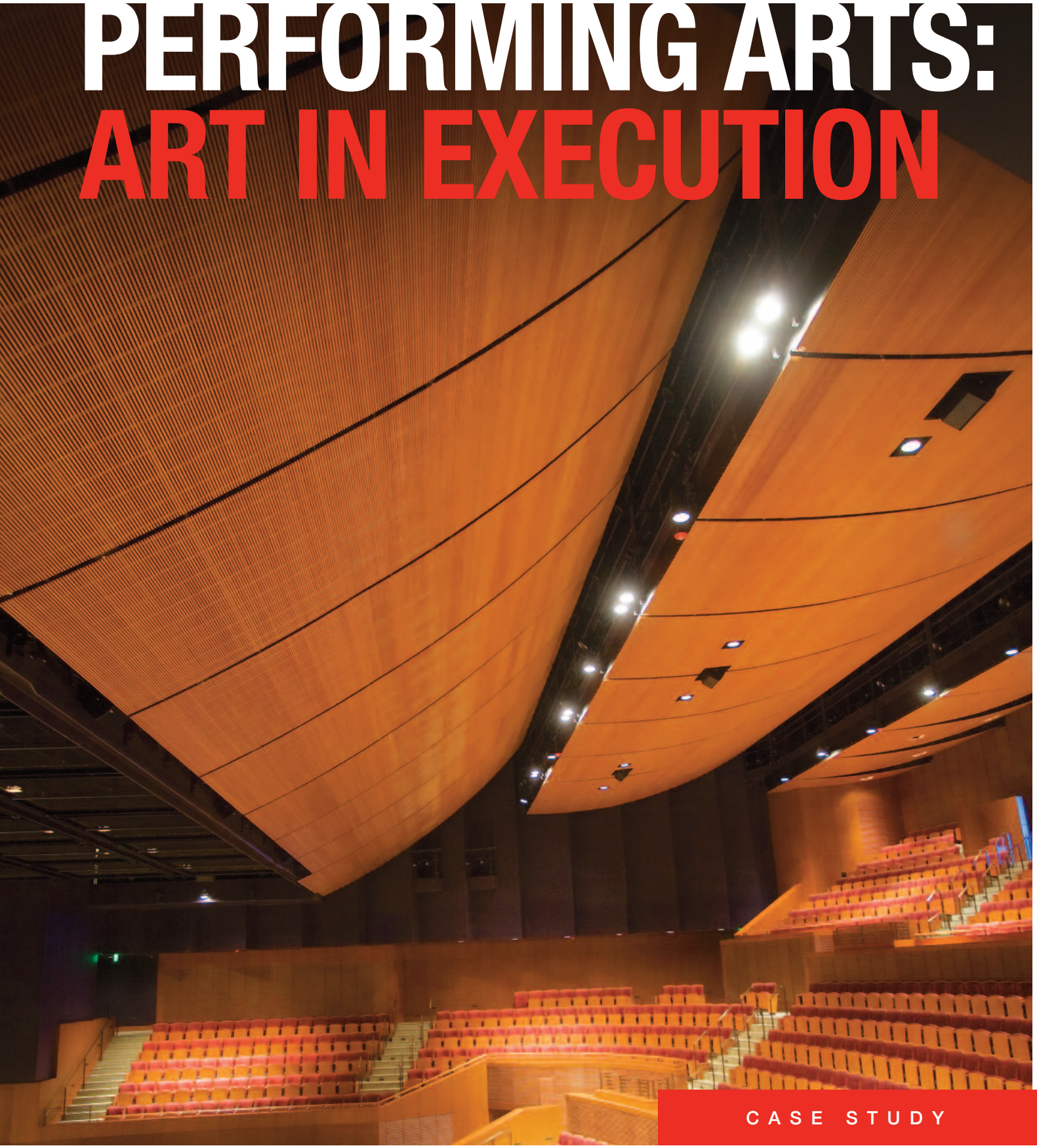
Soka University Performing Arts Center | Aliso Viejo, California

PERFORMING ARTS: ART IN EXECUTION



CASE STUDY

DIVISION 9 ENGINEERED-TO-ORDER WOOD CEILINGS

Performing Arts: Art in Execution

Soka University Performing Arts

The result of a well-coordinated design process and the natural beauty of wood is a striking ceiling in the performing arts center. The fine acoustics add to the enjoyment for students and community members alike.

