

Planning was the first and most important step in Beaux Arts design for the development of a logical and functional plan. Structurally, it was common to see steel framing, rusticated stone bases, smooth stone exteriors, and grand masonry with marble interiors in this style in the United States. (Tyler, 2000). “Symmetry is important on all of the facades and detailing much more exuberant than in other classical styles” (Tyler, 2000, p. 115). Both interior and exterior detail were highly and richly decorated (Pile,
In the United States, Beaux Arts was popular during the American Renaissance period between 1880 and 1930 (Harris, 1988). One feature of Beaux Arts design was the selection of historical elements suitable to a specific project.

Other features of Beaux Arts were the following:

(a) grandiose composition;
(b) imposing grand stairway;
(c) large arched openings;
(d) variety of stone finishes;
(e) monumental columns;
(f) classical ornamentation;
(g) entablature topped with a tall parapet, balustrade, or attic story;
(h) pronounced cornices;
(i) decorative swags, medallions, cartouches, and sculpture. (American Beaux Arts Architecture, n.d, para. 2)

The historic features of the Book and Tower Building reflect some of these important Beaux Art features. The facades are symmetrical. The architect also selected historic elements for this building. For example, the Pompeii style was not popular when the building was built. Nevertheless, the architect selected Pompeii elements in decorating the ceiling in the lobby. It was considered a very important characteristic of Beaux Arts. In addition, this building has a grand marble stairway, large arched openings in the entrance, interior arches, a variety of stone curtain walls on the facades, and sculpture on the top of the building, which were all considered important Beaux Arts building features.
Architect: Louis Kamper

Louis Kamper was born in Bliesdalheim, Bavaria, Germany, in 1861. He moved to the United States from Germany in 1882 to work as a draftsman for McKim, Mead & White in New York. He then went to Detroit and became a member in the firm of Scott, Kamper and Scott. He started to practice independently in 1891 and designed more than one hundred buildings. Of those he designed in Detroit, the Book and Tower, the Sheraton-Cadillac Hotel, and the Cadillac Building were all well-known. Some of his other buildings include the Roosevelt Hotel, Miami; the Westover Hotel, New York City; the Schaeler Building, Dearborn, Michigan; and the courthouse, Saginaw, Michigan. He died in 1953 when he was 91 years old (“Kamper, Louis, 1861-1953,” 1953).

Construction

Structurally, the Book and Tower Buildings were both built of steel with a decorative stone facade (“Developing a high-class retail shopping center,” 1925). The detail and the exterior materials of the Tower Building, built later, corresponded to those of Book Building from the first floor to the thirteenth floor. The fourteenth to the twenty-fifth floor of the Tower Building represent a separate unity. The facade consists of a combination of terra cotta, stone, and brick. “Above the twenty-fifth floor there is an ornamental molding encircling the building with carved stone cornice pieces” (“Building Detroit Tower,” 1926, p. 126).

Federal Historic Preservation Tax Credit

The federal government supports a program of rehabilitation of historic and older buildings with the Federal Historic Preservation Tax Incentives Program in order to encourage the retention of historic buildings in a community in order to promote a sense
of identity, stability, and orientation. The National Park Service (NPS), the State Historic Preservation Officer (SHPO), and the Internal Revenue Service (IRS) are also in partnership with this program (Heritage Preservation Service, n.d.).

Figure 10. The Book Building, Detroit, showing Tower steel work in 1918.


A tax credit lowers the amount of tax owed. For example, a dollar of tax credit reduces the amount of tax owed by one dollar (Heritage Preservation Service, n.d.). The Heritage Preservation Service explains the two different tax credits:
1. The 20% rehabilitation tax credit equals 20% of the amount spent in a certified rehabilitation of a certified historic structure.

2. The 10% rehabilitation tax credit equals 10% of the amount spent to rehabilitate a non-historic building built before 1936.

A certified historic structure is a building on the list of the National Register of Historic Places, and it should be certified or approved by the NPS as contributing to an historic district. There are two or three parts in the Historic Preservation Certification application process, depending on whether or not the building was on the National Register of Historic Places. Not until the application is submitted to the State Historic Preservation Officer (SHPO) will the process be initiated (National Park Service, n.d.d).

There are three parts to this application process. Part One is the Evaluation of Significance of the property. The owners of the buildings need to pass Part One in order to show that their buildings qualify as being historically significant. Part Two is the Description of Rehabilitation Work. Owners who are looking for the 20% tax credit need to submit descriptions of the proposed rehabilitation work. The proposed rehabilitations are reviewed by the National Park Service on the basis of The Secretary of the Interior’s Standards for Rehabilitation. Part Three is the Request for Certification of Completed Work. When the owners request final approval of the completed work, the National Park Service compares it with the proposed plan from Part Two. Then the decision is made as to whether or not the project is approved and is therefore eligible for the rehabilitation tax credit (National Park Service, n.d.d).

**Michigan Historic Preservation Tax Credit**

The Michigan Historic Preservation Tax Credits program became available in 1999.
This program is similar to the federal program. It is hosted by the State Historic Preservation Office (SHPO) with the Michigan Department of Treasury. A state income tax credit of up to 25% is available for the rehabilitation of certain historic resources. The State Historic Preservation Office requirements (State Historic Preservation Office, 2000) are listed below:

1. The resource to be rehabilitated must be located in the State of Michigan.

2. This resource must be an eligible resource.

3. All project work must conform to the Secretary of the Interior’s Standards for Rehabilitation.

4. Applicants must apply to the SHPO. To qualify for the tax credit, applicants must complete all three parts of the Historic Preservation Certification Application.

5. Qualified rehabilitation expenditures must be equal to or greater than 10% of the State Equalized Value (SEV) of the property.

6. If the resource is sold, or alterations not meeting the Secretary of the Interior’s Standards for Rehabilitation are made within five years after the tax credit is claimed, the tax credit will be subject to recapture by the State of Michigan. (p. 4)

Building owners who are doing rehabilitation must apply for the 20% federal historic preservation tax credit before applying for the state tax credit program. Only 5% of the state tax credit will be eligible if the project gets approved by the federal tax credit program (State Historic Preservation Office, 2000). Building owners can earn up to 25% of the tax credits if they apply for both the federal tax credit program and the state tax
credit.

*Guidelines for Renovation of Interiors of Historic Buildings*

The National Park Service is responsible for developing the guidelines for historic preservation. According to the definitions created by the National Park Service, there are four treatment approaches: Preservation, Rehabilitation, Restoration, and Reconstruction (National Park Service, n.d.e).

(a) “Preservation, the first treatment, places a high premium on the retention of all historic fabric through conservation, maintenance and repair. It reflects a building's continuum over time, through successive occupancies, and the respectful changes and alterations that are made” (National Park Service, n.d.e, para. 3).

(b) “Rehabilitation, the second treatment, emphasizes the retention and repair of historic materials, but more latitude is provided for replacement because it is assumed the property is more deteriorated prior to work” (National Park Service, n.d.e, para. 4).

(c) “Restoration, the third treatment, focuses on the retention of materials from the most significant time in a property's history, while permitting the removal of materials from other periods” (National Park Service, n.d.e, para. 5).

(d) “Reconstruction, the fourth treatment, establishes limited opportunities to re-create a non-surviving site, landscape, building, structure, or object in all new materials” (National Park Service, n.d.e, para. 6).
Professionals should choose the most appropriate treatment and also consider the relative importance in history, physical condition, proposed use, and mandated code requirements (National Park Service, n.d.e).

