

Holy Cross Lutheran Church

Historic Significance and Integrity Assessment Report

3110 N. Hayden Road, Cases 15-ZN-2012 and 6-HP-2012

Approved by City Council June 18, 2013, Ordinance No. 4091

Background on Places of Worship Study

As part of an ongoing effort to record and preserve Scottsdale's post-World War II built environment, the City of Scottsdale Historic Preservation Office (HPO) conducted a survey of extant historic places of worship. The survey results and associated research were then incorporated into the 2010 historic context report. The study provides city staff and the council-appointed Historic Preservation Commission with an understanding of the story relating to the development of post-war religious institutions in Scottsdale, and provides a context for nominating individual properties to be listed on the Scottsdale Historic Register. The research findings are summarized below prior to describing the specific property proposed for designation.

The places of worship study focused on the religious structures constructed during the post-war period of 1945 to 1973 since the sole remaining intact pre-World War II religious structure in Scottsdale has already been documented and designated - the OLPH Mission Church on Brown Avenue. A post-war population and building boom in Arizona and Scottsdale continued into the 1950s, through the 1960s, and into the early 1970s but the severe recession of 1973 to 1975 greatly slowed housing construction and other economic activity. The field survey process involved an on-the-ground analysis of 28 extant Scottsdale houses of worship and campuses of buildings with construction dates from 1945-1973. Essential historical and architectural information relating to subject properties was recorded on survey forms and additional research documented the context of religious institution development during the subject period.

International Trends

Until the dawn of World War I, churches and other places of worship in Europe and North America typically followed older traditional styles of architecture. A very dramatic departure from traditional forms is evident in a very personal version of Art Nouveau by Antonio Gaudi in the incomplete Sagrada Familia in Barcelona, Spain. Gaudi took over design of this church in 1884. The Modern Movement that started in Europe rocked the traditional architecture of churches and other types of buildings following the Arts and Crafts Movement and the Art Nouveau period. The tenets of the Modern movement to reject the past and ornament led to a major decline in the use of revival styles of architecture for places of worship by the end of World War II. Another early departure from the dominant traditional styles was the Unity Temple in Chicago by Frank Lloyd Wright in 1906. Wright used concrete to form a sanctuary in the shape of a cube and designed concrete ornamental columns for the exterior.

Attitudes of religious groups in the West were also changing to more modern, egalitarian, socially involved doctrines in the 20th century. Views on the role of the laity, congregation, or community of worshipers in the planning for religious buildings changed as some religious organizations became less hierarchical. Local Catholic laity took the reforms of the Second Vatican Council as a sign that

modern architecture was now acceptable for church design and that traditional styles like Gothic Revival were no longer prescribed. While architects generally rejected ornament as contrary to the rules of the International Style or other sub-styles of modern architecture, churches and other sacred buildings still included the symbols of the specific religious traditions embodied in the structure whether it be in the windows, altars, floor plans, or roof forms.

International Innovations in Concrete Construction

Architects and engineers have been using concrete to cover large public spaces for a long time. The oldest standing large concrete dome is the Pantheon in Rome completed around AD 125. Other early well-known places of worship with large concrete domes include; 1) 537 Hagia Sophia in Istanbul, Turkey, 2) 1626 St. Peter's Basilica in Rome, and 3) 1708 St. Paul's Cathedral in London, by Sir Christopher Wren. Concrete and domes have been used in places of worship for a very long time as a roof form to inspire worshippers.

