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Reality Check

Multidisciplinary ways of conditioning space

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Synopsis

The aim of the paper is to illustrate a series of pedagogical strategies utilized concerning the integration of other disciplines in the design process towards redefining ways of conditioning space.
Via the agenda of a specific design studio laboratory the quest for integration is tested and the boundaries of architecture and other disciplines are being challenged.
The thematic of the studio poses "technology" as a lens to inspect the future of architecture, therefore it provides a fertile ground for reciprocally investigating the future of other disciplines.
A series of specific methodologies and processes are explored in order to encourage a multidisciplinary approach. These processes spread throughout the year as a continuous crossover of themes, exercises, workshops, references, case studies and discussions.
The Reality check exercise aims at redefining ways of innovatively conditioning space by integrating personalised insights from the disciplines of mechanical, environmental and structural engineering, construction and building services.

Key words: Multidisciplinarity, conditioning space, technology, pedagogy.

1. Introduction

The aim of the paper is to illustrate the pedagogical strategies utilized at an advanced level in the architectural education (4th/5th year of study "Unit"-design studio laboratory) concerning the integration of other disciplines in the design process towards redefining ways of conditioning space.

The coordinators of the Unit specialize in construction/technology subjects and have been genuinely concerned with how these disciplines fuse in the design studio. Within the framework of the Unit a series of specific methodologies and processes are being explored in order to encourage a multidisciplinary approach, by simultaneously broadening as well as focusing the design research.

The thematic of the Unit poses "technology" as a lens to inspect the future of architecture therefore it provides a fertile ground for reciprocally investigating the future of other disciplines. Specifically the limits of disciplines such as mechanical/environmental/structural engineering, construction and building services are challenged through architecture and vice-versa.
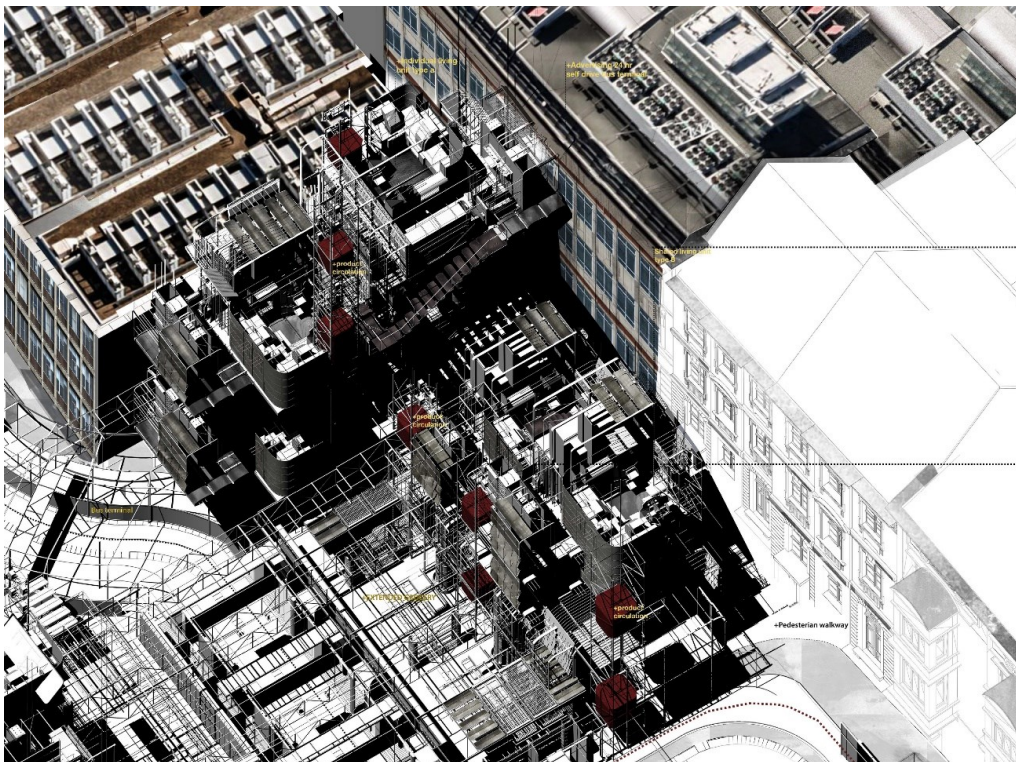

Figure 1.

