

Memory of architecture as design approach. Building a new exhibition and office building in China

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ABSTRACT

The proposed speech presents a research work, based on a real case-study, on interdisciplinary architectural design developed by some professors and researchers of the Department of Architecture of the University of Florence in 2018.

The multidisciplinary team was guided by Riccardo Renzi (architectural design) as Scientific Coordinator and Head of Design, with Mario De Stefano (structural design) and Claudio Piferi (building system design).

The research was developed after the team group was invited, as University of Florence-Architecture Department candidate, to design a new exposition and office building in China at the 1st International Sustainable Building Design Competition (1st IGEB) promoted by the China New Building Materials Design & Research Institute set in Hangzhou City in collaboration with the Chinese Society for Urban Studies based in Beijing.

The aim of the competition was building a new “district” of sustainable architecture in 2020. The general masterplan of the new sustainable “district” was set in early 2018 before the competition launch and the research teams invited could not change it. The submitted design has been prized among the thirty buildings winner; has been initially prized as finalist among almost one hundred and fifty teams by an international jury. All the winning entries are now going to be built in the Energy Efficient Building New Technologies and Products Expo 2020 in Changzhou city, Jiansu Province close to Shanghai city.

The goal of the research was to demonstrate how contemporary architecture could be able to express permanent value of architecture, its root system of memory, through the language.

The submitted proposal was developed on the idea that architecture had, has and will always have a strong connection to its original values. Based on, mainly, Vitruvio and on Leon Battista Alberti's theories, (implemented by Le Corbusier's approach) architectural design plays with some essential rules: geometrical control of shape, proportions, harmony between its parts, balance between the whole and the detail.

The research design was based on these eternal rules that guided the hard operation of designing a new, contemporary building in an “apparent” absence of surrounding context, as the “open land” chinese plot of design.

What is most scary about contemporary Chinese writers is their continuous introduction of new terms for which they provide no definition. And everyone interprets them any way they want.

Li Hsun¹

Place

The Chinese context, difficult to pinpoint within narrow and recurring parameters due to its vastness, presents a variety of environmental, anthropic and natural situations that is greater perhaps than that of any other inhabited context on the planet². Its urban macro-systems, often incomparable in terms of both extension and density³ to any other city-system in the world⁴, are completely disconnected from the rural system which still prevails today throughout the open territory⁵.

The place chosen for the construction of the building⁶ described in this paper is not far from Shanghai, a city that has undergone a recent powerful process of transformation and which has structured itself following Western-globalised models. Recent research projects regarding Shanghai have concerned the delineation and identification of its original *typological traits*⁷, within a wider operation of safeguarding the identitarian urban fabric of places.

None of these studies, however, can be adapted as a useful reference for the place chosen for the construction; it stands in open territory in a condition of transition from a rural to a built context and in the vicinity of an urban fringe. Not far from this location is the protected site of Yancheng⁸, one of the three hubs of urban-historical interest recognised by the Chinese government in 1988, due to the fact that it is considered one of the first urban settlements in the history of the nation; its current state, however, is a far cry from our concept of cultural heritage.

The place where the building will stand, within a wide general plan that has already been drafted by an international team of architects and designers, underwent a radical change with the suppression of rural buildings and agricultural plots; it was swiftly transformed into an urban context and was surrounded by a considerable road system that serves the macro-parcels of land. In particular, the lot destined for the set of buildings which includes the one concerning this project, does not differ much from the apparently haphazard situation which in recent times has characterised, especially in China, the system of open territory in the process of becoming urbanised. This situation does not concern exclusively the issue of urban development or of its swiftness of execution, especially when compared to the Western model, which by contrast is perhaps too reflective; it involves on occasion also the topic of the architectural composition in relation to methodological aspects and the scientific boundaries of the disciplinary field. It is possible to observe, in fact, an increasing distinction between form and language as elements that have been lost in the general ephemeral nature of the contents, which are considered superficial in architectural composition. This is actually a common trait to urban contexts undergoing swift development in various parts of the world, although these more reduced execution time-frames should not be considered as the only cause for a lack of clear and conscious references of a design practice which, however, has been unburdened by the fact of belonging to a collective condition. In the thick fog and the green plain, soon to disappear, the great macro-lot will swiftly insert itself into the context, transforming it into a different, urban-like reality. It will originate in an isolated manner, imposing its urban appearance thanks to a circle of large and high executive buildings which will serve as an external barrier to the a central group of lower exhibition and managerial buildings, among which the building that is the subject of this paper. The new master-plan will express a composition that originates from the prevailing economic conditions; it is presented as a system of self-referential design articulated on fragmented lines that determine the settlement lots, as well as the vehicular road system and green pedestrian pathways. The individual lots adapt to this overall layout of the master-plan, and are also greatly fragmented both in terms of orientation and forms; they configure an interlocking system with the road system, the pedestrian pathways and the green rest areas that should connect, according to the plan, all the accesses to the built complex.