The leading European firms and practitioners of innovative concrete structures during the Modern architectural era were centered in Italy, Spain and Germany beginning as early as the 1920s. Pier Luigi Nervi and Pietro Belluschi from Italy gained acclaim by designing large ribbed concrete vaults to cover aircraft hangars and stadiums, such as their two 1960 Olympic Stadiums in Rome. Felix Candela from Spain left Spain for political reasons to practice in Mexico. Felix Candela was a master designer of thin shell concrete churches in the fifties including the Church of Santa Maria Miracolosa in 1954 and Lomas de Cuernavaca Chapel in 1959. His hyperbolic paraboloid roof forms and other sculptural curved shell designs in Mexico proved that thin shell concrete structures were stable and cost effective. German engineers at Dyckerhoff and Widmann designed the 1922 Zeiss Planetarium concrete dome in Jena, Germany and the 1931 market halls in Budapest, Hungary covered with large-scale thin shell concrete barrel vaults.

Perhaps the most influential church built in Europe with a Modern architectural style is the Notre Dame Du Haut Chapel in Ronchamp, France by Le Corbusier in 1955. The expressive sculptural forms for the walls, towers and roof of this chapel created a worship space from concrete like no other. Le Corbusier designed many other building in concrete, including curved forms, but his chapel in Ronchamp gained international acclaim and probably inspired other architects to use concrete in expressive ways. Another well-known sculptural concrete building from the last century is both revered and notorious – the Sydney Opera House, completed in 1973 in Sydney, Australia and designed by Jorn Utzon to resemble sails on the harbor. The severe cost overruns for this opera house made up of multiple thin shell concrete double curved forms required substantial increases in public funds to be completed. These financial problems to construct an innovative and expressive thin shell concrete design may have discouraged future publicly funded projects using similar construction methods. To contain costs for concrete construction, some designers turned to factory made concrete wall and roof sections that could be quickly assembled on site. Construction methods using factory manufactured parts has been called by different names including prefabrication (prefab) and system building with the intent being to save time and money on construction.

National Trends

The American way of life transformed dramatically following World War II since the outbreak of World War II required the full attention of the citizenry and leadership of the nation. While the war effort fully remedied the economic doldrums that had been plaguing the population for over a decade since the Great Depression, the material restrictions imposed during the war years constrained the purchasing ability of the American consumer. Thus, the end of hostilities unleashed a torrent of consumerism that would shape the remainder of the twentieth-century. The horrors of World War II and the fears of the Cold War fostered strong religious sentiment in the United States during the immediate post-war era. Americans turned to religion in record numbers, aware of the tremendous suffering brought about by years of worldwide combat and suspicious of the official atheism espoused by the leaders of Communist nations. Lured by employment opportunities, temperate climates, and quality-of-life concerns, many Americans began to leave the crowded industrial centers of the East for the open lands of the West. The region west of the Rockies experienced unprecedented growth following the war peopled by a rush of Americans taking part in a great Westward migration. Though claiming just 5% of the national population in 1900, the Western region of the United States boasted nearly 17% of the nation's residents by the year 1970. By necessity, the American religious community began an aggressive building campaign to house the new congregants. Faced with a swelling population moving to previously undeveloped areas religious sects raced to build new structures to accommodate the faithful.

The international architectural trends by the mid- century described previously had their U.S. parallels. After the Modern Movement gained a strong hold in 1945, later American churches reflect the international trend towards Modern architecture, including using new materials in innovative ways for religious buildings. Many American architects were just as willing to reject past historical styles and ornamentation as their European contemporaries. Architects also collaborated with structural engineers to build religious buildings for large numbers of worshippers.

Thin Shelled Concrete Construction in America

Early thin shelled concrete structures in America are often credited to one design engineer, Anton Tedesko who was sent to Chicago, IL in 1932 from his German firm of Dykerhoff and Widmann. He was sent to market their innovative patented technology on thin shell concrete roof design, including stress calculations for doubly curved shells like domes. In Germany, Walter Bauersfeld designed a light-weight structural steel framework in 1922 to construct the Zeiss Planetarian dome in Munich. Barrel vaults and domes had been built in Germany for a couple of decades before Tedesko came to America so the technology and construction methods used by German firms had been successfully tested in Europe. The engineering firm that Anton Tedesko joined, Roberts and Schaefer became a leader in the design and construction of thin shell concrete roofs in America after the Great Depression.

