learning from context

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introduction

With the buzz words "sprawl" and "consumption" gaining more and more popularity over the last decade, architecture can be viewed as a direct supporter of the problems associated with those terms. We design new buildings, and in doing so, contribute to expanding city boundaries farther away from their core. This fear has sparked interest in renewal and reuse of existing buildings. Within the next 25 years, approximately 75% of architects commissions will be associated with adapting existing structures.\(^1\)

If this prediction does become a reality, what is the best way to add to a building or site? How can it be done so that it provides connections to its origin while also adhering to the needs of present day?

This thesis focuses on identifying the inherent qualities of existing architecture and then using those as guidelines to create contemporary additions. The Herron School of Art currently is housed in a group of buildings in the Herron-Morton district just north of downtown Indianapolis. The thesis examines how the current buildings can adapt to new programming, and how an addition to these buildings can enhance the ideas and design elements initiated by the original designers.

\(^{1}\)"Future-Proofing Your Building: Designing for Flexibility and Adaptive Reuse" Environmental Building News, Vol 12, no 2, February 2003
Walter Gropius's 1968 proposed tower addition to Grand Central Station, New York. The tower was forbidden to be added after upheld by the city of New York and ultimately ruled on by the United States Supreme Court.
background

The topic became realized in the spring of 2004 when I set out on PolyArk 17 with 21 other architecture students. While touring 19 countries across 3 continents, a common link among many places was the adaptability among city centers that had been used for centuries. London, Paris, Vienna and Berlin have many examples of adaptation, re-use, reconstruction, and new construction that successfully weave with the existing, creating city cores that have remained vibrant throughout their existence. The success of these cities’ integrations did not fully register until my return home. Visiting several US cities that all had plighted, deteriorating links between their city centers and the expanding suburbs highlighted this contrast.
The Tate Modern (fig. a, b) is an example of new architecture inserted into an existing building. The world-famous modern art collection was selected to be housed in a power plant on the south bank of the Thames, directly across from St. Paul’s Cathedral. The building, combined with Norman Foster's Millennium Bridge nearby, gave new life to an area that has been struggling to create a successful gathering place south of the river. The lower floors open up through transparent zones that connect visually with the newly created riverside walk. What interested me most about this project was the blend between existing and new. Herzog and DeMeuron's new insertions are light and simple, weaving very elegantly into the existing architecture. Essentially, a new genre of architecture is born with adaptive reuse because context cannot be ignored. The symbiotic relationship between old and new is at its most intense bond forcing the new architect to recognize and understand the palette they are designing with.

Buechereien Wien (fig. c, d), the main facility of Vienna's public library system, is a building built on a median in the middle of a very busy outer ring road. Built on land deemed 'unusable', the library rises over a subway station with open tracks. The use of natural light is one of the most dominant design features throughout the four story building. Light wells pierce the building from the public plaza on the rooftop down through the building, providing light on the once exposed U-bahn train station. This building stood out because of the control that the context has on the design of the building. The clever visual connections to the subway guide the form, natural light, materials and layout of the spaces.
I.M. Pei’s 1988 650,000 square foot addition to the Louvre (fig. e.f) is one of the most famous modern insertions into a very significant historical context. Through his underground entrance to the art museum, the integrity of the historical palace is maintained. His solution, formal geometry that compliments the formal French Baroque facade, is seen by new vantage points through the glass and space frame volumes. The distinction between old and new is most apparent, while the new doesn’t detract from the old, but instead heightens the experience even more.