2. Overarching drivers towards multidisciplinarity/integrative thinking

The Unit revolves around three key overarching drivers towards embracing multidisciplinarity: "Fusing"/"In-fusing"/"Con-fusing". These intentions define the way in which all the ingredients of the studio are introduced, how the discussions evolve and how the students' critical thinking matures.

Fusing: students produce work and then evaluate; a process that makes them appreciate potential reciprocal fusing of one discovery into others. The intensity of speed and amount of production is critical.

In-fusing: added ingredients and elements, such as intense workshops and exercises, are abruptly parachuted into the process, thus providing new sets of questions and parallel conditions. The element of surprise acts as a catalyst.

Con-fusing: confusion is enthusiastically encouraged and the only suggested remedy is more production! Through the introduction of thematics from other disciplines, confusion is both inevitable and expected. "Confusion" pedagogically means a positive stage of expansive options and issues for investigation. Instead of following a process of choosing and rejecting solutions, a longer process of distilling the multitude of findings is encouraged.

3. Pedagogical Strategies

In line with the above-mentioned drivers, a number of specific pedagogical strategies were tested. A varied series of targeted workshops included exercises on conceptual narratives, programme speculations, timelines, logistics, technical resolutions and tectonic investigations.

The strategies aim to enhance the students' ability to grasp architecture as a coherent subject and positively embrace the merits of a multidisciplinary approach. Within an academic environment, it is vital to question how other disciplines are deciphered in order to challenge their boundaries but equally to confront the limits of architecture itself. This appreciation is even more critical when the aim is to divine the future of architecture; speculations about the future of architecture inherently imply discussions about the future of other disciplines and their integration.

Figure 2.

Definitions of integrative approaches towards architectural creation are established through critically developed positions afforded from the plethora of historic and contemporary theories surrounding the subject. The Unit reviews

architectural writing to promote conceptual understanding of technology, function, programme and performance, in order to enhance appreciation of the interdependence of all parameters in architectural creation and the relationship with other disciplines.

The pedagogic methodology follows a spiralling design process, which is in opposition to earlier building design practices that followed linear thinking and development.

The Unit launches with the development of process tools for exploring possibilities of in depth study of past patterns in order to inform and trigger visions of the future. The timeline of a thousand years forward becomes the speculative proposition, the conceptual axis for incrementally projecting architecture into the future.

Following the formulation of narratives about the deep future, students are abruptly asked to perform a "reality check" exercise that narrows the focus on the immediate future, approximately 100 years from now.

4. "In-fusing": "reality check" process

The idea of "in-fusing" towards intelligent multidisciplinary ways of conditioning space is implemented through a number of abruptly introduced exercises such as the "reality check" workshop, followed by the "tectonics" and "skin-deep" workshops.
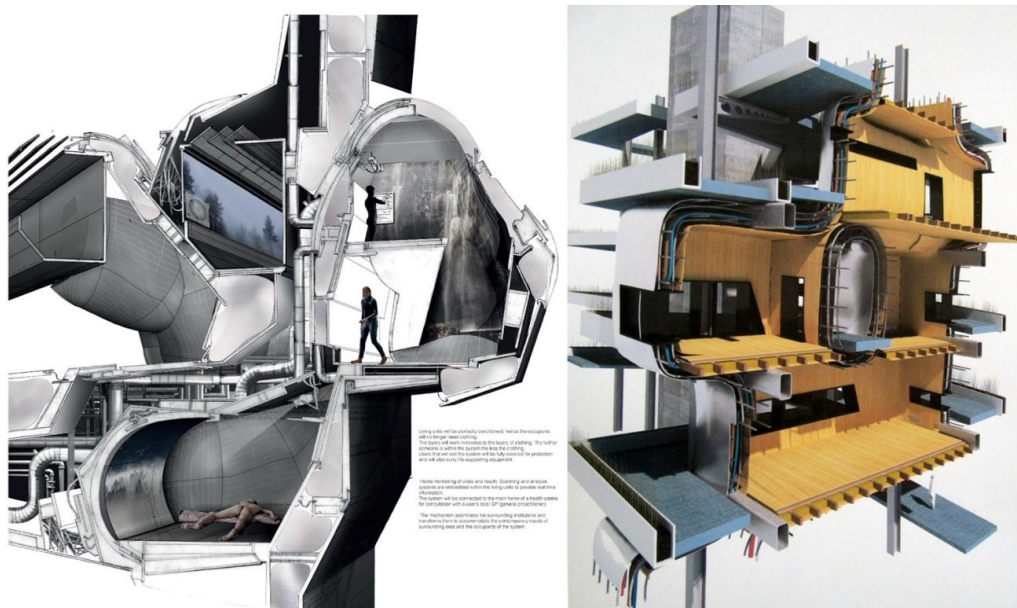