One of the first major thin shelled concrete buildings to demonstrate and test this technology was the 1936 Hershey Sports Arena in Hershey, PA built with company labor. The Tedesko engineered hockey arena was 232 feet wide by 340 feet long consisting of a barrel vault shell with stiffening ribs. World War II resulted in opportunities for the Roberts and Schaefer firm to use thin shell concrete structures for military airplane hangars and warehouses. The materials for concrete shells

were inexpensive with very little steel needed for reinforcing the shells during war time when metal was scarce. The structures could also span large distances and cover large areas without any interior columns. Tedesko designed two 340 foot wide airplane hangars in 1948, the largest concrete barrel shells at the time in the world. The German firm of Dyckerhoff and Widmann, and their engineer Franz Dischinger had been testing ribless barrel vaults in Europe in the thirties. In 1950 Roberts and Schaefer also decided to design and test ribless shells in Illinois using Tedesko's computations in consultation with Dischinger. Thin shell concrete roof system designs in America are now credited with two major innovations in concrete construction; the wide-spanning, short barrel shell, and the ribless shell.

Thin shell concrete construction continued in America after World War II with many landmark structures being built from the fifties to the seventies. A few of the most noteworthy buildings from the period include: 1) the 1953 Kresge Auditorium by Eero Saarinen at MIT in Cambridge, MA, 2) the 1959 May D&F hyperbolic paraboloid canopy in Denver, CO by I. M. Pei (demolished), 3) the 1959 Guggenheim Museum by Frank Lloyd Wright in New York, NY with a giant spiral form, 4) the domed 1961 Annunciation Greek Orthodox Church by Frank Lloyd Wright in Wauwatosa, WI, 5) the 1962 Trans World Airlines (TWA) Terminal at JFK International Airport in New York, NY by Eero Saarinen, 6) the 1970 St. John's Abbey in Collegeville, MN by Marcel Breuer, and 7) the 1971 Saint Mary's Cathedral in San Francisco, designed by Pier Luigi Nervi with a hyperbolic shell roof. Another award winning building utilizing opposing parabolic concrete arches is the 1952 J. S. Dorton Arena in Raleigh, NC by Matthew Nowicki. The hyperbolic paraboloid roof is suspended between the arches and is supported by steel cables in suspension.

Thin shell concrete structures were less common after the seventies. This probably resulted from several factors including changing public tastes in materials, problems with maintenance or weatherproofing for some concrete buildings, structures becoming obsolete, increasing costs for labor or for building complex forms, declining expertise of engineers in designing complex structures, conflicts between engineers, contractors, and building code officials over structural integrity, and the end of the initial Modern architectural era. Another factor that may have turned the public and clients against concrete buildings was the Modern architectural style called 'Brutalism'. This style is characterized by using raw concrete with an unfinished exterior surface in structures lacking any decorative elements. Examples of Brutalism include; 1) the 1963 Yale Art and Architecture Building in New Haven, CN by Paul Rudolph, 2) the 1966 Whitney Museum in New York by Marcel Breuer, 3) 1968 Boston City Hall by Kallmann McKinnell & Knowles, and 4) the 1971 Orange County Government Center in Goshen, NY by Paul Rudolph. There have been some active public debates in recent years over whether to keep or demolish some of these concrete Brutalist style buildings.

Historic preservationists and structural engineers are now taking an interest in preserving some of the most noteworthy thin shell concrete structures from this era after some buildings have been demolished. The 1975 Seattle Kingdome was demolished and the TWA terminal in New York by Eero Saarinen has been threatened.