Gasometer (fig. g, h), outside of Vienna has an addition of an office building by Coop-Himmelblau that builds upon an intervention of turn of the century gas holders. The project involves both adaptive re-use of the existing building as well as an addition of office and apartment space, that “shields” the historic structure. The entire project has made a significant economic improvement as the area is now a ‘hot spot’ for growth and urban re-development. Here an example is seen that not only reacts contextually to the existing, but socially as it has turned around the prospects of a once blighted area.
design experiments

Are there a set of questions, explorations, and examinations that are to be used in this process for any type of building? Is each project specific enough that an outline to start is irrelevant? Photography, sketching, and site/building/detail model building are all worthwhile examinations to learn about the intentions of a building's driving forces. Researching site and building history can reveal social and architectural impacts of significance. Three examinations were explored in studio as I created a series of augmentations and adaptations to existing sites. With the intentions of accommodating program changes from the initial design to present day, each project brought up a series of different questions. Examining the structure, detailing, ornament (or lack thereof), social context, and history are all qualities inherent to the history of a structure and site, worth examining for any addition or adaptation.

The first project took on the form of a façade study of the Anthony Building (fig. a) in downtown Muncie. The building has gone through many different tenants since its construction in 1887. As different tenants have modified the spaces to accommodate their businesses, the building has transformed. As a result, layers of varying metals and stone have filled in the once Romanesque façade that is still shown on the second through fourth floors. Trying to find an unifying element in this hodgepodge of materials and scales was difficult. Are the layers of retrofitted pieces an important quality of this building, reflecting the changes in commerce in downtown Muncie over the past 100 years? Should the social context be ignored and let the inherent qualities of the structures and order of the architecture be the most dominant thing? These questions presented themselves throughout the research about the building and examination of the façade. The image shows a consideration of preserving the existing using translucent and transparent panels that show the layers of history, both significant and retrofitted.

Another site examined at the same time was the Emerson School Park (fig. b), located southwest of Riverside and Wheeling. The school was torn down in the 1980’s due to the decline of enrollment and cost of maintenance. As a result, the block is now a park. Drawing upon the strong role in the community, and the school’s reputation for events involving citizens of Muncie, a gathering space for outdoor performance seemed appropriate. Referencing the poured concrete structure that was used in the “most modern school facility in Muncie” a link through materiality was established with concrete panels used as backdrops for banner display.

While one site had a stronger emphasis on built context, and the other on social context, it became clear that both histories are equally important when using the past as a guide for current design intervention.
The Anthony Building and Emerson site were both examinations of 75+ year histories. For the next project I decided to look at a building from the last half of the twentieth century to compare the difference between history of a modernism-era building to that of the turn of the century. The Kennedy Library (fig. c, d) on McGalliard, though not in a state of decline or a dramatic need for expansion, has the simple form and material palette that modernism aspired to. The program of the project called for adding one hundred square feet to the existing space. From my analysis of the building, the two most dominant things about the design were the contrast of solid/void and the strong symmetry set by the main axis of the old entrance. The main entrance moved as a response to the reality that patrons arrive by car, making the side entrance more convenient. With the driving force behind the symmetry now programmatically different, my solution to add a reading nook sought to place it in the center of the middle bay of the building, slightly offset to note comment to the strong idea of symmetry. Following the proportion of the window and the use of a solid plane, this reading space is accomplished, creating a more human-scaled space and creating a terminus at the axis. In doing so, the force of the axis is weakened, as the change in scale and asymmetry reduce the monumentality of the space's drive.

From this example, the adaptation to the building was a result of the change in program and designed based on the analysis of the dominant features of the building; reinforcing those interpreted as strengths, and confronting those interpreted as weaknesses.
The final design exploration of last semester reflected on the ideas from the first two projects. Social and historical context are both important. Programmatic needs change over time and should be appropriately accommodated. Realizing my intentions had changed from adaptive re-use, I was more interested in a project that focused on exploring the design of architecture through explorations of strongly defined existing context. Looking at buildings in downtown Muncie, I found the Bella Monrovia studio, located on Main Street in the same block as Jack’s Camera Shop. The existing photography studio is on the upper level. Reaching the studio necessitates an awkward, unwinding path that is potentially bad for business, traveling up a dark stairway down a hall to a door that is relatively unmarked. In addition, the studio is unable to display work due to inadequate natural and artificial lighting. The program for the addition is to create a new entrance to Bella’s studio, through a new gallery of her work that leads from the street entrance to the upper level studio.

