Utilization of 3D Printed Honeycomb Variations as Potential Housing Structures for Future Planetary Colonization

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The hexagon is one of the most useful shapes found in nature. The hexagon is strongest when packed together--think honeycombs--and will shine against compressive forces. It can be predicted that hexagons will make a stronger and more efficient structure. Honeycombs created by bees are one of the strongest structures created in nature, able to withstand many natural elements and hold large amounts of honey. Therefore, making human structures out of this reasoning would not only be backed up by nature, but it would be better for storage and transportation. A hexagonal panel and a square panel were found with the link and printed with the Freeforge Printer. One of the metal plates was set up underneath the force testing device. It had to be positioned so one side of the shapes did not go under the force testing device and create too much stress on one part. The hexagon was then placed on the metal plate with one edge laying flat. The hexagon had to be positioned vertically during this portion of the experiment. Another metal plate was placed beneath the force testing device. The length the metal plates were placed away from each other, matching the length of one edge on the hexagon and square. The shapes were placed on the gap between the two metal plates so one of the edges matches up with the length of the gap. The hexagon should be laying horizontally rather than vertically. Just like before, the knob must be pressed and stopped when any sounds of distress are heard. Both experiments were repeated with a square panel. As seen in both the downward and distributed force tests, the hexagons were able to withstand a large amount of force. Not only that, but the square wasn't able to withstand nearly as much pressure (squares are commonly used in architecture).