Arizona and Scottsdale Trends

The war and post-war periods brought about tremendous economic and demographic changes to the state. The wartime boom, followed by the post-war population shift that brought vast numbers of Americans to the Sunbelt, would forever alter the state. Nonetheless, religious institutions played an important role in the social fabric of post-war Arizona. Drawing influence from local materials, Modernist principles, historical regional styles, or a combination of the three, many houses of worship within the state stand as architectural landmarks representing the Modern architecture movement. The 1957 Chapel of the Holy Cross rising from a rock outcropping in Sedona and designed by Anshen and Allen is one such structure. However, a Frank Lloyd Wright designed church in Phoenix constructed after Wright's 1959 death embodies the spirit of many post-war Scottsdale church designs surveyed for this report. The First Christian Church on 7th Avenue was completed in 1973 with 'desert masonry' concrete and stone walls like those used at Taliesin West.

Scottsdale began as a small community originally founded by Baptist minister Winfield Scott in 1888. The strong religious beliefs held by community members during the early years of settlement were demonstrated through informal home based church services and the prohibition of alcohol in the community in May of 1897. However, the climate and natural surroundings were soon to act as magnets that would draw in outsiders and shift the focus of the community. The dry air, pleasant winter climate, and stunning vistas soon lured tourists, part-time residents and tuberculosis patients alike, as documented in the 2004 "Historic Context for Scottsdale's Development as an Arts Colony and Tourist Destination" report by Debbie Abele and Liz Wilson. Recognized as a haven for affluent tourists by the end of the pre-World War II period, Scottsdale differed greatly from the small town settlement known by Winfield Scott. By the early 1950s, Scottsdale boasted an intriguing mix of residents and visitors. Scottsdale was noted for its appealing lifestyle, climate, and surroundings. Town leaders decided incorporation was necessary to direct inevitable future growth that would expand the population. The Maricopa County Board of Supervisors approved Scottsdale's bid for incorporated status on June 25, 1951.

The newly incorporated town boasted six churches, all of which had been constructed prior to the war. While new congregations had formed during the years following the war, none had yet mustered the resources to build a new house of worship. Scottsdale churches built during the 1950s continued to employ rather traditional sanctuary designs. Though the design of the 1956 Our Lady of Perpetual Help campus incorporated Spanish-themed building materials, and the 1956 Scottsdale Methodist Church, 1958 Scottsdale Presbyterian Church and First Baptist Church of Scottsdale were built with desert masonry elements, the structures were discernible as architectural descendants of traditional house of worship design. Beyond service contributions to the community, religious structures brought aesthetic appeal to the growing town. Scottsdale congregations set about erecting a string of architecturally notable facilities during the 1960s and early 1970s. The 1966 Los Arcos Methodist Church, a 12-sided thin shell concrete paraboloid creation located east of the former Los Arcos Mall site, served as a stunning example of the new style of architecture embraced by Scottsdale congregations of the era. Unfortunately the Los Arcos Methodist Church closed and was demolished in 2012 for a housing redevelopment project.

After having lost numerous annexations battles with Phoenix to the west, Scottsdale leaders were left with no choice but expand to the north through a series of annexations. Thus, the chronological pattern of church development tends to trend northward as housing continued to expand into land far north of the original town site. The recession of 1973-1975 severely curtailed new housing activity in Scottsdale. Accordingly, no new houses of worship were constructed on new locations in Scottsdale between the 1973 and 1978 with one exception - the 1975 Church of Jesus Christ of Latter Day Saints on 82nd Street near Saguaro High School.

Location

The Holy Cross Lutheran Church property at 3110 N. Hayden Road was initiated for HP overlay zoning consideration by the City's Historic Preservation Commission (HPC) on December 13, 2012. The 1961 sanctuary building continues to be used for church services. The adjacent school buildings and a small chapel were built after the sanctuary. The proposed HP overlay includes 1.97+/- acres. An adjacent parcel that was rezoned for multi-family is not included in the boundary.