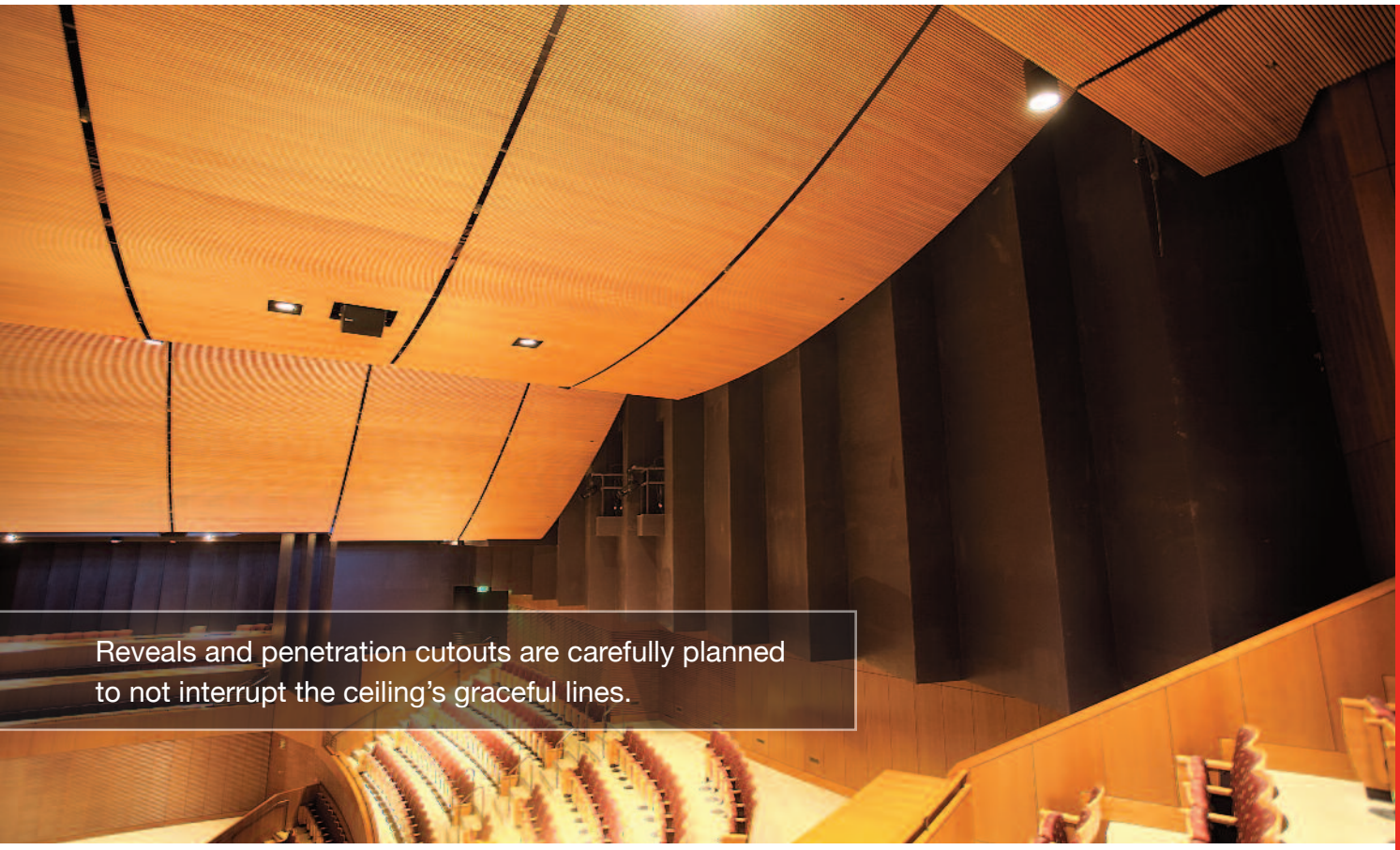
Performing arts centers present a unique challenge to ceiling design — and wood ceiling design in particular — because of the strong emphasis on acoustics. The desire to emphasize the natural beauty of wood must be reconciled with the need for excellent acoustic performance. Further complicating matters is the changing acoustic needs of the space. Most performing arts centers host a wide variety of events. The center must meet the acoustic requirements of performances ranging from rock concerts, to ballets, to speeches.