Figure 3.

4.1. Reality check

The "reality check" exercise aims at testing resolutions considering ways of conditioning space, materiality, systems, programmatic provisions, building services etc. The exercise is intentionally parachuted quite early in the design process to avoid misinterpreting it as a "detailing" exercise towards linear/traditional building resolutions. The objective is to equally appreciate this

as a conceptual driver of the propositions and thus dare to propose. Conditioning space is considered on both an operational/instrumental level as well as on an experiential/conceptual way.
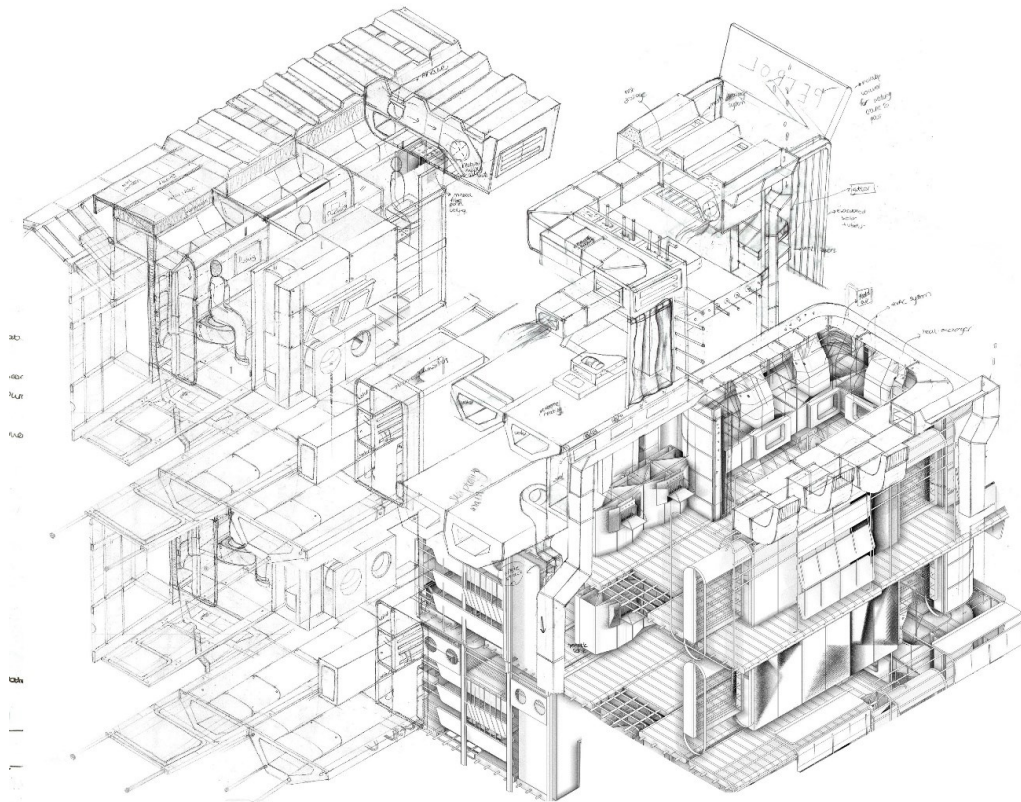

Figure 4.

