MANAGING TRANSPARENCY IN POST-WAR MODERN ARCHITECTURE

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Dedication

This thesis would not have been possible without the support of my advisor, Theo Prudon. His guidance and depth of knowledge about modern architecture was vital to my own chaotic process.

Special thanks is given to my parents, who made this educational journey possible. I will never forget your sacrifice and your unconditional love and support. Thank you for the frequent pep talks in moments of self-doubt and listening to my never-ending ramblings about my research. Especially to my mother, who tagged along on my thesis research trip and acted as both cheerleader and personal assistant throughout.

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Introduction

The purpose of this thesis is to understand the role of transparency in modern architecture. Specifically, as it relates to our understanding of its interior and the implications of this relationship regarding managing its integrity over time.

Within the history of modern architecture, while there are many offshoots and varying schools of thought within, there is a clear dichotomy. The Modern movement began its rise to popularity as a social and theoretical question in Europe, transitioning to a defined style following WWII, especially in the United States. The economic state of the US following the Great Depression and rise of the New Deal’s boom in federal building, coupled with a population eager to live in the futuristic world revealed at the New York World’s Fair in 1939, made the United States fertile ground for a growing movement in architecture. With the growth of industrialization and other modern technological advances, many familiar forms and styles of architecture were ill-suited. Thus, new forms were created, tested and realized. Many of the figureheads of modernism in Europe, such as Walter Gropius and Mies van der Rohe among others, left Europe in the mid-1930’s for the United States.\(^1\) The growth of US firms, like SOM, also aided in cementing modernism into the architectural future of the United States.

This second phase of modern architecture is widely known as the *International Style*. It was an architecture “not rooted to place but transmittable to all sections of the globe and embodying modern and universal principles.”\(^2\) The name was coined by Henry-Russel

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\(^2\) Ibid., 8
Hitchcock and Philip Johnson in 1932 in their book *The International Style*, written for an exhibition at MoMa that same year on Modern Architecture.

New forms of glass and steel began to manifest themselves around the country. The highly industrialized aesthetic was often driven by the availability of new construction materials and technologies that allowed architects to design structurally and visually lighter structures. The increased availability of steel and structural inventions that allowed for open-span spaces devoid of columns and bearing walls achieved two main results; windows were enlarged to the extent they became unrecognizable as windows and evolved into walls and second, the interior plans were reduced to larger singular spaces instead of a compartmentalized series of rooms.3 “Modern Architects...treated large sheets of glass as autonomous planar elements, rather than as something to fill in a hole in the wall.”4 These planar elements provided the conceptual role windows had for thousands of years, providing the user access to light and air, but now they made the view not a singular notion of looking out to a landscape, but a dual transaction by allowing outsiders to see in. Previously, the scale of windows did not allow for this exchange. Buildings became display cases, in some cases calling out to those on the street welcoming them in, and in others, putting the buildings functions on display like never before. “The more glass was used, the more it made other things, such as construction and space itself, apparent”5 Often in the form of grids, the structure was both celebrated and dramatically reduced. Though so clearly expressed due to the absent quality of glass, the significance of the building did not reside solely in the facade, the presence of interior elements began to have almost equal

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4 Ibid., 160
5 Ibid., 159
importance. The relationship between the façade and interior became interdependent of each other.

Inconsistencies in the application of current preservation policies to modern architecture occur largely because the regulations were developed for these more closed, traditional architectures. In that architectural expression, the separation between outside and inside occurs visually. Some regulatory authorities devised distinct exterior and interior designations and protections in response. However, in modern architecture, this separation is (intentionally) obscured, and that distinction does not exist or is no longer possible, confounding existing preservation policies and landmark designations in the US.⁶

Preservation is fundamentally facade driven. Traditionally, the political entity of preservation is focused on what was accessible to the public. With more opaque building types it is easy to understand why regulations and policies were devised on changes to the exterior of a building as private ownership laws kept entities from applying restrictions beyond the public street facing façade(s). Interior landmarking does exist in the United States, but, in New York City, for example, these interiors must be accessible to the public. Only six modern interiors are currently designation in New York City.⁷ Buildings on the National Register of Historic Places reference both the interior and exterior elements in the nomination reports, though completely intact interiors are rare.

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The dissolution of concrete divisions between exterior and interior that occurred within modern architecture requires the thought process involved in preserving, renovating and re-using these structures to be reconfigured. There is a direct link now between the interior and exterior from the public’s perspective. This link goes beyond essential architectural elements such as walls, columns, and stairs, to color palettes, furniture and the configuration of the use. Because the aesthetic effects of this era of architecture and interior design were inherently minimal, the connection between all of these elements, big and small, created a cohesive composition that cannot be separated into independent parts. The question becomes, as the building ages and evolves, what aspects of these compositions are absolutely essential to the building’s integrity and the architect’s intent, what elements can be alluded to without direct conservation and what of these can be sacrificed without larger consequences.

A central theme of modern architecture in postwar America is the open plan. The struggle of preserving open concept buildings is their embedded flexibility. Buildings could be used for almost anything as their programmatic specificity, in the traditional sense, was no longer there, and the spaces were often of a scale to accommodate a large variety of uses. As stewards of these buildings, to what degree are we responsible to the original fabric/composition of building elements? How can we evolve out interpretation of the architect’s intent to comply with battling needs for changing economic, environmental and safety standards? These primary questions have far-reaching applications and implications, such that I could not properly answer them all in the timeline of this thesis. Instead, I will look to rework the generalized questions of stewardship in modern architecture towards the use of
transparency specifically. The three main questions wanting to be answered in reference to transparency are as follows;

1. How is transparency used?
2. Does the way transparency is used effect possible future reconfigurations of space?
3. What interior elements (if any), beyond the physical façade, augment the purpose and reading of transparency?

I wanted to explore these questions in a series of case studies. Due to the fluid nature of glass and universal principles of modern architecture, a predominantly glass envelope did not predicate a particular use. Instead, the program, scale, and application of glass was highly variable within modern architecture. A wide-ranging group of buildings was necessary for the selection of buildings to study. I also did not want to study buildings within one set jurisdiction of preservation, diving into regional policy and politics, but instead wanted to look at the overarching themes that could be identified and used to create a general framework on how to approach the management of these buildings. Differing geographic locations, programmatic applications and varied history of intervention were fundamental in the relationships between case studies. A unifying category was scale because the levels of transparency and understanding are different when you change from a mid or small scale structure to larger scale, tower archetypes, I chose to focus on those closer to human scale. It was important that the viewer be able to understand the overall architectural expression from the street. The period was also significant, focusing my studies on post-war American architecture narrowed the field of study into manageable context as well as provide the practical needs of geographic and lingual access.
Both primary and contemporary sources will be used in tandem. Historical documentation is typically based on a particular building’s impact on a typology, theoretical movement or modern architecture as a whole. They look back, not forward. While these texts are integral to understanding certain aspects of the significance, merely writing a history of the period in which a building was built is not enough for understanding preservation issues today. Understanding the building’s afterlife as well as the conditions which may have led to intervention are just as significant as the building’s primary stylistic history.

Within transparent architecture there appear to be two schools of focus. Those which emphasize the surroundings by orienting the views outward from the interior and those which utilize transparency to reveal the interior, focusing on views from the outside-in. The focus will be on the latter. I am particularly interested in this type of transparency as it naturally has more of an impact on the public realm. Current preservation policy is geared towards what is visually accessible to the public, yet does not include automatically include visible interiors. The transparency in this category is geared towards the outsider, necessitating its inclusion in the act of preservation of the building as a whole, not just the facade.

As stated previously, the notion of transparency in modern architecture brings to light an extensive list of considerations ranging from physical attributes and manifestations to environmental and perceptual effects that its management and appropriate approaches within preservation is particularly rich with subject matter and difficulties. Because analyzing all of the ways in which transparency played a role in modern architecture is not feasible within the scope of this preservation thesis, it will instead focus on the relationship of the interior to the exterior, utilizing the in-depth case studies to explore this relationship juxtaposed with
contemporary renovations and interpretations. The interdependent relationship of the interior to the exterior is perhaps the most interesting and most difficult conundrum in its preservation. The ambiguity and nuance of this relationship have significant effects on the structure, spatial organization, materiality, interior environment, flow of use, lighting, etc. What adds to the difficulty of preserving largely transparent buildings is the fact that the way and intention in which transparency was applied varied from building to building and architect to architect. This lack of homogenous use of glass eradicates the possibility for a concrete set of parameters to guide preservationists and architects endeavoring to adapt and rehabilitate these structures. This thesis does not advocate for a “freezing” of these modern works, potentially stymieing its growth and viability in today’s built environment. Instead, it seeks to create a framework for conversation and understanding of how transparency is significant within modern works of architecture. Where a building is situated in the evolution of how transparency was used serves as a historical framework, language and structure to compare and identify in case studies. It can be employed as a foundation to understand the contemporary status and evolution of the building and make decisions about its future.

The following case studies will provide background on the original intent of the building and then continue to explore the building’s contemporary history touching on effects of evolving programming and exploring implications of any physical alterations on the significance of transparency.
Case Study 1: Manufacturers Hanover Trust

Names: 510 Fifth Avenue
  Manufacturers Hanover Trust Company Building
  Manny Hanny
  Chase Bank Building
Address: 510 Fifth Ave, New York, NY
  - Southwest corner of Fifth Avenue and West 43rd Street.
Client: Horace C. Flanigan/Manufacturers Trust Company
Architect: Gordon Bunshaft/SOM
Completion Date: 1954
Program: Bank Branch
Square Footage: 94,177 sq. ft.
Exterior NYC Landmark: October 21, 1997
Interior NYC Landmark: February 15, 2011

In the mid-1940’s, a growing Manufactures Trust Company sought to expand its collection of 67 bank branches with a new building on a prominent corner in New York City. Additionally, the company’s closest preexisting branch to the intended site, just across the street at 513 Fifth Avenue, was rapidly outgrowing its space and a new location was necessary to serve the influx of new accounts. The firm of Walker & Gillette was originally hired in 1944 to design the branch. In keeping with traditional bank architecture, a four-story, federal style, stone building was conceived. [Img. 1.] Its entrance oriented at a 45° angle towards the corner, the facades had tall narrow windows, and it evoked the fortress-like feeling common in banking buildings at the time.

Context played a major role in the realization of this version of the design, and would continue to regulate its overall massing moving forward. The shifts in zoning regulation on the site would have allowed for a significantly taller building, but in negotiations with Mutual Insurance Company, the owner of the site, stipulations were made in reference to its tall
neighbor at 500 Fifth Avenue in order to obtain the long-term lease. Manufacturers Trust Company could not build a structure which would compete with the new, 58-story Salmon tower, such that anything built on the site could not exceed the height of the original building; a tobacconist factory/small offices which sat at a humble 63 feet tall.

Though the project began in 1944, it was not realized until 1956 after a relatively tumultuous start. Building restrictions during and directly after the war, especially on steel as a strategic material delayed the realization of Walker and Gillette’s plan, causing the ultimate suspension of the project before the groundbreaking of the original opaque scheme. By the time steel was readily available again, it was 1953 and the plans had undergone several setbacks. Leon Gillette died in 1945; Walker went on to join Alfred Easton Poor to form Poor and Walker. Though, Poor and Walker were retained to complete the project, they were ultimately dismissed over controversial billing.8

Around the same time, Manufacturers Trust appointed a new President, Horace C. Flanigan, who had a different vision for the company than his predecessors. In his search for a new architect after firing Poor and Walker, Flanigan turned to the board. Lou Crandall, board member and owner of one of the largest contracting companies in the US, Fuller Construction Company, had just recently finished construction on Lever House with Gordon Bunshaft. Based on that relationship, he suggested Bunshaft and SOM as an option.9 With the change in architect came the opportunity for Flanigan to realize his new aspirations for the project.

9 Ibid., 5
Flanigan wanted to rebrand banking. After the Great Depression, the load-bearing, heavy masonry walls of banking architecture no longer proclaimed ‘your money is safer within our fortress walls,’ but instead suggested feelings of distrust and secrecy. Flanigan hoped to reuse the engineering plans already created for the site to save money but in a letter to Flanigan, Bunshaft stated,

“Look, if you’re going to do a new bank, saving a few engineering drawings that will limit exploring a good building is ridiculous. If you want a good building, you have to start new.”

Flanigan was ultimately convinced, beginning the process of exploring what modern day banking could be.

An incredibly close client-architect relationship was born. Horace Flanigan had almost just as much influence on the resulting glass box at 510 Fifth Avenue as the architects. His desires and demands for the site and programmatic function of the space paved the way to a radical new archetype in urban banking typology. Beginning towards the end of the Great Depression in 1939, banking as a whole began to shift towards more modern designs, rejecting the image of the fortress bank. While some examples, like the J. Irwin Miller Bank in Columbus, Indiana, completed in 1954 as well, utilized similar applications of large spans of glass, the Manufacturers Hanover Trust building was the first to employ the light skeleton structure of steel and aluminum with glass curtain wall. Most other early examples utilize much more concrete, and heavier structural expressions.