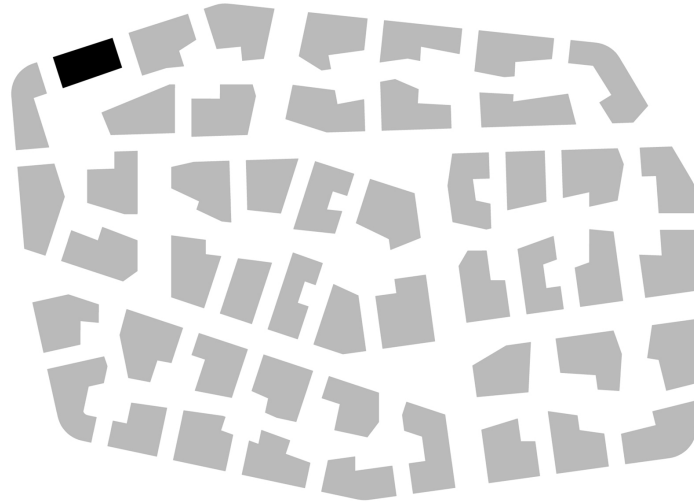


Fig. 1
Layout of general
plan

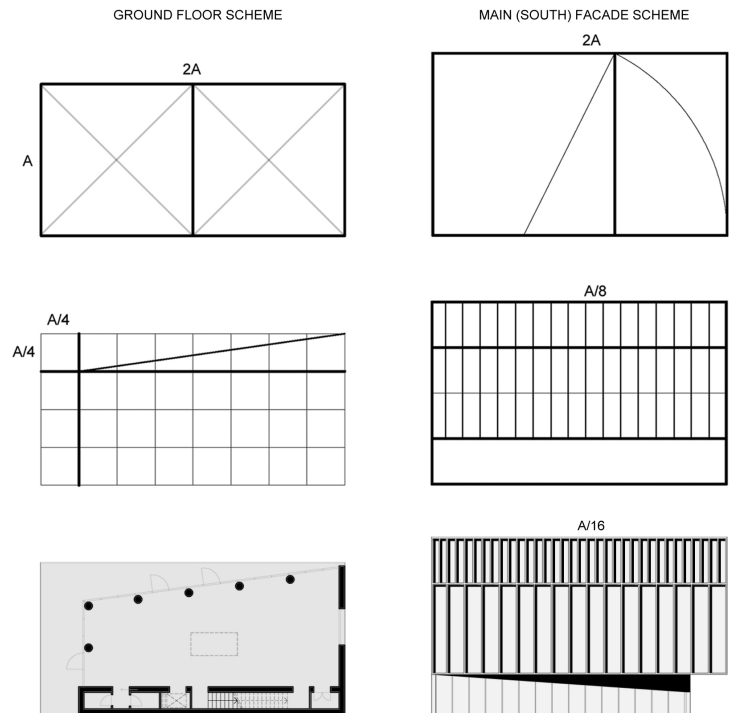


Fig. 2
Plans and Facade's
grid system

Method

In addition to the conditions of a linguistic system that expresses an architecture which is increasingly unrecognisable in its traits and to the increasingly prevailing dynamics of separation between typological identification and functional attribution of buildings and the constant loss of a hierarchical order of the parts in play that regulate the composition, the global context adds the further difficulty of ascribing a greater importance to image than to content.

