

FLUXUS FOUNDATION

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Fluxus Prefab System at the 14th International Architecture Exhibition - la Biennale di Venezia, 2014

Fluxus Prefab System, invented in 1965 by George Maciunas, is featured in *Fundamentals* - the 14th International Architecture Exhibition - la Biennale di Venezia 2014, as part of OMA Workshop: “Reading *Yingzao Fashi*” at *Elements of Architecture* section, which is the collective efforts of AMO, Harvard Graduate School of Design and a host of experts from industry and academia.

Curated by Rem Koolhaas, *Fundamentals* reforms the paradigm for contemporary Biennale by highlighting historical archives and uncovering the most revealing and previously unexamined works for public viewing, continued scholarship and practices.

At the forefront of critical dialogue concerning George Maciunas as an artist, art historian, architect and social planner, Fluxus Foundation has been dedicated to reasserting the innovatory relevance of his most neglected architectural legacy – Fluxus Prefab System to the present discussion. At this time, the essence of Fluxus Prefab System is revealed on *Fundamentals* - the 14th International Architecture Exhibition - la Biennale di Venezia 2014, that values the rational reflections on the fundamentals of architecture with respect to manufacturing process, urban development and social planning.



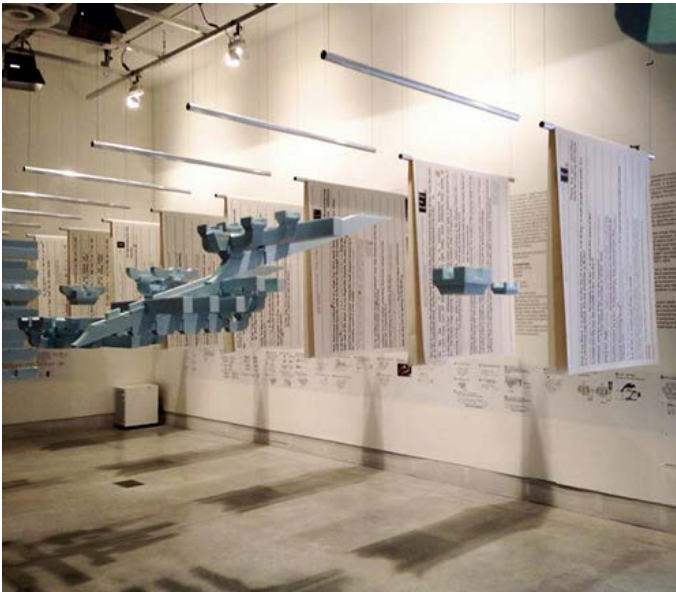
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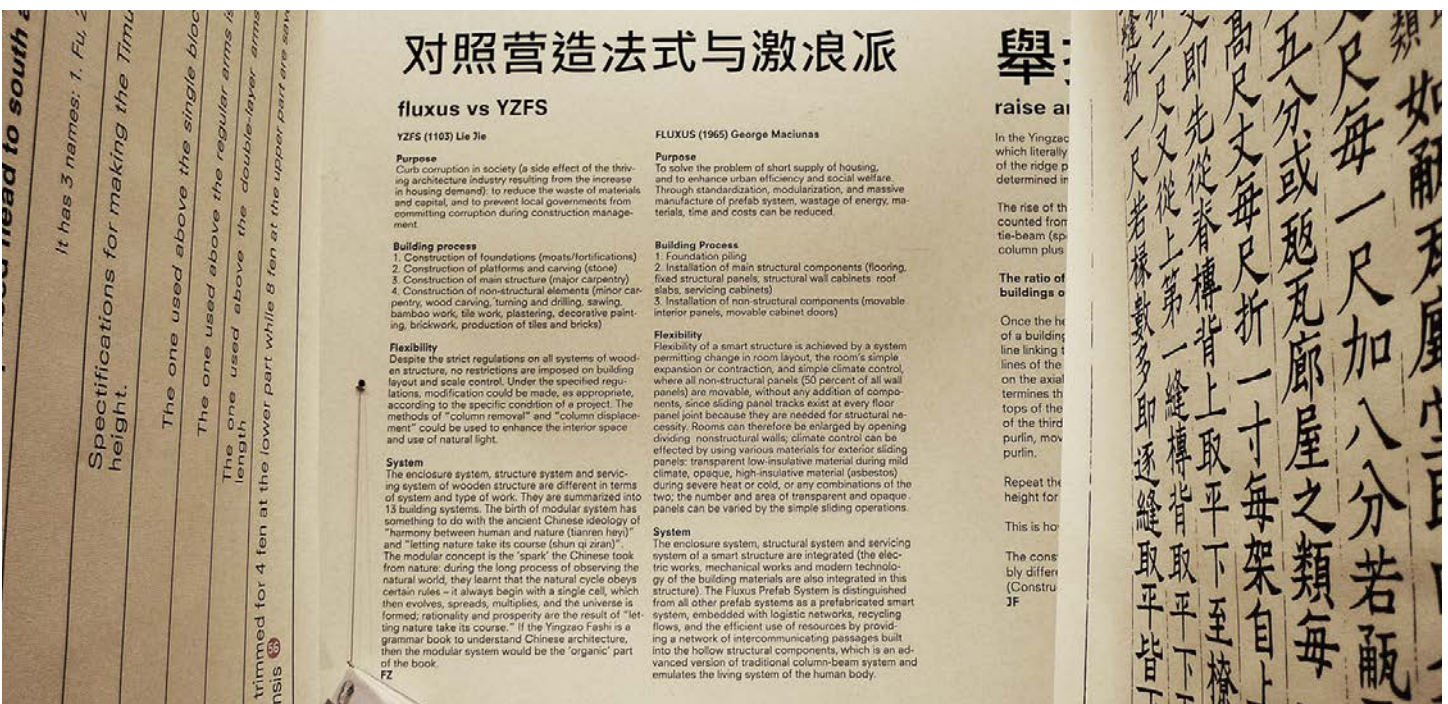
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Roof Section Interior View: Elements of Architecture | Central Pavilion
Image © Fluxus Foundation