The business plan of Manufacturers Trust had been evolving towards a customer service model; new programs in various loans, personal investment, specialized checking account, etc. had given MTC the reputation of being an approachable, neighborhood bank, despite its rapid growth and huge portfolio of accounts. Flanigan wanted to push this notion even further with the new bank branch, a tool for advertising realized architecturally. Company slogans of “Everybody’s Bank Just Around the Corner!” and “Come See Us, You’ll be Very Welcome!” all lend themselves to a branch that would appear welcoming, open and flexible.11

As mentioned previously, the agreed upon conditions in the lease essentially pre-determined the Manufacturers Trust’s principal form. Site restrictions written into the lease limited height, relationship to the street and presence of the majority of the banking on the street level gave Bunshaft and SOM a primary volume of 100x125ft wide and up to 63’ tall. Flanigan’s additional self-imposed requirements for the design to be serviceable to a high volume of customer-centered programming (similar to retail), have private offices for Executive members of the company to meet, and be highly adaptable to other future uses further prescribed critical elements of the final design. The prescription of the building being adaptable to a different use down the line comes from Flanigan’s experience in banking during the Great Depression. Banks had always been highly specific buildings, built around their unique programs. As a result, when the banking industry crashed, these buildings had no viable alternative program and could not be sold. This was a bad business model in Flanigan’s eyes; if

the industry were to crash again, he wanted a building that he could sell at top dollar due to its ability to sustain other types of businesses and uses.12

The restriction created by interior walls was seen as a hindrance to the building's potential adaptability; it was too programmatically specific. “An abandoned branch, having been designed solely for banking purposes, was not rentable to any other kind of respectable business unless completely renovated...what branch banking needed, Flanigan decided, was an easily convertible type of branch banking.”13 It also affected the concept of creating a building that welcomed the customer and was there to focus solely on them. The opaque walls of past bank branches now indicated secrets and distrust. An open plan was an advertising method, evoking to the customer a more friendly feeling than the traditional, monolithic bank building. An article entitled “The Bank That Has No Secrets” from 1957 described traditional bank archetypes as the following, “There was nothing friendly about the imitations of Greek temples and Bessarabian jails within whose thick walls the business of banking was transacted.”14 Flanigan not only wanted the new branch to relate to the modern transition of banking to more of a department store setup but also create a statement about architecture and the state of banking. Sources report that Flanigan even consulted a Department store owner as well as a Publishing Company to see if SOM’s proposed scheme would hypothetically suit their business needs as well as his with little need for renovation. They answered positively, giving Flanigan the confidence to move forward with the design proposed by SOM.15

12 Ibid., 5
14 Ibid.
15 Ibid., 106
The basics of the scheme were born out of a sketch competition done in-house at SOM. Young designers were asked to imagine the new bank branch within the parameters set by the client and the site regulations. The winner would be awarded $50. Charles E. Hughes III earned that prize with a scheme including a four-story glass façade, open levels at the bottom providing ample space for a customer service driven program, a penthouse with roof garden and a vault door prominently displayed just behind the glass wall. The details of this sketch were handed over to Bunshaft for refinement. Soon after luminous ceilings became an integral part of the architectural move, further enhancing the idea of a uniform glass volume as an overall impression.

As discussed above, the site context essentially determined the overall massing of the new bank branch, but the building’s tall neighbors also had an impact on the extreme level of transparency. The size of the towers left the squat, 4-story structure in shadow for all but 1 hour a day. This allowed SOM to forgo the tinted glass that was often applied to reduce glare and direct sun on the employees and users. Instead, they could use ½” polished plate glass, chosen for its clarity and absence of color. The towers also blocked much of the possibility of heavy wind loads on the windows, allowing for more extremes in terms of scale and thinness of the exterior structural grid. The scale of the aluminum mullions on the curtain wall could be further diminished based on the configuration of the curtain wall freeing it of heavy horizontal supports. Each pane was hung from the top, lifting the burden off of the floor slabs and leaving the large sheets of glass in tension. The result was the largest panes of glass ever installed at

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16 Ibid.
that time, 22 feet long and 10 feet wide, held together with almost impossibly thin frames.\textsuperscript{17}

The contractor/building superintendence described the assembling of the thin structure as “more like jewelry than building.”\textsuperscript{18}

The components of the façade combine to create a cohesive yet sculptural façade. The main grid of vertical and horizontal mullions are polished aluminum. The shiny gray coloring is offset by bands of black. On the plinth of the building, and at the original entrances on 43rd Street, polished black granite is applied, and dark gray glass is utilized on the upper portions of the façade for the spandrel panels disguising the floor slabs. It is a similar effect as the Lever House façade, except that the glass is recessed into the structural frame, resulting in a more dynamic interplay of elements with distinctive shadows rather than a continuous plane of glass as seen in Lever.

This may be the first big building truly to fulfill architects’ immaculate drafting board idea of glass as an invisible material...an invisible control instead of a mysterious barrier. At last, the deeply sculptural feeling of a steel frame under construction has been retained in the completed building.”\textsuperscript{19}

The lightness of the exterior structure is applied to the interior as well. In the absence of walls on the first and second levels, 8, equally spaced, white marble-clad columns do the work of supporting the central spaces. The columns stretch from the ground floor all the way to the penthouse, discernable from the outside yet at the same time relatively invisible. Against the illuminated ceiling plane, the white, stone cladding dissolves into the bright backdrop, resulting in an impossible sense of floating floor slabs. By perceptually eliminating the attachment of the

\textsuperscript{18} Architectural Record. 1954. "Manufacturers Trust Company Builds Conversation Piece on Fifth Avenue." November. 154

Managing Transparency: Manufacturers Hanover Trust
columns to the ceilings, SOM create an unobstructed plane. The view of the ceiling as a continuous plane is an important feature in the building’s transparency. The intensity of light, lit throughout the day and into the night on all four floors, allows the glass to lose its reflective quality. The mirror-like reflections on many other glass buildings of this time only disappears at night, when the building’s interior is brighter than the dimming exterior. SOM applied this concept continuously, not just relying on twilight to make the building stand out. On a street known for its display windows, brightly lit to catch consumer’s eyes from across the street, the Manufacturers Hanover Trust is, in effect, a giant store window, selling its wares to every passerby.

The floating sensation of the floor slabs is enhanced further by the retraction of the double-height second floor from the glass facades, transforming itself into a mezzanine level rather than an isolated floor. The results visually cue views into the literal programmatic connection between the two floors by reading the two levels together as one massive space. The upper levels are still visually connected by the continued application of glowing ceiling but are programmatically separated visually due to difference in scale and the black spandrel panels demarcating the presence on concrete floor slabs.

Programmatically, the more day to day functions of the bank, such as the act of depositing a check, were on the ground level and the one on one programs, such as opening an account or financial advising, was on the mezzanine level. Bunshaft related to this dichotomy of programming as a purely functional solution to control traffic.\(^2\) The circulation from the

ground level to the upper level is expressed diagonally across the Fifth Avenue façade via an open escalator. It was encased in the same polished aluminum as the exterior structure.

The only element in the entire building that betrays the structure as a bank is the exposed vault walls. Instead of having the vault buried away in the basement, where it was more secure, Bunshaft and the team at SOM, in a bold move, placed the vault right up against the Fifth Avenue façade.

The granite of the foundation plinth is picked up again on this interior expression of the vault, making the door and volume of the vault stand out against the rest of the more neutral interior. The placement of the vault utilized the transparency of the façade to advertise its use once again, this time in a literal way rather than the experiential way via the ceilings and open plan.

By raising the most dramatic physical element in the bank from the cellar to the ground floor, the architects have made the most of a natural advertisement...This use of the bank’s vault as an expressive and visible feature was truly an inspiration.21

The engineering of the vault door was put on full display by contrasting it against the marble. This circle of polished metal acted as an advertiser, tease, and attention grabber. A variety of theories beyond the merchandising effects of the vault has been speculated. They range from crime deterrent, ease of access to the formidable statement. The method of contrast, most starkly realized with the vault, is also utilized on the second level via a large piece of installation art. Henry Bertoia designed a massive, 70ft long screen the full height of the second floor. A series of hundreds of gold-enameled plates at varying angles and supported by thin vertical

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rods, the artwork, set at the rear of the building not only made a statement but functionally
disguised a row of service desks as well as the main core of elevators and emergency stairs.
This partition helped to maintain the pristine, singular volume while also, as Ada Louise
Huxtable stated, “[it adds] Byzantine splendor in an otherwise austerely elegant interior...the
perfect accent for the polished surroundings.”22 Similar to the Republic, this is another example
of a piece of sculpture adding to the architectural significance of the building’s transparency.

The original entrance to the building was on West 43rd Street instead of the more
visible, Fifth Avenue side. This placement allowed SOM to utilize this face more as a complete
composition, the grid of aluminum framing the interior contents with no interruptions in the
glass. To demarcate the entrance, it was encased in the same black granite as the plinth, offset
by one grid space from the corner. Bunshaft wanted the vault to be the only signage on the
building originally while he ultimately did not get his wish, he was able to maintain the clean
composition, positioning the simple sign against the backdrop of granite above the entrance.
The notion of the vault relaying the purpose of the building was maintained on one side while
introducing the necessary functional aspects of signage on the 43rd street façade where no
vault was visible. Upon entering from the north side of the building, the user is faced with the
open banking room expanding to their right and the termination of the escalators directly in
front of them. This sequence is highly composed both for visual impact as well as the efficiency
of flow. The clear façade allows for a clarity of plan with little to no signage or explanation,
both from the vantage point of the entrance as well as the street outside, making moving
through the building easy. The testimony of the Historic Districts Council at a public hearing

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regarding proposed alterations to the building in 2011 described this sequence excellently in the context of the escalators, “when you entered the building, you did not turn your back on Fifth Avenue. Instead, you continued to be a part of the active street, continued to move parallel to the traffic and pedestrians, until you magically float up above them.”23

The relationship of the exterior to the interior is critical for 510 Fifth Avenue. The building advertises itself by highlighting its insides at all times of day through the illuminated ceiling. It utilizes iconic, yet subtle expressions of program through the contrast of the vault wall allows for a clarity of plan by expressing the key circulation aspects on the Fifth Avenue façade and creates a welcoming atmosphere through large, brightly lit spaces. These spaces are softened by key elements like the Bertoia screen as well as planters. In an architectural analysis by Lewis Mumford in 1954, he states

“But nowhere have both interior and exterior been conceived more effectively as a whole, or treated in a more forthright manner...The great merit of the Manufacturers Trust’s new quarters is that, being all of one piece, every part tells the same story, and to perfection...As a symbol of the modern world, this structure is almost an ideal expression. The interpretation of inner space and outer space, the fact that the principle functions of the building are as visible from the outside as those of a supermarket, that the same freedom of space and light has been provided in every part of the structure...this surely reflects the economic, the social and the aesthetic principles of the modern business world at their best.”24

All in all, transparency is utilized architecturally, symbolically and experientially all with the purpose of attracting visitors. The building flirts with you. It is an architectural manifestation of the “come hither” mentality.

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All of these efforts paid off. The reception of the building was a general sense of wonder, marvel and acknowledgment that SOM and Flanagan had created something iconic. During the opening week, it was reported that over 15,000 people came to see the building. Flanagan had to extend the normal hours on the opening weekend to allow people to tour the building due to the size of the crowds. It was reported that anywhere from 90,000 to 1000,000 people visited the bank from all over the world, who did not hold accounts, within its first three years of opening. If you included the daily passerby in New York City “who stop and peer into the bank by day and by night,” 25 this number would rise dramatically. All in all, during its beginning, 510 Fifth Avenue was one of the leading tourist destinations in New York City, an odd thought for a modernist bank in a city so dense with historical and architectural marvels.26 This success extended beyond the ability of the building to attract onlookers; it also attracted business. The rates of accounts are reported to have tripled within a nine months after its grand opening.27

As the role of the branch bank changed over time, so did the Manufacturers Trust. The company was bought and sold by other banks, eventually conglomerating into J.P. Morgan Chase Bank. During this period, the state of banking experiences also shifted. The customer service based business plan that centered on human interactions gave way during the digital age and the transition to ATM’s and online banking. The building adjusted its internal organization to accommodate the new trends, but it became apparent that all 90,000 sq. feet of the Manufacturers Trust could not support exclusively banking on such a prime real estate.

26 Ibid, 105
The dichotomy of scale that separated the lower two levels from the upper levels served as the first split in programming away from banking, leasing out the upper portion of the building as office space. Chase Bank continued to use the lower floors as a bank branch, but heavily altered both levels to accommodate contemporary banking. The result was a series of solid walls on the first and second levels to house ATM’s and private offices, a disrupted ceiling grid, and distracting signage on columns and railings. That coupled with disjointed maintenance, discolored ceiling grids/inconsistent color/light intensity, several partially frosted glass sections along West 43rd street, complete blockage of Fifth Avenue façade views by ATM vestibule and tall cubicle walls, left the building in a sad state. It was a mess. Despite maintaining the original use for the main portion of the building, improper occupation threatened the integrity of the entire structure.