This project, a performing arts center at a private university in California, incorporated an innovative design that emphasizes the natural beauty of wood, while creating an excellent and easily controlled acoustic space. This was achieved using tightly spaced grille members formed into curving sections. Computer acoustic modeling provided an optimal shape for the individual members: only 1/2" wide and 11/16" deep. Sound passes easily through this grille lattice where it is absorbed by acoustic curtains. These curtains are mounted on retractable rails, allowing the acoustics of the room to be changed simply by pressing a button.

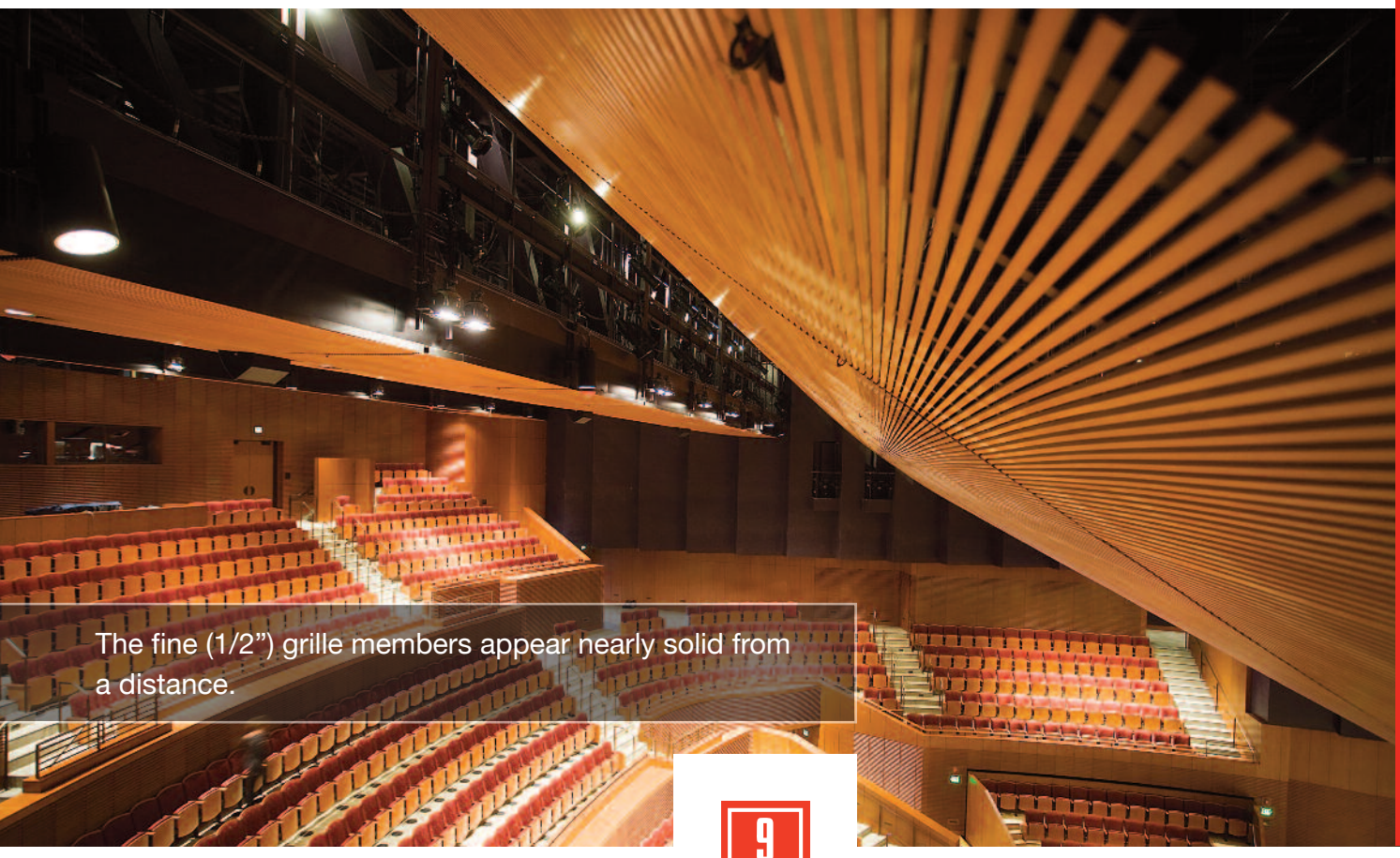
"It really was a labor of love..."

Architect firm ZGF asserts that this design "is the current, cutting edge of acoustics in the world."

