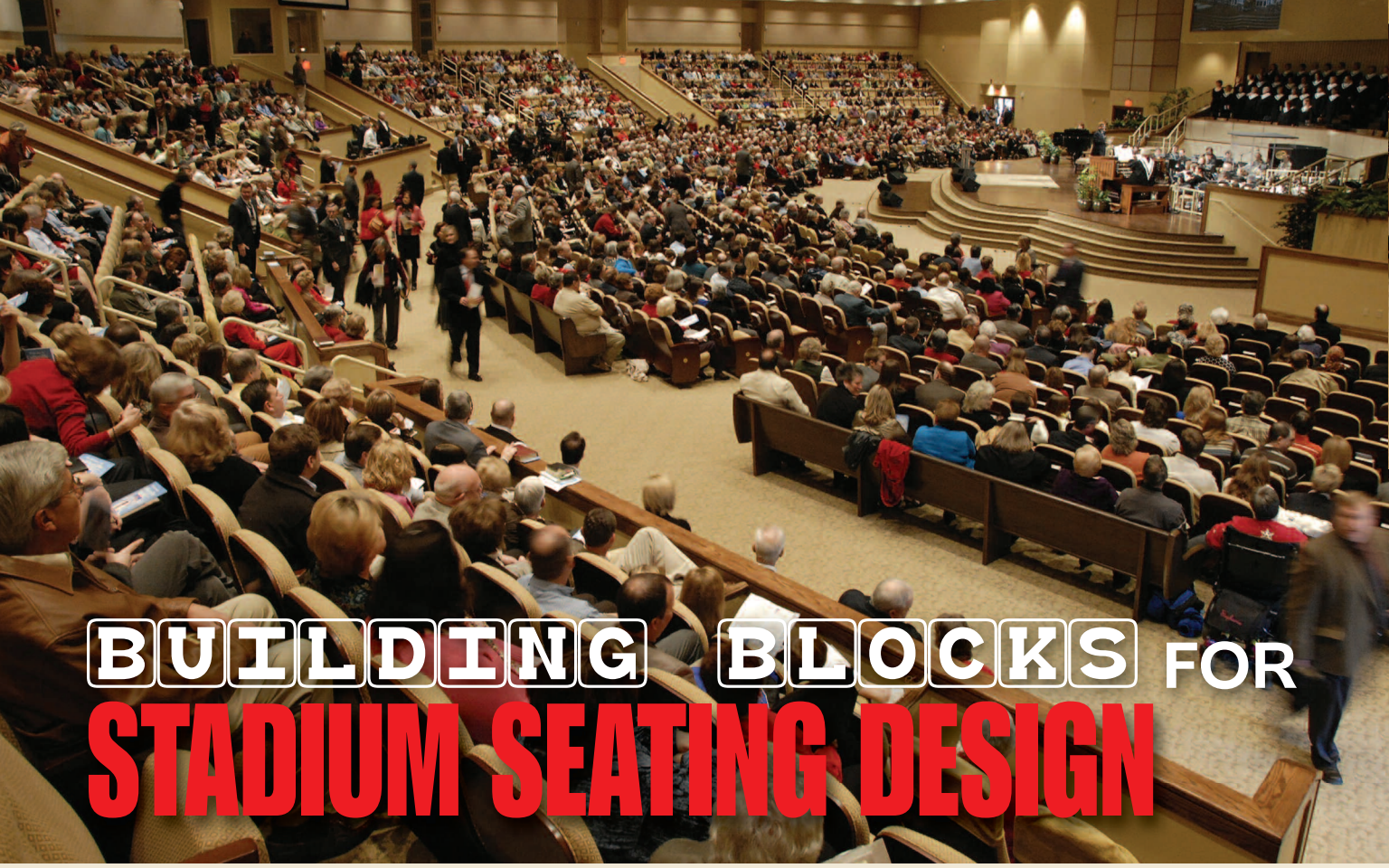

BUILDING BLOCKS FOR STADIUM SEATING DESIGN

By Frank B. Moson

As worship facilities expand traditional services to incorporate more live entertainment, including music and theater in their message to parishioners, seating, acoustics, and visibility of the "stage performance" have become primary design criteria in new sanctuary architecture.

Key to an interactive environment inherent in new worship center designs is a clear view of the presentation. Witness the home of Lakewood Church in the former Compaq Center (prior home to the Houston Rockets). Although the 16,000-person capacity of this church is an extreme example, it makes the point that stadium seating in worship facility design has come of age.

Today's generation of progressive megachurches are designed to accommodate large congregations and stadium-style tiered seating in the sanctuary. With the advent of stadium-style seating comes a variety of opportunities pertaining to the design of the stadium risers.

The incorporation of elevated stadium seating can:

- Enhance sight lines to the pulpit
- Free up floor area by elevating the seating platform
- Capture usable space under the back of the platform

Worship facilities being constructed nationwide with seating capacities of 1,000 to 5,000 typically incorporate stadium-style seating toward the back of the sanctuary. The design of the stadium risers fanning out along the back of the sanctuary is typically penetrated at several key circulation points, thus allowing the congregation easy access to both the tiered seating platforms and the floor seating toward the front of the space.