The project presented here attempts, through a few and fundamental motions, to establish some valid principles for its articulation that allow a clear systematic organisation to the aggregate of the actions related to its composition.

The proposal presented was developed based on the idea that architecture has been founded since its origins on a solid base of principles and values that determine its vocation as a theoretical art expressed through figurative systems. These values, to put it very succinctly, guide, through the project, the relationship of measure with space as the primary element of the project; they establish connections with places through the understanding of stratigraphies and sedimentations which have transformed their aspect but not their identity; and determine correspondences with the physical dimension of man, all the while satisfying spiritual values by acting on the sphere of emotions.

They concern directly the moment of the project and rotate around some essential rules: geometric control and use of proportional systems beginning from the canonical figures of the composition; harmony between the parts of the project and hierarchic harmony between the spatial systems; as well as balance between the whole and the detail.

The research project, as operative exercise of a continuous verification of the fundamental tenets of architectural and urban composition, was based on these main and fundamental rules that derive from distant origins and which have through time, the *great sculptor, matured yet remained immutable to this day. They concern in an inescapable way the project in its contemporary condition, whether in relation to places and their urban and rural sedimentations, or to man and his reciprocal dynamics with architecture as container of spatial systems*⁹. This study wishes to affirm through the direct exercise of the architectural project¹⁰ the actuality of such values, identifying through the use of a contemporary language a relationship between project and classical values, measuring itself in the difficult international context.

The research project established this field of inquiry, between the theoretical principles of the urban and architectural composition and project praxis¹¹, as one of the cornerstones for interpreting a contemporary reality in a context that is strongly characterised by a significant absence of references.

The theme of memory has become a hidden trace among the wefts of the project and of the compositional device upon which the rules of the built have been articulated. Far from paratactic systems, the general design of the building was generated from the principle of the memory of constructing¹² since the origins of architecture and found support on solid foundations of rational geometry which used canonical figures derived from the theory of architecture¹³.

By adopting this ordering principle, the project took on a double demonstrative function which goes beyond the narrow vision of pure technical-technological element linked to the energy performance requirements, thus becoming an instrument for the transmission of a way of interpreting the role of architecture within its scientific-theoretical reference boundaries and avoiding the affirmation of these values with a formal immediacy or with figurative references that result from a superficial mimesis rather than from content itself. The project is articulated in adherence to classical tenets¹⁴ and is expressed through a system of etymons that determine distinctive traits in the hierarchic balancing of the building which allow the filtering through, with moderation, of the proportional structuring between the rigid mesh of the facades and the geometries that determine their position, extension and the distances between them.

The building, although respecting the requirements of the commission, largely established on energy performance canons, attempts to reaffirm the architectural composition, based on a proper disciplinary awareness¹⁵, as primary foundation placed before any other aspect: whether technical, specialised or partial and performance-related. These relevant criteria



Fig.3

*The building from
south side*

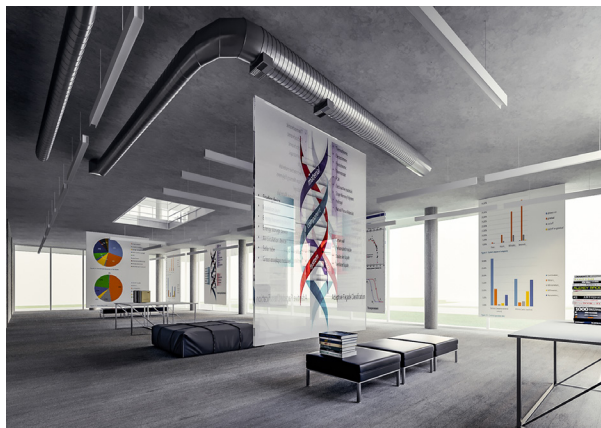


Fig.4

Ground floor view

are increasingly included, often also in the East, in substitution of the primary value of the project and are becoming identified with it in a mistaken system of attribution of weights and measures by commissioners, juries and clients alike.

