Acoustic perfection is elusive. When critics famously derided the sound of Avery Fisher Hall—home to the New York Philharmonic Orchestra—Dr. Cyril Harris was called in for the redesign. Encountering a lost cause, he demolished the hall and started anew. Even then, complaints poured in. Formulating the exact method for achieving that perfect ping would become Harris’ lifelong pursuit.

Forty years later and now in his 90s, he has just completed his swan song and final gift to the musical world: the Conrad Prebys Concert Hall. The 400-seat crown jewel of UCSD’s new $53 million Music Center is named for the Point Loma developer who donated $6 million to complete the project (and $9 million total to the Center).

“I hoped it would live up to the hype,” says professor and world-renowned bassist Mark Dresser, one of the musicians chosen to strike the first test notes—with a rare Hammond Ashley five-string bass, no less. “I was overwhelmed. Playing quarter notes never felt more profound.”

One of the pre-eminent masters of interior acoustics, Harris has designed some of the most lauded concert halls in the U.S., including the Kennedy Center in Washington D.C., New York’s Metropolitan Opera House and Benaroya Hall in Seattle. “This project is the result of literally years of research and travel,” says Mark Reddington of LMN Architects, Harris’ partner for both Conrad Prebys and Benaroya. Throughout their decade-plus relationship, LMN has accompanied the acoustician on global pilgrimages to celebrated concert halls, searching for ways to expand on others’ achievements and rectify their mistakes.

The result? A concrete palace with immense glass walls that merge the interior with the surrounding courtyard. The sides and ceilings of the performance space are an asymmetrical array of triangular bamboo panels—each differing in size and shape—designed to diffuse sound. The stunning visual effect is like a shattered dome that’s been hastily glued back together.

While the Center stands in contrast to newer stucco buildings on campus, it stands up to the other gems. In recent years the university has commissioned famed architects such as Moshe Safdie, Anshen + Allen, Charles Moore and Mitchell-Giurgola. That appetite for structural innovation has earned UCSD a certain reputation, and expectations.

On a recent visit to the strangely beautiful hall—his last shot at perfection—Harris sat in the center of the silence. It’s the sort of active, layered silence that envelops its audience like heavy folds of velvet. When broken—whether by a trumpet or a sneeze—the sound seems to emanate from all sides.

“This,” he said, “is a success.”

The Conrad Prebys Concert Hall grand opening will be held May 7-9, 9500 Gilman Dr., La Jolla, 858.534.3230.