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My Ideas For A Moon Base Design

Many people have worked long and hard to take people, and even some animals, beyond the bounds of our atmosphere.

The surface of the moon is not conducive to human life thriving upon its surface. To overcome these challenges, many companies, colleges, researchers, members of the general public and so on have developed amazing materials, hardware, and technology. After some general research which can be accomplished from within the confines of my home, I have adopted the opinion that the most effective way to create a moon base would focus upon the central theme of interlocking reinforced, shielded triangular "blocks." These "triangles" would allow for easy assembly, especially when considering the lower gravity on the moon. By using consecutive layers, including: a layer of tempered or fused silica glass (assuming that large windows would be used in some parts of the base), then a layer of transparent or semi-transparent aerogel filled with hydrogen gas (insulating against heat and reducing incoming neutron radiation), afterwards a piece of lead glass (crystal) to further reduce incoming radiation. These layers would allow light into the base which would improve mood. However, these transparent materials would be held together with frame consisting of an aluminum alloy (such as aluminum 7075), and silicone (which can be readily manufactured for use in high radiation situations and extreme temperatures). To hold all of these together, a set of interlocking bolts (bolts which have another bolt screwed through them linearly) would give this triangular structure rigidity and contain the necessary pressure within the base. The triangles would be about 79 inches wide at their base, and 12 feet tall. They would be isosceles triangles with angles comprising 72, 72, and 36 degrees. The thickness would be subject to more specific calculations than I am at present able to complete. Assuming that the thickness would be close to 8 inches, you would be able to fit 54 triangles within the fairing of a falcon heavy rocket, with ample room for square shaped panels (of a similar composition) to make the floor and ceiling, as well as any other necessary equipment. The triangles would be patterned alternatingly up and down, leaving out one of the triangles pointing down on the corners of the building.

Building the base in this way would create a sloped wall against which the moon's regolith could be heaped up against to provide insulation against radiation, micro meteors, extreme temperature, and other such hazards. This is of course a much more economical way of protecting the astronauts, at the cost of not receiving any natural light. The triangles to be used in this way could reasonably be made half as thick as those with windows in them. This would double the number which could be carried to the moon, which would total in at 108 triangles.

Assuming that these would be used to make buildings with a rectangular floor plan (although many shapes could be formed), and using the pattern previously mentioned, a single falcon heavy could carry materials for a fully windowed room measuring 553 inches (46 feet and 2 inches)² at its base. With such a large building (which could also be sectioned off into rooms) there are many fun things you could do that tourists would love, such as dodge-ball, Nerf wars, physical activities etc.

Through all of this somewhat nonsensical material which I have extracted from the recesses of my mind, I hope to be found information which can be used to better the human race and allow for all to achieve their desires.