Heavy reliance for its protection from degradation and mismanagement was placed on the exterior designation report from 1997. The exterior designation report discusses those elements on the interior which add to its significance very briefly. Covering them mostly in the design intent of the building but not even mentioning them in the physical description of the building. Within the framework of this designation report, there is a clear distinction between exterior and interior. The Exterior Designation Report effectively reduces the significance of transparency down to the size of the glass panels, prioritizing the physical façade over relationships with interior elements. This is an obvious shortcoming of exclusively exterior designations on transparent buildings. As discussed previously, there is no visual separation of the interior from the exterior because of the crystalline treatment of glass, particularly on the lower two floors, everything in front of the glass and behind the glass work together to create a
cohesive composition. At the time, there was no current policy within New York City Preservation that could adequately balance the needs of the exterior and interior elements that needed protecting. Interior landmarking does exist within the New York City policy, but it is typically only applicable to interiors which are publically accessible. A commercial, transparent property walks a very fine line between qualifying as private or public space. In the case of Manufacturers Hanover Trust, an interior designation was brought up in the 1990’s concurrently with its exterior nomination, but the LPC felt that an interior designation would negatively impact the business of Chase Bank if the interior use was restricted. By doing this, the LPC effectively separated the exterior from the interior, allowing dramatic modifications to be made, including walling off the space on the first level around the escalators as well as the continuous degradation of the ceiling plane on all levels.

In 2009, Chase Bank, now JP Morgan Chase, vacated the building, opting to move to a space elsewhere in the city. When they made the move, they retained ownership of the art installations and took the Bertoia Screen and Mobile with them. Though the screen and mobile were classified as art and therefore did legally belong to Chase, the original application of these sculptures were transformed into architectural elements due to their scale and placement within the interior composition by SOM. They were such an integral aspect of the space that when they were removed, their absence negatively impacted the building in its entirety. Lewis Mumford in his review of the building in 1954 states,

It [the screen] lifts the whole composition to a higher plane...it humanizes theses quarters even more effectively than the living plants, mainly because it suggests something frail, incomplete yet unexpected and defiant of the rational statements and is thus loveable.28

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The screen served a dual purpose in this case, as a compositional entity integral to the reading of the space as well as the user’s experience and as a functional piece, shielding the elevator and stair core from view and cementing the importance of the escalator and augmenting the clean composition in contrast. Its removal set into motion several controversies that had resounding impacts on Manny Hanny itself as well as the preservation of modern architecture in New York City. The building was bought from Chase by Vornado Realty Group for $58 million. The removal of the screen in tandem with the Developer’s plans to transition 510 Fifth Avenue into full retail began a campaign to have the interior landmarked almost 14 years later.

Despite being carved up in order to adapt to the changing needs of the banking industry, this did not result in any permanent alterations to the key interior components. The building had already begun its conversion into a retail space. One of the reasons for walling up the escalators by Chase bank was not only to enclose the ATM’s into their own distinct space but also to create the ability to introduce a clothing store in the back portion of the first floor while maintaining the main bank functions on the mezzanine level. The retail program was a logical choice for adaptive reuse of the building. It was explicitly listed as a requirement in Flanigan’s programmatic requirements of the space, further supported by the embedded active merchandising accomplished by the building’s architectural elements.

The need for a major rehabilitation of the building was evident. The goal of Vornado was to bring the building back to its original splendor and detailing while also updating the space to accommodate new tenants. Economics were also a main driving feature towards adapting the building to a new use. Such a large bank was no longer sustainable, and higher rents could be collected with alternative uses. Due to its open plan, as well as design intent for such a program, it was determined the space would become full retail on the first two levels and private business leasing on the upper two floors/penthouse. SOM was rehired 56 years later to do the renovation. In his initial presentation of the plan, project architect, Frank Mahan, states that the design scheme sought to restore and strengthen the elements of the building crucial to its spirit and original intention. Namely; the transparency and proportions of the grid, the luminous ceilings, the floating second floor, the marble columns, the vault door and front wall, and the Bertoia screen; leaving out the entrances and the escalators. The justification being that the designation report makes these latter elements out to be “secondary” to the overall design intent. One of the most important aspects of SOM’s proposed alteration was the division of the ground floor into a two tenant space.

The two tenants division is the largest issue in this complicated case. The building was initially designed to be adaptable once its use as a bank was no longer viable, but not quite in the way that SOM chose to adapt it. The adaptability of the building lies within the open plan that is devoid of walls and partitions, save for a few in the very back of the structure. The grid of columns running between the first and second floor make this possible. It was always intentioned for the ceiling to be an unobstructed, glowing plane that added to the transparent and airy qualities of the structure. When there is a partition, they do it very intentionally and
iconically; as seen in the polished black granite walls of the vault and the shimmering screen created by Bertoia on the second floor. In such a minimal interior one could argue that every move is intentional within this structure, making none of the architectural elements “secondary.” SOM proposed running a demising wall perpendicular from the Fifth Avenue façade. In order to achieve this placement of the divide, several elements on the façade and in the interior needed to be reorganized. Following is a brief description of how they approached this reorientation

1. In order to maintain an unobstructed ceiling plane, the demising wall would be transparent on the upper portion of the wall. Additional it would be as thin as possible in an effort to make it relatively invisible.

2. A new entrance would be necessary to accommodate a second tenant. Based on the position of the demising wall, two new entrances would be fit into the structural grid on the Fifth Avenue façade.

3. The combination of this new entrance sequence and the presence of the new wall meant that the escalators would need to be moved. Based on original entrance sequences (i.e. direct sightline of the base of the escalator from 43rd Street entrance) it was logical to rotate the escalators to face the new entrance and run along the new wall.

4. The volume of the vault would inhibit a new tenant from easily occupying the new space to the left of the escalators. Because emphasis was placed on the front wall.

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with the vault door and not the overall volume in the space, the side and back walls would be demolished to open up the space.

5. Originally a modern interpretation of the missing Bertoia screen was proposed by SOM but after many negotiations, Chase agreed to permanently loan the screen to Vornado as long as the interior remains a designated landmark. SOM were not obligated to put the screen back in the same position. It was shifted forward in front of the back set of columns. The mobile was also restored. Originally it hung at the termination of the escalators when this spot was moved; the mobile remained rooted where it was. Because the escalators now deposited users right in front of the Bertoia screen, it was thought that the thin, wiry mobile would have been visually lost in front of the complexity of the screen.

6. Updated structural codes and ADA requirements for a new elevator in conjunction with reoriented the void for the new placement of the escalator and the deconstruction of the side vault bearing walls necessitated the complete demolition of the mezzanine level. With the rotation of the escalators in addition to the demo of the vault walls and added elevator shaft, there would hardly be any of the super thin, two-way concrete slabs left. It did not make sense in terms of economics and time to work around it; it was more efficient to start from scratch, restoring the original aesthetics while bringing it up to code.

31 Ibid.
32 Interview with Frank Mahan. Sept 2014
33 Ibid.
7. General maintenance and replacement of elements in disrepair. Specifically the replacement of the lights and plastic panels in the ceiling to create a cohesive set on the lower two floors.

All of these interventions become necessary as a result of the demising wall, by changing one element, the entrances, it becomes a domino effect throughout the entire interior. Primary significance was given to the Fifth Avenue façade. It is the grander of the two streets and sees more foot traffic. This is evident in the decision to place the new demising wall from east to west away from the Fifth Avenue facade instead of bisecting the ceiling by running it north to south.

Both the experience of the passerby and the user has changed. Now, when utilizing the escalators, you are deposited at the very center of the mezzanine slab. Originally, you arrived into one corner whereby, from this vantage point, you could survey the entirety of the space. Set against the golden Bertoia Screen, it must have been very dramatic. Now you have to turn around and to either side to begin to see the entire scope of the space. From the exterior, one could watch bank user’s transition from the entrance to the second floor without ever losing them beyond obstructions, the path of delineation was intentionally clear to express the circulation from the outside; now they disappear from view.

The argument could be made that the orientation of the escalators originally was in direct reference to the main entrance that was on 43rd street. There was a direct line of sight and access from the main entrance to the historic escalators. When the entrance was relocated to the 5th Avenue facade, by re-orienting the escalators the architects at SOM were simply "restoring" the intent of the escalators orientation in regards to the entrance
The spark of the removal of the screen in 2010 created a series of events that surrounded the renovation of Manufacturers Hanover Trust in controversy. The removal of the screen did, however, ultimately lead to the designation of the interior in addition to the exterior designation. It was reported that Vornado personally pursued the designation along with the preservation community in early 2011. On February 15th, 2011, 510 Fifth Avenue was given interior landmark status. Within New York City it is one of approximately six modern, interior landmarks, and the only one which encompasses an all glass façade. Despite the developer’s support of its landmark status, the proposed renovation provided by SOM on their behalf was radical. There is much speculation about the series of events that occurred in the process of gaining the LPC’s approval for the proposal. The time span was suspiciously short for LPC approval, just one month and three public hearings. Vornado’s legal representation, Meredith Kane, was a former LPC Commissioner, and rumors floated of special treatment by Robert Tierney. Despite a few public email conversations, there is no concrete evidence of this, and the LPC supported their approval with the following statement,

“The commission approved changes to allow a new use and, while the interior escalator was relocated, the transparency at the ground floor and the luminous ceiling were restored, thereby returning the building to its intended experience from inside and out.” 34

Before work could get underway, a local activist group filed a lawsuit against Vornado, claiming that the company had exceeded the work approved by the LPC and gone beyond the limitations embedded within the designation report. They further went on to argue that the LPC itself had

aided Vornado in these violations. “Modernism is about the littler things, and asking the LPC to puncture doors into the building’s otherwise unbroken Fifth Avenue façade and rotate its prominent escalator was a tall order for such a small building.”\textsuperscript{35} The work was stalled and the certificate of appropriateness was reexamined. Out of the court case came several positive adjustments. The glass portion of the demising wall was extended from 18” to 34”, the vault wall, previously not included, was added to the designation report and Vornado agreed not to use the air rights above 510 Fifth Avenue to build any additions or towers. There was, however, no adjustment to the Fifth Avenue entrances, the manner of which the space was divided, and reorientation of the escalators. This was also the moment when Vornado negotiated with JP Morgan Chase to reinstall the Bertoia screen and mobile. In regards to the reorientation of the escalators and the added entrances to the façade, Roger Duffy, principal at SOM, claimed they were both reversible if necessary.\textsuperscript{36} The doors were designed to fit perfectly into the existing grid. Based on the extensive restructuring of the mezzanine level in order to punch the new hole for the escalators, it’s hard to imagine how this intervention is reversible without significant construction.

There is a wealth of subject matter surrounding the renovation of the Manny Hanny and the implications of the resulting court case for modern architecture. For the purposes of this thesis, I am not focusing on this aspect. Instead, the focus will center on how the ultimate


changes affected the significance of transparency, in this case, extrapolating out of that lessons learned that might apply to a larger framework within modern architecture.

The transparency, though left relatively intact on the façade itself, was negatively altered via the endeavor to change the first two levels into a two tenant space. The demising wall, despite conscious efforts to make it invisible through the use of glass in the upper band, forced the reorientation of the escalators, a move that changed the character and composition of the building. While I do think many of the moves made by SOM in the renovation of the Manufacturers Hanover Trust Building were tasteful and well done and served to prolong the life of the building, I cannot agree with the reorientation of the escalator. Despite being designed to be easily transitioned into new programmatic uses, because of the emphasis on the viewer from the street to have access to the entire span of the first level, it was never meant to be divided into multiple spaces. The openness that was embedded in all aspects of the building, both architecturally and symbolically on one hand, does allow for an easy translation of the space into retail, as originally intended, but is innately against the addition of walls. New program was meant to occupy the open space without introducing new architectural elements or requiring the retooling of existing ones. The only element that presented itself as potentially obsolete in a new program was the vault. Once it no longer secured its customer’s wealth, it was immediately reduced to a decorative artifact, the only clue it was once a bank.

