The City of Seattle

Landmarks Preservation Board

Mailing Address: PO Box 94649, Seattle WA 98124-4649
Street Address: 600 4th Avenue, 4th Floor

<u>REPORT ON DESIGNATION</u> LPB 626/17 REV

Name and Address of Property: **Shannon & Wilson Office Building**
3670 Woodland Park Ave. N / 1101-1111 N. 38th St.

Legal Description: Plat Block 3, Lots 1-2-3-4 Edgemont Addition to the City of Seattle, according to the plat thereof recorded in Volume 4 of Plats, Page 86, in King County, Washington.

At the public meeting held on September 6, 2017 the City of Seattle's Landmarks Preservation Board voted to approve designation of the Shannon & Wilson Office Building at 3652-3670 Woodland Park Avenue N / 1101-1111 N. 38th Street as a Seattle Landmark based upon satisfaction of the following standard for designation of SMC 25.12.350:

B. *It is associated in a significant way with the life of a person important in the history of the City, state, or nation.*

C. *It is associated in a significant way with a significant aspect of the cultural, political, or economic heritage of the community, City, state or nation.*

D. *It embodies the distinctive visible characteristics of an architectural style, or period, or of a method of construction.*

E. *It is an outstanding work of a designer or builder.*

F. *Because of its prominence of spatial location, contrasts of siting, age, or scale, it is an easily identifiable visual feature of its neighborhood or the City and contributes to the distinctive quality or identity of such neighborhood or the City.*

DESCRIPTION

The Setting

The site is located at the southeast corner of the intersection of North 38th Street and Woodland Park Avenue North, two blocks east of Aurora Avenue North/Highway 99m and approximately five blocks north of Lake Union’s northwest shoreline. The commercial core of Fremont is approximately five blocks to the west, on the opposite (west) side of Highway 99/Aurora Avenue North, and the commercial strip of Stone Way North is one block to the east. This area is also in the southwest part of the Wallingford neighborhood. The site is near the foot of a slope that rises up to Aurora Avenue North. This topographic condition is visible along North 38th Street and nearby Bridge Way North.

A separate lot to the south of the Shannon and Wilson building contains a paved parking lot and an older wood-frame warehouse, and to the south of it there are newer and older multi-family buildings on Woodland Park Avenue North. These and several other older buildings in the nearby surroundings were cited in a 1975 urban inventory for potential significance.

The immediate neighborhood is undergoing considerable development. To the northwest and north there are several architectural offices – one housed in a modest mid-century building at 1050 North 38th Street (1946), and the other in a new three-story building at 3800 Woodland Park Avenue North (2016). To the west there is a multi-story warehouse and office building, occupied in part by Reed Painting at 3668 Albion Place North (1960), while to the northeast there is a new, five-story mixed-use development, the Bowman, at 3801 Stone Way North. To the east of the Shannon and Wilson property there is a noteworthy mid-century, early Modern style Stoneway Electric building at 3665 Stone Way North (1946).

The Site

The site is a relatively flat rectangle of 22,880 square feet with a slight downward slope of approximate 5’ from the northeast corner to the southwest corner. Southern and eastern portions of the property were developed for parking and vehicle access, which was integral to the use of the office building. The site is made up by four lots, 1-4, that create a single parcel. It is separate from one to the south (lot 5), which was also owned by Shannon and Wilson and developed by the same company for parking.

The property measures 130’ from west-to-east and 176’ in the north-south direction. Site development is shown on an original plot plan from 1960, and on a later one from February 1990, both available from SDCI microfilm records. These plans show a series of triangular-shaped plant beds, enclosed by curbs, along most of the eastern property line to form an angled row of 14 parking stalls along one site of the site. A covered loading dock was accessed from the southern part of the site.

A chain link fence separates the site from the Stoneway Electric property to the east, while it is open to the adjacent parking lot to the south. (Additional parking is provided on this separate lot to the south for 26 parking spaces. The combined paving created an L-shaped lot with driveway access from both streets. However, the parking lot area, on Lot 5, is not included in this nomination.). At the southeast corner of this lot there is a flat roof, wood-framed and clad, 50’ by 24’ 2,123 square foot warehouse building, with a 7.5’ by 20’ wood deck, and small 15’ by 70’ on-grade extension. Constructed for storage, and recently used as a photography studio, this small accessory building has little impact on the design or presence of the nearby Shannon and Wilson office building.)

The landscape design for the site of the Shannon and Wilson Building, which apparently followed the completion of building construction, appears to have been inspired by Japanese plant materials and gardens. Dense plantings were positioned on both sides of the pre-cast concrete screen wall that surrounded the building's perimeter north and west walls, and were set also within curb-lined plant beds on the east and south sides of the parking lot and within the narrow setback and parking strip along the streets. For decades these trees were carefully maintained and precisely pruned using Japanese gardening techniques. In the last two decades the trees have assumed more natural forms.

Behind the screen walls and within the shallow setback, there are some large concrete pavers, set at angles to the public sidewalk and the building footprint, along with landscaping of shrubs and trees. Plant and tree species include a variety of northwest natives, some of Japanese origins, including Mugo Pines, Ginko trees, rhododendrons and bamboos. Pacasandra used as a ground cover.

In addition, street plantings, consisting of turf and deciduous trees, have been added in the last decade in the parking strip along Woodland Park Avenue North.

The Building's Structure and Exterior Features

The one story, 9,900 square foot Shannon and Wilson office building is situated as an object at the northwest corner of the property. Original screen walls surround the building's primary north and west sides along with a return at the southwest corner. These walls consist of perforated concrete blocks, stacked to heights 8'-4", which are cited as "concrete sun blocks" on the original 1960 drawings. The open blocks are arranged on to expose the open voids, and oriented roughly 30-degrees to the perimeter of the building to filter direct sunlight. The screen walls create a level plane, finished with a continuous concrete cap. Portions of the wall along the west side, where the grade drops, are supported by cantilevered extensions from the foundation, which make them seem to float above the grade. This site feature is integral to the building design. The screen walls and projecting roof overhangs shade and protect large windows on the two primary facades, which rise from low sills to the underside of the roof. In a few areas the screen walls have been removed to provide more open and direct access to the building's north and west entries.