Fundamental consists of three main sections, of which *Elements of Architecture* at Central Pavilion is regarded as the most radical interpretation of Fundamentals for architecture. It displays architecture as an integrated building system by decoding it into 15 elements (such as roof, ceiling, wall, floor, etc.) and by scanning the global history of each element.

In the roof section, the system in *Yingzao Fashi* (an ancient Chinese State Building Standard in 1103AD) by state building supervisor Li Jie, is examined in relation to Fluxus Prefab System (1960s) by visionary architect and inventor George Maciunas (the founder of Fluxus), which sparks a critical dialogue across space and time between traditional Chinese wooden structures and modern smart structures of Fluxus Prefab System in terms of building technologies as well as their social implications.



Fluxus VS YZFS | Elements of Architecture | Central Pavilion
Image © Fluxus Foundation

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roof

冯继仁 jiren feng
方振宁 fang zhenning
stephan petermann

rem koolhaas

amo

harvard graduate school of design

irma boom

Marsilio

Book Cover | *Elements of Architecture*: A series of 15 books accompanying the exhibition elements of architecture at the 2014 venice architecture biennale - roof. Authors: Feng Jiren, Fang Zhenning, Stephan Petermann, Rem Koolhaas, AMO, Harvard Graduate School of Design, Irma Boom.

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A YZFS AND FLUXUS COMPARISON (FZ)

YZFS (1103) Lie Jie

Purpose

Curb corruption in society (a side effect of the thriving architecture industry resulting from the increase in housing demand): to reduce the waste of materials and capital, and to prevent local governments from committing corruption during construction management.

Building process

1. Construction of foundations (moats/fortifications)
2. Construction of platforms and carving (stone)
3. Construction of main structure (major carpentry)
4. Construction of non-structural elements (minor carpentry, wood carving, turning and drilling, sawing, bamboo work, tile work, plastering, decorative painting, brickwork, production of tiles and bricks)

Flexibility

Despite the strict regulations on all systems of wooden structure, no restrictions are imposed on building layout and scale control. Under the specified regulations, modification could be made, as appropriate, according to the specific condition of a project. The methods of "column removal" and "column displacement" could be used to enhance the interior space and use of natural light.

System

The enclosure system, structure system and servicing system of wooden structure are different in terms of system and type of work. They are summarized into 13 building systems. The birth of modular system has something to do with the ancient Chinese ideology of "harmony between human and nature (tianren heyi)" and "letting nature take its course (shun qi ziran)". The modular concept is the 'spark' the Chinese took from nature: during the long process of observing the natural world, they learnt that the natural cycle obeys certain rules – it always begin with a single cell, which then evolves, spreads, multiplies, and the universe is formed; rationality and prosperity are the result of "letting nature take its course." If the *Yingzao Fashi* is a grammar book to understand Chinese architecture, then the modular system would be the 'organic' part of the book.