Project

One of the main initial difficulties concerned the absence of a clear and recognisable type to guide the principles and rules of the composition. The double function of the small building can be related in one fourth to the role of exhibition open to the public, and in three fourths to the function of a workplace, with offices and their respective services. The moderate size requested¹⁶ also distanced it from references that this small project could eventually borrow from the large office complexes interpreted in accordance with more extensive urban dimensions and mostly tending, in nearby Shanghai, to being expressions of prevalingly vertical urban contexts.

Somewhere between a building and a pavilion, the project is in fact an interpretation of a mixed functional composition which clearly underlines, in its main facades, its double nature.

The ground floor in fact follows a line which is drawn back with respect to the upper storeys in order to include a pathway which from the street leads to the entrance of the exhibition area; covered by the protruding upper floors, this passage results in an urban pathway within the lot and which communicates the side with vehicular traffic to the green pathway system situated to the southern side of the building.

A double interpretation of the project is readable also in the determination of the southern and eastern facades, where the ground floor is entirely permeable to light and visibility; while the upper storeys present a transparency which is mitigated by an active solar screening system set with a double-facade rationale.

A good condition of penetrability to the exhibition-related function of the building at the ground floor level and of visibility from the outside is ensured by the project, which invites visitors from far away thanks to the high degree of recognisability of its contents. The function of the upper floors of the buildings is more focused on maintaining privacy and discretion in the workplace thanks to the mitigation obtained by the progressive facade system.

The building is conceived following two main lines of reasoning: a conveniently muted and solid element in exposed concrete on the side that faces north, and solid yet cut vertically on its western wall; whereas the sides that face south and east were envisaged with a light structure with transparent dividing walls.

This line of reasoning belongs to a general research conception regarding the topic of the thickness of the walls and of the depth in relation to the established hierarchies thanks to an articulation of linguistic elements; the building deliberately addresses this topic by distancing itself from the definition of an ornamental system¹⁷ and by working instead solely on the construction of a facade apparatus capable of transmitting the geometric foundation that controls the entire composition. The volumetrics of the building takes into account additional limits imposed by the call to tender. The dimension of the assigned lot, in fact, did not consider exclusively the respect for the boundaries, but also required the alignment of the building, thus forcibly determining its placement and location. In its overall design, the building tends to overcome the difficult conditions determined by the master-plan proposed by the competition announcement; its articulated and apparently casual geometries and the intertwining hierarchies of the pathways which perhaps determined the articulation of the space constructed in relation to land tenure constraints. The project attempts to reestablish a self-sustained order, relating forms that are regulated by essential relationships and a rational metrics regarding the heterogeneity of the lots and of the built system which alternates and vibrates in a variety of different languages and forms, attempting the difficult operation of defining an autonomous microcosm of its own¹⁸.

The building adheres to this operation of formal reduction by relating the environmental aspect, adequately interpreted in energy terms, to the relevant issue of orientation. This aspect, in contradiction to the guidelines of the competition

announcement, is closed on the side of the street and open toward the interior pedestrian pathways. This layout expresses the will to reveal the exhibition space to the visitors who walk along the interior pathways distributed throughout the green system and not to the vehicular traffic inside the complex. The metrics of the larger facades is generated based on the geometric form of the golden rectangle. Articulated from a horizontal composition which includes four subdivisions of equal lengths, a second compositional order is inserted which is based on vertical grids; the latter are proportionally sized in accordance with the basic measure of the project, which is composed of two squares, and distributed in such a way so as to reduce the distances between the sections from top to bottom. This operation determines the degree of privacy of the interior spaces which go from exhibition-public areas on the ground floor, to offices on the first two storeys above ground and finally to private offices on the topmost section of the building. The side of the building consists on an eleven metre module which is also the base of the golden rectangle of the greater facades, and is repeated two times. The planimetrics are in fact based on a rectangle with a one to two ratio guided on the few wall locations by a grid that is equal to a fourth of the basic module that determines the perimeter of the ground floor space; this space is reduced so as to favour the passage of visitors from the northern to the southern side, from the side on the street originally intended as main entrance by the competition announcement, guiding them toward the entrance placed in proximity of the pedestrian pathways. The interior space of the planimetrics is regulated through the division between primary and service spaces. Service spaces are enclosed by two walls with openings which serve the purpose of accessing the various rooms and the staircase; the primary space is however characterised by its condition as a space which is not fragmented by walls or partitions. At the centre of the primary space lies a full-height courtyard which allows natural light to illuminate the exhibition spaces on the ground floor and the offices on the upper storeys.

