

AGILE X

PAVILION
2016

TWO WEEK PARAMETRIC DESIGN WORKSHOP
FEB 1ST TO 12TH

AGILE X 2016

BACKGROUND

The opposition of form-driven versus material or construction-driven architectural design has a long history in the discipline's discourse. Many modernist architects (for example Louis Kahn, Mies van der Rohe and Walter Gropius) suggested that form-making is intrinsically linked to and determined by the materials and construction system used. Some architectural courses at universities have followed this approach and taken it even further by promoting a materials-driven design process, whereby material availability and capabilities are the starting point of any design project. Traditional design procurement (e.g. RIBA plan of works) has generally promoted a linear approach that sets up a sequence of concept, developed design, technical design and production information. This sequence insinuates a progression where first the concept is resolved, which then informs the construction (the technical) system, and finally the material specifications. The downside of this linear approach is an inherent inflexibility, making it difficult to make changes to aspects of the project outside of their particular stage in the process. An increasing awareness of contemporary challenges such as resource scarcity and technological advancement, however, suggests that we should embrace a certain level of uncertainty and agility in the way we develop the building design.

Agile X is a reaction to the inflexibility of traditional design development and instead promotes the role of digital parametric design systems in supporting a more 'agile' approach, one that may allow architecture to respond better to changes to concept, construction systems and material specifications.

AIMS AND OBJECTIVES

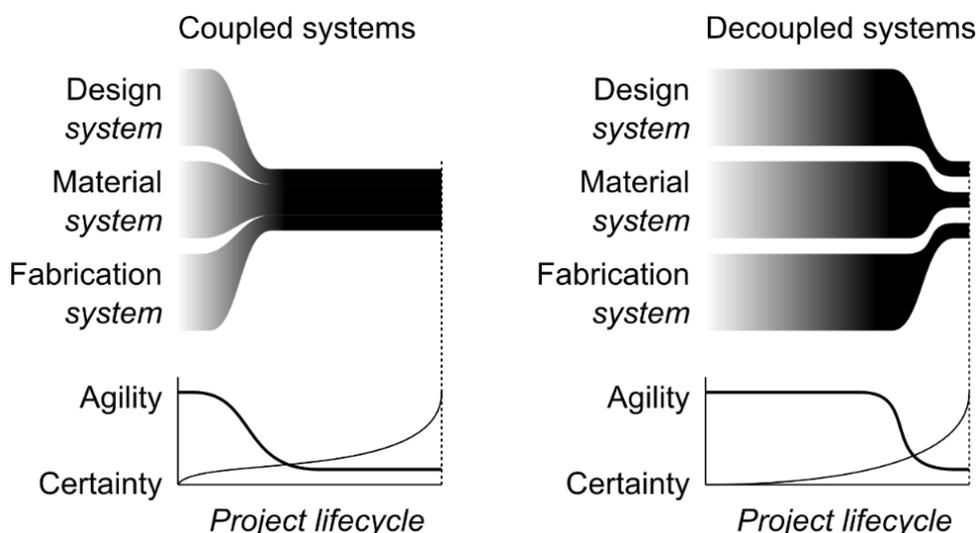
Three key aspects of the design process or 'design systems' have been identified in the work of digital-based architecture firms such as UNStudio, ONL and NOX; immaterial, fabrication and material. As in the RIBA stages example, these systems traditionally progress in a linear fashion, whereby concept and form influence fabrication systems, which in turn inform materials choice. The Agile X workshop sets out to explore an alternate, more 'agile', project approach that decouples these design systems allowing them to run in parallel, and, through parametric techniques, actively respond to one another as the overall design evolves. The Agile X pavilion project will test the interchangeability of inputs throughout the entire design process (client requirements, resource availability or site restrictions for example), and how responsive the designs are to change.

METHOD

This 2 week intensive workshop will see students develop a pavilion design in groups across immaterial, material and fabrication streams. Digital meta-design platforms will facilitate design processes and the production of simulations, data sets, models and prototypes that will inform the final design. Each stream will develop and test a variety of design options that respond to local issues, then manage how they are integrated into the overall design. The workshop will culminate in the complete design of an Agile X Pavilion which will house a series of high profile events for the Australian Institute of Architect's National Conference in April 2016.

WHAT TO EXPECT

The workshop will allow students to develop their skills in advanced computational design, material systems design, fabrication and prototyping, design-based research and agile design strategy. The program will feature lectures and guidance from guest practitioners; including collaborative design exercises. The intensive design setting will call for a critical and analytical approach which actively addresses complex contemporary architectural issues, such as adaptability, sustainability and resource-efficiency, as focused sessions in the workshop.



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WORKSHOP DELIVERABLES

By the end of the 2 week workshop, students are required to produce a full set of pavilion shop drawings or equivalent construction information, prototypes including physical models, documentation of design development and design iterations, as well as a blog contribution to the Agile-X website.

Students are expected to curate an exhibition to be displayed in a 6m x 3m booth for the UniSA O-Week (22-29th Feb). This may include prototype models, design development drawings, animations and other promotional material, such as 3D renderings.

GROUP 1 IMMATERIAL DESIGN GHOST

This group will work on defining the underlying forces that determine the immaterial form of an architectural solution. Often described as conceptual development, these studies will comprise aspects including program, experience, activities, user needs and so on. Agile X defines these aspects as the 'immaterial' design system or the 'design ghost'. The immaterial design group will establish a digital framework for producing agile, parametric, design simulations informed by the project brief and the pavilion's spatial requirements.

SUBMISSION REQUIREMENTS

Immaterial group: 'design ghosts' x 3
 Material group: material systems x 3
 Fabrication group: prototypes and scale models x 3

As part of the design development, we will choose one of each system to be used for the final pavilion design and related construction information.