The building's structure is made of a reinforced concrete frame with concrete block infill between the perimeter columns. In size it is roughly 105' by 88' with a total of 7,290 square feet. The roof is a dramatic warped-panel concrete roof shell – a modular arrangement of segments that both forms the roof plane and extends beyond the exterior walls to shelter the perimeter space. This form creates a series of triangular-shaped overhanging extensions - each corresponding to a roof module: three long bays along the north and south facades and seven shorter bays along the east and west.

Each roof module consists of four warped panels – called hyperbolic paraboloids. A hyperbolic paraboloid is a warped surface (gaining curvature in two directions) generated from the rotation of straight lines. This form is particularly useful for thin structures, as the double curvature makes the surface extremely resistant to buckling, yet can be formed with only linear pieces of dimension lumber.

Each if the concrete modules consist of the shell spanning between two columns, then cantilevering halfway to each adjacent column. These are arranged in a pitched gable that creates a 14'-10" x 29'-2' space covered by only 2.5 inches of concrete. Horizontal tension-rods located 8'-0" above the finished floor resist the outward thrust from the gabled module. Concrete columns (dropped 4' below the ridge lines of the shell) support the concrete shell.

The concrete block infill between the outer framing members is large in scale, and is laid up in a simple stacked pattern as was typical with Modern era building construction. This material is most visible on the south façade; in other areas the building walls are somewhat obscured by a screen wall "wrap" of perforated block. The stacked CMU pattern is quite visible below entry sidelight windows on the west facade and near the northeast corner.

On the original engineer's formwork sketch, a note reads, "The shell surface (the hyperbolic paraboloid) is defined by straight lines each way." Continuing, they read "It is suggested that one or more re-usable forms be made which can be moved from pour to pour." This economical, repetitive use of formwork was vital to the economy of the building.

Notes on the original structural drawings, "Roof Construction Procedure," give a sense of the efficiency of the shell design and the construction method, which relied on the skills of both the structural engineer and general contractor and their close partnership in the process:

> Contractor shall construct roof in accordance with one of the following procedures. In no case shall the tie forms be lowered until tie bars have been tightened to the req. tension & until conc. has reach req. f.c. strength.

1. Contractor shall build (2) typical shell panel forms then starting at lines 4 & 5 at either the East or West sides pour & move to both the North & South. P4 panel forms at end of row shall be lowered simultaneously. After completing one North-South row Contractor shall move forms to lines $ & 6 in next row & repeat all of above. Repeat again for third row.
2. Contractor shall form &pour one complete North-South row at either the East or West sides. Both P4 end panels shall be lowered simultaneously. Interior panels may be lowered one at a time. The adjacent complete N-S row shall then be formed and poured repeating all of (2) above. Repeat again for third row.
3. Contractor shall form entire roof & pour in one or more pours. P3 and P4 panel forms shall be lowered first.
4. Contractor may use other methods of constructing roof after receiving Engr's approval of proposed method.

Seemingly hidden within the building is its integral seismic-force resisting system. Concrete masonry walls attach to the roof through steel rods and are anchored to a seismic-force resisting foundation system. This central core partitions several bays near the center of the building. These walls would carry an earthquake's inertial forces from the roof to the foundation. Despite the openness of the building's floor plan, this solid central core has left the building seismically sound through numerous earthquakes in Seattle.

In a Modern response to the site conditions, the street-facing facades are composed with only a few materials: concrete block, aluminum frames and clear glazing, each to address different internal functions. Tall panels of glass within aluminum frames extend from bulkheads to the underside of the pitched roof plates along the west and north facades providing ample daylight to office occupants, while the east and south facades contain only large clerestory windows, which also extend to the underside of the roof form to illuminate the labs and storage spaces. The aluminum window frames are anodized, with a natural silver colored finish, along with contrasting dark-colored metal strips in the vertical supports between the window sections.

The perforated concrete blocks that make up the screen walls partially shade the glass walls, and allow a varying quality of day light at an indirect angle to enter interior spaces. This arrangement encourages more indirect, north daylight rather than glaring direct west daylight. The blocks create a distinct pattern and texture along the face of the building, operating in tandem with the roof overhang. The screen wall sections along the level north side are set at grade, while those along the sloping west side are held proud of their foundations. This detail presents the screen wall as a floating band. At night, when light from within illuminates the ceiling, the roof also seems to float above the building sections.

The Interior

The interior is a series of lofty spaces. The current impression, with the underside of the roof exposed at the ceiling, is tent-like. This unusual spatial quality has is emphasized by the current lighting scheme, with indirect light fixtures. The original interior of the Shannon and Wilson Office Building provided small offices and conference spaces, with administration activities arranged in rooms along the primary north and west sides, and smaller individual offices along the southern end of the west perimeter wall, adjacent to a large, open drafting room, illuminated by clerestory windows.

Original rooms containing laboratories were placed in the center along with toilets and other service rooms, while a single large storage space and loading dock filled most of the area to the southwest. Interior spaces were accessed by a double-loaded, L-shaped corridor with a staff entry at its east end. Public lobby and reception functions were held in a single room near the center north end, while an open loading dock was provided in the two easternmost bays along the back (south) facade.

In ca. 1990 the building's new occupants – Sorton Vos Architects and Robert McNeel– remodeled the building for their own use. These occupants were, like Shannon and Wilson, the property owners. The building's continued careful use and maintenance reflects their continued stewardship and pride.

According to SDCI permit drawings 0f 2/6/90, by Sortun Vos Architects, a few changes were made to insert offices and a conference space into the former storage room on the building's east side and to create a new tenant entry near the north end of the west facade. In addition, a new covered entry was established on the east with a steps and handrails and a concrete deck of approximately 10' by 50'. This deck defines a single drive aisle in the adjacent parking lot. As previously noted site work and new entries resulted in removal of three discrete sections of the orignal screen wall. (The drawings note that in some areas the original pumice block units were salvaged and used to a few areas of infill.) New entries feature aluminum frame storefronts, similar to the original entry, each with a single glazed door with sidelights and fixed transoms.

At some point in the past the underside of the roof form was exposed by removal of suspended ceilings. Current indirect light fixtures, which allow for a reflected ceiling, emphasize this dramatic aspect of the original design. At night, when the roof form glows from the clerestory windows, it is particularly expressive.

Other changes to the original building include several small windows inserted into the secondary perimeter wall sections below the clerestories. These windows are quite small in comparison to the original, large glazing sections, and the new frames and sash are white. They appear to have been designed to distinguish them from the original fenestration.