From below, the ceiling strikingly displays the natural beauty of wood. The small, solid western hemlock grille members appear to blend together into sweeping panels, staggered in height and sloping gently towards the stage. The size of the wood members is key. The architect recalls starting early on with a typical module "out of the catalog, but they were not small enough." In response, a design was developed to allow twelve members per foot, while still maintaining 50% opening. The resulting panels highlight the natural color variation of the wood and reflect the university's Asian roots. Wood lattice has a rich heritage in Asian design, symbolizing communion with with the complex harmony of nature. The wood in the ceiling harmonizes with *(continued on page 4)*



Reveals and penetration cutouts are carefully planned to not interrupt the ceiling's graceful lines.



The fine (1/2") grille members appear nearly solid from a distance.

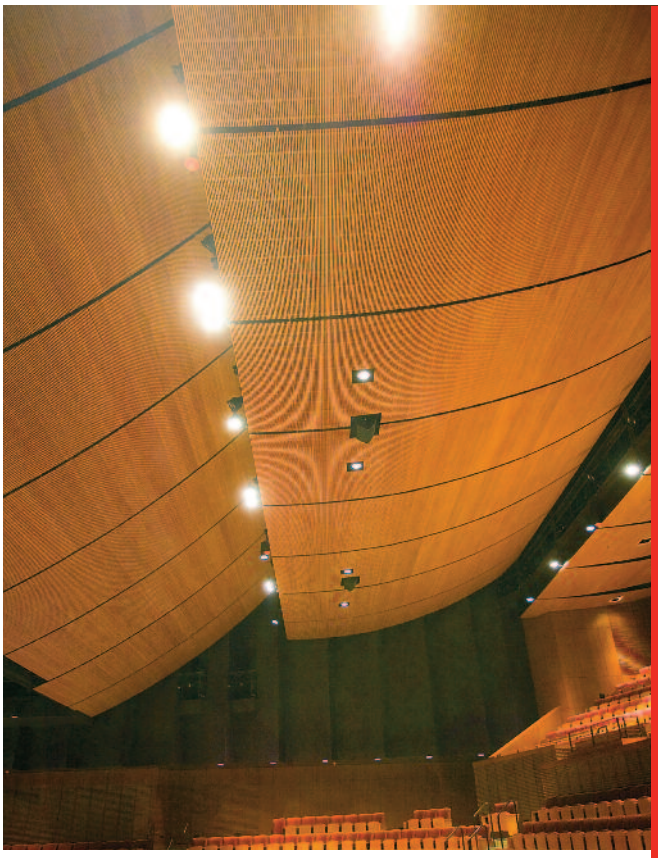
Soka University Performing Arts Center

wood in the walls, seats, and stage floor to create a sense of connection to the stage, both visually and acoustically. The stage itself, made of Alaskan Yellow Cedar, is not tied down, but acts somewhat like a drum, amplifying and directing sound from the stage. The staggered heights of the ceiling sections emphasize the natural, organic quality of the wood. The result is a warm, relaxing, and engaging space.

From a design standpoint, however, the ceiling presented significant challenges. The curving suspension of the panels had to be coordinated with the curtain tracks, as well as lighting, sprinkler, and speaker penetrations – a task made even more complicated by the changing heights of the different ceiling sections. Complex designs such as this commonly require many iterations of drawings in order to make sure that each component fits with the others. These design iterations can take months or years, pushing out the building's schedule and resulting in significantly increased costs.

Coordination wasn't the only design challenge. A common attachment method for curved grille panels is to use thin, flexible metal strips to attach the wood members to standard T-Grid. In this case, the small wood members allowed only a small purchase for fasteners to attach the wood members to metal backers. The loud music of the performing arts center could have caused the wood to rattle against the metal. In order to avoid this problem, 9Wood devised a unique solution: flexible backers made out of Medium Density Fiberboard.

The result of a well-coordinated design process, innovative attachment methods, and the natural beauty of wood, is a wonderful and striking ceiling in the performing arts center. As the owner asserts, "Everyone has just been thrilled. It's been unusual for me; it's been a true collaboration. Everybody wanted to build a great building, but to make it all come together – wow! Satisfaction is very high."



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Project Details

Soka University Performing Arts Center
Aliso Viejo, CA

Total Scope: **9,204 SF**

Product: **1100 Cross Piece Grille**

Architect: **ZGF**

Contractor: **Elljay Acoustics**

9WOOD
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