Additionally, it is important to remember to consider the entire building, both envelope, and interior, in this case study. So much emphasis is placed on the first two levels, due to scale, physical and visual access and interior detailing, but the presence and continuity of the uppermost floors are integral the perception of the transparency and composition of the
building. SOM only addressed renovation efforts on the lower two floors. Leaving the upper two floors, rented to the fashion company Elie Tahari, untouched. The result is a mismatched temperature of illuminated ceilings ranging from blue on the top level, down to what appears to be the original panels and lights (stains and all) and finally to SOM’s warmer treatment in the main program space.
Case Study 2: S.R. Crown Hall

**Address:** 3360 South State Street  
Chicago, IL  
**Client:** Illinois Institute of Technology  
**Architect:** Ludwig Mies van der Rohe  
**Completion Date:** 1956  
**Program:** Educational Facility, College of Architecture  
**Square Footage:** 52,800 sq. ft.  
**Chicago Landmark:** October 1st, 1997  
**National Register:** August 7th, 2001

In 1938, Mies Van Der Rohe, newly emigrated from Europe, accepted the Directorship position of the Architecture school at the Armour Institute of Technology. Mies’ acceptance was predicated on his ability to redesign completely the curriculum. In 1940, the Armour Institute merged with the Lewis Institute to become officially known as the Illinois Institute of Technology (IIT). Alongside the increase in programs and students, came the necessity for a new campus. The original Armour Institute facilities were to be expanded to the south into a former African American community that had fallen into disrepair. The impoverished neighborhood was to be turned into a new, modern, urban campus. Mies was awarded the job, the result of which was one of the most radical campus plans of its age. The act of designing the campus became a canvas for Mies to conceive, test and implement his theories of structural rationalism, exterior skins, urban scale spatial planning and universal space.\(^{37}\) The master plan includes 20 buildings by Mies and a modular logic that can dictate placement and scale of future structures. The gridded system of overlapping buildings and open spaces was meant to

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be a reflection of the urban context in South Chicago made possible by the flatness of the area.

The grid is everywhere, dictating heights, widths and placement of buildings, and even traversing to the interior layouts. The implication of such rigid modularly stemmed from a conceptualized standard classroom size at the time, 1 unit equaled 24 square feet.

IIT master plan, thus, evolved from the basic furniture elements to the room, to the building and finally to the campus. This process allowed later expansions of the campus without changing the fundamental characteristics.

In addition to the ease of campus expansion and additions, the modularity meant that the buildings would create a more uniform canvas but also be cheaper to build, using primarily off the shelf building elements. The buildings were primarily steel structures with beige-brick infill and varying sizes of windows depending on the function of the building. With such high ceiling heights and limited interior partitions, the interiors were essentially non-specific and therefore, inherently adaptable. “We had to build schools buildings, and we did not know often for what they would be used. So we had to find a system that made it possible to use these buildings as classrooms, as workshops, or as laboratories”.

What resulted was a concept of a fixed exteriors and interiors that would adapt to their particular use at a given time. Hyper-specificity achieved through more planimetric approaches would have limited the use of the buildings and not created a cohesive group.

The individual placement of the buildings was shifted and clustered to create subtle barriers of exterior space. Instead of boxing in outdoor spaces with perimeter buildings, the negative

38 Ibid., 9
space between buildings created a flow and open feeling to the urbanistic campus. There is an overall axial, neo-classical, organization of the campus around a pedestrianized city street, but it did so asymmetrically creating a multitude of varying outdoor spaces and building relationships. The technological focus of the school was reflected in its urban organization and industrial aesthetic. The clarity of plan, structure and generalized space was a form of intellectual transparency for Mies.

Crown Hall was the 6th specific building on the campus to be designed, and the last to be completed. Drawings were begun in 1950, but it was not completed until 1956. Being that it was meant to be the symbol of the new department Mies was in charge of, it is no surprise that it was given a bit more attention. Often referred in the media as the “crown jewel” of IIT’s campus, the new architecture building broke from the more opaque steel box with brick infill seen in its campus predecessors in favor of the more dramatic combination of a steel structure with all glass infill. It is the only all-glass building of his on campus.40 Despite being an entirely glass envelope, its transparency is not reflected in the literal materiality of the building, given that the lower segments are translucent, but instead in the implied architectural values that are given an extreme level of clarity and presence.

Crown Hall is divided into a series of structural bays, proportionally vertical in nature, but combined to create an overall sense of horizontality. Each bay is split into three horizontal bands of glass, at the top 11 ½ feet of clear ¼” plate glass, followed by an 8 foot high, bisected section of ¾” sandblasted glass and ending in a clearstory to the lower level, 4 feet high, of the

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same sandblasted glass. A second horizontal beam between the two lower bands accommodates the floor slab of the ground floor. At the bottom of the second band of translucent glass is a set of louvers which allow the building to be naturally ventilated. Altogether the 22 bays on the longitudinal face and 12 on the short ends, create a volume that is 220 feet long, 120 feet wide, and 27 ½ feet tall. Mies broke with the campus grid, 12 feet, for this special building, using the module of 10 feet instead. The vertical expression of structure is seen in the I-Beams that separate the bays, 4 of which are larger in scale and connected to larger plate girders rising 6 feet above the line of the roof, suspending this plane. The exterior skin embodies a unique combination of strong structural statements juxtaposed to “T” shaped expressions of extremely thin mullions bisecting and separating the sandblasted glass from the clear plate glass. The central six bays are entirely clear plate glass on the upper level on both the north and south sides of the building, giving you the most complete view of the interior. Elsewhere, only the ceiling is clearly visible.

The main floor of the structure rests 6 feet above grade. This allowed Mies to create both a sense of grandeur upon entering the elevated platform but also to meet the pragmatic need for clearstory windows to gain light in the lower level, known as the lower core. It also allowed him to locate all of the mechanical and storage services of the building below ground, so as not to interrupt the experience of one massive room on the main level. Ascending to the main floor, also known as the upper core, of Crown Hall from the ground occurs over a series of seemingly floating planes of travertine slab. The black-painted steel supports receding against the white of the stone on what is known as the South Porch. This transitionary phenomenon is
augmented by the lack of direct connection to both the ground plane and the main structure itself.

The structural system, pushed to the exterior envelope, combines to form one large room with no vertical supports on the inside. The roof is hung from the four large girders, creating two central structural bays and a 20-foot cantilever on either end. These bays make it possible to have such a large, clear-span building and was an incredible structural achievement. The interior is divided symmetrically on the north/south axis, creating zones of studios, pseudo-offices and exhibition space. There are no permanent barriers or formal spaces; everything naturally flows from one space to the next organized around 8-foot tall free-standing oak partitions. The overlapping planes create a similar feel of alluded space as the shifted positioning of the buildings on campus. The only element to touch the gridded ceiling are two chases, painted white, centered 80 feet apart and justified closer to the north side than the south. Upon entering from the South Porch, the oak partitions are arranged to create a central exhibition/lecture space. Studios encompassed of rows of minimal desks spread out on either side, filling the rest of the space. To the north side are additional exhibition spaces and areas for limited administrative offices. The oak partitions taking up the central space in Crown Hall achieves similar visual gains as the wood installation in Farnsworth House (1945-1951). The scale and detailing of each of these wood pieces, in contrast with the glass and steel surroundings, seem more like furniture than walls, and do not betray the overarching sense of openness. In the center of the floorplate, 50 feet apart, are two staircases, justified towards the south side. This descending intervention has a minimal impact due to the thin nature of the steel railings. Nothing touches the façade, all the desks, partitions and other miscellaneous
furniture are pulled back from the façade, allowing it to maintain a uniform level of translucency from the exterior perspective. This also maintains circulation around the entire outer ring of the inside, further embedding the perception of one large room with furniture in it instead of walls. Similarly, aside from the vertical chases, nothing touches the ceilings. Within Crown Hall, the ceiling is an immensely important architectural element.

The plane of the dropped ceiling, nearly two stories above the floor, was not the original design. Initially, the intended, and built, ceiling cavity rested 18 feet above the floor and enclosed the roof structure from the inside as well as housed ducts for planned AC units. With the use of the louvers at the ground plane of the upper core, it is possible to naturally ventilate the space, though AC was added soon after completion. When the building was inspected, though originally coded as an industrial building, the inspector decided to change it to a classroom coding, requiring the building to be sprinkled. 41 In order to accommodate this, a deeper dropped ceiling was needed. What was delivered was a continuous plane of acoustical tiles held approximately 1 foot on all sides from the exterior façade. This recess gives off the appearance of a free-floating plane and is in and of itself an illusion to total transparency of universal space. Embedded within it are the sprinklers, lights, and diffusers; all laid out on a highly regulated grid placed according to their alignment with the vertical elements of the façade. (the seams in the floor also follow this rule) The lights run in linear groups along the north/south axis. The view of the ceiling from the upper band of clear glass on the façade in conjunction with the receding lines of the lights give the viewer a sense of just how open the

41 Architectural Record. 1956. "Mies van der Rohe." August. 136

Managing Transparency: S.R. Crown Hall

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structure is from the outside, even though they technically cannot see it due to the translucent layers. The concept of *universal space* from the exterior is embodied within the view of the uninterrupted ceiling spanning the entirety of the over 26,000 square feet of the upper core. The glass is an important factor in Crown Hall’s overall transparency, but what makes this project unique is not merely the ratio of glass to the opaque structure. In fact, 1/3 of this glass façade is not even transparent due to the sandblasted treatment. What becomes more substantial is the relationship of the ceiling plane to the facade. Its uninterrupted plane with a linear grid of lights reveals the true depth of the space in tandem with the floating quality brought on by the 18” offset from the envelope. [Img. 16] Because to the translucency of the bottom portion of the main floor, the ceiling is the only indicator for how the interior space is divided up from the exterior. Because nothing is intersecting with this plane aside from two small vertical chases in the middle of the building, the viewer is immediately aware that the building is one large room. The lack of columns and dividing walls additionally enhances the structure, the sheer breadth of space adds a sense of wonder as to how the building is standing, how could it possibly support a floating ceiling plane of this size?

The lower core has been altered significantly over the years. On original plans, it was a series of walled off workshops, classrooms, and a few offices. [Img. 15] Over the years, the partitions were shifted to accommodate a growing library collection. Today the library takes up the entire south side of the lower core, utilizing a gridded steel and glass storefront wall to separate it from other programming. The rest of the floor has been significantly opened up to make room for more open concept studios flowing into lecture spaces. As the program outgrew Crown Hall, the workshops were relocated to the Minerals and Metals Building (Mies’
first completed building on campus) and faculty offices and the Ph.D. program were moved into the 3410 North building just south of Crown Hall.

The context within which Crown Hall was situated is immensely important, both its relationship to the adjacent buildings as well as Alfred Caldwell’s landscaping. It is purported that Caldwell and Mies worked very closely together in the arrangement of plantings surrounding Crown Hall. The honey locust and hawthorn trees planted intermittently, at different scales, around the building were supposed to naturally control light coming in through the clearstory upper glazing as well as reflect on the extreme horizontality of the structure. Additionally, the trees would provide shading during the summer months, mitigating large heat gains. The original Ivy, also planted by Caldwell, was purposefully trained up the side of the southwest corner of the building. It was intended to soften the brutally rectilinear structure as well as act as a direct connection to the ground plane. Further light control was achieved through thin venetian blinds running the entire perimeter and height of the upper clearstory section of the envelope. Ideally, the blinds would be continually adjusted according to the changing lighting conditions throughout the day, but given the scale of the building, one can imagine how daunting of a task this must have been. A simple solution to solving light penetration issues within this glass box, but realistically I imagine the blinds remain down and mostly closed, relying more heavily, instead on artificial light from the ceiling.

Of the building, Mies said it was a symbol not only of modern architecture but architectural education as well. During the opening of the building, in one of his rare speeches, Mies said

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43 Ibid.
that building encompassed "properties which very well could symbolize the character of the work which we hope will be performed in this building."\textsuperscript{44} Within the new curriculum, Mies stressed a strong foundation in the understanding of structure, materiality, and the construction process before diving into building design.\textsuperscript{45} Crown Hall, is an icon, in its own right, of modern architecture and the man who created it. Within this building is an homage to concepts such as universal space, clarity of structure, modern architectural education, modularity and proportion, and campus planning. In the 1997 Chicago Landmarks summary of significance a textbook is quoted, "Mies’ series of clear-span structures...are a dramatic demonstration of the passage of engineering into the realm of pure art. "\textsuperscript{46} Articles from the 1950’s are a combination of dramatic interior and exterior photographs, close-up photos of the construction process highlighting the structure, and extremely detailed drawings and structural details. The fascination of the combination of high engineering and high design did not ebb away, even after 60 years.

This case study, within this group of three, is unique in that the struggles it faces is not, inherently, a complete change in program like we saw in Manufacturers Hanover Trust and may see in the near future in The Republic. In all likelihood, given its status and notoriety as an architecture school in a well-established university, S.R. Crown Hall will likely remain an architecture school. The labors it must overcome, adapt to and potentially resist are evolutions in architectural education at IIT, both in pedagogy and density of students. Student body size,


\textsuperscript{46} Whiffen, Marcus and Keeper, Frederick. American Architecture, 1607-1976. Cambridge. MIT
changing roles of technology, shifts in studio culture, environmental burdens, storage wants/needs, etc. are all potential barriers in the usability and integrity of this building. Over the past 60 years, reactions to these parameters are evident on the interior readjustments.