Given the limited nature of the changes made to the building in the last 57 years, and the sensitivity of the newer design elements – such as the windows in the south façade and exposure of the underside of the roof – the Shannon and Wilson building is remarkably intact example of mid-century Modern era, think shell design, and it retains its architectural and historical integrity.

SIGNIFICANCE

Development of the Surrounding Neighborhood

The blocks between Stone Way North and Aurora Avenue North, to the south of Bridge Way North, which include the Shannon and Wilson property, are part of lower Wallingford although they were once part of the early bridgehead community of Fremont. This area was separated from Fremont's commercial core of Fremont, approximately five blocks to the southwest, when the George Washington (Aurora) Bridge was completed in the early 1930s. (A recent city-sponsored historic survey of the nearby Wallingford neighborhood by architect Tom Veith was limited to the areas east of Stone Way North, while another historic survey of Fremont by Kate Krafft studied only the areas to the west of Aurora Avenue North.)

The surrounding area developed in the late 19th century after Corliss P. Stone, a Vermont native and an early Seattle settler and mayor, acquired approximately 232 acres of land on the north shore of Lake Union and west from Albion Place North in 1884. By mid-1891 Fremont had been annexed to the City of Seattle, and property at 39th Avenue North and Linden Street North, was donated for construction of a new school. The present B. F. Day school is located about four blocks northwest of the intersection of 38th and Woodland Park Avenue North.

Infrastructure and transportation routes were soon established. The Seattle Lake Shore and

Eastern Railway laid its tracks in 1887 from downtown Seattle's waterfront to Ballard and eastward along the northern shore of Lake Union, followed by industrial development along much of its route. An electric street railway line was built from Fremont, which led north to the Green Lake area via Pearl Avenue (later re-named Woodland Park Avenue). This streetcar line aided the neighborhood's residential development in subsequent decades, providing convenient transportation for residents and workers in the neighborhood and to other parts of the city. Residential construction followed. As shown on 1904-05 Sanborn Insurance Maps, the densest area of development was along Linden, Aurora and Whitman Avenues (Krafft, p. 13-15).

Woodland Park Avenue North, which once accommodated streetcar lines, recalls this early transportation system by the unusual width of the paved right-of-way. In 1941 all of the city's remaining electric streetcars were eliminated, and replaced by buses. (Until its demolition in 2006, and replacement by a new townhouse development, the former Fremont Street Railway Substation, built by the Seattle Electric and Power Company in 1902, stood nearby at 3650 Albion Place North.)

In 1914 the Northern Pacific Railway constructed a trestle from the north edge of Westlake Avenue to Fremont, followed by a new drawbridge in 1916. Lumber and shingle mills continued operating in the area, using Lake Union and the Ship Canal as transport routes for logs until the 1930s. Other industrial businesses in the area included an iron works, and tannery and machine shops, along with retailers and services that served the neighborhood.

Transportation continued to directly affect the immediate surrounding with erection of the George Washington Memorial Bridge and development of Aurora Avenue North. This construction resulted from an effort to build a state highway and provide direct connection to downtown from the north-south "speedway" along Green Lake. The highway aided the city's residential development to the north, and "was part of the national phenomenon of highway construction to accommodate the growing popularity of the automobile. The opening of the bridge (in 1932) had an immediate impact, as Aurora quickly came to be lined with auto-oriented businesses including gas stations, auto repair shops, used car dealers and auto wrecking yards" (Sheridan p. 7).

Construction of Aurora/Highway 99 impacted pedestrians and vehicles traveling east-west. In the area south of North 36th Street, the highway rose above the grade-level topography and city streets to meet the bridge, allowing vehicular travel and continuity of neighborhood development along North 34th, 35th and 36th Streets, and Stone Way. Access to the Fremont neighborhood's commercial center and from the bridge was provided by two diagonal streets -- Fremont Way North on the west and Bridge Way North on the east. In 1936 a pedestrian overcrossing rose over Aurora Avenue at North 41st Street to link parts of the neighborhood and provide access to the nearby school.

Albion Place North and Woodland Park Avenue North are located two and three blocks east of Highway 99, respectively, in a sloped hillside area with a total grade change between the two streets of approximately 10'. An early Seattle District Map of 1891 and another map of the same date indicate limited development of the street grid in the four to five blocks to the east.

This was likely a response to the presence of wetlands and an early streambed that was located generally along the route of Stone Way North into Lake Union.

Businesses along the waterfront in the late 1920s included Stoneway Hay and Grain, Edgewater Fuel Company, and Bellingham Coal. A stone distribution yard was located at 36th and Stone Way around this time, and a gravel case (extraction) yard on 34th near Interlaken Avenue, which later became the city's north end transfer station. Development along major arterials, such as 34th and 35th Avenues and Stone Way North in the 1930s to 1950s included gas stations, auto repair garages, and light industry such as commercial bakeries.

A natural gas works operated in the nearby Wallingford area from 1906 to 1956. Its presence and noxious odors reinforced the blue-collar nature of south and southwest Wallingford for decades until the plant was decommissioned and made into a park in the early 1970s. After World War II, a Safeway supermarket with large parking lots was built nearby at North 40th Street, and a transfer station was constructed in nearby. Stone Way emerged as the location for a number of drive-in services (fast-food, dry cleaners, a bank), along with construction-related businesses and supply houses. Some of these businesses, such as Stoneway Electrical and Daly's Paint remain, though the past decade has seen the demolition of many small scale residential, industrial and commercial buildings and their replacement replaced by five to six story, multi-family and mixed-use buildings.

A number of residences in the immediate surrounding blocks have been recognized in historic surveys of the area. A recent survey of Fremont identified three nearby dwellings as significant due to historic associations with individuals in the neighborhood (Krafft, 2010):

- Residence of John Braida. 3408 Woodland Park Avenue North (1901/1915)
- The Steinert Apartments, owned by local judge William J. Steinert, and designed by architect John A. Creutzer, 3632 Woodland Park Avenue North (1926)
- Residence of Dr. Howard P. Miller, 3636 Woodland Park Avenue North (1900, 1914).

Five nearby residences were cited in the Historic Seattle-sponsored historic survey and urban inventory as potential landmark properties (Nyberg and Steinbrueck, 1975). The historic inventory map also identified buildings that were "significant to the community" including three Modern style commercial structures: the Shannon and Wilson Building (1960), and its neighbors – the adjacent Stoneway Electric Building (1946), and the office/warehouse to the west at 3668 Albion Way North (1960).