The Secretary of the Interior's Standards for Rehabilitation

The Standards (Department of Interior Regulations, 36 CFR 67) pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior, related landscape features, and the building's site and environment, as well as attached, adjacent, or related new construction. The Standards are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired (National Park Service, n.d.f, para. 1-10).
Asian Design

Asian Design Influence

To blend with the historic features but be distinctly different from them, Asian design concepts are an important design element. Asian culture is influenced by the Buddhist, Taoist, and Shintoist belief systems, all of which value simplicity of lifestyle (McArdle, 2000). In Asian design, scale and placement are very important. Geometric order, compatibility, and orderly lines are emphasized in order to create balance (McArdle, 2000). The design elements are “symmetrical, regular, and axially disposed” (Abercrombie & Whiton, 2001, p. 244).

Because of the influence of Taoism, the concepts of Yin and Yang were integrated into the Asian design language. Yin is feminine, with receptive, passive, round, dark, and cool qualities. Yang is masculine, with straight lines, light colors, and warm qualities. When the Yin and Yang are balanced in a space, harmony is born (McArdle, 2000).

Chinese garden. The garden was one of the most important components in Chinese classical design. It was considered as serious an art form as painting, sculpture, and poetry in achieving the design principles of balance, harmony, and proportion. “The garden is an artistic recreation of nature; a landscape painting in three dimensions” (Imperial Tours, n.d., para. 1). There were three categories of Chinese gardens: the imperial garden, the private garden, and the natural scenic site (Imperial Tours, n.d.). The first imperial garden was built as an imperial hunting ground during the Shang dynasty (1600-1026 BC) at Xianyang in China. The first private garden was built during the Northern and Southern dynasties (420-589 AD). The largest scale garden, the natural scenic garden site, was built around natural, existing mountains, valleys, lakes, etc. It was
the pleasure ground of the imperial house and nobility (Imperial Tours, n.d.).

There are four common elements for the Chinese garden. They are (a) water, (b) rocks, (c) plants, and (d) architecture. Water symbolizes life and represents nature. Its horizontal lines balance other vertical lines in the environment, such as those of mountains. Rocks sometimes come into contrast with water. These two components contrast and complement each other in achieving harmony (Montreal Botanical Garden, 2001). Plants are selected for their seasonal character and symbolic meaning. “Plants are arranged asymmetrically and are integrated with architecture elements” (“Elements of a Chinese Scholar’s Garden,” n.d., para. 4). The pine, bamboo, and plum trees were very common choices for the Chinese garden.

*Similar components of Chinese and Japanese design.* China has influenced Japan throughout history, beginning in sixth century, with material culture, religion, and political institutions (Gex, 2000). In architectural design, China and Japan share components such as the color of wood, the use of bamboo, and stone as exterior and interior decoration (Gex, 2000). Thus, gardens are often important elements in both Chinese and Japanese design. They both use plants, rockwork, and water to present symbolic meanings (Gex, 2000). They also employ similar materials and techniques for interior lighting design, such as rice paper and wood (Gex, 2000). Colors that are often used in Asian design include shades of beige, cream, brown, and grey—the colors of nature. Earth and sky are important symbols. The rice straw used in tatami for flooring, the paper of the shoji sliding screens, and the unpainted wood of pillars and roof timbers are important in Japanese design. These design elements have been a strong influence on the minimal interiors of contemporary Western design (Gex, 2000). McArdle (2000) gave
an example of a project that used these components, such as bamboo and sliding screens, to create Eastern appeal (p. 26).

It is also Easterners’ belief that human beings’ emotions are reflected in color symbols. There are five colors associated with five elements of Chinese design. Red represents fire, which means _fortunate_ (McArdle, 2000); black represents water (Virtual Colour Museum, n.d.). It means _spirituality_; green represents wood and means _growth_; yellow represents earth, which means _wealth and power_; white represents metal, meaning _fulfillment_ (McArdle, 2000).

Contemporary Asian restaurants in the United States. Many Asian restaurants in the United States apply Asian design principles and features in their design. For example, the theory of Yin and Yang was the main concept of a Chinese restaurant in Cambridge, Massachusetts. Positive and negative places and dark and light spaces were used (McGuire, 1994). A Japanese restaurant located in the Hard Rock Hotel in Las Vegas, designed by the Rockwell Group in New York, employed many natural materials, such as bamboo and rock, to create a warm dining place (Bussel, 1999) (see Figure 11).
Asian Food

According to the results of research presented at the 1995 International Conference on Diet Asia, Asian food has proven its health value. Americans are consuming more and more Asian food because it is not only tasty but also healthy. American scientists from Harvard School of Public Health, Cornell University, and other institutions have found that Asian food preparation guidelines have become the new light of current nutrition research (Gifford, n.d.). The sustaining health value of serving Asian food in the Book and Tower Building echoes the use of sustainable interior design.
Sustainable Design

The First Earth Day

The first public event in the United States to focus on environmental design was Earth Day, celebrated in April 1970. It was proposed by United States Senator and Wisconsin environmentalist Gaylord Nelson. He addressed environmental issues by writing letters to fifty governors and the mayors of most major cities to explain environmental issues and to request government involvement in Washington (Mondout, n.d.). An estimated 20 million people in the United States participated in this celebration. People who cared about environmental issues used this event to urge public officials to protect the planet.

Earth Day Network (n.d.a) described the First Earth Day as follows:

Thousands of colleges and universities organized protests against the deterioration of the environment. Groups that had been fighting against oil spills, polluting factories and power plants, raw sewage, toxic dumps, pesticides, freeways, the loss of wilderness, and the extinction of wildlife suddenly realized they shared common values. (para. 5)

The first Earth Day was successful and led the United States to national legislation such as the Clean Air Act and the Clean Water Act (“The first earth day,” n.d.). Now Earth Day activities are held in about 140 countries each year. Earth Day takes place on the weekend closest to April 22 (Mondout, n.d.). The Earth Day Network (EDN) that was founded on the first Earth Day promotes “environmental citizenship and year-round progressive action worldwide” (Earth Day Network, n.d.b, para.1). Now the EDN not only supports Earth Day celebrations around the world every year, but also promotes
many environmental movements that include engaging corporations in support of environmental activities (Earth Day Network, n.d.).

**Commission on Sustainable Development**

In 1972, the environment was put on the international agenda for the first time by the U.N. Conference on the Human Environment. In 1983, the U.N. World Commission on Environment and Development addressed the relationship between economic development and its environmental impact. The U.N. Commission on Sustainable Development (CSD) encourages both governments and international organizations to host environmental workshops and conferences to promote sustainable development on a worldwide level. In 1987, the Commission defined sustainable development as “that which meets the needs of the present without compromising the ability of future generations to meet their needs” and requested strategies for integrating environment and development. The U.N. General Assembly then held the U.N. Conference on Environment and Development (UNCED) to identify and develop sustainability strategies (“The Earth Summit,” n.d.).