The existing building that the studio is located in was built in 1902 and had many previous inhabitants including more recently a copy center. The most interesting parts of the building discovered through my analysis include the depth created by layers of brick on the front façade, a boarded-up light well that previously extended natural light through to the ground floor, and how the proportions of the primary façade windows and brick patterns break down scale.

My analysis of these three primary notions (layered skin, natural light, and proportion) became the driving design forces for the new gallery. The addition is comprised of a series of layers that filter light from the street façade to the back wall of the building. These layers, like each layer of brick on the existing façade, create different effects of shadow and lighting as one walks through the space. In doing so, different photography works on display are highlighted at different times of the day, just as shadows vary their prominence at different times of day on the existing building. The glass curtain wall follows the same proportion system as the existing building. Varying by its uniformity in material, the rhythm established is similar.
site investigation
My initial investigations explored sites and buildings varying in scale, program, and function. For the thesis project, I wanted a site that provided maximum opportunity to analyze, understand, and learn from the built context. After looking at several different sites, I chose the IUPUI Herron School site in Indianapolis.

The Herron School Campus was unique in the search because it has three buildings built between 1905 and 1954. The architects involved in the design process of these latter two buildings had already undergone similar studies that I have set out to explore: how can a new design be informed by the old. Paul Cret and Evans Woolien both examined the built context when designing their insertions into the Herron context.

The site is currently in transition. IUPUI’s Herron School of Art is vacating the campus in the fall of 2005 to move to their new home on IUPUI’s main campus. As a result, the campus is undergoing feasibility studies headed by the Department of Metropolitan Development and CAP:IC.

the site
The Herron School of Art campus sits on slightly more than three acres on the near northside of Indianapolis. As the anchor of the Herron-Morton district, the campus is surrounded by a transitioning neighborhood that has experienced extensive renovations in the last 20 years.

Borders:
West: one-way southbound Pennsylvania Street, highly trafficked only on weekday mornings
South: 16th Street, a crosstown thoroughfare that has steady traffic all day
East: Talbott Street, a secondary street with 1 and 2 story single family residential housing
North: a duplex house to the northeast and a single family home to the northwest
landscape
As the site has evolved since its first development in 1906, accommodation for the automobile has inhabited most of the open space. The lawn to the south of the Museum Building provides a buffer from busy 16th Street. Its highly symmetrical design provides some space for sculpture, but is almost never enjoyed by students or residents of the neighborhood due to its formality. The majority of the rest of the site has been turned over to parking. There is a space to the east of the Cret building that has large trees and picnic tables that is popular for students and professors to enjoy lunch or meet with students on nice days. To the north of the site, the Cret building has views across the parking lot to the back alley and trash cans of its neighbors to the north. While the buildings are a good distance from the site’s northern border, the infill of cars during the week day create an eyesore for residents and users of the facility alike.

The buildings’ relationship to one another is important. The Cret building symmetrically sits behind its predecessor, the Museum Building. The Woollen building connects to the Cret building in its northwest corner, though throwing off the symmetrical balance of the buildings on the grounds. By doing so, Pennsylvania Street, is blocked off traffic from providing a space that is calmer for both users of the buildings, and residents of Talbott Street.
museum building

The existing buildings on the site vary in size, program, and year built. The original Herron School of Art is the Museum Building, completed in 1906 by Vonnegut and Bohn. The brick-clad reinforced concrete building has a very symmetrical relationship of beaux arts design in both elevation and section. The building has been modified over the years and currently houses some studio space, a book store, primary lecture hall, as well as the Herron School of Art Gallery. The north facade of the building was altered in the 1960's to allow for the expansion of the building to include the lecture hall. The primary entrance was moved from the formal, ordered, southern facade to the north, to be more accessible to parking. In doing so, the circulation and user experience of the building have both been marginalized. The strong presence of symmetry and order that are present in the facades are lost as one meanders from the 'new entry' up some stairs, around a 45-degree corner, down a hall, and then to the left to get to what was once the grand stairway. The lecture hall is in need of repair and the Americans with Disability Act updates are placed where needed without successful integration into the design.
classroom building

Designed by Paul Cret and completed in 1929, the classroom building integrates elements of Beaux Arts classicism seen in the Museum Building and combines them with art-deco and early modernist styles as well. Paul Cret, a renowned architect who taught at the University of Pennsylvania was a graduate of the École des Beaux Arts school in Paris. He was also known for being a large influence on one of his students, Louis Kahn.