The size of the student body enrolled in the architecture program has ebbed and flowed over the years. Beginning at roughly 200 hundred students when it first opened its doors in 1954, maxing out at over 800 around the time the renovations were completed in 2005 (drawn by the renewed buzz about the building no doubt) and stabilizing today at close to 650 students. Despite this, the architecture department has grown out of Crown Hall and started inhabiting neighboring buildings on campus. A variety of new programs and concentrations were added and expanded upon over the years.

The shift away from hand drafting to 3d modeling techniques, the roles, and scales of physical models, to parametrics, 3d printing, and robots. All of these changing and ever-evolving technologies will demand new and different roles for Crown Hall to play. Ranging from the orientation of the studio desks, the size of the desks, exhibition space vs. desk space, taxes on electrical and heat loads, and noise attenuation. These problems are not new ones in the original education model of the school but will present themselves in different ways, forcing the organization of the interior to shift in new ways.

Like most buildings over 60 years old, Crown Hall underwent various changes internally but has also been the victim to the outdoor elements. Throughout its life there have been two major renovations which had an effect on the exterior of the structure, the rest were mainly reorientation of interior elements, imperceptible to an outside vantage point. These two
interventions on the façade were efforts to undo the effects of harsh weather conditions. In 1974, SOM tackled several projects, most notably the replacement of the exterior glazing. Starting in 2005, Krueck and Sexton Architects followed suit, replacing what was done in the 1970’s as well as more extensive structural repair and maintenance.

By the 1970’s due to improper maintenance and the susceptibility of the building materials to the elements, the entire glazing system was replaced. Rust, wear, and tear, and overall age had damaged the connections between the steel structure, particularly the mullions, and the large panes of glass. The natural result of exposing steel to water as the thin protection of paint wears away, is rust, a highly damaging growth process to unforgiving, brittle materials such as glass. According to Mark Sexton, portions of the steel stops were replaced with aluminum ones to avoid rust in the future. The lower panes of glass too were in rough shape. Not only were they cracked and damaged, but the nature of sandblasted glass meant that it absorbed all the stains from adhesives used to tape up drawings, the oils from the hands that put the drawings up and two decades worth of dust and dirt. No longer was the glass the clean matte white applied by Mies. In 1974, the apparent best option was to replace the glass with a new material, laminated glass with mylar sandwiched between them to achieve the effect of sandblasted translucency. While this solved the staining issues, it dramatically affected the nature of the reflection, the perception of the transparency and the quality of light. Sources relate the appearance of the laminated translucent layer to be disparate to the rest of the glazing, giving off more of a plastic materiality than glass. It solved the maintenance issues but

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the reflectivity, especially at night compromised the overall impression of the building. The upper portions of clear glass, originally ¼” thick were also failing, SOM replaced them with 3/8” thick glass, held in place with new aluminum stops. Mies’ 11-foot tall sheets of ¼” plate glass, over the course of the previous 30 years, were not very good at withstanding the Lake Michigan winds. The steel stops meant to keep them in place were too small to effectively do so. What resulted were multiple reports over the years of panes popping out or shattering during strong winds.48 Code and structural resistance likely dictated the need to increase the glass thickness.

Over the next 30 years, while some maintenance issues were resolved by the 1970’s interventions, the building continued to degrade. Ivy, planted by Alfred Caldwell, was wreaking havoc on the glass and structure, window panels were continuing to fail, paint faded, and overall rust and degradation of structure continued. The poor maintenance of the structure was largely attributed to the lack of funding to adequately upkeep the building. However, in 2001, the Getty Fund awarded IIT a grant valued at $250,000 to do a comprehensive feasibility study of Crown Hall to determine all of the necessary interventions to bring the building back to its former glory and make necessary adjustments to meet modern day code and energy requirements.49 In order to enact the findings of the study, additional funds were raised by IIT, totaling upwards of $500,000. The first 3 phases of the study were completed with plans to continue the work once more necessary funds are raised.

48 Robertson, Donna, interview by Makenzie Leukart. 2016. March 6, 2016 (March 6).
The building needed additional power for personal computers and various other technology and data needed for lectures and events. Donna Robertson, as the Dean of IIT Architecture school at the time, oversaw this process. As she described it, the power came up from the oak partitions and ran to the middle of the studio desk rows, and out from there. The tracks were laid on top of the original floors, with only minor cuts made into it underneath the oak partitions. This method was meant to minimize the cuts and be adaptable as the furniture was potentially rearranged. Mats were laid over the chases to keep people from tripping and to partially hide them.

The structure supporting the travertine slabs on the south porch was badly rusted. The structural integrity of the entire platform was questionable. Around the same time as the rewiring of the interior, the South porch was dismantled and put back together. Due to the material nature of travertine, a stone not known for its durability in colder climates, it had cracked and eroded significantly and needed to be replaced. To offset the seasonal turmoil set upon the slabs, the architects thickened them subtly. Additionally, the steel was cleaned, repaired and replaced where necessary.

The façade was perhaps its biggest hurdle to problem solve. It needed the most attention, would have the biggest impact and was thus the most complicated aspect. Almost 1 ½ years of research and sampling went into the façade renovation. The actual implementation of the renovation occurred over the summer of 2005. The building was closed and reopened without interruptions to the academic schedule. The steel was all power washed and ground down,

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removing all paint and rust, damaged pieces replaced, all the glass replaced, and the structure repainted.

The replacement of the glass quickly became the most controversial aspect of the renovation. The quality of light was drastically impacted after the 1974 renovations and additionally the new glass installed by SOM was no longer up to code. Modern day Chicago code required glass of this scale to be at least ½” thick, twice the thickness of Mies’ glass. The thickening of the glass introduced two main issues, one aesthetic and one structural. As glass becomes thicker, the color changes due to the levels of iron required. The resulting effect is usually a green hue to the glass. One glass manufacturer describes the difference in color as the following, “Clear 1/4” thick glass will allow about 90% of visible light to pass through and will reflect about 8% of visible light. When looking through the glass, as the glass gets thicker the faint green color becomes more noticeable and light transmittance drops.”51 Krueck and Sexton had to source special low-iron glass to get around this phenomenon. The original 1950’s perception of the glass was that it was colorless, and in certain lighting, invisible, their intention was to maintain this aesthetic quality in order to maintain the simple elegance of the uniform façade. Once the color of the new glass was solved, connected problems additional had to be resolved. The original window stops that kept the ¼” plate glass in place could not support the weight of the ½” glass. The bar needed to be thickened vertically in order to properly receive the new, thicker glazing. Mies’ Crown Hall embodies his theories of “less is more” this potential alteration to the façade would have drastic implications on the overall proportion and elegance

of the structure. Because Mies’ architecture was inherently reductive, utilizing only that which is necessary structurally, small changes would not go unnoticed. The job of the architects and preservationists on this project was to find a solution that was an appropriate balance between aesthetic and philosophical effects. After much deliberation with varying interested parties, it was determined that the aesthetic argument should remain as pure as possible, even though it might compromise some of the more metaphysical notions. The solution was a steel, custom-made stop that maintained the original outward face of 5/8” and symmetrically slope back towards the glass to ¾” thick. With an overall thickness of either side of the glass of 1-1/4” wide, the 1/8” slope was subtle enough not to be readable from the outside or the inside. [Img. 17] This retainment of the original edge kept the visual perception of the stop the same. Hard-core Miesians argued that while the visual purity was maintained, the introduction of a custom element into the structure was inherently anti-Mies. While this argument does hold merit based on Mies’ writings and notions of “off-the-shelf” structural rationalism, the necessity of needing to meet, modern day codes required the choice between the aesthetic and philosophical arguments to be made.

In an interview with Peter Blake for the book, Four Great Makers, Mies touched on the concept that material purity wasn’t an absolute necessity while discussing obsolesce in architecture,

I think that obsolescence is a kind of excuse. I don’t think it’s a real fact. There are things that don’t have to last for a lifetime...there are things that can be replaced and of necessity will be replaced...You don’t have to build like the pyramids, to last thousands of years. But a building should live as long as it can
live. There is no reason to make it just provisional. In that case, they should build a tent.52

Though Mies viewed his work as universal he did not intend, nor did he construct his buildings to last forever. The inherent properties of steel and glass are not as long-lasting or durable as stone, for example. He foresaw his structures aging and needing parts replaced, what he was designing for instead was a space which could be utilized for a prolonged period of time in varying ways.

“Because Mies concentrated not so much on buildings as on The Building embodied in its structural process, he was not vitally interested in expressing the various uses which it might serve. If his Building works in many ways, it does so because almost any activity many be fitted to the noncommittal spaciousness of his rectangular envelopes. Mies specifically said as much in reference to Sullivan’s famous slogan, although he too narrowly restricted the meaning of ‘form follows function’ to the manner in which the building records the use within: ‘we reverse this [concept], and make a practical shape, and fit he function into it.’... thus almost all of his American buildings are the same Building”53

Krueck and Sexton Architects, along with Gunny Harboe, took immense efforts to make sure the new materials they did introduce to the building were appropriate. In the case of the glass, both clear and frosted, as well as the charcoal paint for the steel, countless materials were explored and tested. Along the north façade, several different kinds of glass were installed prior to the larger-scale renovation to study the color and effect of the glass in different seasons and lighting conditions, but also to test its durability. The coating on the new sandblasted glass was tested over the course of a year in the search for a coating that would


protect the glass from stains and discoloration without impacting the quality of light or color.\textsuperscript{54} Additionally, the paint had to be the perfect shade of black. What was known as Miesian Black on the original structure had faded to a dull grey, giving off a sad and neglected air. The original paint was no longer viable either, due to the fact that it was a lead based paint from the 1950’s. On the roof structure of Crown Hall, several swatches of different types of modern paint were tested and compared to un-weathered patches found in some of the original window mullions.\textsuperscript{55}

As a future phase of alteration, several schemes have been developed to reduce the environmental impact of Crown Hall. The environmental plan was developed by Atelier Ten. In an effort to make the glass box more energy efficient and reduce overall costs, solutions were devised that would have minimal impact on the structure but maximum impact on costs and comfort levels. Several hypothetical situations were devised. They include; automating the venetian blinds to react to changing light and heat throughout the day, new, more efficient diffusers, completing Alfred Caldwell’s planting scheme to offer more natural light filtration through the seasons, improving the radiant floor system to include zones and possibly radiant cooling and upgrading the lights.\textsuperscript{56} According to one source, the application of these changes would reduce the energy cost by upwards of 50% without extraneous effort on the part of the engineers.\textsuperscript{57} The design of Crown Hall was inherently sustainable, over time, certain aspects

\textsuperscript{54} Sexton, Mark, interview by Makenzie Leukart. 2016. \textit{February 25, 2016} (February 25).
\textsuperscript{57} Robertson, Donna, interview by Makenzie Leukart. 2016. \textit{March 6, 2016} (March 6).
degraded or were altered, especially in the 1970’s, without a complete understanding of the environmental impact.\textsuperscript{58} These environmentally driven interventions will not happen until the needed funds are raised.\textsuperscript{59}

Crown Hall carries with it a lot of baggage. It is infamous in the architectural world by being synonymous with the man who created it and his unforgiving principles of space and structure. It was a catalyst for Mies incredible impact on architecture around the world, and much of our contemporary skylines and concepts of space were originated by Mies. Any restorations or proposed adjustments have been, and will continue to be put under the microscope. Crown Hall is an architectural statement of embedded ideologies, it used transparency to elevate the structural statements. The combination of sand-blasted and clear glass does not achieve an entirely transparency façade, as seen in the other two case studies, instead of literal transparency, Mies employs conceptual transparency through subtle, yet dramatic relationships between structure, plane and visual perception. By only allowing you to see the upper portion of the ground floor, he highlights the unobstructed ceiling. The contrast of the thin vertical steel columns on the outside are enhanced by the almost invisible quality found in the glass. The only interior architectural statement, other than the unobstructed ceiling, that changes the exterior perception of the building, is essentially a piece of furniture, the oak partition walls. Their placement in the middle of the space both reveal space but also shield the wings of the building from view at the entrance. So long as whatever occupies these side wings does not

\textsuperscript{59} Robertson, Donna, interview by Makenzie Leukart. 2016. \textit{March 6, 2016} (March 6).
touch the façade, thereby interrupting its pristine plane, and rise above the 8 foot partition, almost any configuration is acceptable. The highly selective use of pure transparency, regulated to the topmost band, allows the building to grow and evolve to changing educational models without impacting the structural expression of the clear-span building.
Case Study 3: The Republic

Name(s): The Republic
The Republic Office and Plant
Address: 333 Second Street, Columbus, IN 47201
Client: Robert Brown/The Republic Newspaper
Architect: Myron Goldsmith/SOM
Completion Date: 1971
Program: Newspaper headquarters and plant
Square Footage: 23,000 sq. ft. (main floor)
National Register: 2012

The Republic is interesting to consider in this group because of the huge symbolic implications the interior carried in relation to the overall transparency. It was erected later than the other two, 1971, but still holds true to modernist ideas and aesthetics, especially given the strong ties of the architect, Myron Goldsmith to Mies van der Rohe as well as IIT. Its industrial function also brings into question certain considerations that might not be present in commercial and educational structures, adding to the overall discussion.