In December 1992, the U.N. General Assembly established the Conference on Sustainable Development (CSD) to ensure follow-up of the UNCED, which is also called the Earth Summit, in Rio de Janeiro, Brazil, June 3-14, 1992. During the Earth Summit, 178 world leaders signed the Framework Convention on Climate Change. The Convention on Biological Diversity, part of the 1992 UNCED, agreed on the Rio Declaration and the Forest Principles and adopted Agenda 21, a 300-page plan for achieving sustainable development in the 21st century (United Nations Divisions for Sustainable Development, n.d.a).
Sustainable Design in Buildings

Global warming and other kinds of environmental impact are not new issues. What human beings have done to damage nature creates a very negative impact on the environment. In the United States, significant environmental damage is the result of building construction and operations, including 36% of total energy used, 65% of electricity consumption, 30% of greenhouse gas emissions, 30% of waste output, 30% of raw materials used, and 12% of potable water consumed (USGBC, n.d.a).

The goal, sustainable design, is developed to reduce negative environmental outcomes. Sustainability benefits the user, building owners, and the earth. According to U.S. Green Building Council (USGBC, n.d.a), there are (a) environmental benefits, (b) economic benefits, (c) health and safety benefits, and (d) community benefits (n.d.). There are many ways to achieve the goal of sustainability for buildings, for example, using energy-efficient lighting, heating, and cooling systems; using natural ventilation; choosing sustainable materials; and recycling the waste from the building’s construction and use.

USGBC has identified the three major benefits of green buildings (n.d.a).

Environmental benefits:

1. Enhanced and protected ecosystems and biodiversity
2. Improved air and water quality
3. Reduced solid waste
4. Conserved natural resources

Economic benefits:

1. Reduced operating costs
2. Enhanced asset value and profits
3. Improved employee productivity and satisfaction
4. Optimized life-cycle economic performance

Health and community benefits:
1. Improved air, thermal, and acoustic environments
2. Enhanced occupant comfort and health
3. Minimized strain on local infrastructure
4. Contributed to overall quality of life. (USGBC, n.d.a, para. 4)

Architects and interior designers are increasingly melding sustainable design concepts into actual projects. Sustainable design issues are a priority in the education and training of design practitioners (Mendler, 2000). Facility managers are also aware of the importance of sustainable design and its relationship with business (Mendler, 2000).

U.S. Green Building Council (USGBC)

USGBC was founded in 2002. The vision of USGBC is “to integrate students and professionals into the green building movement.” Its mission is “to create a network of emerging green building leaders and develop opportunities for involvement through USGBC to further generate momentum for the green building industry” (USGBC, n.d.b). The purpose of USGBC is to integrate building industry sectors, lead market transformation, and educate owners and practitioners (USGBC, n.d.b, para. 5).

LEED Accreditation

LEED (Leadership in Energy and Environmental Design), developed and managed by USGBC in 1998, is a rating system wherein credits are awarded for environmental design features of buildings. USGBC not only provides sustainable design principles for
designers, but also encourages manufactures to produce sustainable products to enable designers and architects to meet LEED criteria.

There are six main categories of LEED certification System (USGBC, n.d.c):

2. Existing building operations (LEED-EB): Released in 2004.

The initial cost of LEED buildings is indeed higher than non-LEED buildings. The higher cost of using LEED is in part a result of the registration and application fees. However, although up-front costs may be higher, life-cycle costs are lower. For example, linoleum is more costly per square footage than vinyl composition tile. However, maintenance and replacement costs make linoleum the least expensive option (Guerin & Jones, 2004). In November 2004, 16% of new commercial office buildings’ square footage and 25% of mixed-use buildings were constructed by using LEED as a sustainable design guideline (USGBC, n.d.d).

There are several benefits to certifying buildings as LEED buildings (USGBC, n.d.e):

1. Establish recognized leadership in the green building sector;
2. Validate achievement through third party review;
3. Qualify for a growing array of state and local government incentives;
4. Contribute to a growing green building knowledge base;

5. Earn LEED Certification plaque and certificate. (USGBC, n.d.e, para. 3)

LEED for New Construction and Major Renovation (LEED-NC) can be applied to many building types, including high-rise residential, commercial, and institutional buildings. There are six evaluation categories: Sustainable Sites; Water Efficiency; Energy and Atmosphere; Material and Resources; Indoor Environment Quality; and Innovation and Design Process (see Table 1.).

The first step in getting LEED certification is to register a project in its early stages. Obtaining registration results in support from USGBC, including receipt of important information, software tools, and other consultant support. After the project is registered, the design team can prepare to meet the prerequisite and credit submittal requirements and obtain or develop the appropriate documents. USGBC provides credit interpretation requests (CIRs) to ensure that the design team understand and meet the LEED prerequisite or credits. After the design team submits all of the required documents, along with the corresponding fee, the project is reviewed. If the criteria are met, certification is awarded. If certification is not awarded, the project team could appeal the result (USGBC, n.d.e). U.S. Green Building Council (2002) sets up four progressive levels of certification:

1. LEED Certified: Projects achieve at least 26-32 points
2. LEED Silver: Projects achieve 33-38 points
3. LEED Gold: Projects achieve 39-51 points
4. LEED Platinum: Projects achieve 52-69 points (p. vi)
Table 1

**LEED-NC Sustainability Applications for the Interiors of Buildings**

<table>
<thead>
<tr>
<th>LEED category</th>
<th>Goal</th>
<th>Application/strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water efficiency</td>
<td>Water-use reduction</td>
<td>Specify high-efficiency fixtures and dry fixtures such as composting toilets and waterless urinals to reduce wastewater volumes. Consider reusing storm water or greywater for sewage conveyance or on-site wastewater treatment system.</td>
</tr>
<tr>
<td>Energy and atmosphere</td>
<td>Minimum energy performance, optimize energy performance</td>
<td>Design the building envelope and building systems to maximize energy performance.</td>
</tr>
<tr>
<td>Materials and resources</td>
<td>Storage and collection of recyclables</td>
<td>Designate an area for recyclable collection and storage that is appropriately sized and located in a convenient area.</td>
</tr>
<tr>
<td></td>
<td>Building reuse</td>
<td>Reuse the existing building.</td>
</tr>
<tr>
<td>Construction-waste management</td>
<td></td>
<td>Establish goals for landfill diversion and adopt a construction-waste-management plan to achieve these goals. Consider recycling land-clearing debris, cardboard, metal, brick, concrete, plastic, clean wood, glass, gypsum wallboard, carpet, and insulation.</td>
</tr>
<tr>
<td>Resource reuse</td>
<td></td>
<td>Identify opportunities to incorporate salvaged materials into building design and research potential materials.</td>
</tr>
<tr>
<td>Recycle content</td>
<td></td>
<td>Establish a project goal for recycled content materials and identify material suppliers that can achieve this goal.</td>
</tr>
<tr>
<td>Regional materials</td>
<td></td>
<td>Establish a project goal for locally sourced materials and identify materials and materials suppliers that can achieve this goal. During construction, ensure that the specific local materials are installed and quantify the total percentage of local materials installed.</td>
</tr>
</tbody>
</table>
Table 1 (cont’d.)

