Strength in Numbers: Fractals in Structural Design Andrew J. Millikan Mathematical Evolutions Jennifer McCarthy and Jonathan Phillips Summer Ventures in Science and Mathematics The University of North Carolina at Charlotte

Abstract

This study examined the effects of fractals in modern day structures and their impact on those structures as well as overviewed a history of their origin. The Golden Gate Bridge was analyzed to test its own strength through its main cables as they are fractal-like. The tests included a measure of the tensile strength and the maximum weight that could be bared and the cost of the current cables compared to those of an entirely solid version. A new fractal-like support was introduced (with its creation detailed) as to test its strength compared to standard supports in that of modern day buildings, but was never truly measured due to limitations.