EPS GEOFOAM BUILDING BLOCKS

Traditional methods of constructing stadium seating risers have incorporated structural steel or concrete framing. However, recently, the use of EPS Geofoam (expanded polystyrene) blocks used as a structural base for the stadium risers has become more and more common. Realizing stadium seating systems must be cost effective without sacrificing flexibility, functionality, or aesthetics, many architects are looking to the EPS Geofoam Stadium Seating Systems to offer an alternative to traditional methods of construction.

Developed as a pre-engineered "kit of parts" for stadium seating risers, the EPS Geofoam Systems incorporate blocks of EPS cut to the dimensions of the stadium seating platform and stacked like building blocks to form the profile of the tiered seating risers. After the blocks are put in place, the permanent steel forms are placed along the face of the risers and secured with steel "retainer" hardware.

Then, the prefabricated steel forms for the intermediate steps are secured to the vertical face of the risers to complete the "bones" of the system. Last, as a finishing floor material, the concrete horizontal surface of the stadium platforms and the intermediate steps is poured in place directly on top of the EPS Geofoam blocks.

DESIGN FLEXIBILITY

Adding to the advantages that the EPS Geofoam Stadium Seating Systems have to offer is

the flexibility provided the design architect in laying out the seating configurations. The EPS blocks can be cut into virtually any size, height, or shape. Because each system is custom prefabricated to meet the individual design criteria of the project, the height and depth of each individual riser or intermediate step can be "made to order." In addition, the stadium seating can be configured in straight rows, in the shape of a segmented radius, or a true radius, depending on design concept and the layout of the shell building.

SPACE UNDER THE PLAT FORMS

The inclusion of stadium-style seating platforms can also lend itself to maximum utilization of floor space. This means that, in many cases, the overall height of the top platforms will allow usable space to be "tucked in" under the back of the stadium risers. By incorporating space under the risers, the overall floor area can be maximized by locating storage rooms, counting rooms, classrooms, restrooms, or similar functions under the back of the riser platforms.

In this case, the rooms are constructed in a traditional manner with steel stud and drywall construction with lightweight steel joists spanning the area of the "tuck-under" space. A structural steel deck is then used to top the interior structure and serve as a secondary structure for adding EPS Geofoam blocks and risers for the upper platforms.

BALCONY SEATING

In designs that incorporate balcony seating into the sanctuary, the use of EPS Geofoam blocks is ideal for a variety of reasons, including the lightweight nature of the EPS material. A 4'-0" x 8'-0" x 12" thick block of EPS weighs approximately 32 pounds. That means that the individual blocks are easily carried by two individuals, can be taken through a standard pedestrian door, and put in place on an upper level balcony without any special equipment or extraordinary considerations. In addition, due to the nature of the block, the weight of the stadium risers is evenly distributed over the entire floor area, eliminating any point loading on the structural slab.

RAMPS AND STAGES

The EPS Geofoam block is also ideal for constructing any ramps for handicap or equipment access. Tapered EPS Geofoam blocks are delivered to the jobsite precut at the angle of the ramps ready to be put in place and ready for a 3" to 4" concrete topping slab. If the ramps lead to a stage at the front of the sanctuary, then, here too, the use of EPS Geofoam blocks is ideal for the construction of the elevated stage. Much simpler, more cost-effective, and easier to construct than building a stage with standard metal stud and deck construction, the EPS Geofoam blocks are literally set in place as a structural fill material within walls at the perimeter of the stage and topping slab is poured over the EPS block. Electrical, data, or other conduit can easily be incorporated into the filler material.

AN ENVIRONMENTALLY FRIENDLY SOLUTION

Because EPS material is made with recycled material, energy efficient, and able to reduce greenhouse gas emissions, the incorporation of the EPS Geofoam Stadium Seating System is an environmentally friendly solution to incorporating stadium style seating into the project. If your design is seeking LEEDs certification, then EPS can aid in obtaining a recognized LEED accreditation.

ECONOMICAL FAST AND EASY TO INSTALL

The assembly of the system is fast and much easier than traditional method of construction. It can be installed in a matter of days, not weeks, speeding up the construction schedule and maximizing contractor efficiency. Because the system goes in late in the construction sequence, the contractor can typically avoid having to scaffold over the stadium risers, saving valuable time in the construction schedule.

GETTING BACK TO BASICS

Therefore, if you are planning a new sanctuary and considering the incorporation of stadium seating in the design concept, there is an innovative construction method that takes you back to the basics of using "EPS Geofoam Building Blocks" as the supporting structure. It is funny how things we learn in our early years can come back into play in the sophisticated field of design and construction. RPN

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Photos Courtesy of Stadium Seating Enterprises, Inc. (SSE)