<table>
<thead>
<tr>
<th>LEED category</th>
<th>Goal</th>
<th>Application/strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapidly renewable materials</td>
<td>Establish a project goal for rapidly renewable materials and identify materials and suppliers that can achieve this goal. Consider materials such as bamboo flooring, wool carpets, straw board, cotton batt insulation, linoleum flooring, poplar OSB, sunflower seed board, wheatgrass cabinetry, and others.</td>
<td></td>
</tr>
<tr>
<td>Certified wood</td>
<td>Establish a project goal for the Forest Stewardship Council-certified wood products and identify suppliers that can achieve this goal.</td>
<td></td>
</tr>
<tr>
<td>Indoor environmental quality</td>
<td>Low-emitting materials</td>
<td>Specify low-VOC paints, coatings, carpet, and composite wood in construction documents.</td>
</tr>
<tr>
<td>Day lighting and views</td>
<td>Design the building to maximize interior daylighting. Design the building to maximize view opportunities.</td>
<td></td>
</tr>
<tr>
<td>Innovations in design</td>
<td>Substantially exceed a LEED performance credit such as energy performance or water efficiency.</td>
<td></td>
</tr>
<tr>
<td>LEED-accredited professional (AP)</td>
<td>Ensure that at least one LEED AP participates in the project.</td>
<td></td>
</tr>
</tbody>
</table>


Conjunction of Historic Preservation and Sustainable Design

Sustainability is not only an issue for architects and interior designers. It also affects tradespeople, suppliers, and manufacturing, as well as construction and facility management. When people create a sustainable environment, preserving historic buildings demonstrates the recycling process. Implementing sustainable design when renovating and/or rehabilitating historic buildings produces a stronger sense of sustainability as a design philosophy. It is important to extend the lives of historic buildings because there are valuable cultural issues associated with historic buildings. In addition, both preservationists and environmentalists have the goal of saving resources,
whether cultural or natural, for future generations. They are both devoted to buildings 
[sustainable living environments] that offer social benefits. Environmentalists and 
preservationists are natural allies (Carroon, Roberts, & Simonsen, 2004).

However, there are challenges in integrating these two paradigms. For example, one 
of the sustainable challenges in historic preservation is in the “options of materials” that 
can be used (Solomon, 2003). In order to maintain the historic character, the Standard for 
Rehabilitation puts limitations on identifying, retaining, and preserving the historic 
character as the first consideration for selecting materials (National Park Service, 
n.d.f). When historic features must be recreated, the Secretary of the Interior’s Standards 
for Rehabilitation recommended the new to match the old in design, color, texture, other 
visual qualities, and materials. These materials may or may not meet sustainability 
criteria. An architect, Maytum, said, “What is challenging—and what makes it 
interesting—is finding that right medium between honoring the historic significance of the 
structure, but bringing it into new use” (as cited in Alati, 2003, p.101).

There are ways to redesign old buildings that recognize their architectural character 
and contextual setting. On the other hand, some people believe that “not all buildings 
need to or should fit harmoniously with their neighbors” (Brolin, 1980, p. 5). In adaptive 
reuse of historic buildings for new uses, the alterations or additions should not be 
confused by the casual observer with original historic features. The alterations or 
additions can be either compatible with or contrasting to the historic elements (Tyler, 
2000). In this situation, the renovation can meet all sustainable design criteria.
Café Design

*Café* means a small restaurant selling light meals and drinks (*Compact Oxford English Dictionary*, 2005, para. 1). It means coffee or coffee house in French. The French café serves fresh and simply prepared food in a casual setting. The atmosphere is friendly and conducive to socialization with other people (Colgan, 1987).

The café concept was started in Paris in the nineteenth century. It became a place for all types of workers to develop their social behavior in the nineteenth century (Harsin, 1997). In the current trend of café design in the United States, the Parisian concepts are loosely interpreted. Light meals and coffee are served in the noisy atmosphere of an open space. The café may provide a daily newspaper and current magazines for customers to read. In the summer time, urban restaurants may take advantage of good weather to use sidewalk space to create a casual atmosphere as in a café (Colgan, 1987). In a retail building, a café plays the important role of making customers feel comfortable by providing a relaxing place to rest either during or after shopping. Counter service is another characteristic of the café (Pegler, 1998).

**Summary**

Historic buildings remind people of the history of their culture; therefore, it is crucial to retain, restore, and adapt them to meet contemporary needs. With the benefits of federal and state tax credit programs, historic building owners have more funds to retain valuable historic features and give these buildings new lives.

The Book and Tower Building was one of the tallest buildings in the world in 1918. Louis Kamper designed this building in the Beaux Arts style. In that the building is on the list of Michigan Historic Sites, the Secretary of the Interior's Standards for
Rehabilitation requires that new additions or exterior alternations have to be either compatible with or contrasting to the original design with the intent of differentiating old from new. However, deteriorated interior features need to be repaired. If deterioration mandates replacement, the new must match the old in design, color, texture, and materials.

Preserving historic buildings not only preserves culture but also reduces any negative environmental impact. In the twenty-five years since the first Earth Day, sustainable design guidelines have been implemented to reduce the negative environmental impact of buildings. Renovating old buildings reduces construction waste and preserves embedded energy. Even though following sustainable design guidelines might increase the initial cost, life cycle costs often make the sustainable option the least expensive option. This not only creates environmental benefits but is beneficial for this generation and those to come.

An important part of revitalizing a building, and the community that surrounds it, is development of revenue sources to ensure the viability of the renovation. In addition to the retail shops and service establishments, a café serves as a way to blend old and new. A café provides a casual place for people to have simple food and interact with each other. It can be a respite for people who are shopping, for the employees of the businesses, and the residents of the buildings.
Chapter 3: Research Design and Methodology

*Overview*

For this qualitative study, a conceptual plan was developed for the Book and Tower Building in Detroit. The case study explored the conjunction of historic preservation requirements and sustainable design precepts (see Figure 12).

*Data Collection*

Data regarding this historic building was collected from articles in periodicals, databases, books, the State Historic Preservation Office in Michigan, and site visits. Copies of original blueprints and drawings were obtained from the owner for a studio class at Eastern Michigan University (see examples on Figure 8, 9, and 10). This project was an extension of that studio. From USGBC, criteria for LEED NC and MR were obtained.

*Scope of Project*

*Public Spaces from the First Floor to the Third Floor*

The public spaces included the main entrance, shops near the entrance, the lobby, historic court, and corridors, as well as the new open court and lobby in the south part of the Book Building. A conceptual plan was developed for the second and third floors, which were open to the historic court. The design proposal included plans, sections, elevations, and computer-rendered perspectives of these spaces (see Figure 13-18).

*Asian Café*

The Asian café was located on the first and second floors on the west side of the historic court. On the first floor of the Asian café, there were an entrance, a dining area, restrooms, food storage, and a kitchen. A dining area and a beverage bar were on the
second floor of the Asian café.

**Data Analysis and Synthesis**

Plans for adaptive reuse of the building were initiated in the studio class. To build on that experience, additional spaces were chosen for this action research project: the public spaces from the first to the third floors that opened to the historic court, a new lobby and court for the southern entry, and a restaurant on the first and second floors. Space and furniture plans, elevations, sections, and perspectives show the conceptual design of these primary spaces. Preservation, rehabilitation, restoration, and reconstruction of historic features and sustainability criteria as detailed in LEED for NC and MR guided development of the interior design for the public spaces in the Book and Tower Building.

In consultation with the owner of the building, the design concept for this conceptual project evolved from earlier work in the studio class. Experts in sustainable interior and architectural design, graphic presentation, and historic preservation provided feedback, using the delphi technique through email and meetings, to review the drawings. The design was modified after each critique in order to meet the goal of obtaining historic preservation tax credits for renovation of the interior environments for revenue generation, guided by sustainable design precepts.
Figure 12. The research and design process.
Figure 13. Original first-floor plan for Book and Tower Building.

Note. This drawing was provided by the building owner, Susan Lambrecht.
Figure 14. Original third-floor plan for Book and Tower Building.

