

Waveform Bicubic

RPG is proud to announce the Waveform Bicubic, the first asymmetric, optimized compound curve GRG surface, which seamlessly and aperiodically tiles in all orientations.

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"Our commitment to research has provided the industry with a long list of innovative products, most recently based on our Shape Optimization software and patented Aperiodic Modulation of a Single Asymmetric Base Shape."

For up to the minute information, we invite you to visit RPG's acclaimed web site: <http://www.rpginc.com>.

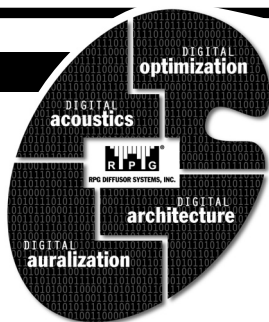
DIFFUSE NEWS



Dr. Peter D'Antonio
President and CEO

Everything Acoustic!

It's been over twenty years, since we introduced the first commercial sound diffusers to the architectural market. As with most acoustical firms, we have grown considerably. Our mission has been to continually expand the acoustical palette through a steadfast commitment to research. Our commitment to research has provided the industry with a long list of innovative products, most recently based on our Shape Optimization software and patented Aperiodic Modulation of a Single Asymmetric Base Shape. We have also expanded our collaboration with two innovative research institutions, namely Salford University, Manchester, UK and the Fraunhofer Institute, Stuttgart, Germany, as well as with acousticians around the world and standards organizations. Diffuse Reflections is one of our ways to keep you all informed. *This is only the beginning....*



CONTINUALLY EVOLVING.....



Sarah Brown is a recent graduate of the Peabody Institute of Johns Hopkins University, with a Master of Arts in Audio Sciences and a concentration in acoustics. She also has a Bachelor of Music degree from the University of Georgia, where she graduated summa cum laude and a First Honor Graduate. Prior to joining RPG, Sarah has had experience in acoustics through a summer internship with Kirkegaard and Associates in Chicago, IL, where she was involved most heavily with the Science, Technology and Research and Architectural Acoustics divisions. Her further experience includes an internship with RPG, where she was involved in impedance tube, reverberation chamber, and diffusion goniometer testing. She is joining RPG, as a Regional Project Manager and Product Applications Consultant.



Tom Ryan is the Eastern Regional Sales Manager, National Contractor Manager and a Senior Applications Consultant at RPG Diffusor Systems. Prior to joining RPG, Tom was an established acoustical consultant with over 18 years experience. Tom has been involved with hundreds of projects including concert halls, auditoriums, theaters, conference/board rooms, worship spaces, K-12 education, universities, radio/television studios, recording and post production studios, and acoustic testing facilities. Tom's education includes acoustic and audio engineering from the Eastman School of Music and Physics from the University of Akron. Tom specializes in acoustic modeling and auralization, as well as acoustic field testing. Tom is a percussionist and former recording and broadcast engineer with NPR. He is a member of the Acoustical Society of America and the Audio Engineering Society and holds an Ohio electrical license. He is also a frequent guest lecturer on acoustics and noise control for the American Institute of Architects.

OVERTURE ACOUSTICAL SHELL

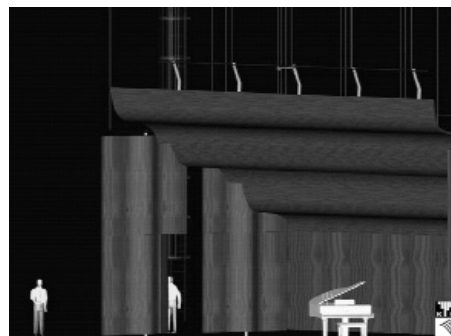


Figure 1. Overture fully flown acoustical shell

The Overture shell consists of overhead canopy elements and side towers. The façades of the canopies and towers are acoustically optimized and provide uniform coverage from all sources to all receivers. The goal of the new shell is to simultaneously satisfy the needs of the **acoustician, architect and theater consultant.**

Acoustician:

Shape Optimization: We have previously described how Shape Optimization couples the power of the boundary element and multi-dimensional optimization techniques. This is the first tool of its kind to be used in architectural acoustics. It enables RPG to provide both standard and custom optimized shapes for clouds and towers.