At the time of the Nyberg-Steinbrueck survey the Shannon and Wilson Building was only 15 years old, and thus it was not eligible for consideration as a local landmark or for listing on National Register of Historic Places. However, a recent Washington Department of Archaeology and Historic Preservation historic property inventory form of February 2, 2015 indicates that the property appears to meet the criteria for National Register Listing (Houser, DAHP HPI Survey, "Nifty from the Last 50," Recorded 01/19/2006).

Shannon and Wilson, the Original Building Owner

The original building owner and occupant was Shannon and Wilson, identified also as the legal owner as S&W Properties and SUM Partnership. Shannon and Wilson is a specialized engineering and consulting firm that was established in Seattle in 1954 by two recent graduates of Harvard University, William L. Shannon and Stanley D. Wilson. Both men were pioneers in the field of soil and rock mechanics and foundation engineering. In founding the company in 1954, the two men made significant contributions to the study of landslide stabilization, the foundation construction of tall buildings and earthquake engineering. Shannon and Wilson commissioned NBBJ to design the building and had it constructed in 1960. The company was the building occupant until ca. 1990, when it sold the property.

The company of Shannon and Wilson, Inc., remains an active geotechnical, earth and environmental consulting firm. In the past six decades it has completed over 15,000 projects in the Puget Sound region and throughout the nation. Its Seattle corporate office has a staff of over 100 engineers, geologists, hydrogeologists and environmental specialists. In recognition of its history the company sponsors scholarships, fellowships and lectures at the University of Washington, University of Alaska, Missouri University of Science and Technology, and University of Illinois (Shannon and Wilson website).

William L. Shannon received a Bachelor's Degree in structural engineering from the University of Washington in 1934, before accepting a full scholarship to study soil mechanics at Harvard University, graduating in 1936. Shannon studied under industry leader Arthur Casagrande who shaped the modern field of soil mechanics. Casagrande started the Soil Mechanics program at Harvard University, researching the fundamental properties of soil including classification categories, seepage through the earth, and shear strength.

After graduation, while working for the Army Corps of engineers, Shannon was invited to help out on a research project and guest lecture at Harvard in 1947, at which point he met Stanley D. Wilson. Wilson had studied at a community college in California, before serving as a second lieutenant in the Army Corps of Engineers and coming to Harvard for a master's degree. Wilson was teaching as a graduate student at Harvard, and the two got to know each other quite well.

In the early 1950s, as both men were searching for new opportunities Professor Casagrande suggested that Shannon & Wilson start a firm together on the west coast – both were interested in starting in Seattle. In 1954, they founded the firm of Shannon & Wilson. William Shannon eventually assumed the more financial/ managerial side of the firm, while Stanley Wilson became the technical expert.

The firm's first office space in Ballard, where they built a testing laboratory in the basement. They used lathes and other fabrication equipment to build devices and components to test the properties of different types of soils – tests they simply saw a need for, and started on their own. One of the firm's early projects was the pavement and foundations system for an expansion of the Renton Airfield, and several missile silo sites for the Minuteman and Atlas

Missile programs. Shannon and Wilson soon began to market their expertise to structural engineers in the design of complex foundation structures. As buildings became taller and more ambitious, engineers found that their liability insurance did not cover foundation failure – necessitating an expert, subcontractor in a field that would come to be known as geotechnical engineering.

In 1959, with business booming, Shannon and Wilson began to envision a new office building for themselves and their company. With substantial revenue, the pair decided to invest in their own building and effectively rent the building to the firm. Anticipating future growth, they planned for a building twice as big as they currently needed. They paid cash for the building from their partnership, and shortly after the building was completed, established Shannon & Wilson Incorporated. Recognizing their emerging role as a consultant to architects and engineers, Shannon & Wilson strategically hired the largest architecture firm (NBBJ) and structural engineering firm (Worthington Skilling Helle & Jackson) to design their building. As only office space, Shannon & Wilson offered the designers complete freedom in their design – a rare opportunity in the design field.

Shannon and Wilson's Seattle headquarters is presently located nearby in Fremont at 400 North 34th Street. It also has offices in the Tri Cities, Portland, Anchorage and Fairbanks, Denver, Sacramento, St. Louis, Los Angeles, Madison, Wisconsin, and Jacksonville, Florida. By 1983, Shannon & Wilson was ranked 195th among the *Engineering News Record's* Annual Top 500 US Architectural/Engineering Design firms by revenue Over 100 engineers, geologists, hydrogeologists, and environmental specialists staff its Seattle office, offering services in earthquake and geotechnical engineering, environmental and hazardous waste management, natural resources, geology, hydrogeology, instrumentation, underground, and railroad consulting to federal, state and municipal clients, along with contractors, private property owners and architects and engineers. Gerard Buechel is the company president and manager of the Seattle office. (Some information in this section is derived from the Shannon & Wilson Oral Histories Project of October 1996 – January 1997, Shannon and Wilson website).

Construction History

A site plan from the early 1950s indicates that prior to the building's construction the site contained a large single-family house, situated near the center of the north lot, along with a single-car garage near the western edge. The balance of the property was landscaped with turf and mature trees, among them elms and a Monkey Tree.

The King County assessor's property record of 1937 cites the owner of this dwelling and of Lot 1, which makes up only a portion of the current four-lot parcel as "Sherman." (Other records indicate the four lots on Block 3 in the Edgemont Addition were later merged.)

All of the prior structures and landscape features were removed when the general contractor, W. G. Clark, began on the current building in January 1960 (Seattle Times, February 28, 1960). At that time the tenants in the building, presumable the former house, were identified at that time as the Slope Indicator Co and Geo-Recon.

(The south portion of the property contains a wood-framed warehouse structure that dates from 1922. Records indicate that Shannon and Wilson utilized it for storage, while it recently contains a photographer's studio. A small extension from this structure was added at some time, which is also used for storage. The warehouse assembly and Lot 5 are not included in this nomination.)