This small impluvium, a type borrowed from classical Roman architecture, albeit at a different scale, connects the ground floor to the sky, ideally reaching above the executive levels on the top and successful in the attempt to naturally bring coolness to the interior space during the Summer months.

ENDNOTES

- ¹ See Li Hsun (1928), *La Tavoleta*, in Regard T. (ed.) (1962), Li Hsun, *Cultura e società in Cina*, Editori riuniti, Rome, p. 175.
- ² See Greco C., Santoro C. (2008), *Pechino. La Città Nuova*, Skira, Milan, pp. 9-11.
- ³ See Renzi R. (2011), “Distanza e Densità. Immagini e percezioni di complesse realtà urbane contemporanee”, in *Bloom*, n° 11, pp. 81-83.
- ⁴ See Koolhaas R. (1994), *Bigness or the problem of large*, originally published in Idem (1995), S, M, L, XL, Monacelli press, New York 1995, also in Idem (2008), *Junkspace*, Quodlibet, Macerata, pp. 15-19.
- ⁵ See Vercelloni M. (2011), “New towns”, in *Casabella*, n° 807, pp. 59-60.
- ⁶ This contribution presents a research work carried out by the Department of Architecture of the University of Florence: Riccardo Renzi (design), Mario De Stefano (structures), Claudio Piferi (technology); collaborators: Rosa Romano, Valerio Alecci; specialisation students Elena Ceccarelli, Anna Dorigoni; PhD candidates: Massimo Mariani, Ilaria Massini. Competition invitation of 2018, 1st International Sustainable Building Design Competition (1st IGEBDC). Winning project. The building will be built at the Energy Efficient Building New Technologies and Products Expo 2020 in Changzhou city close to Shanghai.
- ⁷ See Qinggong J., Wenlei X. (2012), *Shanghai Shikumen*, Tonji University Press, Shanghai, pp. 33-67.
- ⁸ There are currently no historical remains in Yancheng, however a park with several tourist attractions and a “zoo” have been set up.
- ⁹ See Linasazoro J.I. (2015), *La memoria dell’ordine*, LetteraVentidue, Siracusa, pp. 24-25.
- ¹⁰ See Amirante R. (2018), *Il progetto come prodotto di ricerca*, LetteraVentidue, Siracusa, pp. 19-22.
- ¹¹ See Rossi Prodi F. (1994), *Atopia e Memoria. La forma dei luoghi urbani*, Officina, Rome, pp. 13-24.
- ¹² See Monestiroli A. (2002), *Continuità dell’esperienza classica*, in Idem, *LaMetopa e il Triglifo. Nove lezioni di architettura*, Laterza, Bari, pp. 3-14.
- ¹³ See Milizia F. (1781), *Principi di architettura civile*, Vol. II, pp. 205 et seq. (pages referred to in the 1785 edition published by Remondini in Bassano).
- ¹⁴ See Settis S. (2004), *Il futuro del classico*, Einaudi, Milan, pp.111-116.
- ¹⁵ See Campo Baeza A. (2018), *Principia architectonica*, Martinotti, Milan, pp. 13-14.
- ¹⁶ The building has a height of four storeys above ground for a total area of approximately 750 m². The longest side is 22 metres and the shortest 11 m. The height is a golden rectangle established upon the longest side of the base, in other words 13.60 m, with an inter-floor separation equal to approximately 3.40 m.
- ¹⁷ See Rocca A. (2017), *Lo spazio smontabile*, LetteraVentidue, Siracusa, pp. 20-22.
- ¹⁸ See Zumthor P. (2007) , *Atmosfere*, Electa, Milano, p. 45.

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