The Republic was designed by Myron Goldsmith of SOM in Columbus, Indiana in 1971. The structure was conceived to house all functions of business and production of the local newspaper, The Republic. Owned and operated by the same family since it was founded in 1872, The Republic was erected after the business outgrew its prior facilities. Given the reverence given to modern design in Columbus, Robert Brown, CEO, and president, in the 1960’s/70’s was very involved in the design process and endeavored to create another prime example of architecture in the already design-saturated town.
The Republic’s context in Columbus must be explained further, to understand how the building came to be. In the mid-1950’s, J. Irwin Miller, a prominent business figure, established the Cummins Foundation. Originally it was a charitable extension of the Cummins Engine Company, a major business entity with its headquarters in Columbus. The foundation was originally established in 1954 and focused on educational, environmental and social justice endeavors. By 1957, the foundation expanded to include a special Architecture component.

With the growing demand for schools given the recent baby boom, the United States had been rapidly building hundreds of schools across the country. J. Irwin Miller saw the constructed models as uninspired and boring and saw an opportunity to increase the architectural quality utilizing his charitable foundation. Miller had come to appreciate good design throughout his life, forming a close relationship with Eliel and Eero Saarinen, whom he had commissioned to build several projects beginning in the 1940’s. His desire to promote quality architecture appeared to go beyond appreciation for good design, however and focused on the economic benefits as well. Better schools would be a method for bringing better quality people to Columbus, which in turn would provide smarter, more dedicated employees for his large company. Columbus was a relatively isolated place compared to neighboring Indianapolis and Chicago to the north, making the fabric of the town essential to attracting good employees. The government designed schools were desirable to so many places because of their relatively low cost as compared to one designed by a well-known architect. To offset this and motivate the town of Columbus to pay the premium required for better-designed schools, the

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foundation offered to pay for the architect’s fees providing they choose from a list of architects assembled by Miller and his company. Though the list has never been published works done with the aid of the Cummins Foundation, include buildings by; Eero and Elie Saarinen, Kevin Roche, I.M. Pei, Ceasar Pelli, Harry Weese and other notable architects amongst its ranks. Originally the charter only assisted with fees for schools, but shortly began to fund public buildings as well. The foundation still operates today and is responsible for making Columbus, Indiana, a small city south of Indianapolis, one of the densest collections of notable modern architecture in the United States. The city bought into this idea, creating a culture of appreciation for high design. The company’s influence on favoring good design spread beyond their umbrella to private businesses as well, even though they did not qualify for financial assistance.

Ironically, SOM was not on Miller’s list. It purported that Robert Brown deliberately did not use an architect on Miller’s list, though the reasoning is unclear when he began to design his newspaper’s new home in 1959. Myron Goldsmith of SOM was the only choice for the new newspaper headquarters in Robert Brown’s eyes. There were several points of contact made that began to manifest itself into a particularly strong friendship between the two men. Initially, Robert Brown contacted SOM to do a site study for a potential new plant in 1959. The paper was outgrowing its current building. Myron Goldsmith conducted the survey and ultimately convinced Brown that the site would not be suitable. In correspondence between

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Robert Brown and the AIA regarding Goldsmith’s nomination to become a Fellow of the AIA, he describes his admiration for the careful attention and wise advice Myron gave as well as his “intense dedication to the cause of quality architecture.” According to the NHL Nomination report, it was Brown’s background in engineering that likely drew him to select Goldsmith out of the architects at SOM to spearhead his new project. In other correspondence, Brown stated his reasoning for choosing SOM, “Since newspapers are complicated buildings mechanically, it was thought desirable to utilize a firm which had complete engineering services.” Prior to the start of the plant in Columbus, Brown and Goldsmith collaborated on a smaller work that seemed to have served as a testing ground for Brown’s vision of a modern newspaper plant. The Republic was part of the family’s larger collection of small papers known as Home Group Enterprises. In the early 1960’s, Goldsmith worked with Brown to build a similar plant/office hybrid building for a smaller daily newspaper in Franklin, Indiana owned by Brown. The Daily News building in Franklin had many similarities to The Republic; both sported glass facades expressed structure and brightly painted presses just behind the glass. The Franklin plant was much smaller, only 10,000 square feet and featured a glass façade recessed back from the structure, creating an almost pavilion-like quality. It was completed in 1963. Brown associated the successful completion of this building as the reasoning for choosing to stay with Myron to oversee the construction of the larger plant/office in Columbus. [Img. 18]

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66 Ibid.
The siting of the Republic on 2nd Street became a lynchpin in the entire area’s redevelopment. In the late 1950’s, the downtown center of Columbus was slated to be redeveloped, and a committee was formed in 1959 with the goal of revitalizing a failing and empty downtown. As stated above, Brown originally wanted to build the new plant in a more industrial part of town, prompting the hiring of SOM initially to conduct the above-referenced site study. After dissuading Brown from using this larger, less central site, Goldsmith convinced him of the viability of a site just south of the historic downtown courthouse. The prominent location would promote the business simply because of its proximity to town activity, support the necessary programmatic space with possible room for expansion depending on the finalized design, and be an opportunity to create a beautiful building capable of transcending into a symbol capturing Brown’s notions about a newspaper being a civic entity.67 [Img. 20]

The conversation around the political possibilities of the new buildings sparked Myron’s involvement with devising the master plan for the area as well; he was officially hired by the Redevelopment Company based on Brown’s urgings. The suggestions Goldsmith proposed included; controlling the building height, eliminating utility lines by requiring them to be buried, restricting all parking to the backs of buildings, and unifying the landscaping by hiring one firm to do the entire square. He also suggested giving the committee the right to reject any proposals if they are not “in good taste and that nothing can detract from the quality and

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dignity of the courthouse square...it may be your only means of turning down something you
don’t like.”

The specific ordinances that Goldsmith suggested for the courtyard square were all
embodied into the design of the Republic. Despite being hired in 1959, the plans for the
Republic were not realized until the late 1960’s and construction did not complete until 1971.
The Republic was the first building completed under the new Redevelopment Ordinances.
Situated back from the street, the building sits on approximately 25% of a large lot,
meticulously landscaped lawn in front and along the sides. The size of the lot also allowed for
the parking lot to be behind the building and hidden from view.

Conceptually, the building was meant to expose the inner workings of the paper. A
streamlined expression of every aspect of the paper from conception to the physical paper to
delivery to the public. This was achieved through a long, one-story building sheathed in large
panes of glass. A uniform grid of white steel columns with white aluminum mullions subdivides
the space modularly. A student of Mies at IIT, Myron Goldsmith, embodied the Miesian
concepts of “less is more” and compositions of gridded, pragmatic expressions of structure. His
background in engineering further promoted these notions, the thin proportion of vertical
elements and the roof plane showcases this connection back to the emphasis of structure. The
structure and the plan were tightly integrated into one another in an effort to create a cohesive
and functional space. The structure was designed to be very minimal, supporting all of the
wind and gravitational loads as efficiently as possible while also designating the module seen

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throughout the plan and expressed in the plate glass panels on the facade. The building’s total footprint is 248’ x 93’ and stands 15’ tall. The front façade is made up 12 structural bays subdivided further into 10’4” x 7’6” sections. Each sub-bay is infilled with polished plate glass and occasionally insulated, aluminum panels towards the west and eastern ends. Typically with such a long thin building, a large roof beam is necessary on the perimeter to combat wracking and shearing. Myron’s structure uses rigid, moment connections, which transfer all of the loads from the roof to the ground so efficiently, there was no need for this perimeter beam, allowing the whole façade to appear even lighter. Larger beams extend from the vertical columns towards the center volume of the building, supporting corrugated metal decking, a relatively new material at the time. All of this is exposed on the underside from the interior, eliminating the use of a dropped ceiling. The lights were hung in between each beam, lowering itself down to become even with the bottom edge. The reasoning for this was to allow the sprinkler system to be relatively camouflaged and result in a clean, thin ceiling. The depth of the roof beams in juxtaposition with the roof plane create a sculptural rhythm of structure and lighting on the ceiling plane, further augmenting the extreme thinness of the shell. [Img. 22] The way in which the façade meets the ground also contributes to a feeling of thinness seen in the size of structural columns and the thickness of the roof. The glass stretches all the way to the ground plane; there is no raised plinth or solid foundation visible on the ground plane. The visual transition from square to the lawn to the ground floor is almost seamless, the only indicator

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being a change in material instead of level changes. This grounds the building and physically connects it back to its context.

The plan of the building was based on the flow of work within the paper. Accounts of Goldsmith studying the older offices for weeks, collecting information from the size of workspace, how many employees per section to the proposed growth of subscriptions were huge factors in the resulting plans. The typical workplace organization that Goldsmith observed in the old office he related to “organize confusion,” it was his goal to create a building that did the opposite and optimized efficiency without losing the pleasant work environment.\textsuperscript{70} The long, stretched façade emphasizes the assembly-line process of creating a newspaper that lies just on the other side of the infill glass sheets, but also accommodates a linear flow between departments. The exposure of this inner system was meant to be emphasized, insulated glass, for environmental purposes, was considered but was dismissed on the notion that the reflections would effectively reduce the overall transparency during the daytime.\textsuperscript{71} It was important for there to be clarity during the daytime since this was the time when the paper was most active. According to the archival records and media coverage of the flow of work within the buildings, the printing of the paper occurred during the day simultaneously with the business and writing sides of the paper.\textsuperscript{72} Both office and plant functions occurred in tandem.

The flow of production was the driving force in the interior layout of various programs. The floorplan was gridded just like the façade into the same module of 10‘4” x 7‘6”’. There was

\textsuperscript{70} n.d. "Republic Building Layout." \textit{The Republic Archives.}


\textsuperscript{72} 1971. "The Republic Opening Day Brochure." \textit{The Republic Archives.}
essentially a ring of program, pushed towards the outside of the building, with an inner core for programs, such as the darkroom, etc., that did not need any daylighting. In addition, there was a partial basement level for storage, mechanical rooms, etc. The diagrammatic plan resembles something of a rectangular donut. The full breakdown of program from outer ring, inner ring and basement are as follows:

<table>
<thead>
<tr>
<th>Outer/Transparent</th>
<th>Inner/Core</th>
<th>Basement</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Lobbies</td>
<td>- Conference rooms</td>
<td>- Press reel room</td>
</tr>
<tr>
<td>- Employee lounge</td>
<td>- Darkrooms</td>
<td>- Storage</td>
</tr>
<tr>
<td>- Administrative offices</td>
<td>- Lavatories</td>
<td>- Mechanical rooms</td>
</tr>
<tr>
<td>- Editorial department</td>
<td></td>
<td>- Maintenance shop</td>
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<tr>
<td>- Advertising Department</td>
<td></td>
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<tr>
<td>- Composing room</td>
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<tr>
<td>- Press room</td>
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<tr>
<td>- Circulation</td>
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</table>

The flow from one program to the next was designed to be as efficient as possible. There are two main branches, editorial and advertising copy that run up either side of the building, secondary departments that support both editorial and ad copy are situated towards the center and ends of the building, “close association between departments makes for better understanding and better working relationship.” Moving from west to east, the editorial department took up the south side of the building and advertising the north (running in the opposite direction. It was a highly choreographed overlapping of various entities all

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culminating in the presses. The presses sat at the northeast corner, taking up about 30% of the northern façade. The series of presses were acoustically separated from the main office spaces via a sound attenuating glass wall so as not to disrupt the visual connection. The scale of the presses took up a large section of the façade horizontally, but also filled the entire 15-foot interior height. Add in the bright yellow paint and the meticulous daily cleaning and you have a heavy, industrial piece of equipment transcending into the realm of sculpture and showcasing itself as a significant visual element of the façade. Robert Brown and Myron Goldsmith turned the act of creating a newspaper into a complicated, active, well-sequenced work of art. At night, when the building was quiet (the presses ran during the day, not at night), it further cemented its symbolic, sculptural status by the level of illumination. The structural shell transforms into a lit-up display case, showing off a highly composed interior.

The role of color was used beyond the bold yellow of the presses. The SOM-designed interior created an overall, neutral backdrop, adding in well placed moments of saturated color to call attention to the flow of the program as well as dictate the symbolic dichotomies present within. Between the north entrance on the west end and the presses on the east, there was a bank of workstations. An early example of cubicles, the modular furniture, was set away from the façade and the walls of the inner core to create a central work zone with circulation on either side. In a move that promotes the use of either side of this work zone when traveling through the building, the desks are placed perpendicular to the façade. This move also puts the workers on display as they do their job instead of completely shielding them with the low partition walls. The display of the reporters and other office workers was highly intentional. In another well-placed moment of color, all of the desk chairs are red. Set against the white and
cream structure and walls as well as the neutral desks and partitions, they are highly visible from the outside. The modular system created for the furniture meant that various functional elements and storage solutions could be fitted into each desk area without disrupting the consistent rhythm of partition and opening present in the grouping of desks.