Note. This drawing was provided by the building owner, Susan Lambrecht.
Figure 15. Section through corridors on first, second, and third floors showing main stairway and entrance to elevators.

Note. This drawing was provided by the building owner, Susan Lambrecht.
Figure 16. Book and Tower Building first-floor plan.
Figure 17. Book and Tower Building second-floor plan.
Figure 18. Book and Tower Building third-floor plan.
Chapter 4: Discussion

Introduction

This project used the guidelines of the Secretary of Interior’s Standards and the LEED rating system in order to develop a plan for renovation of the Book and Tower Building in Detroit, Michigan, that would create revenue-generating options. In the design process, three issues needed to be addressed: contrasting the new and the old, balancing sustainable design and historic elements, and the cultural impact on the downtown community. In order to meet the Secretary of the Interior’s Standards, the new elements were clearly differentiated from the historic features that were preserved or restored. The design for adaptive reuse had to meet sustainability criteria. The conjunction of historic preservation standards and sustainability guidelines was explored in this study. This project should assist designers in resolving these issues in other historic preservation projects.

Three styles were reflected in the design: contemporary style in the new open court, Beaux-Arts style in the lobby, and a simplified Asian style for the café. During the design process, several issues were addressed. First, the transitions among these related spaces needed to appear seamless. Second, in order to obtain LEED points for sustainable design, compliance with the LEED for New Construction and Major Renovation was crucial. Third, following Secretary of the Interior’s Standards for Rehabilitation was critical in order to qualify for tax credits. However, the guidelines for historic preservation and sustainability were not always compatible. Fourth, combining Eastern and Western design was another challenge addressed in this study.
Review of Research Design and Method

In January and February of 2004, during a design studio class at Eastern Michigan University taught by Professor Dian Love, the students toured the Book and Tower Building and spoke with the owner, Susan Lambrech. In this action research project, after setting the goals of meeting both LEED and historic preservation tax credit guidelines, experts from both of these areas provided continuous support using the Delphi technique. The experts included (a) an interior designer who is a LEED AP, (b) an architect who practices sustainable design, (c) an architect who is an expert on presentation graphics and Chinese architecture, and (d) an expert on historic preservation.

After extended research, the design was developed and evaluated by these experts. After the researcher received the feedback, the design was revised. This process was repeated until the design met reasonable space-planning criteria (see Figure 30) and demonstrated a good balance of sustainable concepts and historic preservation guidelines. When the floor plans had been finalized, the elevations and presentation drawings were developed.

Most of the renovation was concentrated in the interior. Although some exterior rehabilitation would be necessary, it was beyond the scope of this project. Also, materials were selected and were presented in the final drawings. Because this project was conceptual, the researcher had more design freedom to address the LEED criteria, historic preservation guidelines, and structural limitations.

Overview of Design Criteria

Secretary of the Interior’s Standards

Overall, the Secretary of the Interior’s Standards took priority in decisions
regarding what should be preserved, what should be removed, and what should be restored. Evaluating these priorities was very crucial at the beginning of the project. After comparison of the original drawings and the current space, it was clear that many of the historic features had been removed, such as arches, ceilings decorative finishes, and column details.

*Prerequisites and Credits for LEED New Construction and Major Renovations*

USGBC allows credits for buildings on the basis of six criteria:

- sustainable sites
- water efficiency
- energy and atmosphere
- materials and resources
- indoor environmental quality
- innovation and design process

It was important that the project integrate these criteria. Although the new open court and the Asian café were not in the original design, they were in fact rehabilitation of the historic interior spaces. As many historic elements as possible were preserved or restored, and new materials and features were added to increase revenue-generating possibilities. For the original design features, the choice of materials was limited, but sustainability precepts guided the decisions during design development.

*Historic Court Design*

The Book and Tower Building was primarily designed in Beaux Arts style. When passing through the main entrance of the Book Building, people saw twelve nude caryatids that supported the exterior coffered cornice (see Figure 20). Integrating classical
Greek sculpture corresponded with the Beaux Arts design. The windows of the entrance were retained, but upgraded with fixed glazing to convert them from single to double glazing in order to improve energy efficiency. The revolving doors were augmented with hinged entry doors for ADA compliance (see Figure 16). Beyond the elevators in the lobby, a marble staircase connected the first and second floors (see Figures 21 and 22). This grand stairway represented another important feature of Beaux Arts design. The marble-clad interior walls and marble floors in the lobby were in keeping with this design.

The main design concept for this lobby was preservation and restoration. Most of the historic features and materials, such as the marble flooring and painted ceilings, were preserved (see Figures 23 and 24). Some historic components that had already been removed were restored according to the original drawings, such as the marble balustrade surrounding the lobby (see Figure 25) and segments of the marble flooring. In order to make the project more fiscally viable, the restored balustrade on the second and third floors of this court were not constructed of marble but, instead with poplar, a sustainable wood from managed forests. The wood was finished with faux painting in the original marble pattern. The marble-looking balustrade recreated the image of the original historic features in this lobby (see Figure 25). In addition, the floors between the first floor and the dome of this court were removed to expose the original court (see Figures 26-28).

*The Dome*

One of the most significant historic features was the dome located in the center of the historic court. Because the dome had been damaged, it needed to be repaired in order to be preserved. On the basis of the original drawings and photographs, the glass needed
to be cleaned, and the structure had to be strengthened. In the original design (see Figure 29), sunlight came through the beveled glass to flood the lobby with daylight. Following the original drawing, the existing black roof above the dome would be removed, the overhead support system of the dome would be repaired, and new clear beveled glass would be installed (see Figures 32 and 33). Removing the black roof and restoring the dome would earn both history preservation credits and LEED daylight points. Electrical lighting was designed that would be installed between the dome and the new glass. The sunlight and the structure created arches of shadow through the dome during the daytime. The electrical lighting would highlight the dome at night. People walking in the lobby would sense its history and beauty through different sources of light during the day and night.

**Symbolic Arches**

One of the most important features of Beaux Arts was the arch. Since all of the original interior arches were removed in earlier renovations, it was crucial to consider using some form of arch in this court to restore the spirit that the arches conveyed to this building. The new arches were designed to be symbolic (see Figure 28). They were designed as stainless steel bands would that appear as ghosts of the original arches. This avoided the high cost of restoring the original ones. The new arches would echo the originals while differentiating the historic and new elements in this court.

**Ceiling Decoration**

In keeping with the Beaux Arts style, Louis Kamper chose to use the decorative elements of Pompeii for the painted ceiling (see Figures 22 and 24). Pompeii design characteristics include naturalistic paintings of exterior scenes or imagery from mythology or daily life
(Pile, 2005). The human figures in Kamper’s ceiling decoration actively show daily lives. This important decoration was preserved along with one of the most significant features of this interior, the historic lighting fixtures, which were refitted with fiber optics for energy conservation.

*Interior Windows*

All of the original interior windows in the façades of the shops surrounding the court had been removed; therefore, the new ones had to be distinctly different from those in the original design. The researcher had more freedom of choice in this new window style. After researching the proportion of the exterior windows (see Figure 35) and the original interior windows (see Figure 25) from the first through third floors, a three-division design for the fixed glazing was developed (see Figure 26). For the redesign of the interior windows, the new window style was shared by both courts. However, different materials were used in order to express the style difference of the two courts. The material used in the historic court was wood, stained dark brown to reflect the original design. In the new court, the material was brushed aluminum to present a contemporary style (see Figure 37).