The focus of the exercise is "integrative thinking", where students gradually develop an inventory of alternative strategies (with inspiration/insights from other disciplines).

An Indicative list of parameters are considered:
-Life of buildings in time: process of manufacturing /use/operation/adaptation/reuse/abuse/renewal.
- Competence versus performace: systems sophistication/operative clues.
- User customisation/programmatic intelligence.
- Autonomy and/or interdependence.
- Building as a 'development': a system of objects and processes over time.

The pedagogic objective is not to require students to rationally implement architectural/technological "conventions", but rather to understand "conventions" in order to appropriately reinvent them. All new findings should be incrementally accumulative and evident in the inter-crossed and synergetic strategies that enhance the performance of propositions and the intelligence in conditioning space.
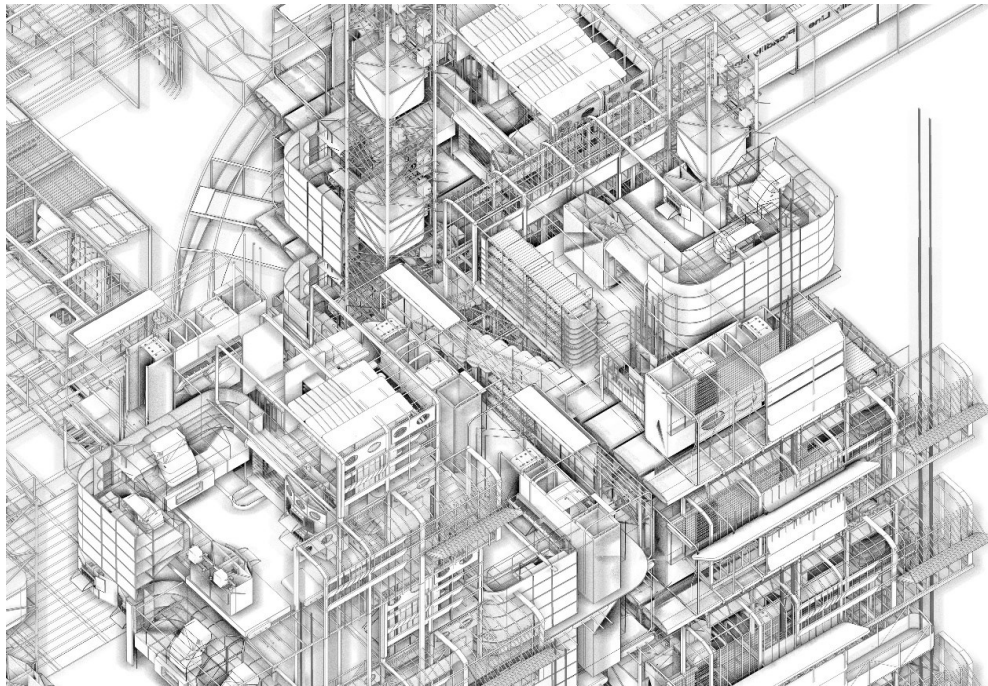
Figure 5.