On the walls of the inner core hangs a highly curated, though small, art collection. These works of art add a third instance of color to the interior and continue the theme of a building going beyond its architectural gestures into symbolic meaning. In an effort to further connect with the community it served and tied into the long history of the newspaper, art, including murals of late 19th century maps, recovered signs from the previous newspaper headquarters and collages by Norman Ives utilizing the old wood type blocks, stand out in both scale, content and color.

At the time the building was completed, critics were compelled by the combination of form and program. The *Architectural Record* stated/raved/gushed? in May 1972,

> An exceptional industrial building in terms of its location, its public function, the level of its finishes and the way in which its excitement is generated. Static in form, elegant in detail, the building shell is crisp but withdraws visually to emphasize it contents – especially at night.  

The combination of its prominent downtown location and display of its inner workings, quickly allowed The Republic to become an icon within the city. Its transparency was taken advantage of at night as well as during the day. The physical act of printing the papers daily was mostly

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during the day, but the building was still regularly left brightly lit at night with a uniform grid of lights. The printers were seen as integral to the overall design scheme of the building and were treated more as a functional sculpture than a piece of machinery, as stated above. Workers often discussed the hours spent keeping the machines clean, a real burden within an industry covered in ink.\textsuperscript{76} The machines were on display at all times of day, both from the street but also from the vantage point of the cubicles. Ezra Stoller took several dramatic photos looking down the length of the building from the secretary’s desk all the way to the presses. They are, of course, black and white, high contrast photos, but one can imagine the presence of this bright beacon of yellow.

Due to the continued ownership of the Republic by the Brown family, the Republic is a unique example. The Browns have been excellent stewards of the building overall, essentially all of the original fabric has been maintained, down to the artwork. The only two significant alterations to the building on record include an invisible roof replacement in the 1980’s and the removal of the printing presses in 1997.

The removal of the presses is a real loss. The dynamic activity of the façade was reduced to mere conference rooms, putting on display the passive act of people sitting at computers and in meetings. The loss of the presses was, however, planned from the beginning. Robert Brown estimated that technology and subscriptions to the paper would outgrow and outdate the Goss Presses within 15 years.\textsuperscript{77} Thus, he had Goldsmith design the space in such a way.

\textsuperscript{76} McCawley, Harry. 2012. "Where Have All the Presses Gone?" The Republic. April 16.

way that it could be transitioned over to meeting rooms without major alterations. The removal of the acoustic glass wall was simple, opening up the space immediately for non-industrial use. The module of the façade and plan, and efficiency of structure allowed for interior walls to be highly flexible and non-load bearing, the unit of the space was also such that it could accommodate a number of functions. A concept rooted in Miesian notions of the role of structure creating efficiency in plan. The focus on the structure was further emphasized in the National Register nomination, written in 2012. Within the designation report, the presses were not dwelled on; only a few sentences were dedicated to them. When the report was written, they had already been absent for approximately five years. Their temporary presence within the building was never meant to be static; the building was intended to evolve with the paper as technology, and the status of journalism shifted over time. One could speculate that, as a student of Mies, Goldsmith bought into the same notions of Universal Space. Knowing that the efficiency of a modular system would allow the building to evolve naturally to a number of different uses without implications of the structural proportions and not really caring what the specific program was in his buildings. This highly engineered frame, however, was made special because of how it displayed its contents. Without the contents, it is just not that exciting of a building.

One interesting fact to consider with this particular case study is its near future. Designated a landmark on the national register, the building will shortly be owned by someone outside of the Brown family. Recently, the paper was sold to a media company in Texas.78

Though not officially on the market yet, it was claimed that the new corporation’s intention is to sell the building instead of maintaining it as a headquarters. When all of the furniture and art is removed with possible dramatic shifts in programming, the entire character of the building will change. In terms of architectural elements, there is little beyond the structural façade, only a simple drywall core with punched openings, glass partition walls running perpendicular to the façade for conference rooms and cafeteria space and a gridded system of lights; everything else is furniture. What made this building truly interesting was its embedded programmatic symbolism. It is one of the pillars of the community, performing a civic duty in juxtaposition with the nearby courthouse and city hall. This obligation to the community was rooted in the mission of the paper. In 1873, Isaac M. Brown, founder of the paper stated; “we shall advocate the best interests of our city and country, regardless of party ties or party prejudices, and endeavor to make the Republican a welcome visitor to all who may feel disposed to give us their favors and encouragement.” These ideals were rooted in the design of Myron Goldsmith and are vital to its significance. The loss of this status will not occur solely with the sale of the building and its potential imminent re-use, as journalism changed, and the business outgrew the space, the pre-planned removal of the presses has done the biggest disservice to the richness of the building thus far in its history. When the presses left, the building demoted itself to a less special, well designed, steel and glass shell. The industrial nature of the building, which was the whole point of its transparency, was gone, leaving behind a relatively standard office building.

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Final Thoughts and Lessons Learned

The significance of modern architecture represents two schools of thought, architectural manifestations of technological advancement and the embodiment of important architectural principles and expressions of social values. When considering the use of transparency, all are highly present in arguments for its preservation and adaptive reuse. The richness of many of these buildings lies within the proportions and embedded belief systems of the architects and clients who created them. These are the key elements to identify and preserve as many of these buildings undergo evolving programs and struggle to meet contemporary standards and codes. Because some of these structural experiments utilized materials that are not as durable as older construction techniques (i.e. steel and glass) in the case of most examples of modern architecture, material authenticity is not as important.

Three main questions should be asked when analyzing transparency as a main factor of significance. First is to identify how transparency is used in the original scheme, looking beyond the physical properties (though important in achieving overall transparency) and searching for how the architect’s intent for the entire building is embedded within the use of glass. After understanding how the transparency is used on conceptual, physical and experiential levels to support the architect’s/client’s objectives and determine their significance relative to each other, then we must analyze how this impacts the adaptability of the building. At first glance, given the frequent theme of open plan spaces, which are fundamentally adaptable, it might lead one to assume that almost anything could be placed in the building if only considering the space in a vacuum free from the more theoretical and experiential notions. It is, after all, the
underlying argument of Mies’ *Universal Space*, which is, perhaps one of the most influential theories on architecture of the period (and arguably still seen today).

The foundation of flexible space, however, is limited by the way transparency was used to clarify intent. The relationship of the interior to the exterior is so interdependent that you cannot separate them. The open spaces programming potential is further constrained by other architectural gestures that go beyond the transparent envelope. Architects need to identify what these elements are and how their implementation affects the transparency so they can appropriately reconfigure the interiors elements into new compositions that do not betray the original intent for the building. Our interpretation of what combination of architectural relationships can result in a successful evolution of a historic structure, but this highly subjective endeavor is difficult. We may be preserving a physical fabric within the buildings, but captured within it are highly important manifestations of our culture, symbolic principles, emotions, and experiences. The purpose of creating this framework for identifying aspects of the significance of transparency in modern architecture is an effort to aid preservationists and architects in coming to decisions that can address both the physical and nonphysical characteristics, resulting in thoughtful renovations and adaptations.

**How is transparency used?**

MH – Transparency is used as a marketing tool. The large sheets of glass reveal the function of the building by revealing the interior. This is present in the original intent of the building, designed in such a way to fully display the services within and grab your attention. The building
does not achieve this by utilizing spaces specific to its original program, banking, but was done so in such a way that the specific goods did not matter, it was universal merchandizing realized architecturally. The transparency discloses the vast open plan on the first two levels by keeping the second floor from touching the glazed facades, thus creating one expansive volume on the first two levels. This is further expressed through the exposure of the continued illuminated ceiling on the upper two levels. You immediately understand the inherent connection yet separation of the two types of space; very public and semi-private. It was about connecting the viewer to the volume of the building first, and secondly to the use. In contrast with its heavier, brick and stone surroundings, the interior volume, exposed and illuminated, was meant to capture the views attention and convince them to stop and enter. It does this without reflecting specifically on the inner program; the architecture is what grabs your attention. This moment and method of marketing itself without specifics is what lends 510 Fifth Avenue the ability to display any number of goods and services. While the specifics of the enclosed program are of secondary importance, the way in which they are revealed are subtle yet powerful. The only indication of program originally was seen with the presence of the vault. Its location, right behind the main façade, was a statement of the programmatic transparency of the bank, evoking feelings of honesty and security at the same time.

CH – In the case of Crown Hall, because of the combination of translucency and transparency in the façade, its relation to significance embedded within a material application is not as heavily relied upon as in the other two. Here it was utilized as an architectural statement, an expression of structure and Mie’s ideologies of the state of architecture and architectural
education. Materially, the glass did reveal some aspects of the interior but also served to contrast the school from the surrounding brick and steel buildings, cementing its level of importance above some of the other programs (at least from Mies’ perspective). When walking around the campus today, one cannot help but be drawn to Crown Hall. In this case study, the proportions of glass to structure are integral to the conceptual side of the building. By maximizing the glass, an intrinsically invisible material, the structure is called out and strengthened. Instead of partially burying the steel columns in opaque walls of brick or stone to achieve privacy, Mies chose to use a thinner application of translucent glass. Despite 1/3 of the glazing being sandblasted and therefore essentially opaque, it creates a continuity of material essential to the reading of the structural integrity. You can read the depth and difference in scale of the various vertical supports. The translucent band at the base also helps to call attention to the ceiling plane, which reveals the depth of universal space beyond the envelope. It was meant to be a highly rational large box into which the architecture school would be placed.

R – Transparency was used to expose the program within, similar to Manufacturers Hanover Trust, but its intentions were not a marketing ploy but instead a civic statement. Given the context by the courthouse and city hall, the Republic was a statement about the freedom and the role of the press juxtaposed with the town’s judiciary and executive branches of government. In contrast to the heavy, stone/brick masses, The Republic had a completely open façade facing the street free of blinds and other tools to reduce the clarity of the interior. It was a direct connection and reaction to its politically charged neighbors to the north and east.
This method not only commented on the embedded civic duty of a town paper to report the truth to its subscribers but also allowed Robert Brown to cement his business as an integral part of the community. Typically set in the lesser populated industrial parts of town, newspaper plants hardly ever land in such prominent, central locations.

**How does the application of transparency drive the future potential adaptive reuse of the structure?**

MH – the use of transparency as merchandising for the customer service-oriented banking programming sets the Manufacturers Hanover Trust in position to be easily adaptable into similar service-based programs. The transition programmatically into retail space once it was no longer viable as a bank is logical given the original design intent. The transition shifts from the display of services to the display of consumer goods once Joe Fresh moved in. When looking at all of the architectural elements within the mid-century bank, there was only one element that was specific to this programming, the vault. Once the program of banking is taken away the significance of the vault is diminished to something ornamental rather than a unique combination of function and symbolism.

CH – Crown Hall, because it was a direct manifestation of Mies’ concepts of universal space in tandem with his views on architectural education and its location in the center of IIT’s campus,
it is likely to remain an architectural school. The density of desks and other configurations might be adjusted to meet evolving education models, but all architectural elements will remain fairly static. This is evident in the renovation efforts that were recently completed in 2006. Such reverence was taken to create a physical homage to Mies such that the result is possibly more Mies than Mies (similar care taken with the restoration of Farnsworth House). Because of the level of reverence the architecture community has towards Mies, this is not the case for every work of modern architecture by significant modern architects. While Mies designed a multitude of important structures, Crown Hall is identified as his quintessential work out which birthed his pure manifestation of architectural education, structure, and universal space. The aesthetic values placed on the façade were so rigorously tested and studied that the resulting structure is beyond Mies level of attention to detail. Despite the infinite adaptability of a one-room schoolhouse in plan, the concept is too strongly rooted in its ideological origins to allow for anything other than an educational program and could be argued that its function as a design school is just as significant. In this case, the use of transparency inhibits the building’s adaptability despite being able to accommodate a multitude of uses spatially.

R—With the recent sale of the Home Enterprise Group, with it the Republic Newspaper, it is hypothetically possible that the building will soon be sold and no longer maintain its use as a newspaper headquarters. Without the activity of the newspaper and display of the first amendment, the building is reduced to a well-designed shell. What made the building special was the activation of the interior contents against the backdrop of extremely minimal structure. The ideological statement that made this building unique will have become irrelevant; the
significance of the intent on this site eliminated. Even though the physical properties that make the building transparent; namely the proportion of expansive glass to the minimal structure will likely be maintained, without this strong message the whole reason for the transparency is redundant. When the presses were removed in 1997, the building was reduced from factory to office, already affecting its stance as an architectural expression of the first amendment. The removal of the press was intentionally designed into the modularity of the building, allowing the paper to remove them as their volume needs evolved and the business grew. This incorporated adaptability self-sabotaged the political reasoning for the expansive transparency and acted to pre-determine the structure’s own obsolescence. This is not to say that the entire significance of the building rested on a functional piece of sculpture. The structural expression is highly integral to the building’s worth. The relative thinness in comparison to the vast sheets of glass is a shining example of Myron’s dedication to principles taught at IIT and his background as an engineer.