*New Open Court Design*

Because this court was a new open area for access to the current office spaces, there were no historic features present. The Secretary of the Interior’s Standards allowed the researcher to have more freedom in the design of this space. First, new skylights were introduced in order to provide more daylight. This not only achieved the goal of energy efficiency, but also created a spacious and pleasant shopping environment. All of the beams and columns were kept in this court in order to maintain the structural integrity.
This court used a contemporary style in contrast with the front entrance and historical lobby. Two pyramid skylights, retail windows and doors, and the geometry of a stainless steel balustrade presented the simplicity and contemporary style of this court (see Figures 36 and 37). Two doors provided the connection to the parking structures on each floor. People who walked from the parking structure into the new court perceived a spacious, welcoming environment when they entered this building (see Figure 30). Although the interior windows and glass walls were in the same style as those in the historic lobby, the brushed aluminum and stainless steel materials in this court represented a contemporary court (see Figure 37).

The walls and ceilings were gypsum board (from flyash) with non-VOC-emitting white paint. These specification secured points for sustainable materials and finishes and for indoor environmental quality. Gypsum board was used because it is affordable and its painted matte surface has very low light reflection (Bukoski & Martinson, 2003). This material was in strong contrast to the historic marble interiors with high light-reflective characteristics. The white color made the space appear crisp, clean, and expansive. The floor was covered by a rapidly renewable material, linoleum.

Because the existing flooring did not have any historic features, there was no need to preserve it. To gain sustainable materials points, the new flooring was specified in a color similar to the marble used in the historic lobby in order to blend with but be distinctly different from it in the material used. Compact fluorescent lighting and metal halide lamps gave this court a warm atmosphere and also achieved energy efficiency.
Asian Café Design

First Floor

When customers entered the café, the darker bamboo flooring inset in the light bamboo would lead them to the counter (see Figure 38). The glass wall between the café and lobby not only repeated the design of the exterior windows, it also satisfied the Asian design criteria. As customers walked through the seating area, they would pass an Asian garden that divided the space into smaller seating areas (see Figure 24). Bamboo, water, and rocks were utilized in the Asian garden. The water and rocks represented the Yin and Yang to create balance and harmony. The Asian garden carried symbolic value, suggesting that nature was respected in the dining area. This beautiful garden not only drew people’s attention to it but also reinforced the environmental focus of the café design concept.

All of the entrees were displayed behind glass at the counter. Customers ordered, paid their bills, and then took their meals to their table. If they chose to go to the second floor, the meal was sent in the food elevator by the staff. The waiters on the second floor set the trays on the bar, where the customers picked up the food before going to their tables.

The kitchen was located behind the food bar. Booths, tables, and banquettes provided seating. There were no wait stations in this café. Customers chose their own seats, took their food to their tables, and cleared their tables before they left.

Second floor

After their food was ordered, customers could use the historic marble stairway to the second floor to pick up their food and go to their seats (see Figure 39). The bamboo
planter was designed to divide the second floor into several areas. Bamboo planters were also used in front of the windows to make a transition from the Western to the Eastern atmosphere. All of the seating was upholstered with sustainable products. The areas could be separated through the use of Asian screens to provide private dining space for small groups of people (see Figure 41). Staff served beverages at the tea bar and transferred trays from the food elevator to the counter for pick-up (see Figure 39).

**Historic Staircase**

When customers entered the café from the first floor, the original marble staircase was visible to the left (see Figures 20 and 21). The staircase was preserved as part of vertical circulation for the Asian café because of its significant historic features. In order to reduce the visual conflict of the Beaux Arts and Asian designs, double doors separated the entrance from the seating area. As they entered the seating area, customers were intrigued by the welcoming atmosphere of the East as they left the comfort of the West.

**West meets East**

Introduction of an Eastern design in this Western historic building was a challenge. From the front entrance and the historic lobby, the elevation of the Asian café could be seen. The glass façade of the café repeated the geometrical design of the new open court (see Figure 42). However, the wood frames of this café created a different atmosphere: the warmth and simplicity of the Asian style. Cultural differences created a distinct contrast in order to meet the guidelines of the Secretary of the Interior’s Standards. The design fused new and old, East and West.

This fusion needed to be accomplished under the auspices of the Renaissance historic features in the lobby. A curtain of bamboo was used to create a transition
between the Western style in the lobby and the Eastern style in the café. The simplicity of Asian design was presented behind this bamboo screen (see Figures 26 and 27).

The symbolic nature of the Asian garden not only met the Western historic preservation and sustainable design approach criteria in the historic court but also worked to convey the theme of environmental responsibility (see Figure 42). The historic elements of this space reminded people of the past, whereas the environmental elements led them to think about the future. The café design also demonstrated environmental awareness of another culture. Thus, the merging of East and West in this design created a powerful global environmental statement.

**Lighting Design**

The lighting supported the design concept and earned LEED points by using energy-saving lamps. The new lighting from the first floor to the third floor used compact fluorescent lamps in recessed fixtures. Wall-mounted sconces in a contemporary style were installed in the new open court. The original lighting fixtures were restored in the historic lobby and corridor, but the incandescent lamps were replaced with fiber-optic lighting that met energy-saving goals. Metal halide lamps were used in both the historic and contemporary courts. The lanterns with compact fluorescent lamps appeared to be made of rice paper but in fact were made of translucent plastic and hung from the ceiling throughout the Asian café.
Table 2

*Historic Feature Table*

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships</td>
<td>Retained the use as commercial and office space on first three floors. Historic features and materials were respected and preserved in the lobby and historic court areas.</td>
</tr>
<tr>
<td>2 The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.</td>
<td>Most of the historic features (decorative ceilings, lighting fixtures, and the dome) and materials (marble) were respected and preserved. The missing historic features (balustrade) in the historic court were restored. The dark roof was removed to expose the historic dome and recover the original historic element.</td>
</tr>
<tr>
<td>3 Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.</td>
<td>The new spaces (Asian café, new open court, and retail space) were designed to contrast with historic features. The historic features are easily identified.</td>
</tr>
<tr>
<td>4 Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.</td>
<td>Not applicable</td>
</tr>
<tr>
<td>5 Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.</td>
<td>Most features of historic significance (decorative ceilings, lighting fixtures, historic columns, and the dome) and materials (marble) were preserved.</td>
</tr>
</tbody>
</table>

(table continues)
The Secretary of the Interior’s Standards for rehabilitating historic buildings

<table>
<thead>
<tr>
<th>Number</th>
<th>Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.</td>
</tr>
<tr>
<td>7</td>
<td>Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.</td>
</tr>
<tr>
<td>8</td>
<td>Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.</td>
</tr>
<tr>
<td>9</td>
<td>New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.</td>
</tr>
</tbody>
</table>

The missing historic features (balustrade) in the historic court were restored on the basis of the original blueprints and original pictures. Chemical and physical damage to historic features would be avoided. The contemporary court and the skylight were new construction. They were designed to contrast with the historic court.

(centre continues)
Third-Floor Design

The shops on the third floor, such as a spa, a hair salon, and a nail salon, provided personal services by appointment (see Figure 18). Translucent glass was used in order to maintain the privacy of the clients and continuity of the public space design (see Figure 28). Each business could modify its space according to its needs. The elevation of this floor followed the geometric style of the first and second floors (see Figure 42).