The required output is sectional isometric / axonometric drawings at a scale appropriate to each proposition, accompanied by a multitude of other diagrams such as 3D plans, sections, details, assemblies, perspectival moments.
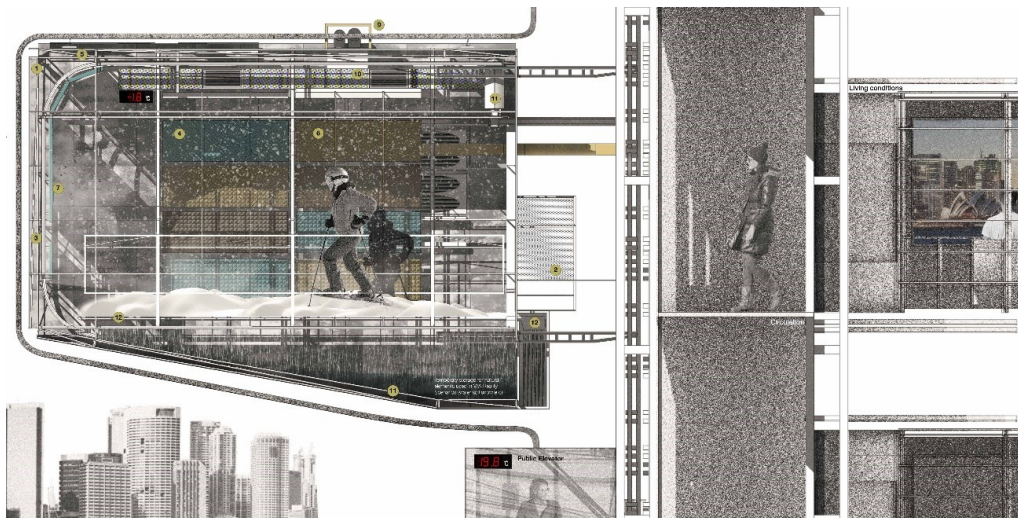

Figure 6.

4.2. Tectonics

Experimenting with the tectonic logic of propositions via the production of physical models. The definition of what a tectonic logic is was left open for the students to interpret but they have to consider the elemental make-up of the constituent parts, the art of joining things together, the implied materiality, the response to site, issue of programmatic hierarchy and varying spatial qualities.

The students investigate alternative tectonic logics and then merge them into a compositional model appropriate to a highly developed narrative.
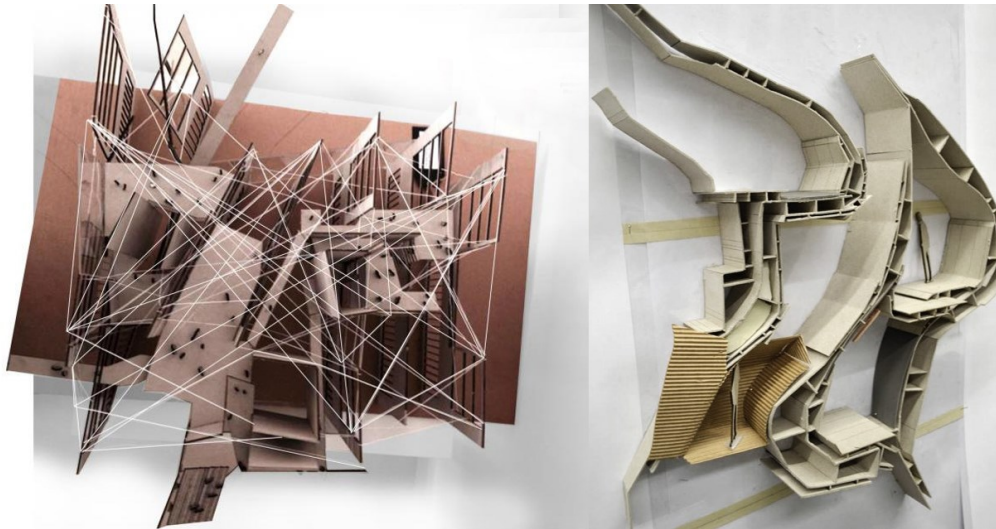

Figure 7.

4.3. Skin-deep

This workshop requires students to rethink the future of building skin, as interface and mediator between inside/outside conditions, both actually as well as conceptually. The aim is to reconsider the skin of buildings as a vital (and unavoidable) interface between what is building and what is not, what in and what is out, what is conditioned/transformed and what is left to its own devices, what postulates new ideas and what is left "being", what deliberately creates new atmospheres and what is plainly… the atmosphere.

