
# Congregation Micah

RELIGIOUS ARCHITECTURE OFTEN EXPRESSES SYMBOLISM IN ITS DESIGN, and the new synagogue for Congregation Micah in Nashville is no exception. From the layout of the building to the exposed steel in the sanctuary, the new reform facility contains numerous subtle references both to history and religion.

The 27,000-sq.-ft. reform synagogue was designed for a congregation of 600 families. It includes religious space, a social hall, library, chapel, 16 classrooms and administrative offices. The sanctuary normally seats 300, but is expandable to 1000 seats during special services and major religious holidays.

The building is located on a semi-rural, 38-acre site (24 acres of which are wetlands) and is set well back from the road to take advantage of the best views of the surrounding natural environment, including the nearby hills and a small river at the southern edge of the property. The lawn and subtle landscape in the foreground emphasize the natural settings and are differentiate the synagogue from several nearby churches.

Circulation to the site begins with an axial view of the sanctuary with its glass crown, then winds through a mature grove of trees in the northwest corner of the site, which shield parking from pubic view and provide for

*The exterior of the synagogue belies the dynamic interior. The building's design is rampant with both aesthetic features and religious symbolism. For example, the sanctuary at left is not merely visually exciting but also is a stylistic representation of the tree of life.*

a secular transition zone. The drive then splits to allow direct access to the covered main entry and pedestrian plaza or to allow drop-off and pick-up at the school wing. Private outdoor spaces—facing on the best views to the rear of the bucolic site—includes outdoor social space, seating for outdoor services, a playground and a sculptural garden and court—which will double as a religious space during Sukkoth, a Jewish festival commemorating the harvest.

The building itself is composed of two interacting geometries. The public spaces are formed by a half cylinder with concentrically ringed elements juxtaposed with the orthogonal, linear and rhythmic forms of the educational wing, administration and support spaces. These contrasting yet complementary elements create a dynamic dialogue and establish a clear hierarchy, which culminates with the raised "Bimah", from where the

## Project Team

*Structural Engineer:*
Structural Affiliates International, Inc., Nashville

*Architect:*
Michael Landau Associates, P.A., Princeton

*General Contractor:*
The Parent Company, Nashville

*Owner:*
Congregation Micah, Nashville

*Steel Fabricators:*
Hickory Steel, Inc.

*Steel Detailers:*
Bruce Vaughan

services are conducted, and Ark, which houses the Torah (Jewish holy scriptures).

The core of the cylinder contains the sanctuary (including the Bimah and Ark), while the outer ring includes the social hall, foyer and library. The shape of the religious and social end of the building is intended to suggest the nested hierarchy of the Temple of Solomon, which contained an outer court for the people, an inner court for the Levites, and—at the center—the holiest space for the priests and ceremonies.

The Bimah is framed by large glass windows, which highlight views of the surrounding countryside. The curved walls are made of a warm masonry to echo the colors of Jerusalem with the sanctuary wall crowned by a curved glass clerestory and skylight. The Bimah itself is accentuated by a pool of natural light spilling down from a skylight and windows above the Ark, to create a symbolic engagement of light and shadow at the focal point of the sanctuary. The sanctuary also features exposed structure, which is intended to contribute a lacy effect to humanize the scale of the space and provide a delicate armature of light and shadow. In addition to their practical purpose, the exposed trusses also have a symbolic meaning and represent both a "tree of life" as well as the arms of a menorah (candelabra from the ancient Hebrew temple).