Materials and Resources

Table 3 presents the finishes and furnishings and historic preservation status for the public spaces and the Asian café. LEED credits are indicated in Table 4. Table 5 identifies potential LEED points. Lobby seating will be supplied and maintained by building management. Shops would be charged a service fee based on their proximity to seating.
### Table 3

**Finishes and Furnishings: LEED and Historic Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Lobby and historic court (1&lt;sup&gt;st&lt;/sup&gt;, 2&lt;sup&gt;nd&lt;/sup&gt;, 3&lt;sup&gt;rd&lt;/sup&gt; F)</th>
<th>New open court (1&lt;sup&gt;st&lt;/sup&gt;, 2&lt;sup&gt;nd&lt;/sup&gt;, 3&lt;sup&gt;rd&lt;/sup&gt; F)</th>
<th>Asian café</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flooring</strong></td>
<td>Marble (1)* (preserved)</td>
<td>Linoleum (6)*</td>
<td>Bamboo (8)*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wall</strong></td>
<td>Marble (1)* (Preserved)</td>
<td>Drywall with fly ash Finish: Non-VOC Paints (11)*</td>
<td>Dry wall with fly ash Finish: Non-VOC Paints (11)*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stair Balustrade</strong></td>
<td>Certificated poplar wood (2)* with Faux painting (Restored)</td>
<td>Steel (7)* Finish: Brushed</td>
<td>Marble (1)* and wood (12)* (Preserved)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ceilings</strong></td>
<td>Beaux Art ceiling (3)* (Preserved and Restored)</td>
<td>Gypsum board from fly ash Finish: Non-Voc Paints (11)*</td>
<td>Bamboo (8)*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lighting</strong></td>
<td>Reuse original lighting fixtures (4)* refitted with fiber-optics (13)*</td>
<td>Recessed lighting fixture: fluorescent and metal halide (5)*</td>
<td>Recessed cans and hanging pendants with compact fluorescent lamps (5)*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Furniture</strong></td>
<td>Certified maple from managed forest for chairs (2)* Granite tile tabletops with Beaux Arts-style recycled steel base</td>
<td>Not available</td>
<td>Booths: Eco-text Fabrics (9)* (Arc-Com) Tables: Isobord Strawboard (10)* Chairs: Maple wood from managed forest (2)*</td>
</tr>
</tbody>
</table>

*Note.* *See Table 4 associated LEED criteria*
Table 4

*Material Specifications with LEED Criteria*

<table>
<thead>
<tr>
<th>Materials</th>
<th>LEED Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Preserved marble</td>
<td>Preserve resources in the building</td>
</tr>
<tr>
<td>(2) Certificated wood</td>
<td>Certification from Forest Stewardship Council (FSC) shows the wood is from managed forest</td>
</tr>
<tr>
<td>(3) Preserved Beaux Arts ceiling</td>
<td>Preserve resources in the building</td>
</tr>
<tr>
<td>(4) Reuse original lighting fixture</td>
<td>Extend the life cycle of building materials and energy efficient</td>
</tr>
<tr>
<td>(5) Compact fluorescent and metal halide</td>
<td>Achieve the Energy Star certification</td>
</tr>
<tr>
<td>(6) Linoleum</td>
<td>Rapidly renewable natural materials</td>
</tr>
<tr>
<td>(7) Steel and aluminum</td>
<td>Recycled content</td>
</tr>
<tr>
<td>(8) Bamboo</td>
<td>Rapidly renewable materials</td>
</tr>
<tr>
<td>(9) Eco-text fabrics</td>
<td>100% recycled polyester</td>
</tr>
<tr>
<td>(10) Isobord strawboard</td>
<td>Rapidly renewable material from straw and an isocyanate binder with no formaldehyde off-gasing</td>
</tr>
<tr>
<td>(11) Non-toxic paint</td>
<td>Low-emitting material</td>
</tr>
<tr>
<td>(12) Preserve wood</td>
<td>Preserve resources in the building</td>
</tr>
<tr>
<td>(13) Fiber optics</td>
<td>Energy-efficient lighting</td>
</tr>
</tbody>
</table>
### LEED Sustainable Design Points

<table>
<thead>
<tr>
<th>LEED category</th>
<th>Credit content</th>
<th>Application</th>
<th>Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable site</td>
<td><strong>Credit 4:</strong> Alternative transportation: public transportation access</td>
<td>Existing people-mover track within ½ mile, bus stops within ¼ mile</td>
<td>1</td>
</tr>
<tr>
<td>Water efficiency</td>
<td><strong>Credit 3:</strong> Water use reduction</td>
<td>Water-efficient toilet, automatic control on water faucets (Use 20% less water- 1 point, use 30% less water- 2 points)</td>
<td>1 or 2</td>
</tr>
<tr>
<td>Energy and atmosphere</td>
<td><strong>Prerequisite 2:</strong> Minimum energy performance</td>
<td>Energy efficient lighting: compact fluorescent and metal halide, and fiber optics</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td><strong>Credit 1:</strong> Optimize energy performance</td>
<td>Low-energy exterior glass, energy-efficient lighting (5%- 1 point, 10%- 2 points, 15%- 3 points, 50%- 10 points)</td>
<td>1-10</td>
</tr>
<tr>
<td>Materials and resources</td>
<td><strong>Requirement 1:</strong> Storage and collection and recyclables</td>
<td>Provided recycle room on each floor: recycle paper, cardboard, glass, metals, and plastics.</td>
<td>Required</td>
</tr>
<tr>
<td></td>
<td><strong>Credits 1:</strong> Building reuse</td>
<td>Reuse the existing building.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Credit 2:</strong> Construction waste management</td>
<td>Recycling cardboard, metal, brick, concrete, plastic, clean wood, glass, gypsum wallboard, carpet, and insulation (Divert 50% from landfill- 1 point, Divert 75% from landfill- 2 points)</td>
<td>1-2</td>
</tr>
<tr>
<td></td>
<td><strong>Credit 3:</strong> Resource reuse</td>
<td>Preserve the marble flooring, column facing, ceiling, and historic lighting fixtures.</td>
<td>1</td>
</tr>
</tbody>
</table>
### LEED category

<table>
<thead>
<tr>
<th>Credit content</th>
<th>Application</th>
<th>Point</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Credits 4:</strong> Recycled content</td>
<td>Stainless arches in the historic court. Steel staircase and handrails in new open court. Recycled content furniture in Asian café. (5% - 1 point) (10% - 2 points)</td>
<td>1-2</td>
</tr>
<tr>
<td><strong>Credit 5:</strong> Regional materials</td>
<td>Use the materials and products that are extracted, harvested, or recovered within a radius of 500 miles of Book Tower Building. (20% - 1 point) (50% - 2 points)</td>
<td>1-2</td>
</tr>
<tr>
<td><strong>Credits 6:</strong> Rapidly renewable</td>
<td>Use bamboo and linoleum as flooring and fabric for seating in café.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Credits 7:</strong> Certified wood</td>
<td>Use certified wood by the FCS for the balustrade in the historic court and lobby seating.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Indoor environmental quality</strong></td>
<td><strong>Credit 4.1:</strong> Low-emitting materials Eliminate use of VOC, CFC, or formaldehyde off-gassing adhesive and sealants, linoleum.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Credit 4.2:</strong> Low-emitting materials: paints and coatings</td>
<td>Use low-VOC, CFC, or form off-gassing paints and finishes for the walls of new open court and Asian café.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Credit 8.1:</strong> Daylight and views</td>
<td>Remove the dark dome cover in historic court and open the new court to introduce daylight into the building.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Innovation and design process for existing buildings</strong></td>
<td><strong>Credit 2.1:</strong> LEED-accredited professional (AP) Ensure that one LEED AP participates in the project.</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note: Total possible points for the interior designer to acquire were between 14 and 27.*

