

Fourth research summary

Origamic Architectural Form Design System

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Summary:

In this research we will try to define a more accurate knowledge about origami. We will be able to see the origami from the mathematical point of view. Also establish the connection between the origami, architecture and design. The methods for the exploring the use of three-dimensional symmetries in the design of spatial structures will be reviewed. Examples in architecture and decorative arts were collected and analyzed We will define the use of origami as a method to explore shapes in the design process, which can even lead to the discovery of new forms and construction methods. We will analyze the use of origami techniques as a method for exploring the use of three-dimensional symmetries in the design of spatial structures.

Research problem:

Origami is one of the ways to form the two-dimensional materials into three-dimensional products is bending following cutting. Similar concepts of this spatial transformation are encountered in the origami form, which has a planar surface in unfolded state, then transforms to a three-dimensional state by folding or by folding following cutting. Conceptually it may be useful to think of one-axis bending, which is a manufacturing technique, is somewhat similar to folding paper.

Research objective:

In our work, the designing of various interior elements as well as architectural shells, which are made from various materials, are presented in a framework that considers the origami design. In the theoretical framework, evolutionary progression of origami design is discussed briefly in order to comprehend the situation of origami design in distinct application fields. Moreover, the elements, principles, basics of origami design and origami structures are generally introduced. The theoretical framework is completed with the descriptions of the concepts on origami design and origamic structures.

Conclusions:

During the last decades, studies conducted in Japan have shown the transformation of origami from-D2 to 3-D and has found important fields of applications in industry. These studies recognition of origami as an “engineering discipline” allowing have also contributed to the Tran’s discipliner studies from biology to Nano-technologies, from automotive to structural design. By continuing to use both the head and hands, the Designers are able to create the comfortable, practical and fresh Interiors. The origami furniture is creative and innovative and at the same sustainable and not harmful for the environment.