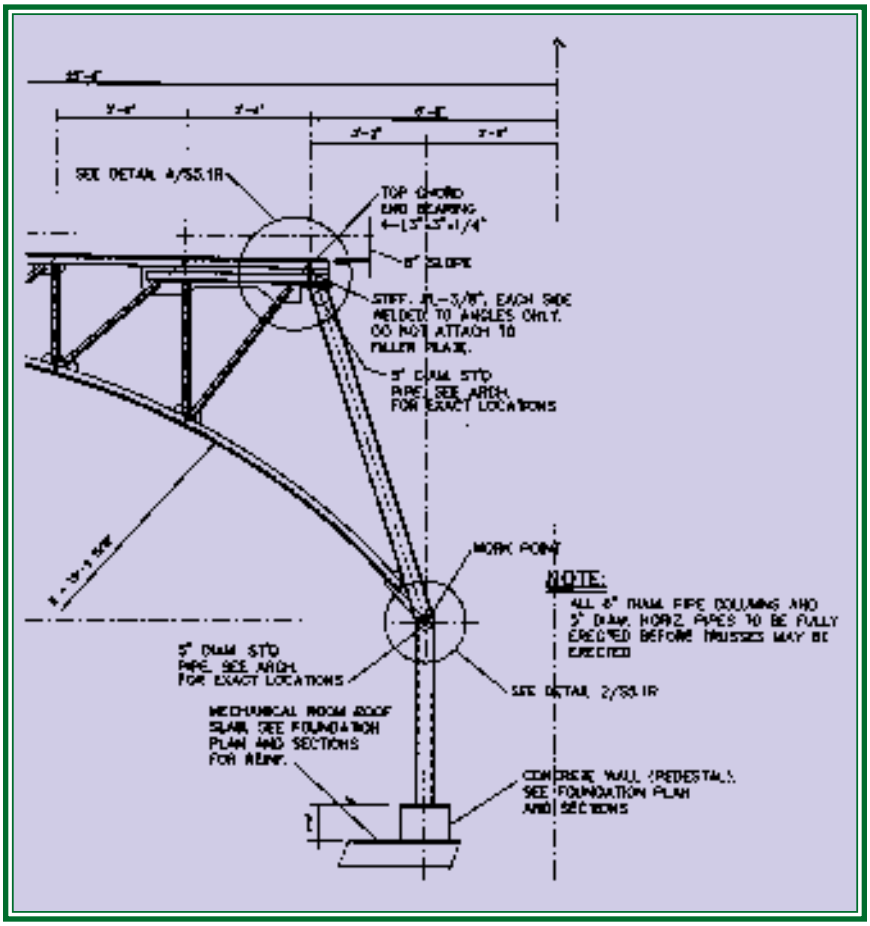
To handle the flexibility of increased seating during major religious holidays, the sanctuary includes operable panels that lift vertically to provide additional seating capacity in the adjoining social and library space. The panels display works of art, which are visible in both the raised and lowered positions.

The classroom features three student clusters to house children in grades K-2, 3-7 and 8-12. A youth lounge is part of the last cluster and all three clusters are connected by a gallery leading directly to the main foyer. Butterfly roofs with clerestory windows allow maximum natural light penetration into the multipurpose common areas of each cluster.

Structural Considerations

The design of the building was truly a collaboration between the architect and the structural engineer. "We were able to use our intuition to marry the structure with the function," explained Socrates A. Ioannides, P.E., S.E., Ph.D., of Structural Affiliates International, Inc., the project's structural engineer. Architect on the project was Michael Landau Associates, P.A., of Princeton, NJ, a design firm known for its work nationally on synagogues. Though the building is non-pretentious from the outside, the use of exposed structural elements on the inside to symbolize various elements of the Jewish religion makes the structure truly unique.

Many forms in the building intersect. The main sanctuary




and the social hall on a circular grid juxtapose with a rectangular grid coming in from the educational wing. Working with the geometry of different forms coming together in three dimensions and at different elevations made the project challenging. In total, there were seven different framing elevations.

The tall glass wall is a load bearing wall integrating the structure while maintaining transparency. The curved wall behind the sanctuary is a movable wall system designed, however, to provide the necessary lateral stability. As can be imagined, this required special connections between the roof system and the supporting walls.

The entrance canopy also was a collaborative effort between the architect and structural engineer. “We wanted to eliminate certain columns from the driveway and in the process, the entrance canopy was configured such that the name of the temple is reflected in the structural shape,” Ioannides explained.

## Structural Efficiency

The center core was designed to be the main lateral load resistance system with help from X-bracing around the perimeter of the sanctuary. The doors were a challenge, however, and the X-braces were only used down to the head of the movable partitions while moment connections were used below that point. Thus, as much as possible, the structural complexities inherent in the use of moment connections was minimized.

In order to achieve the desired aesthetic, the bottom chord of the trusses in the sanctuary feature a composite curve. In addition, however, these light trusses, consisting of 3” x 3” x ¼” angles, were more structurally efficient than such alternatives as steel rigid frames or hot rolled sections. Since the trusses radiate from a central point, the deck span between the trusses increased. To minimize secondary framing, 3” deck was used. However, when the space between the trusses exceeded the deck span limit, secondary support elements were added in the form of hot-rolled shapes so that the secondary members did not compete with the open lattice work of the trusses.

The continuous semicircular clerestory was achieved through coordination between the architect and engineer so the effect was achieved at minimal cost.

The efficiency of the space was enhanced by exposing the structure, including the deck. Acoustical considerations were partially accommodated by using acoustically enhanced decking.

The education wing has a standard, efficient structural system, so more construction dollars were available for the intricacies of the sanctuary, which is the main focal point for the congregation.

The entire frame, with the exception of the central HSS braced core, is bolted. However, to maximize efficiency, the central core was shop fabricated and field erected.