

## OVERHEAD CANOPY DESIGN



**Dr. Peter D'Antonio, President/CEO**

A powerful, yet economical approach, is to utilize RPG's range of globally optimized 1D and 2D panels at an appropriate

height and spacing to provide uniform coverage without trial and error.

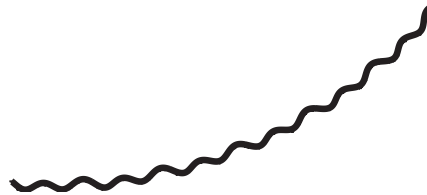
### Globally Optimized 1D Spline

The Spline is an optimized one dimensional wavy panel that provides uniform coverage over the entire stage or audience area. Novel Class A fire safe honeycomb Glass Reinforced Gypsum (GRG) laminations also minimize diaphragmatic absorption. The optimized shape insures uniform cov-



**Figure 1. 1D Spline**

erage. RPG provides optimal arraying and tilting to insure uniform coverage and eliminate guess work in the field. Adjacent panels seamlessly tile for wide area coverage simulating a single canopy element. Spline panels can be used independently or tile side to side and front to back for wide area application, as in Figure 2. GRG is non-combustible and hence can be used in all applications requiring a Class A rated material. In addition to 1/4" thick GRG, RPG also offers a novel GHG composite 1



**Figure 2. Spline elements join seamlessly forming a convex arc.**

5/8" thick in two surface weights for improved damping and stiffness, as seen in Figure 3. Field finishing allows joints to be taped forming a continuous surface, which can also be field painted. Installation is quick and easy using integral metal hairpin hanging loops and aircraft cables. An installation of the Spline can be seen in Figure 4 at Starpoint High School, Lockport, NY.



**Figure 3. Three spline samples with different construction and surface weight. Left: 1 5/8" GHG 5 lbs/sf.; 1 5/8" GHG 4 lbs/sf.; 1/4" GRG 3 lbs/sf. Right: Spline with mounting cable attached**



**Figure 4. Starpoint High School, Lockport, NY**

### 1D Monoradial

Because canopy design evolved using simple flat and curved elements, these shapes have become accepted as traditional by

architects. To satisfy the need for single curvature shapes, RPG developed the Monoradial™, which is a simple way to reduce the potential non-uniform scattered sound from flat panel arrays, due to the lack of scattering from gaps between the panels. While not as powerful as the Spline, the Monoradial™ is typically used to provide longitudinal (front-back) scattering to help minimize the problems from flat panels. RPG offers the Monoradial™ in 1/8" and 1/4" Class A GRG and wood,



**Figure 5. Monoradial**



**Figure 6. Academy of the Holy Cross, Kensington, MD**

as well as 1 5/8" GHG. Panels can be field or factory painted as individual elements. Joints can be taped forming a continuous surface. Installation is easy using integral metal hairpin hanging loops. The Monoradial is 4' x 8' in 9" and 12" depths. Two different depths can be used for aperiodic modulation. An installation of the Monoradial is shown in Academy of the Holy Cross in Figure 6. In the next issue we discuss the application of 2D globally optimized canopy shapes.