Modern Style Architecture in Seattle

The building is a fine, and intact example of Modern style architecture in post-war Seattle. This style was conceived originally in Europe as a reaction to historical revival forms. The Modern movement began between World Wars I and II with the optimistic belief that science and new industrial technologies could produce a genuine "modern age architecture" of universal principles. Projects by architects Walter Gropius, Mies van der Rohe and Le Corbusier embodied this revolutionary philosophy. The evolution of Modern architecture, exemplified by the International Style, dominated the design professions for nearly five decades, from early 1920s to the end of 1960, before moving into a variety of architectural expressions, such as Brutalism.

The first use of the term "International Style" to describe Modern style buildings was at the 1932 exhibition at the new Museum of Modern Art in New York. The exhibition highlighted aspects of Modern style architecture as a new direction and attitude. As defined by Le Corbusier's "Five Points", its formal principles included architecture as volume, which dealt with the creation of space by floors supported by a columnar structure, and allowed for flexibility in plan; regularity, expressive of the structural ordering of the building, rather than axial symmetry; and avoidance of applied decoration in an attempt to eliminate superficiality.

In the years after World War II Modern style architecture, particularly in the United States, became widespread. While Europe largely remained in the midst of general post-war destruction and economic deprivation, America was experiencing unprecedented economic growth. This prosperity was coupled with the availability of new materials and construction techniques sparked a new building boom. Architectural publications in the northwest and nationally focused on Modern buildings and their architects and engineers. At the same time design education was changing across the country, following the lead of German émigrés from the Bauhaus, whose work emphasized new approaches to design and new forms of architecture. In Seattle the University of Washington's Department of Architecture underwent a radical change in the 1940s with the earlier Beaux Arts curriculum giving way to Modernism.

During the early period construction of Modern style buildings was limited in the Northwest by provincial tastes, a continued interest in Moderne and Art Deco style designs, and the debilitating impacts of the Depression. Demand rose at the end and immediately after World War II for quick new construction, functional designs, and manufactured off-the-shelf building components. This cultural and economic environment set the context for Modernism in the post-war era.

By the end of World War II there was built-up demand for new public buildings and housing. Municipal and regional governments across the nation responded with construction of new schools, hospitals, libraries and civic buildings in the late 1940s and early 1950s. Commercial buildings and downtown skyscrapers followed. Modern style buildings in Seattle that represented this trend include the former Public Safety and Municipal Building, and Downtown Library, and the Norton, Lloyd and Washington Buildings. During the same era many smaller-scale Modern buildings were constructed, such as the Susan B. Henry (Capitol Hill), North East and Southwest Libraries, and the Seattle Park Department Headquarters in Denny Park.

In the Northwest, Pietro Belluschi, working in Portland, and Paul Thiry, of Seattle, had already gained national recognition for significant Modern work before the war, and Thiry was a leader in transforming International Style modernism to fit the Northwest. The "Northwest Style," a regional variant of Modernism, was adopted by a new generation of Seattle architects, many of whom had initiated their careers with suburban residential projects. Northwest Regionalism emerged in residential design as architects produced designs that expressed new concepts of living with open plans, flowing exterior and interior spaces, and the integration of structure/engineering/craftwork in wood framed and post and beam buildings.

Architects designed small structures for emerging professional services in the post-war decades, including professional design offices and medical clinics. By the 1950s larger corporate architectural practices took over large commercial and business projects, mostly in the downtown area, with building designs influenced by national tendencies, notably Miesian tradition of steel frames and glass curtain-walls, such as the Norton Building.

Regional architectural and structural design advanced with the development of the 1962 Seattle World's Fair. The planning and the buildings of the Fair embodied faith in technology and progress, and their construction resulted in a number of exuberant, tectonic structures, such as the Key Arena, Pacific Science Center, Space Needle and Monorail. The fair's legacy included expressive building technologies, such as thin shell concrete roofs, pre- and post-tensioned and tilt-up concrete frames and prefabricated and manufactured building components.

Seattle's Modern architectural legacy is represented by the buildings within the Seattle Center grounds, and by landmark public libraries, such as the Magnolia, Lake City, and NW branch buildings as well as by downtown mid-century skyscrapers, such as the landmark Norton Building, and the Logan Building and the Sea First Tower. In addition, there are unique small-scale professional office of architects and engineers, such as the Shannon and Wilson Building, as well as medical clinics from the 1950s and 1960s. While some of these feature timber and wood framing, others utilize expressive concrete frames and thin-shell roof forms. Examples include the following:

- NBBJ Office, First Hill (1950-1951, demolished) **(Figures 12 & 13)**
- Canlis Restaurant, 2576 Aurora Ave N (Roland Terry, 1950) **(Figure 21)**
- Community Psychiatric Clinic/Bush Roed Hitchins, 2009 Minor Avenue East (1963)

- Steinhart Theriault & Anderson Office, 1264 Eastlake Avenue East (1955-1956)
- City Light Control Center, 157 Roy St (Harmon, Pray & Dietrich, 1963) **(Figure 22)**
- Zema Office and Asian Gallery, 200 East Boston Street (Gene Zema, 1953-61)
- Episcopal Church of the Redeemer, Kenmore (Roland Terry, 1964) **(Figure 23)**
- St. Demetrios Church, 2100 Boyer Avenue East (Paul Thiry, 1961-1962) **(Figure 24)**
- Bricklayer’s Union /S Lake Union Trolley, 318 Fairview Avenue N (Copeland, 1960)
- St. Paul’s Episcopal Church, 15 Roy Street (Steinhart & Theriault, 1962) **(Figure 25)**
- AUOW Hall, 501 Dexter Avenue N (J. Lister Holmes, 1952) **(Figure 26)**
- Pacific Architect and Builder Building, 1949 Yale Place East (Al Dwyer, of Bumgardner & Partners, with Jack Christensen, 1960) (**Figure 27**)

Thin Shell Building Technology

The Shannon & Wilson Office Building is an outstanding example of a thin shell concrete building. This innovative construction technology began emerged throughout the world in the post-war era. Initiated in Europe in the 1930s, by architect-engineers such as Eduardo Torroja, this type of design began with experimentations using the absolute minimum amount of structural material – an economical approach triggered by economic depression and world wars. Torroja, a Spanish designer, found that by adapting the form of the building to resist gravity forces, thin sections of concrete (acting primarily in tension, compression and shear) could be effectively used. In the U.S., the Austrian immigrant Anton Tedesco began building thin-shell concrete airplane hangars during the Second World War – driven primarily by the shortage of steel.