Each group will be responsible for a design journal (e.g. collation of group outputs, personal exercises and responses to lectures and design processes). The intention is that this information will be published on a project blog.

GROUP 2 MATERIAL DESIGN

This group will source, develop and test materials that can be applied to turn concept into built form. They will capture and coordinate material information (e.g. structure, sustainability, availability) and test agility in relation to the other systems, site parameters and project requirements. A key requirement will be sourcing appropriate materials that are locally available and could be adapted for the project.

PROJECT CONTINUATION

Pavilion fabrication and construction workshop (dates TBC).

Pavilion construction on site for the AIA Conference (28th April).

Agile X project travels to Melbourne and China (mid-late 2016).

GROUP 3 FABRICATION DESIGN

This group will explore what agile design processes mean for structure, junctions and detailing. They will have the opportunity to experiment with fabrication systems and create prototypes and scale models that can be used to inform construction of the pavilion. These systems should be dismountable, transportable, and structurally sound. The fabrication design group will use the technologies available in the workshop (i.e. CNC, laser cutter, 3D printers) to develop these prototypes.

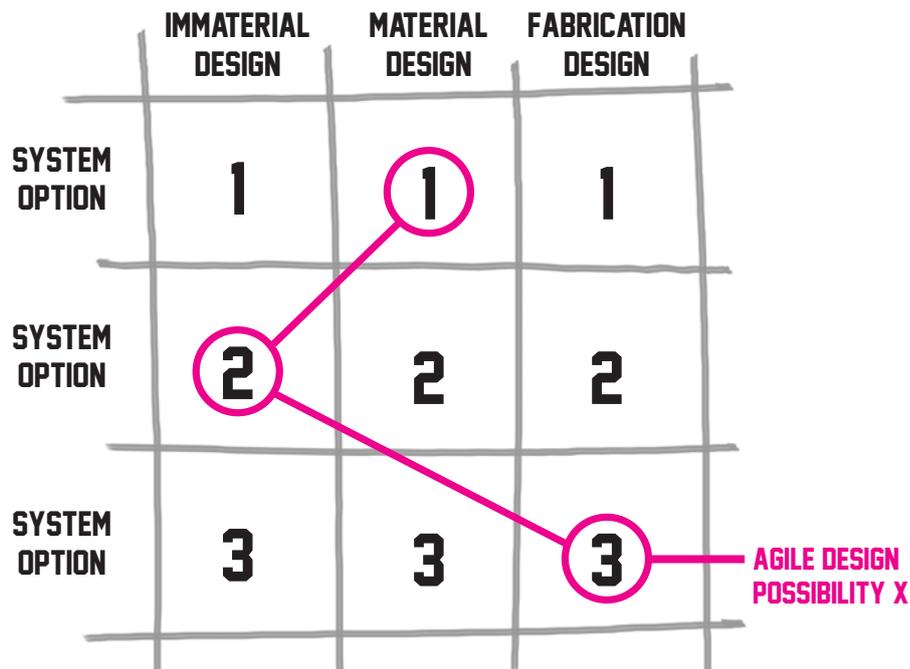


Figure 2. Agile systems possibility matrix.

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WEEK 1 DESIGN SYSTEMS PROTOTYPING

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
9.00-12.00	LECTURE NO.1 T.MCGINLEY & D.KROLL INTRO & BACKGROUND	TEAM PLANNING & AGILE PROJECT MANAGEMENT SESSION	LECTURE NO.2 MATT MURPHY TECHNICAL CONSIDERATIONS	PROTOTYPING LAB WORK	LECTURE NO.3 D.KROLL SUSTAINABILITY & MATERIALS PHILOSOPHY
1.00-3.00	BRIEF DISCOVERY DESIGN TOOLS & EXERCISES	PROTOTYPING LAB WORK	PROTOTYPING LAB WORK	PROTOTYPING LAB WORK	PROTOTYPING LAB WORK
3.30-6.00	TEAM FORMATION 2PM SITE VISITS SPM REPORT ON FINDINGS	PROTOTYPING LAB WORK	SPM PRESENTA TIONS TOOLS FEEDBACK	PROTOTYPING LAB WORK	SPM WEEK 1 DESIGN SYSTEM PRESENTATIONS

TIMETABLE SUBJECT TO CHANGE

WEEK 2 INTEGRATION OF DESIGN SYSTEMS

	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10
9.00-12.00	LECTURE NO.4 T.MCGINLEY SYSTEM INTEGRATION	DESIGN SYSTEM INTEGRATION TESTING AND PROTOTYPING	DESIGN SYSTEM INTEGRATION & TESTING PROTOTYPING	PRODUCTION OF FINAL DELIVERABLES	PRODUCTION OF FINAL DELIVERABLES
1.00-3.00	COLLABORATIVE PLANNING SESSION	DESIGN SYSTEM INTEGRATION & TESTING PROTOTYPING	DESIGN SYSTEM INTEGRATION & TESTING PROTOTYPING	PRODUCTION OF FINAL DELIVERABLES	PRODUCTION OF FINAL DELIVERABLES
3.30-6.00	SPM PRESENTATIONS GROUP PLAN & INTEGRATION RESPONSES	DESIGN SYSTEM INTEGRATION & TESTING PROTOTYPING	SPM PRESENTATION OF FINAL INTEGRATED DESIGN TO CLIENT	PRODUCTION OF FINAL DELIVERABLES	SPM FINAL PRESENTATIONS & CELEBRATION

TIMETABLE SUBJECT TO CHANGE

0 WEEK EXHIBITION 22ND TO 29TH OF FEB

TO COME...

PAVILION CONSTRUCTION WORKSHOP DATES T.B.C.

PAVILION INSTALLATION AT AIA NATIONAL CONFERENCE APRIL 2016