FLUXUS (1965) George Maciunas

Purpose

To solve the problem of short supply of housing, and to enhance urban efficiency and social welfare. Through standardization, modularization, and massive manufacture of prefab system, wastage of energy, materials, time and costs can be reduced.

Building Process

1. Foundation piling
2. Installation of main structural components (flooring, fixed structural panels, structural wall cabinets, roof slabs, servicing cabinets)
3. Installation of non-structural components (movable interior panels, movable cabinet doors)

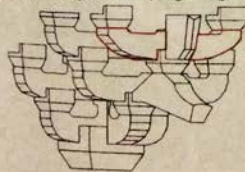
Flexibility

Flexibility of a smart structure is achieved by a system permitting change in room layout, the room's simple expansion or contraction, and simple climate control, where all non-structural panels (50 percent of all wall panels) are movable, without any addition of components, since sliding panel tracks exist at every floor panel joint because they are needed for structural necessity. Rooms can therefore be enlarged by opening dividing, nonstructural walls; climate control can be effected by using various materials for exterior sliding panels: transparent low-insulative material during mild climate, opaque, high-insulative material (asbestos) during severe heat or cold, or any combinations of the two; the number and area of transparent and opaque panels can be varied by the simple sliding operations.

System

The enclosure system, structural system and servicing system of a smart structure are integrated (the electric works, mechanical works and modern technology of the building materials are also integrated in this structure). The Fluxus Prefab System is distinguished from all other prefab systems as a prefabricated smart system, embedded with logistic networks, recycling flows, and the efficient use of resources by providing a network of intercommunicating passages built into the hollow structural components, which is an advanced version of traditional column-beam system and emulates the living system of the human body.

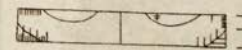
24 令棋 Regular Arm (Ling Gong)



25 里跳骑被 Inner branch, intersected with a beam



26 拱头上留六分下杀九分 leave the upper part by 6 fen°, and trim the lower part by 9 fen°.



拱眼深三分 arm-eyes of 3 fen° in depth



435

Comparison of *Yingzao Fashi* and Fluxus Prefab System in Book *Elements of Architecture* : A series of 15 books accompanying the exhibition elements of architecture at the 2014 venice architecture biennale - roof. Authors: Feng Jiren, Fang Zhenning, Stephan Petermann, Rem Koolhaas, AMO, Harvard Graduate School of Design, Irma Boom.

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The comprehensive thesis on the generic nature of both systems regarding modularization, standardization and mass-production is presented in form of Limited Collectors Edition: *Wooden Structures and Smart Structures: Modularity in Yingzao Fashi and Fluxus Prefab System*. Fluxus Foundation presented Limited Edition No. 10/500, No. 11/500, No. 12/500 to the Library of La Biennale as permanent archives, No. 13/500 to curator Rem Koolhaas. The publication are displayed at Stirling Pavilion during Biennale (June 7 - November 23, 2014).



Fluxus Publication Limited Edition | *Wooden Structures and Smart Structures: Modularity in Yingzao Fashi and Fluxus Prefab System*. Authors: Fang Zhenning, Lin Fanyu
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at Stirling Pavilion. Image © Fluxus Foundation

“Why do we study Yingzao Fashi, a Chinese architectural treatise published 900 years ago? Not only is it an architectural classic produced at the height of an era flourishing with architectural advancements, more importantly, it is a historical guidebook harboring potential knowledge for modern application.”

Foreword of *Wooden Structures and Smart Structures: Modularity in Yingzao Fashi and Fluxus Prefab System*
by Fang Zhenning.

The thesis argues that modern thinking and application for our habitat require the courage to implement a new systematic vision to solve housing issues while honestly and wisely reflecting urgent social and environmental concerns. It is prophesied that Fluxus Prefab System, as a realistic solution in experimentation, will succeed in establishing the modularity in conjunction with thousands of years of Chinese wisdom, effectively making the leap from wooden structures to smart structures.

The publication is the starting point for discussion of a more general kind – how to evolve modernity from historical wisdom, and how to deduce the future by tracking the traditional spirit from within, which is also the key debate raised by *Fundamentals*.