**What architectural aspects (if any) aid in the reading of transparency beyond the physical properties of glass?**

This question is especially significant in the management of transparency. The underlying purpose of the application of transparency was to convey specific messages by revealing the interior. The combination of architectural elements within were all composed around this central meaning/message. Changing these elements alters the composition and thus the expression of intent/significance.
The Ceiling Plane

In all three cases, the ceiling plays an important role. The generally uninterrupted ceiling is present in all three buildings. Its application, however, achieves a variety of effects.

MH – The illuminated ceiling achieves several things. It unifies the overall volume of the building, directly connecting the large open levels with the smaller upper plates. The amplitude of light emanating from the plane on one hand makes the glass even more transparent, reducing the effect of outside reflections and acts an attention grabber to focus the passer-by on the interior of the space. These two results of the illumination are a direct reflection of the intent for the building to be attention grabbing and welcoming.

The current condition of the ceiling is fragmented. There are currently three different conditions of light on the four ceiling planes with 510 Fifth Avenue. The first two levels, renovated by SOM reveal the constant illumination of the new updated lighting system. The upper two floors boast two different intensities of light, both from each other and the lower levels. The 3rd floor appears to be an unaltered leftover of the original ceilings, lights are inconsistent, out in places, and there is apparent discoloration in the panels themselves. The topmost floor seems to have an altered ceiling, though different from the SOM renovation, the quality of light here is dramatically bluer, standing out from its warmer levels below. This effects the reading of the building as a cohesive whole, though most of the emphasis is placed on the first two levels, the upper portion of the building still needs to be calibrated to match.
CH – The ceiling plane here, because of the translucency of the lower portion of façade, is vastly important to the reading of the space from the outside. Uninterrupted aside from central HVAC chase columns, the grid of lights and diffusers reveals the depth of space behind the ghosted façade. The way in which Mies’ detailed the dropped ceiling to hang 18” away from the façade give the illusion that it is not connected to the structure and instead floating on its own accord. This move strengthens the presence of the steel and augments its identity as universal space.

R – The exposure of the corrugated metal deck that makes up the roof structure on the ceiling plane is significant. Because there is no dropped ceiling, the relative thinness of the structure is augmented on this plane as well as on the facades themselves with the reduced size of the mullions and way in which the glass meets the ground plane. The I-beams holding up the roof are painted in the same beige color and further camouflaged by the placement of lights. The lights are relatively boxy rectangles that reflect similar proportions of the roof beams and hang at the same level.

Color/texture

In these minimal interiors, often bathed in an overall neutral palette, color becomes an incredibly powerful tool. The origins of such neutral palettes are not necessarily important for this discussion, but their role in one way helped to augment the expressed structure, and in
others create a subtle, yet cohesive whole on the interior volumes. Any use of saturated color contrasts with the neutral backdrop calling attention to a variety of situations.

MH – The Bertoia screen and the black granite of the vault walls played a major role. Based on my architectural analysis, they were utilized as tools to grab your attention. The screen, though not as highly contrasting as the vault walls, drew the eye to the back of the upper mezzanine. Additionally, the warm glow of gold in contrast with the illuminated ceilings and other cold materials helped to soften the space. The granite of the vault walls, though technically devoid of the color, contrasted immensely to the white of the floors and lighter surroundings. What was already attention-grabbing due to its proximity to the fifth Avenue façade was heightened by color and contrast. Within the framework of connection to the transparency of the building, the screen completed the visual circulation of a viewer’s compositional journey and the eye-catching vault depicted the programmatic function of the entire space.

CH – The presence of the oak partitions further cues the viewer to the concept of universal space within the building beyond the uninterrupted ceiling plane. The scale, detailing, and placement give it an identity of furniture rather than structure, it was an object in space and therefore did not disrupt the expanse. It separates itself from the envelope visually and helps to promote the illusion of rooms rather than distinct spaces. If the partitions had been drywall or even glass and steel planes, it would have resembled the larger volume too much and marred its singularity; the materiality of wood warms the space and contrasts just enough to make it a separate, transitory entity.
R – Color in the Republic serves a programmatic function as well. Similar to Manufacturers Hanover Trust’s vault, contrast is used to highlight a symbolic aspect of the program. In a shell devoid of all color, structure, ceiling and desk partitions are all the same hue of off-white, the primary colors of the former presses, reporter’s chairs and the various works of highly curated art around the space present themselves boldly. The yellow presses expressed the industrial nature of the space to the outside while the regularly placed red chairs down the rest of the North façade reintroduced the combined human/office nature of the space. The art, in subject matter, is meant to be a direct reflection of various aspects of the community from its founding to the history of the paper itself. Hanging it so prominently behind such a clear envelope and neutral backdrop restates the relationship of the newspaper to the town, it says “we’re here for you!”

*Light Mitigation efforts*

The facts of a completely transparent building necessitate various forms of light mitigation. Reducing glare, heat gain and increasing privacy are possible concerns with transparent structures. Ways in which these issues are dealt with has much to do with orientation, context, and programming.

MH – Manufacturers Hanover Trust employs two methods for controlling light/glare. One utilizes its difference in scale to its direct surroundings; the taller buildings surrounding the 60 ft tall building reduce the exposure to direct sunlight through most of the day and year. This is
one reason, according to the designation report, that Bunshaft was able to employ single paned plate glass walls without sacrificing the interior comfort levels. Additionally, the presence of curtains does twofold; one it provides privacy and blocks out any sunlight that does directly hit the building, but it also has a symbolic significance. Originally, there were curtains on the upper two levels and massive ones reaching the entire height of the first two levels. This, other than its functional purpose was a visual connector of the four spaces into one cohesive volume. It strengthened in tandem with what the illuminated ceiling accomplished. The curtains remain in the current state, but the main levels are devoid of their curtains. The curtains, though their purpose was the shield the interior, enhanced the reading of transparency. Curtains are typically not perceived as architectural elements. Instead, they are read as additive, as if they are a later reaction to the extreme transparency.

CH – The blinds present in the upper 2/3 of the façade on Crown Hall do not hold a direct connection to promoting transparency, in fact, they literally eradicate it when they are down and have the fins closed, closing off the interior volume from the outsider’s perspective (except for at the entrance sequence)

The landscaping surrounding Crown Hall, designed by Alfred Caldwell in conjunction with Mies, aids significantly in the transparency of the building. Theoretically, though it was never fully realized, the trees were vital to the ability to have a naturally ventilated glass box. In the warmer months, the close proximity of the trees would shade the clearstory sections of façade and keep direct light from entering the interior. On the reverse, in the colder, winter months, the lack of foliage would allow for light to enter the space, naturally warming it during
the day. This natural use of landscaping has dramatic effects on the interior environment of the building as also lessens the dependence on the blinds, which negatively impact the reading of the transparency.

R – The presence of blinds on the south, east and west facades, and absence on the main, northern façade is not just an environmental reaction to the path of the sun. It also strengthens the political statement the building is making. As described earlier, the north façade faces the main street and thus the major branches of civic power in Columbus. This juxtaposition and absolute clarity of the façade are a strong statement about the stance of the paper in the community.

**Final Thoughts & Recommendations**

Each building answers these questions in a different way. This not only serves as evidence that would prohibit the implementation of applying homogenous restrictions and policies but also reestablishes the need for looking beyond the physical properties of the façade when preserving/adapting these buildings. Utilizing transparency as a theme of significance brings into question nuances that reach beyond the physical and into the symbolic and experiential. If architects were to freeze the façade by repairing/bringing it back to its original (or sometimes better) condition, thereby preserving the literal transparency and ignore the other architectural aspects that may not appear to connect to the transparency of the façade, these critical relationships could be lost. The result would be a series of glass boxes that from an engineering perspective are significant, but the original intent and aspect that makes these
building truly interesting would be disfigured. Identifying the link of glass to programmatic intention as well as the compositional gestures to support this intent are just as important as the glass itself. Careful study of the origins of the building, its context and afterlife will serve as vital tools to preservationists and architects endeavoring to preserve/reuse transparent post-war modern architecture.

Within the realm of preservation, this is important as preservationists need to shift their thinking when approaching modern architectural works. The decisions making needs to extend into the interior composition, making the typical trajectory of process seen in façade-driven projects ill-suited to the task. Larger questions and significant relationships need to be identified and analyzed to determine what appropriate changes are in order to facilitate new and evolving uses.

There is no absolute right answer when tackling these projects. Adaptability is not an absolute action of rearranging physical components in order to achieve program but has deeper programmatic and conceptual considerations that are augmented by the physical realm. As stewards of these buildings today, our argument for relationships of significance becomes a subjective process based on interpretation. Despite original intentions condoning constant evolution of the interior spaces by the architect, and client, as preservationists and stewards of these buildings today we are charged with maintaining the integrity of the original composition, either aesthetically, materially or conceptually. By choosing one approach over another, certain elements will be lost for the sake of others. The preservation of modern architecture, due to the fragility of the materials used, often becomes questions of an aesthetic and conceptual nature. The argument that wins, in the end, will likely be a direct reflection of the
contemporary attitude of the time in which it is made. Programming, atmosphere, quality of light, etc. all begin to play interdependent roles towards achieving the final composition.

From the three case studies conducted for the purpose of this thesis, one can derive general guidelines applicable to the archetype as a whole without diving into highly specific regulation. By searching for consistencies across the three building’s origins and evolving contemporary histories, several elements reveal themselves as integral to the reading of the structure. Due to the fact traditional preservation policies do not necessarily apply to the special circumstances seen in transparent modern architecture, additions need to be made in order to protect these spaces. The architectural features, found on both the exterior curtain wall façade and interior space beyond, should be included in any adapted preservation policy. As we have seen, the impact and significance of transparency transcends beyond the physical façade and is embedded in program, interior architectural gestures, and context. While every project is different, there are certain commonalities present that could be captured within adapted policies. Identifying the major elements under the generalized umbrella of regulation could have a domino effect of protection onto the smaller ones not specified in explicit policy but which are still integral to the composition. Three main components reoccur throughout the exploration of case studies; the ceiling plane, the grid, and lighting.

The ceiling accepts a larger role in transparent architecture than more traditional, opaque styles. It is, in effect, a part of the façade as a whole. Typically, it is the only opaque plane and serves to identify the boundaries of the space within. Because of the repeated presence of concepts of universal space and more generalized open spatial planning in mid-century modern buildings, the perception of the open plan is highly integrated into originating
programmatic concepts. By protecting the ceiling plane, the openness of the space is also maintained, as well as those elements which support it structurally and visually.

The presence of the grid on the façade manifests itself throughout the entire building. The vertical structural grid regulates proportions, positioning and relationships throughout the entire building, inside and out. Additionally, the scale of the sheets of glass effects the reading of transparency, reducing this scale effectively reduces the transparency. Preserving the grid also protects the interior alignments of significant elements such as lighting, interior structure positioning, and scale of openings as well as some of the minute details such as seams in stonework that can be contributing features.

Lighting is integral to transparent architecture. On one hand it effectively increases the transparency by making the interior brighter than the exterior, but also is a tool to unite the interior volume as one cohesive space. It’s consistency in temperature and intensity is key to maintaining this reading. Patchwork jobs lead to disjointed compositions and can overshadow and undo much of the careful preservation work done in other parts of the building.

By incorporating these three categories into preservation policy, buildings which enlist transparency as a major character defining feature should have the additional layer of protection that can keep them from irresponsible renovation. The 3 categories are general enough to capture the wide range of use transparency has in modern architecture. Existing emphasis on maintaining the original intent embedded within current policy should do a good job of protecting other significant features within the building. This, however, hinges on the inclusion of interior spaces in general designations for this archetype. The presence of separate
designations for interior and exterior is not applicable to transparent architecture and puts the building at risk.

Careful study of the significance of transparency of a building and its relationships with interior elements in addition to expanded preservation policy is required as the building stock eligible for and in need of designation becomes more and more transparent.
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Organized By Chapter

INTRODUCTION


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**THE REPUBLIC**


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3. Renovated state of Manufacturers Hanover Trust. Post reconfiguration in retail. October 10\textsuperscript{th}, 2013

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5. Manufacturers Hanover Trust Original Ground Floor Plan
Drawing by Makenzie Leukart
6. Manufacturers Hanover Trust Original Mezzanine Floor Plan
Drawing by Makenzie Leukart
7. Manufacturers Hanover Trust Original Cross Section
Drawing by Makenzie Leukart
PRE-RENOVATION
2009

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POST-RENOVATION
2012

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