Information in column 1 and 3 is from *Green Building Rating System for New Construction and Major Renovation, 2002.*
Suggestions to the Building Owner for Meeting LEED Existing Building Criteria

Interior designers could suggest that the Book and Tower Building owner expand the sustainability concept to other parts of the building in order to gain additional LEED points and achieve certification. It was possible to attain points for the interior design of the building. However, in order to attain more LEED points, architects and engineers would need to participate. Criteria under their purview were not covered in this project because they were outside of the realm of the interior designer’s responsibility. Interior designers should cooperate with the architects and engineers not only to achieve more LEED credits but to ensure that the design of the building serves users in a functional and aesthetically pleasing environment.
Figure 19. Detail of the Book and Tower Building showing caryatids supporting cornice above the east entry. 

Note. Photograph was taken by the researcher.
Figure 20. Historic stairway with balustrade on the first floor. Note. Photograph was taken by the researcher.

Figure 21. Historic stairway with balustrade on the second floor. Note. Photograph was taken by the researcher.
Figure 22. Ceiling and historic lighting fixture on the first floor. 
*Note.* Photograph was taken by the researcher.

Figure 23. Elevator corridor on the second floor shows missing balustrade. 
*Note.* Photograph was taken by the researcher.

Figure 24. Elevator corridor on the first floor. 
*Note.* Photograph was taken by the researcher.
Figure 25. Section through lobby looking west.
Note. This drawing was provided by the building owner, Susan Lambrecht.
Figure 26. First-floor lobby perspective.
Figure 27. Second-floor historic court perspective.
Figure 28. Third-floor historic court perspective.
Figure 29. Book Building glass dome ceiling over the lobby in 1918. From (March, 1918) The Architecture and Building, 50, plate 64.

Note: Missing arches in 2004.

Figure 30. Current existing black roof covering the dome. Note. This photograph was taken by the researcher.

Figure 31. Book Building damaged dome on the third floor in 2004. Note. This photograph was taken by the researcher.
Figure 32. The historic dome exterior perspective.

Figure 33. The historic dome perspective from the lobby.
Figure 34. The historic Court section.
Figure 35. Original elevation of Book Building.

Note. This drawing was provided by the building owner, Susan Lambrecht.
Figure 36. Perspective of new open court.
Figure 37. New open court section.
Figure 38. Asian café first-floor plan.
Figure 39. Asian café second-floor plan.

1. Storage
2. Private party area
3. Bamboo planter
4. Tea bar
5. Booths
6. Food elevator
Figure 40. Asian café first-floor perspective.
Figure 41. Asian café second-floor perspectives.
Figure 42. Cross section through of Book and Tower Building, first through third floors.
Chapter 5: Summary, Limitations, and Recommendations for Future Action

Summary

The purpose of this project was to renovate the Book and Tower Building, which was built in 1926, under the guidelines of the Secretary of the Interior’s Standards in order to preserve the historic features and obtain tax credits. Renovation plans addressed space and construction problems that needed to be resolved in order to create a viable revenue-generating environment in downtown Detroit.

Global warming and climate change have increased awareness of environmental issues. Sustainable design reduces the environmental impact related to the construction and maintenance of buildings. USGBC’s LEED program provides an opportunity to document environment responsible design. Preserving historic buildings for adaptive reuse makes a lot of sense in addressing cultural and sustainability issues. This project adapted an existing building in the historic district with attention to preservation of the historic features in order to create viable spaces while reducing the potentially negative environmental impact associated with construction and management of urban high-rise buildings. To document this, points that are under the purview of the potential LEED for NC for interior designers were analyzed and tabulated.

The outcome of the design project demonstrated that it was possible to renovate historic buildings using sustainability concepts while maintaining important historic features. In adaptive reuse, the priority is to preserve and restore historic elements. However, ADA and fire and building codes had to be considered from the very beginning of this project.

Decisions were made regarding sustainability concepts as the baseline. For the
original court and lobby, most of the historic features were preserved and restored. For the new open court lobby, because there were no historic features, sustainable design options were more extensive. The Asian design elements of the café were used to contrast but blended with Beaux Arts design in the historic court. The contrast of new and old, East and West, created an interesting tension in this historic building. At the end of this adaptive reuse project potential LEED points had been identified and a conceptual design had been created, which suggested that a new life was viable for this Detroit landmark.

Challenges and Limitations

In historic preservation projects, tax credits may become one of the funding sources that enable building owners to implement sustainable design criteria. The intent of this project was to work with the Secretary of the Interior’s Standards and LEED for NC and MR in order to achieve the design goals of preserving culture and history with attention to the environmental impact. However, it was a challenge to create a “good marriage.” Preservation of historic features made it challenging to meet code, function, and aesthetic requirements. For example, in this project, the historic staircase was a very important feature. In order to preserve this staircase, it was incorporated into the entry of the Asian café. The entry was then separated from the lobby and dining room to create a transition to symbolize the intersection of old and new, West and East.

Another challenge was the choice of materials. In order to meet the Secretary of the Interior’s Standards, the choice of materials was limited. When the intent was to restore, materials had to match the original design. When the intent was to create a contrast between new constructions and original design, more options were considered to meet sustainability goal while showing respect for the historic features.
The scope of the project limited the acquisition of sufficient LEED points for becoming a certified project. Even though the researcher could follow LEED guidelines, because of the limited interior space considered for renovation in this project, sustainability factors needed to be considered in the renovation of other parts of the building. Sustainability precepts needed to be fully integrated throughout the building. The sustainable renovation and reconstruction of the historic court, the new open court, and the Asian café created a green, healthy environment on the first floor. Interior designers, architects, and engineers would need to work together to obtain sufficient points to earn LEED certification. Controlling the construction and operation of the leased spaces to ensure that they made important contributions to sustainable design goals would be the responsibility of the owner and is beyond the scope of this project.

**Recommendations for Future Action**

One recommendation would be for the Heritage Preservation Service to consider giving more freedom in the rehabilitation of the historic buildings to meet sustainability guidelines. They might also consider giving more tax credits to those buildings that can document an environmental commitment. Preserving cultural artifacts is important. But extending the building’s life and making it more functional while reducing the environmental impact make the buildings more valuable to the community.

Another recommendation would be to research possible LEED points for interior design, architecture, and engineering decisions regarding historic preservation to determine the potential for LEED certification. With this information, the certification level that would be awarded by USGBC could be predicted. It would be very helpful to building owners who have to balance cost, historic preservation, and LEED certification
to know the potential level of certification.

Conclusion

This project created a conceptual vision as to the relationship between sustainability guidelines and historic preservation criteria. Different cultural elements could be used to contrast with historic features to create a dynamic atmosphere as long as respect for the original design is maintained. Preserving the historic building by following sustainability guidelines could maintain the culture, reduce the environmental impact, and earn the tax credit reward. More historic buildings should be preserved and restored under sustainability guidelines to extend their lives, thereby meeting “the needs of this generation without jeopardizing future generations’ ability to meet their needs” (World Commission on Environment and Development, 1987, p. 43).
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