In the post war era, the use of thin-shell concrete expanded across the globe – highlighted by the work of Felix Candela. Candela pioneered the use of the hyperbolic paraboloid as a rational yet expressive means of constructing thin shell buildings, becoming a module of architectural modernism. As a warped variation of the rectilinear shapes of the International Style, it maintained obedience to the principles of modernism in its efficiency, simplicity and embrace of technology but also expressed a style and visual stimulation lacking in the pre-war era. Through its complex geometry and the increased importance of engineering calculations, the hyperbolic paraboloid (HP) also became advanced structure – a form that exhibited new structural sophistication that was not previously possible.

This geometric shape became a system that could generate a wide variety of forms by changing certain variables and combining different HPs in different configurations. Shapes could range from saddle-shapes to umbrella surfaces to the cooling towers of nuclear power plants. The fact that this surface could be defined by straight lines opened up almost unlimited potential as it could be directly made from the industrial materials that were emerging in the post-war era. Linear wood boards or plywood could be used, or as form work to pour the shapes as concrete shells. Extruded aluminum, in surplus after the war, could be easily assembled into hyperbolic parabolas.

With his architectural education and self-taught knowledge of engineering, Candela worked as true builder – a merge of architect and engineer – refining forms based both on engineering calculations and on qualities of space. He integrated multiple programs under his parabolic roofs and designed for a number of different site conditions, but remained mindful of the construction process, the cost of construction and quality of engineered materials. Between 1950 and 1971, Candela built an incredible many hyperbolic paraboloids – from market halls, to restaurants to churches and factories.

Beginning in the early 1950s, Candela inspired designers across the world – including Jack Christiansen here in the Pacific Northwest. In the mid 1950s, Jack Christiansen was a lead design engineer at the firm Worthington Skilling Helle & Jackson. Starting with small scale projects of simple barrel-vaulted geometry, such as the Evans Pool at Green Lake (1954) and the Seattle School District Warehouse (1956), then increasing in scale, Christiansen designed the B-52 Hangars at Moses Lake (1956) using thin shell concrete, followed by Hangar 9 at Boeing Field, Seattle (1962).

In 1957, Christiansen became aware of Candela's work, particularly the use of the hyperbolic paraboloid. Christiansen immediately adopted the form, and tried multiple variations of it over the course of his long career. He designed the Nile Temple, presently part of the Children's Theater at the Seattle Center (with Samuel G. Morrison & Associates, 1956 and 1957), the Chief Sealth High School and the Pioneer Middle School in Wenatchee, WA (both with NBBJ, 1957), using hyperbolic paraboloid canopies. In 1958, he designed thin shell projects – the Mercer Island Multipurpose Room (with Fred Bassetti), the Mercercrest Gymnasium and Multipurpose Room (also with Bassetti), and St. Edwards Church (with John Maloney), followed by Ingrahm High School Gymnasium (1959). The latter project was one of the first applications of pre-stressed shells, edge beams, and tied stiffener integrated into a cylindrical multi-barrel design.

With Christiansen as an emerging expert in thin-shell construction, the firm of Worthington Skilling Helle & Jackson pursued more thin shell work. Architects were drawn to its expressive nature of the dramatic roof forms, while contractors appreciated the minimal building material needed and rational construction method. Christiansen trained others in the office to design concrete shells, under his supervision – providing the concept for a structure, and leaving the details and execution to others. Such is the condition with the Shannon & Wilson office building. While Christiansen did not sign the construction documents, which were stamped by the Engineer of Record, his design expertise is clearly evident in the building.

Anchored by Christiansen, hyperbolic paraboloid thin-shell concrete became a prominent building type in the Pacific Northwest. The simple warping of a rectilinear roof plane helped usher in a new era of architectural modernism. The hyperbolic paraboloid could negotiate both the need for logic and minimalism with the desire for expression. The form could be equally approached as an object of engineering – materially efficient – or as an architectural expression – demonstrating variation within repetition. For the architects and engineers of the Pacific

Northwest, it was simultaneously a rational system that could enclose large areas with little material, and an expression of a new type of Modern style buildings – the thoughtful conversion of geometry into architecture.

A number of buildings at the Seattle World's Fair exploited the expressive character of thin-shell designs. The new system was used also for to churches, residences, airplane hangars and clubhouses and warehouses. By the mid-1960s thin shell concrete forms had become widespread – integrated in many diverse works of architecture. The culmination of this trend manifested in the Seattle Kingdome – the largest free-standing dome in the world, composed on radial segments of hyperbolic paraboloid thin shell concrete. As with the Kingdome, the majority of thin shell buildings in the Northwest (ones mentioned here and others) have been demolished. Through efficiency and material minimalism it was tied to previous forms of modernism and other modernist developments around the world, but it was also experimental and expressive in a new time and place.

Other examples of notable thin-shell concrete design projects in the Seattle area, by Modernist architects were cited recently in another landmark nomination, as the following buildings, in addition to the Shannon and Wilson building (Peterson, November 13, 2013):

- Asa Mercer Middle School, 1600 Columbian Way South (John Maloney, 1957)
- Chief Sealth High School, 2600 SW Thistle Street (NBBJ, 1956-57)
- Mercer Is. High School Multi-Use Building (Bassetti & Morse, 1958, demolished)
- Pacific Architect and Builder Company, 1945 Yale Place East (Bumgardner & Associates, 1959)
- Fine Arts Pavilion, Seattle Center (Kirk Wallace McKinley, 1961, altered)
- St. Demetrios Greek Orthodox Church, 2100 Boyer Avenue E (Paul Thiry, 1962)

The Original Architect –NBBJ

The building was designed by Naramore Bain Brady and Johanson (NBBJ) and constructed in 1960. The project was led by NBBJ partner Perry Bertil Johanson (1910 - 1981), with design assistance by John Rohrer(1914-2004). Johanson was born in Greeley, Colorado, and came to Seattle to attend the University of Washington, where he studied with Lionel Pries, and graduated with a Bachelor in Architecture degree in 1934. His early career involved drafting with the Seattle firm of Smith and Carroll in 1934-1936, where he became a partner in 1936. Apparently his involvement with Smith, Carroll and Johanson continued until 1951.