History and Description

Our research has identified this church as a 1961 church designed by William D. Knight, Jr. with a rectangular form. The architect also designed the 1959 City Center Motel in Phoenix that has been called a Googie-style motel with a soaring roof plane over the carport. According to Doug Sydnor, Mr. Knight only practiced architecture locally for a few years before he served as the Navajo Nation architect. The sanctuary has a thin shell concrete roof with sections curving from the straight ridgeline down to freestanding concrete columns on the north. Seven exterior columns support the seven main roof sections on the north side of the sanctuary with part of the roof being cantilevered past the columns. The concrete columns also contain downspouts for drainage. There is a walkway between these seven concrete columns and the wall of glass on the north side of the sanctuary.

The south side of the sanctuary is a brick wall with narrow vertical windows. The south wall supports the roof and appears to have internal downspouts within columns in the wall for drainage. There is a stone wall on the street side in the middle of the end wall with a cross on it. The adjacent brick walls are set back from this stone wall and tall narrow vertical windows are located between the stone and brick wall sections. Most of the north wall of the sanctuary is glass from the floor to the roof. The north wall changes from all glass to a solid brick section before the entry doors.

The seven thin shell concrete roof sections on each side of the ridgeline are each formed from four curved roof planes beginning and ending in straight lines and dipping down to the columns and downspouts for drainage. There appears to be some added ribbing on top of the roof where the seven sections are joined. The curving roof sections appear to be warped planes curving from the straight roofline to the support columns or the brick wall. The edge of the cantilevered eave is a straight solid beam on the north and south edges of the roof. The roof also has a straight fascia beam at the gable end of the low-pitched roof where it is facing Hayden Road.

Two narrow vertical bands of curving concrete support a freestanding cross tower. The two ribbons of concrete are gently curved with the one supporting a cross taller than the other. The base of the concrete bands are at a ninety-degree angle to each other and they each twist gently over 45 degrees

until they are just past parallel to each other as they rise gracefully and separately. A steel reinforcement bar holds the two ribbons of concrete apart towards the top.

The two 1964 Sunday school wings are at a right-angle to the sanctuary and a covered walkway separates the school from the church. The two parallel school buildings have low-pitched folded plate roofs of concrete and there is an open play area and courtyard between buildings. The covered exterior walkways have columns to support the roof which is also cantilevered several feet beyond the columns. A rectangular landscaped courtyard area is located between the sanctuary and school buildings. The east wall of the school is solid stone on the north and south ends with a low stone wall below the window areas. The windows go from the stone sill up to the folded plate roof so the tops of the glass are at a diagonal, similar to the windows on the north side of the sanctuary. A eight-sided chapel is at the southwest corner of the campus and it also has a folded concrete plate roof. The chapel is currently leased by another church for services. Church staff told the city that a different architect was used for the school wings but the architect's name is unknown. Parking is around the buildings.

Significance

The church is proposed for recognition and considered eligible for listing under Section 6.113.A.3. in Scottsdale's ordinance (National Register Criterion C) as representing the work of a master, possessing high artistic value or embodying the distinctive characteristics of a type, period or method of construction. The roofs of the structures and the cross tower demonstrate the innovative uses for concrete during this period by engineers and architects to achieve dramatic building forms for religious purposes. The sanctuary illustrates the design creativity of the architect, William D. Knight, Jr. although his local body of work was limited. The buildings on the campus have maintained their integrity and they illustrate a creative use of thin shell concrete construction methods by the architect. Overall the church campus containing the sanctuary, freestanding cross tower, school wings and chapel has high artistic value.

Summary Statement of Significance

The Holy Cross Lutheran Church campus has maintained its integrity and it possesses high artistic values. The sanctuary demonstrates the design talents of William D. Knight, Jr., architect. The roofs of the structures and the cross tower illustrate the innovative uses for concrete construction methods during this period by engineers and architects to achieve dramatic building forms for religious purposes. The thin shell concrete construction techniques utilized in the building designs also make the church campus an excellent example of mid-century Modern architectural and engineering style of the early sixties.

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