"Skin-Deep" deals with a zoom-in investigation of selected and holistic concepts already developed in previous steps that attempted to project into the deep future.
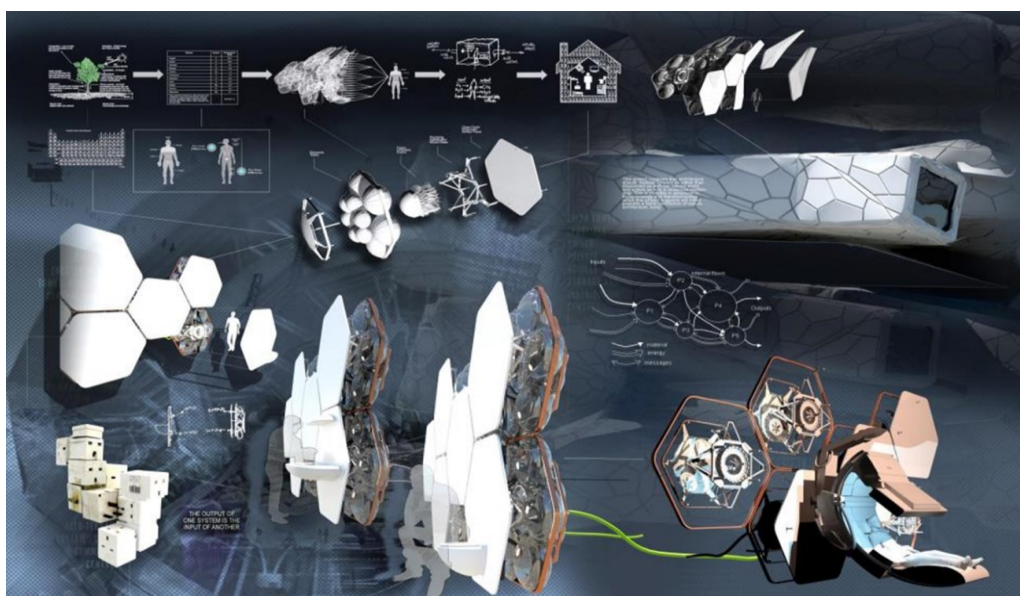

Figure 8.

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5. Conclusion

The paper has afforded a perspective into utilising specific pedagogical strategies to encourage the integration of other disciplines in the design process towards redefining ways of conditioning space.
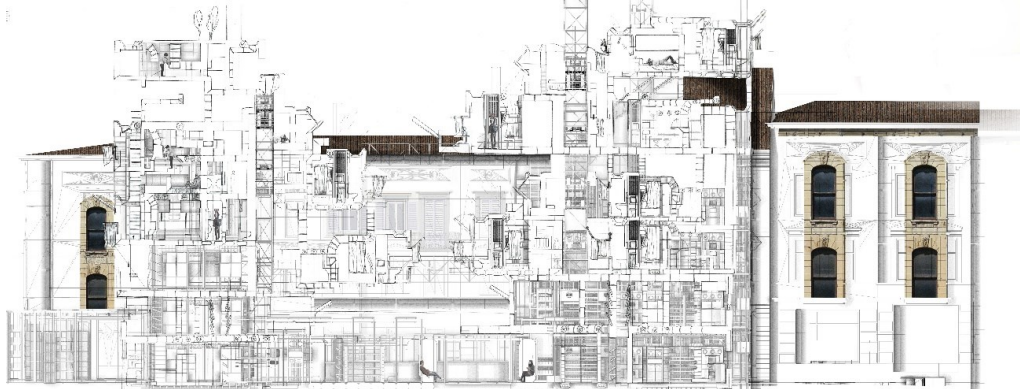

Figure 9.

The multidisciplinary approach in the design studio should not be prescribed, as the students could mistakenly perceive this as a recipe, leading to preconceived "solutions". It should instead remain implicitly contained within the thematic framing of the design studio.

