Abstract

From the heart of Chaos Theory has emerged a new geometry which is able to morphologically describe all of Nature’s manifestations. Fractal geometry governs the world of the fourth dimension—the space-time continuum—in which we exist. It reveals the hidden order behind our erstwhile chaotic universe and the inner beauty of our constantly-changing and dynamic world where everything is related to everything else.

Fractal geometry is the formal study of mathematical shapes that display a progression of never-ending, self-similar, meandering detail from large to small scales. It has the descriptive power to capture, explain, and enhance one’s appreciation of and control over complex diversity.

Natural shapes and rhythms, such as leaves, tree branching, mountain ridges, flood levels of a river, wave patterns, and nerve impulses, display this cascading behaviour. These fractal concepts are found in many fields, from physics to musical composition. Architecture and design, concerned with control over rhythm, and with such fractal concepts as the progression of forms from a distant view down to the intimate details, can benefit from the use of this relatively new mathematical tool.

Fractal geometry is a rare example of a technology that reaches into the core of design composition, allowing the architect or designer to express a complex understanding of nature.

Chaologists who study the inner workings of the human brain have come up with results which, by extrapolation, might suggest that fractal geometry has something to do with why we perceive great art as we do.

By further extrapolation, the question arises if fractal geometry might possibly explain also why we intuitively respond to the visual, spatial, tactile, or even aural qualities of architecture—both good and bad—as we do. If that be so, could not a fractal methodology be one way, if not the way, to approach architecture in order to elicit the desired intuitive response from the user?