

1116-K5-2609

David A. Reimann* (dreimann@albion.edu), Mathematics and Computer Science, 611 E. Porter St., Albion, MI 49224. *Forms resulting from replacing edges with flexible plates in convex equilateral polyhedra.*

The convex equilateral polyhedra include Platonic Solids, Archimedean solids, prisms, antiprisms, and Johnson solids. Additionally, the class of near-miss Johnson solids have faces that are almost regular. The edges in these polyhedra can be replaced with flexible two-dimensional shapes (plates). The connection points at the ends of the edges are replaced with four holes located in the corners of the plates. Faces and vertices are transformed into open space, while edges become solid plates, resulting in open lattice structures that simultaneously provide a sense of lightness and enclosure. Examples will be shown with edges replaced by squares, rectangles, and annulus sectors. A wide variety of materials can be used for the plates such as paper, cardboard, wood veneer, and corrugated plastic. Forms have been made using found objects such as business cards, coffee cup sleeves, and package condoms. A material's stiffness, weight, and flexibility all contribute to the final form. Fasteners such as split pin brads and cable ties have been used. These constructions yield surprising and visually interesting forms that are significantly different from the underlying base polyhedra. (Received September 22, 2015)