In his addition to the Herron School, Cret's scheme is able to successfully combine the previously mentioned styles of architecture to create a very pleasing experience both inside and out. While symmetry and the building's east-west axis are from the Museum Building, Cret's awareness of and architectural response to natural light creates a delightful space to work and learn. By comparison, the Museum Building rejects a great deal of natural light. Materials, circulation, light, and hierarchy of space all weave together to create a building that provides a rewarding experience for the user.

The building has programmatically remained the same since its opening in the late 1920's, housing studio space, a lecture hall, and faculty offices. Some modifications have been made, including the addition of computer labs and building out the lower level, converting a sunken courtyard into the building to expand studio space.
Fesler Hall
In 1964, Indianapolis architect Evans Woollen designed Fesler Hall. Housing studio space and administrative offices, many of his design intentions were taken from Cret’s design, while in a much more watered down, brutalist form. His design, though similar in massing and circulation, has an entirely different experience due to its north-south axis of its main facades. Whereas Cret’s design is very successful due to the integration of materials/circulation/light/hierarchy, Woollen recognizes and addresses all of these elements in a similar fashion, but neglects to weave them in the elegant composition that makes Cret’s building the delight that it is. The materials in Woollen’s ‘central corridor’ do not absorb the light, because the orientation has caused blinds to be put up to block out the intense rays of early morning and late afternoon sun. Experientially, the stair towers are removed entirely from the rest of the building. While this is partially due to updated code requirements, the scale is so out of proportion that it does not harmonize with the rest of the spaces. They are too massive, echoey, and lack any natural lighting.
user experience: the cret building

a) A user enters the building in one of two 'towers', symmetrically placed on either side of the central part of the building.

b) As one walks in, the space is dark (previous photo), with light pouring in the central corridor (shown above).

c) The user makes their way into the stair hall, which is much lighter due to the glazed wall texture that reflects light as one moves upstairs.
d) Now in the upper hallway, a recognition of the ‘tower volume’ is present, as a change in ceiling height is noticed. Again, the space is darker than the stair hall, and the adjacent central corridor.

e) In the central corridor, one is embraced by blasts of light from the punched openings through the thick south-facing masonry wall. This light is warmly received by the wood floors and wall panels.

f) In the center of the building, is the bright studio space. The room has a northern exposure, highlighted by a glass and metal curtain wall system reminiscent of 1920’s Bauhaus modernism. The space is ideal for its function (painting and sculpting), because while flooded with natural light, its exposure prevents any direct light or glare.
analysis of cret building

There are three dominant elements studied in the building that I explored to integrate into my design. The intertwining of light, circulation, and hierarchy of spaces create a building that naturally move the user from the dark entrances up to the light and airy studio space, located at the heart of the building. Cret’s contrast of dark/bright, solid/void, and massive/light heighten the experience.

As seen to the right, circulation is symmetrical with single loaded corridors that allow for light in those spaces. Cret’s entrances are contained in volumes taller than the rest of the building. Woollen builds upon this idea with his entries, but adds vertical circulation to the tower pieces.
This shadow rendering of the south elevation shows Cret's consideration of sunlight in his facade development. The shadows are the most pronounced in the center of the building, which houses the most important programmatic function of the art school, the studio. Cret also further highlights the entrance with an overhang that creates significant shadow play.
The axon demonstrates the hierarchy of massing on the site. There is a recognition of a user moving from the entrance pieces of the two buildings (lightest grey) into a secondary space (middle grey tone). Cret’s building further differentiates space with a third volume (darkest grey). This volume is the ‘lightest’, with the most punched openings and open north side.