Evidently, architecture can challenge the limits of other disciplines, but it should equally be actively challenged by these disciplines through a continuously cyclical and reciprocal process.
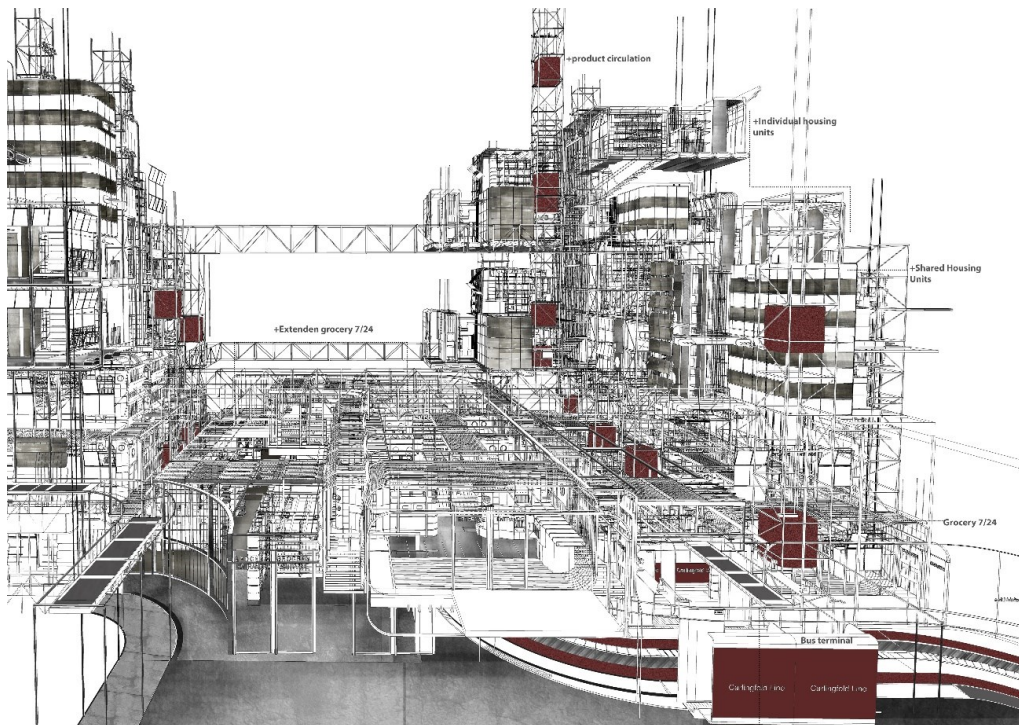

Figure 10.

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Biography

Markella Menikou. Associate Professor and is the Head of the Architecture Department at the University of Nicosia.

She received a B.A. (Hons) in Architecture with First Class in 2000, and a Bachelor of Architecture with Distinction in 2003 from the Manchester School of Architecture. In 2007 she completed an M.A. in Bioclimatic Architecture from the same university. She received scholarships and funding from the Cypriot Government and in the UK for high academic achievement.

She taught at the Manchester School of Architecture from 2003 to 2007, as a Lecturer in Architectural Technology. She has been the Head of B.A. Technology since September 2006.

In parallel to her academic involvement she has been involved in professional practice since 2000 and has qualified as an RIBA Chartered Architect in the UK, following graduation from the Advanced Diploma in Professional Practice in Architecture in 2004.

She worked at international firm Scottbrownrigg Architects, Limassol for a year and since her re-settlement in Cyprus in 2007 she has also been working as a freelance architect.

She represented Cyprus in the Venice Architecture Biennale in 2008 with the project 'Easylove'. Her current research interests include instrumental architecture, theory of technology, prefabricated building systems, and sustainability.

Adonis Cleanthous. Practicing architect and Associate Professor of architecture in the Department of Architecture, University of Nicosia.

He is a holder of an MSc in Advanced Architectural Design from Columbia University, Graduate School of Architecture Planning and Preservation. His is also a holder of a B.Arch from the University of Oregon, USA.

He has been practising architecture since 1993 through work in numerous local practices, as well as through his own practice "Cleanthous + Eliassides", established in 2002. Cleanthous has been awarded a number of prizes in architectural competitions including the first prize and building commission for the university of Cyprus "social facilities" building complex for the new campus, an extensive facility of varied educational and social programmes.

He represented Cyprus in the Venice Architecture Biennale in 2008 with the project 'Easylove'.

Recent interests through practice and academic development include construction and building technologies, and more specifically the design and manufacturability of pre-fabricated building components.