During World War II, Johanson partnered with architects Floyd Naramore and Clyde Grainger in a short-lived firm from 1945-1946. Beginning in 1943, they established a new, multi-disciplinary firm with Floyd Naramore (1879-1970), William Bain, Sr. (1896-1985), and Clifton Brady (1894-1963) to pursue larger government and military contracts. By the end of the war, the partnership of NBBJ was solidified, emphasizing a "team" approach to design and a service approach to practice. "In those years, a business style was set too: a reputation for solid functional design that would never set the architectural press on fire, but which came in satisfactorily close to schedule and budget…" (Downey, *The Weekly*, February 16 - 22, 1982).

In the 1940s and the immediate post-war era, NBBJ focused on institutional work with projects such as public schools for the Seattle and Bellevue School Districts, medical facilities for the Swedish Hospital, and the Museum of History and Industry (1948-1950, with architect Paul Thiry). The work for Swedish Hospital marked the beginning of NBBJ's extensive medical practice, which quickly flourished. By 1950, the firm had constructed a new office on Seattle's First Hill, and secured design commissions for the new Children's Orthopedic Hospital and a hospital and medical school campus for the University of Washington. These were followed by the design of the Battelle Memorial Institute Seattle Research Center (later the Talaris Conference Center), in Seattle's Laurelhurst neighborhood (1965-1967 and 1970-1971), along with landscape architect Richard Haag. (This property was designated a Seattle Landmark in 2013.) NBBJ's medical practice expanded far beyond the Northwest with projects at the Salk Institute, Mayo Clinic in Rochester, Minnesota, and the University of Hawaii's Medical Center, and later to become an international design practice.

The decade of the 1950s was a period of evolution for NBBJ, as evidenced by the firm's designs for the downtown Seattle Federal Reserve Bank (1951), and two early downtown Seattle towers – the Public Safety Building (1946-1950, demolished), and the Washington Building (1959 –1960. Other noteworthy Modern-style designs by NBBJ from this decade include the Enatai School (1953) and Ashworth School (1957), both in Bellevue, Seattle's Susan B. Henry Library (1954, demolished), and the U.S. Science Pavilion at the Seattle Center (1962, with Minoru Yamasaki).

After 1955 NBBJ employed a talented young architect, John Abram Rohrer as a designer and illustrator. Rohrer was born and raised in Seattle and received a Bachelors in Architecture degree from the University of Washington in 1937. He was subsequently employed by a number of firms in the late 1930s and early 1940s – John Theodore (Ted) Jacobsen, John Graham & Company, and the Austin Company – before establishing himself as an independent architectural practitioner and illustrator. In 1948-1949 he designed the former office building and warehouse for the R. M. Buntin Building, at 306 9th Avenue North. In 1951-1955 Rohrer worked for a well known Seattle Modernist design firm, Decker and Christenson. After 1955 he was employed by NBBJ. He also served as an instructor in the University of Washington's Architecture Department, beginning in 1948, and rising to the position of professor in 1959-1980 (Ochsner, 2014, p. 18 and 472). Rohrer's Modern style house of 1948-1949, at 122 37th Avenue East, recently was designated a Seattle landmark (Ochsner, 2010).

NBBJ pursued commercial work as well in the late 1950s and early 1960s and it projects included its own office building at 904 7th Avenue on First Hill (1950-1952, demolished) and the small-scale Shannon and Wilson Building (1960). Both of these buildings featured thin shell roof structures, and both exemplify the successful integration of these design disciplines. Its later designs included the Brutalist style College Club (1967, demolished) in downtown Seattle, along with large scale buildings, such the IBM Building, Seattle (1962-1964, with Minoru Yamasaki) and Seattle First (Seafirst) National Bank headquarters with consulting architect Pietro Belluschi (1966-1969).

Since the early 1950s, NBBJ's work was cited repeatedly in annual architectural journal articles of specific building types, including hospitals, schools, and laboratory and recreation buildings. This record of publication has continued for over 60 years, and represents both the range of critical recognition and the wide influence the firm has had on the profession. The firm maintains offices in Boston, Columbus, LA, New York, San Francisco, London, Moscow, Beijing, and Shanghai, with its headquarters remaining in Seattle (NBBJ website).

The identity of the original landscape designer has not been discovered. Well known local landscape architects William Teufel (1925-2007) and Rich Haag (1923 -) both worked with NBBJ and partner Perry Johanson in the 1950s and 1960s, and one of them was responsible for the landscape design, which included a number of distinctive species of trees of Asian origin.. The historic tax record of September 1960 suggests that there were no plantings on the site at the immediate completion of construction, although several large street trees were present in the parking strip to the north.

The Original Structural Engineer – Worthington Skilling Helle and Jackson

The Shannon & Wilson building is an early example of the cooperation between the engineers at the Worthington Skilling and the architects of NBBJ – a cooperation that would give rise to many more iconic buildings in Seattle including One and Two Union Square. As was typical of the time, the original structural drawings were stamped and signed by John B. Skilling. The title block indicates that they were checked by Helge Helle, and drawn up by Frank Hoelterhoff, and Jack Christiansen reportedly served as part of the consulting team. This collaborative effort – with no clear division between architectural and structural components – is a distinctive trait within the modernist work of the Pacific Northwest.

The building's unique thin-shell envelope design was developed by the architects and the structural engineers of Worthington Skilling Helle and Jackson, with John B. Skilling as the Engineer of Record. This structural engineering firm is the oldest one in Seattle. Founded in 1928 as the W. H. Witt Company, it was the only structural engineering operation to remain in continuous operation through the Depression. Led by John B. Skilling and Harold Worthington in the post-war era, the firm quickly grew. Skilling collected talented engineers, such as Helge Helle, Jack Christiansen, Frank Hoelterhoff and Leslie E. Robertson.

Jack Christiansen soon emerged as a worldwide expert in thin shell concrete construction, while Robertson specialized in tall buildings. Both men later became partners, and were recognized in the firm's new name, Skilling Helle Christiansen Robertson. Christiansen (1927 -) was born in Chicago. He was raised in Oak Park, a suburban city largely identified by the presence of early buildings by Frank Lloyd Wright. Christiansen was educated at the University of Illinois, and exposed to the work of early European thin-shell structures designed by engineers Pier Luigi Nervi, Robert Maillart and Eduardo Torroja, and studied with engineering professor Newlin D. Morgan. He received an Architectural Engineering degree in 1949, and went on to receive a Masters degree in the Science of Civil Engineering from Northwestern University in 1950. After working briefly in Chicago, Christiansen and his wife left for the West, and settled near Seattle, where he work for W. H. Witt.