Cret’s ‘third volume’ in section. The movement from the south to the north lightens significantly from the heavy south wall to a less massive wall that divides the corridor from the studio; the brightest and most transparent part of the building.
design objectives
From the examination of the site and the buildings, several important design issues presented themselves for an addition of the site:

- Sitting of the new building in relationship to the existing
- Opportunity for a new quadrangle, or an open courtyard scheme, placing greater emphasis on the neighborhood.
- Learning from circulation of the three existing buildings and maintaining a similar organization
- The importance of integration of design
  - Materiality
  - Hierarchy
  - Light
  - Circulation
- The need for a developed landscape scheme
- Better integration of parking with the site

program
The Herron Reuse Committee has looked at several feasibility studies to determine functions for the three buildings on the campus. One of the most interesting options is a multi-use proposal, shared by Ball State's College of Architecture and Planning Indianapolis Center (CAP:IC), the Indianapolis Museum of Contemporary Art (IMOCA), and a magnet creative arts high school which is partially funded by the Bill and Melinda Gates Foundation. IMOCA would use the Museum Building for their collections, CAP:IC would use the Cret Building for graduate studio space, and the magnet school would take over Fesler Hall.

With these different functions, I proposed an additional building to the campus that would provide support spaces, available for use by any of the three occupants. This includes classroom spaces, a telecommunication classroom, a library, multi-purpose space, and a large lecture hall. A library with book collections of art, architecture, and literature would be a great asset to the site unifying the various functions of the buildings, encouraging a campus community. Additionally, the three buildings lack a good lecture space for public speakers, neighborhood meetings, and large assemblies. Adding the technology component upgrades the site to present-day needs while not requiring costly renovations in the existing buildings.
final design:
library building and the auditorium building

Moving into my final design, I have broken the program down into two main masses that border the site to the north and east, creating a courtyard. The building to the west contains auditorium and classroom space, while the building to the north contains administration offices and the campus library. Although I considered an open courtyard to Talbott Street to the east, I felt it placed too much importance on the three houses across the street. A closed courtyard also creates an opportunity for the new and old buildings to have a direct interaction with one another.
1. Museum Building
2. Cret Building
3. Fesler Hall
4. Auditorium Building
5. Library Building
Circulation (fig. a)

The Library and Auditorium buildings are single loaded corridors that provide direct access through the buildings.

Cret and the Library Building (fig. b,c,d)

Although the library building does not sit symmetrically with the Cret Building, a balance is established. The industrial glass curtain wall of Cret's design is complimented by an expanse of two story glass that has subtle angles that turn with respect to Cret's module on his glazed wall.

The glazing on the Library building is a recessed wall system, giving a similar treatment of shadow play to the south facade of Cret's building.

Woollen and the Auditorium Building (fig. e,f)

I see these two as lesser figures in the 'conversation' among the courtyard buildings. The Woollen building is much more solid than Cret's, and this is considered in my facade design. The facade of the Auditorium Building has four openings that continue in plan and section to Talbott Street. This is done to break the mass down to the residential scale.

The west facade of the Auditorium building picks up on the ribbon windows of Woollen's design. They are placed higher on the wall and are narrower so that light is emitted in the spaces, while not providing as dominant of a view to the courtyard as that in the library building.
Building Connection
One of the most difficult problems to solve with this arrangement was how the Library and Auditorium buildings would be broken apart and then connected. Because of the formality of a courtyard scheme and the precedent set by the existing, separating the two buildings entirely would make the most sense. This, however, provides issues with interior circulation between the different spaces in the building. It breaks up the circulation of those who use the office and lecture spaces frequently, or if there were presentations that involved both the lecture hall and the multi purpose space. After several different schemes, the best solution that presented itself was to create a transparent 'connection' on the second level, while leaving the first floor as an open pass through, similar to the arch that connects the Woollen and Cret.
Courtyard

