

**Tishk International University
Engineering Faculty
Architecture Department**



..... ARCH 523/ ARCHITECTURAL PHILOSOPHY.....

TOPIC: Folding Theory (5)

Grade 5- Spring Semester 2023-2024

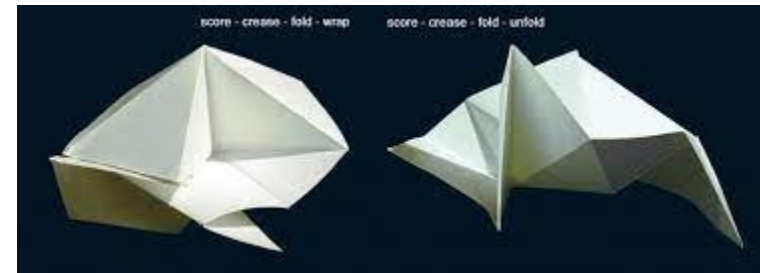
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Ph.D. of Architecture

Week 5

Define / Folding Theory

Folding Theory is a type of architectural design that involves creating three-dimensional structures through the folding of a two-dimensional surface or material. This technique is often used to create unique and complex shapes that would be difficult or impossible to achieve with traditional building methods. Folding architecture has been used in a variety of projects, including building facades, roofs, and even entire buildings. This type of architecture requires careful planning and engineering to ensure that the folded structure is structurally sound and able to withstand environmental forces such as wind and earthquakes.



The main elements

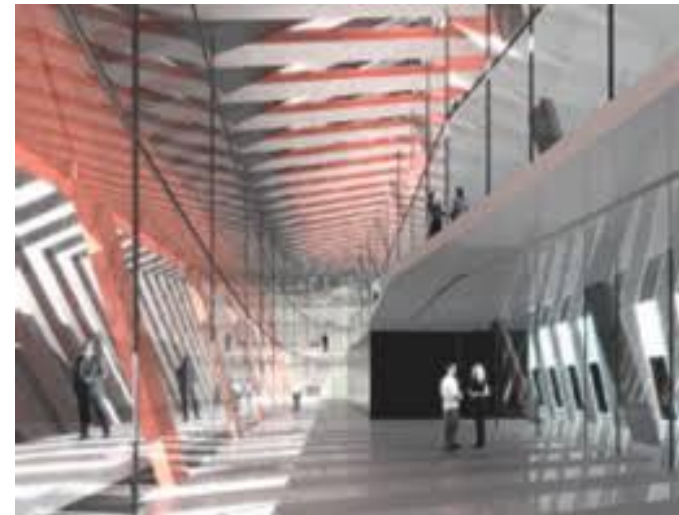
Overall, the main elements of folding architecture are the material, fold pattern, joints and connections, supports, and lighting and shading. These elements work together to create unique and visually striking three-dimensional structures.

- **Material:** The material used in folding architecture is typically a thin, flexible material such as metal, glass, or fabric. The material needs to be able to bend and fold without breaking to achieve the desired shapes.
- **Fold pattern:** The fold pattern is the specific way in which the material is folded to create the three-dimensional structure. The fold pattern can range from simple folds to more complex patterns that create intricate shapes.



The Main Elements

- **Joints and connections:** Joints and connections are important elements in folding architecture as they hold the folded material together and **provide structural support**. These can be achieved through various techniques **such as welding, bolting, or bonding**.
- **Supports:** Supports such as beams or columns may be necessary to provide additional structural support to the folded structure.
- **Lighting and shading:** Lighting and shading are important considerations in folding architecture as they can enhance the appearance and functionality of the structure. **This can be achieved through the use of skylights, windows, and shading devices such as louvers or blinds.**



Famous Architect Of Folding Theory

Zaha Hadid who was known for her innovative and experimental designs that often incorporated fluid forms and sweeping curves. Her use of folding architecture helped her to create dynamic and visually striking buildings and interiors.

Some of Hadid's most famous works that feature folding architecture include the 1-MAXXI Museum in Rome, 2-the Heydar Aliyev Center in Baku, and 3- the London Aquatics Centre for the 2012 Summer Olympics. Her designs were characterized by their use of complex curving forms and geometric patterns, which were often achieved through the use of folding architecture and other innovative techniques.



Famous Architect Of Folding Theory

Other architects who have used folding architecture in their designs **include Santiago Calatrava, Shigeru Ban, and Daniel Libeskind.** These architects have also created iconic buildings and structures using folding architecture, and their work has had a significant impact on the field of architecture and design.

What Is The Basic Theory Of This School

- The basic theory of the folding architecture school is based on the concept of using folding techniques to create complex and visually striking three-dimensional structures. **This approach emphasizes the use of mathematical and geometric principles to create designs that are both functional and aesthetically pleasing.**
- One of the key principles of the folding architecture school is the use of **origami**, the Japanese art of paper folding. Origami provides a framework for understanding the principles of folding, and many architects in the folding architecture school draw inspiration from the art form.
- Another important principle of the folding architecture school is **the use of computer-aided design (CAD) and digital fabrication techniques**. These tools allow architects to create complex designs and simulate the folding process in a virtual environment before the actual construction process begins.

What Is The Main Critic Of Folding Theory

- One of the main criticisms of folding architecture is that **it can be difficult and expensive to construct.** The complex shapes and forms created by folding architecture often require specialized construction techniques and materials, which can drive up costs and make it more difficult to execute the design.
- Another criticism of folding architecture is that **it can be impractical for certain building types and uses.** For example, the use of folding architecture in residential buildings may not be practical due to the cost and complexity involved in construction.



What Is The Main Critic Of Folding Theory

- **There are also concerns about the durability and longevity of structures that use folding architecture.** The complex shapes and forms created by folding architecture may be more vulnerable to damage and wear over time, which could lead to maintenance and repair issues.
- Finally, **some critics argue that folding architecture prioritizes form over function,** and that the focus on creating visually striking designs can sometimes come at the expense of practicality and functionality.



Famous Examples Of Folding Theory

- **Sagaponack House:** This residential project designed by Bates Masi Architects features a series of custom-designed folding screens that can be used to divide or open up different areas of the home. The screens are made from lightweight wood and are designed to fold like an accordion, allowing them to be easily moved and reconfigured as needed.



Famous Interior Designs Examples Of Folding Theory

- **Sagaponack House:**



Famous Examples Of Folding Theory

- **Inverted Warehouse-Townhouse:** This residential project designed by **Dean-Wolf Architects** features a series of custom-designed folding panels that can be used to create different spatial configurations. The panels are made from lightweight materials and are designed to fold like a fan, allowing the residents to easily adapt the space to their changing needs.



Famous Interior Designs Examples Of Folding Theory

- **Inverted Warehouse-Townhouse:**



Famous Interior Designs Examples Of Folding Theory

- **Inverted Warehouse-Townhouse:**



Thank You