

Brutalism Exposed the Essence of Acoustic Architecture

by Zackery Belanger

Every time sound strikes a surface its energy splits in three: reflected, absorbed, and transmitted. The material, shape, and composition of the surface determine the proportions of the split. The physical process is complicated but the idea that all the energy must go somewhere is intuitive – energy is conserved just as it is in every other physical process.

As a reflector, smooth concrete is close to ideal. Very little sound energy is absorbed or transmitted by it. When a sound is produced inside a room of concrete it meets every surface, fills every corner, takes every direction, and tries relentlessly to expand within the unforgiving boundaries. Concrete rooms have high reverberation times because sound dissipates only after the small losses and propagation distances become significant.

There's an adage in acoustic architecture: to a listener an open window is a perfect absorber. Rooms each have a unique sound – their own acoustic fingerprint – determined by their size, shape, and materials. Large rooms sound different from small rooms, full rooms sound different from empty rooms, and hard rooms sound different from soft rooms. To the listener these differences are all about what energy arrives at the ear, and when. Since surfaces split energy, they are a major determining factor in this experience. Remarkably, the adage points to an experiential equivalence of two of the three parts of the energy split. Whether sound is absorbed by a surface or transmitted through an opening, neither return it to the listener. Transmission and absorption are indistinguishable. The three parts of the split – reflection, absorption, and transmission – reduce to what might be the most important contrast in acoustic architecture: reflection and non-reflection.

Brutalism embodied this contrast like no other architectural style. That this hulking, sweeping, economical approach to buildings has something important to say about the complex field of acoustics isn't readily apparent. Most Brutalist structures had functions that weren't expressly acoustic, and those that were designed for acoustics usually didn't escape the 20th Century insistence on acoustics-as-appliqué. This tenet favored the addition of "acoustic" materials over the development of more intrinsic approaches. Concrete was rarely recognized for its acoustic properties and was usually relegated to substrate. With Brutalism the material palette was dominated by concrete and the spatial compositions were large-scale geometric. Reflection and nonreflection were given expression as solid and void.

Mario Ciampi's museum at 2626 Bancroft Way was designed without acoustic treatment, and to this day its concrete and glass surfaces remain bare. From the vantage of the main level, in a place that seems naturally a stage but which was probably not intended as such, the surrounding planar surfaces of concrete float and cascade into the distance. This is also what sound created at that location encounters. It expands into the voids, reflects at the smooth surfaces, and diffracts at the discontinuous boundaries of the two. When a style discards soft transitions and gradated materials, it offers an almost scientific glimpse at the relationship between sound and form. In 2626 Bancroft Way, Ciampi compiled the ends of the spectrum of acoustic possibility.

ARCGEOMETER 1111 BELLEVUE ST STE 360 DETROIT MICHIGAN 48207 313.242.7088 ZB@ARCGEOMETER.COM

Years of brave programming and this intrinsic sonic condition slowly cultivated 2626 Bancroft Way's reputation in the experimental music scene. It's rare and unexpected that a respected venue would arise in Brutalist form without the corruption of acoustic treatment. The practice of acoustics is still dominated by appliqué, and examples like Ciampi's are very few. When it was shuttered in 2014, the slow permeation of its sonic consequences into the collective architectural subconscious was halted. This was a driving force behind Acoustic Deconstruction of 2626 Bancroft Way. The effort wasn't so much a documentation of acoustic history, a study of an acoustic anomaly, or an attempt to transfer its character to another space. It was more like a closer look at a potential acoustic future.

This essay was first published in 2016 as an insert for Acoustic Deconstruction, a vinyl LP with work by Ingrid Lee, Matt Ingalls, and Maggi Payne. The LP grew from a collaborative project by Jacqueline Kiyomi Gordon and Zackery Belanger to study and document the acoustics of 2626 Bancroft Way, an endangered Brutalist masterpiece by architect Mario Ciampi. The LP was produced by Jacqueline Kiyomi Gordon for The Lab SF.