Surface material: RPG has developed a constrained layer damped composite, using GRG (glass reinforced gypsum) or wood, resulting in a non-diaphragmatic and thin laminate, which can be painted or veneered. The surface weight can be specified by the acoustician. The acoustically optimized surface of the shell can also be covered with a decorative scrim, which can be used as a scenic backdrop.

Aperiodic Modulation: We have previously described Aperiodic Modulation of a Single Asymmetric Base Shape. By modulating a single acoustically optimized,

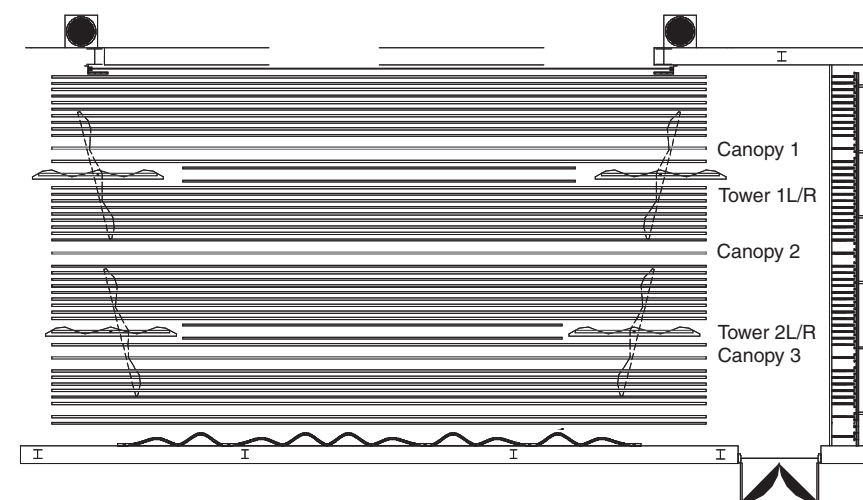


Figure 2. Line set allocation, using the Overture Canopy and Tower system, with fixed upstage wall.

asymmetric shape, uniform scattering and coverage is provided, without the lobing due to periodicity.

Architect:

Shape Optimizer: An additional benefit of the Shape Optimizer is that it can be used to take a shape motif desired by the architect or client and acoustically optimize it, while maintaining the desired motif. For example, if an "S" shape is desired, there are many inflection point shapes satisfying this motif. The Shape Optimizer determines the optimal one, while still looking like a point of inflection. Thus, we can simultaneously satisfy the aesthetics and the acoustics.

Theater Consultant:

Flown vs. Rollable: The Overture Shell can be flown, using either conventional counterweight arbors or the Vortek computerized hoist system from Hoffend.

Fully Flown:

Both the canopy elements and the towers can be flown and stored in the fly tower. The line set requirements are shown in Figure 2. Each canopy requires (3) line sets in a typical 6" spacing batten system. Each tower requires (3) line sets as well. However, of the three, only one full line

set is used. Since each tower uses its own truss batten, which extends only the width of the tower, (2) partial-width line sets are left in the center of the stage. In the fully flown configuration, using the Vortek hoist, canopy elements no longer have to be brought down to the stage

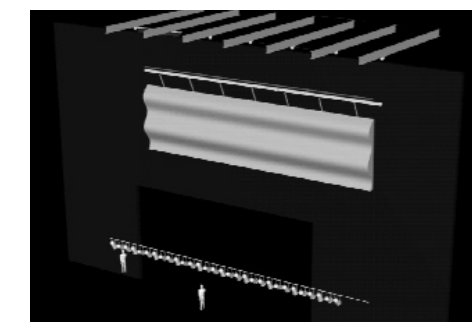


Figure 3. Vortek rigging of an Overture canopy element, showing canopy, hoist and structural I-beam connection.

floor to orient or place in a store position. These changes can be computerized remotely to almost any desired level of complexity, as illustrated in Figure 3. For a simple configuration of the canopies, a simple upper and lower limit switch can be provided.

Rollable: In the next issue, we will discuss the rollable option, in which the towers can be removed, nested and stored and the associated canopy system.