The courtyard enhances the 'conversation' between buildings through its break down of spaces. Cret and Woollen both have sunken courtyards that create a 'foreground' for their buildings, removing them from direct interaction with the space. The courtyard mediates the site's 4' elevation change from the north to the south. The portion outside the Auditorium building uses light wells for the parking garage below to provide a more private terrace to host receptions after lectures. It also provides a 'foreground' for the building. The west side of the courtyard is the most elevated, reducing its north-south pedestrian traffic, allowing for a more removed place for students and faculty to meet with classes or enjoy lunch.
east elevation (facing talbott street)
This elevation makes connections with the neighborhood on several different levels. The facade is primarily glass to increase awareness of function and interaction between the building users and neighbors. The four bays on the first floor break down the scale of the building relating to the housing across the street. This elevation also shows the transparency of the 'connection piece' between the Auditorium and Library buildings mentioned previously.
south elevation (facing courtyard)

This elevation draws its design from the transparency of Cret's north facade. The 1x8 teak slatted skin that runs along the outside of the glass breaks down the scale and filters sunlight. Additionally, this slatted system works with the angles in the curtain wall on the library building to produce prominent shadow patterns similar to the solid/void patterns that are dominant in the corridors of Cret's building.
courtyard section
The courtyard's gradual 4' elevation change is seen in this section, highlighting the light wells and their connection to the garage. These light wells are 30" high with teak slats that will continue shadow patterns established in the Library building. Although these wells are mere slices into the large garage, shadows cast by the slats, as well as people sitting on the wells provide a connection between sub-grade parking and ground level, something that is rarely seen. This section also shows the relationship between Cret's building and the Library building, and how both of them use natural light to enhance the experience of the space.
auditorium building section
The upstairs hallway of the auditorium building shows the connection (or lack thereof) that is created to enhance the interaction of the user with the courtyard from the library building. This notion is similar to Cret's treatment of his first floor central corridor on the south side of his design. The windows in his lower corridor are placed 6' off of the ground providing little interaction with the outside, while still providing light. These windows are lower, only 4' off of the ground, providing views for the users of the site, while not giving them full exposure as is done just around the corner in the library corridor.
View from the west (Pennsylvania Street)
second floor corridor, Cret Building

second floor corridor, Library Building
Although there is quite a variation between my thoughts on this thesis in August, and where it stands today, I am pleased with the direction it took. Adaptive reuse has been a passion of mine that will carry on into my professional career. Although there are many different things to examine when looking at an adaptive reuse project, I was especially interested in exploring the relationship between context and the new design. In doing so, my thought and consideration of contextual issues and integration has been enhanced, ultimately improving my skills as a designer for all building types.

The project presented many challenges. Grasping the idea of adaptive reuse and what that phrase actually means to me was the first major hurdle. Once past that, there were phases of what seemed to be worthless, frustrating "designers block" followed by an enlightenment of ideas that would pour out of my mind so fast that I couldn’t get them all written down or sketched out.

A major obstacle in the thesis was the balance of pragmatics and theory. I had been interested all along in doing a "real world" project. What was unfortunate was the timing of the Herron Reuse Committee’s time-line not coinciding with the thesis calendar. I would’ve been happier if there had been a program that was already established so that my project could be more insightful to the committee and the issues they will be dealing with. While the request for proposals are still out to interested parties, not having a set program did allow for freedom to be imaginative and add spaces that are more "utopian" than necessarily practical. I was happy to be able to meet with the leaders of the Reuse Committee, and would have liked to have had a greater role in working with the community.

I know that my thesis interest is an extremely relevant issue in the architectural profession, and for that I am pleased to have been able to learn and understand more about the issues of designing for existing context. I believe this study has been worthwhile and applicable to my professional career and future projects that I will be involved in. Architecture trends and styles come and go. Even though we don’t design in the past, there are great lessons to be learned from it, if designers take the time to understand and reflect to further develop those ideas in a contemporary interpretation.
bibliography