The engineers designed the 22-story Washington Building with NBBJ in 1958 (Seattle's first tall building in over three decades), and went on to established a prominent relationship with Minoru Yamasaki. Christiansen and Yamasaki (with NBBJ) designed the 1962 US Science Pavilion for the Seattle World's Fair, and Robertson worked with Yamasaki on the 1963 IBM Building in Seattle. Both of these projects led to the firm's work on the World Trade Center Towers in New York City (1963-1973). Skilling, Christiansen and Robertson were later elected to the National Academy of Engineering. Their company continues to operate as the Magnusson Klemencic Associates, a world-renowned firm active in both high-rise buildings and inventive uses of structures. Christiansen designed other noteworthy thin-shell hyperbolic paraboloid and folded plate structures, including pedestrian and vehicle bridging structures and a contemporary grandstand.

The Builder – W. G. Clark

W. G. Clark, a Seattle general contractor, constructed the Shannon and Wilson Building This local company established in Seattle in the early 20th century. William George "Bill" Clark, its founder, arrived in Seattle in 1906 as a recent engineering graduate from Minnesota. He worked initially with two local contractors -- Causey, Lohsey, Hastey & Dugan and George Ferguson. For Ferguson's firm he served as the superintendent on the 1909 Geyser Basin at the Alaska Yukon Pacific Exposition on the present UW campus. In 1910 Bill Clark established his own company with a contract to provide granite for a railroad bridge near the Dalles, Oregon. Hew expanded his business building apartments and schools in Seattle. Among these projects was the Loyal Heights Elementary School, designed by Floyd Naramore, later of NBBJ, which Clark constructed in 1929.

Bill's son, Don, joined the firm in 1936, leaving in 1940 to 1947 for military service. When he returned he assumed leadership of the company. In 1948 W.G. Clark constructed the Washington State Patrol Headquarters building in Seattle, and in 1949 a large Agriculture Science Building on the Moscow, Idaho, on the University of Idaho campus.

As noted in a profile of the company in the Associated of General Contractor's website, Don Clark preferred to work on cast-in-place concrete structures, constructing many such buildings in the 1950s and 1960s for property owners such as The Boeing Company, University of Washington, Cascade Natural Gas, and the Atomic Energy Commission. In the 1950s, the company's projects work included the Northgate Theater in Seattle, and two major expansions of the Rayonier Pulp Mill in Hoquiam. In the 1960s it built the southern wing of the Group Health Central Clinic, Seattle, an addition to the UW Power Plant, and a 900-car underground parking garage on the university's Seattle campus.

Don's son Chris joined the company in 1971 during a deep recession brought about by Boeing layoffs. Annual revenues dropped to $600,000 in 1972. In rebuilding the company, Chris and the new management team focused on institutional work and renovation projects for public owners, while continuing to work with The Boeing Company and Safeway. Its projects included enclosure of the Northgate Mall, the NOAA Operation Building at Sand Point and rehabilitation of the Pike Place Market's Corner Market building. Turning to private clients and repeat work in the 1980s, W. G. Clark began a ten-year multi-phase project at Overlake Hospital, and converted the historic West Queen Anne School into condominiums. Its other specialties that emerged included nursing and retirement homes and cold storage and food processing facilities.

In the period form 1990 to 1999 W. G. Clark grew its revenues from $25 to $72 million with projects such as the Villa Marjorie, a multi-family development and the first of over 100 residential projects the company built or renovated between 1993 and 2010. During this period it also built the Central Washington Hospital Ambulatory Surgery, Klondike Pacific Cold Storage Facility, Bayview Manor addition, Crista Shores, Brittany Park Retirement Community, University House in Seattle's Wallingford neighborhood, and the Leo K addition to Seattle Repertory Theatre. In 2010 it began Metro 112, a $75million mixed-use project in Bellevue, while continuing with LEED-certified buildings and projects for local non-profit and community groups, such as the Seattle and King County Housing Authorities, St. Andrew's Housing Group, Youth Eastside Services, Boy Scouts, Girl Scouts, and Boys & Girls Club (Association of General Contractors, 2010 and 2015).

Among current work underway are projects such as NeighborCare Health's Rainier Beach Clinic, the mixed-use Broadway on Broadway, the build-out of new space for the Elliott Bay Book Company, and renovations to the Seattle Housing Authority's Bell Tower. In addition, W.G. Clark has maintained a long history in the local construction industry, with Bill, Don and Chris all having served as presidents of the AGC of Washington. As of 2010, the company had a workforce of 200 in the field in addition to its project management staff and superintendents.

Occupant and Ownership History

The Seattle firm of Sortun Vos Architects purchased the property from Shannon & Wilson in mid-February 1990. Architects Charlie Vos and Gary Sortun began working together in 1976. Prior to their move to the Shannon and Wilson building, which they occupied along with the computer software and consulting firm, Robert McNeel, Inc., the architects owned and occupied a small building in the South Lake Union area.

Sortun and Vos was known for its residential work and to small-scale commercial and institutional projects, including early applications of solar-heated houses, administrative and offices for Foss Maritime, and renovation of the Queen City Yacht Club. The firm's extensive residential projects were often published and won AIA design awards. One of these, the Sonnett Olsen Residence, was recognized as the "Home of the Year" by the *Seattle Times*/AIA Program in 1994) (Sortun Vos Architects website).

Robert NcNeel & Associates presently shares occupancy of the building with tenants. This employee-owned company focuses on software development, along with product sales and support and training. Founded in 1980, the company has support and affiliate offices in Seattle, Boston and Miami, and in foreign countries, along with hundreds of resellers, distributors and training centers world-wide. The company's products include modeling and graphic software, such as Rhino ®, Penguin ™, Brazil ™ and Bongo ™. It also offers training in addition to advanced courses in architectural modeling, jewelry and CNC machining. It serves a wide design market in maritime, architecture, medical, jewelry, footwear and 3-D modeling industries, among others. Robert McNeel & Associates is well known to architects and designers in Seattle for its early software development and training in AutoCAD.

Throughout the past two dozen years the owners of the Shannon and Wilson Building have served as good stewards of the property, maintaining the building while designing harmonious new entries and interior spaces.

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The features of the Landmark to be preserved include: *The site, and the building exterior*.

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Sarah Sodt
City Historic Preservation Officer

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