# CRAFTSMANSHIP IN THE DIGITAL AGE

## Architecture, Values and Digital Fabrication

#digitaltools #designprocess #materials&products #naturalresources

A Collaborative Project consisting of a series of discussions and workshops on the potential of digital technologies to trigger innovative responses in the design and making of architecture

2017

## INTRODUCTION AND AIMS

**Craftsmanship in the Digital Age invited established manufacturers, proponents of newer digital production tools, architects and building industry representatives to co-articulate a craftsman-ship approach to incorporate digital fabrication into architecture.**

Rather than seeing digital tools as incongruous with craftsmanship, *Craftsmanship in the Digital Age* posited that the second digital chapter in architecture design could in fact strengthen certain skills and principle characteristic of craftsmanship with benefits for architecture and manufacturing, including more effective building materials and spatial typologies, a closer working relationship between archi-tects and manufacturers and an assertion of critical values for the building industry at this point in his-tory, especially regarding energy and resource sustainibilty.

Delivered as series of five discussions and workshops, *Craftsmanship in the Digital Age* showcased from the present-day studio, factory, laboratory and building site, while simultaneously exploring a future blurring of these work spaces and their products.


## EVENTS

### #5 Craft in Code
**18 December 2017**

With reflections from Richard Sennett, author of *The Craftsman* and his provocation that "we are obliged to change both the things we make and how we use them...to become good craftsmen of the environment"; and with focused discussions on three core themes of the emerging 'digital building culture', the alternative building process and practice it demands, and the prospects offered for socio-politically and environmentally responsible architecture.


### #4 Alternative Sketch to Site Processes
**10-11 November 2017**

The digital era is enabling the emergence of new structures for managing the communication chain in the building process, e.g. BIM. Which frameworks include the manufacturers of building components and allow for closer communication with the architect - between the sketch and the finished component?


### #3 Resetting values for Architecture and the Building Industry
**15 September 2017**

Identifying the societal responsibilities which digital fabrication could assist the building industry in addressing: e.g. commitment to efficient use of depleting natural resources, and public finances; halting the seemingly unstoppable march of mass production and mass importation of products; protection of knowledge and welfare of manufacturing work force to keep pace with technological automation.


### #2 Innovative Building Components
**21-22 April 2017**

Exploring the merits and challenges of the spectrum of additional functionality digital fabrication can add to building components, beyond the aesthetic and structural; e.g. biodegradability, embedded energy, data-driven responsiveness.


### #1 Architecture, Materiality and Technology
**3-4 February 2017**

Tracing over time the relationship between design and making, and the evolution of the architecture process, up to the present day moment when the scope of materials can be considered in combination with the potential of digital technology.


## DOCUMENTATION
- Video recordings documenting the events
- Publication: ANCB Edition #4 Craftsmanship in the Digital Age. Architecture, Values and Digital Fabrica-tion (2019, in English)

# BACKGROUND
## A Craftsmanship Approach to Integrating Digital Fabrication Into Architecture

The core premise of this proposed approach is that digital fabrication can reinstate materiality at the centre of the architectural design thinking. At the computer-aided-design end of the design-tools spectrum, it enables information about how a spatial form will be constructed to be fed into computational design tools, thus counter-balancing an emphasis on formal expression. At the opposite end of the spectrum, digital fabrication can support the return of techniques (e.g. casting) and aesthetic articulation (e.g. ornamentation) that are usually too expensive.

Materiality is central to craftsmanship. Described simply, it is the bridge between the hand and the head which both demands and honours skills of craftsmanship; namely technique, judgement, authority and commitment/ drive. What sets architecture apart from most other design fields is the complex, indirect and drawn-out journey between the idea in the studio and its realisation on site. Despite the head-to-hand relationship being mediated by algorithms and by the limitations of the fabrication machine, working with digital tools and techniques theoretically offers potential to shorten and simplify the studio to site process, and perhaps to think of site in term of workshop. This materiality depends too on masterful technique, judgement, authority and commitment/drive.

Learning these skills, like with any skill, is influenced by the defining particularities of the practice realm - guiding positions and emphases, ways of working, and product range/type. Such cornerstones are required to anchor digital fabrication in architecture practice, and the effort and practice of putting these in place will simultaneously develop and reinforce the aforementioned core craftsmanship skills:

- New/ alternative design to construction processes, with 'data' underpinning the communication chain. This supports commitment/ drive towards sustainability and curatorial authority

- Commitment to efficient use of material. This encourages drive towards sustainability in construction, and advances technique by exploring formal expressions/prototypes for efficient structural dynamics.

- Development of innovative/inventive building components/products, with expanded functionality beyond the aesthetic and structural. Dependent on technique and experienced judgement.

- Design of spatial typologies and elements that cue change of use habits and ways of living. Requires and further refines the authority/expertise and judgement of the architect.

Perhaps the expertise described here fits less to the architect we know today, than to a new type of craftsperson for buildings and spaces, committed to the collective societal goal of the sustainable use of the earth's resources.
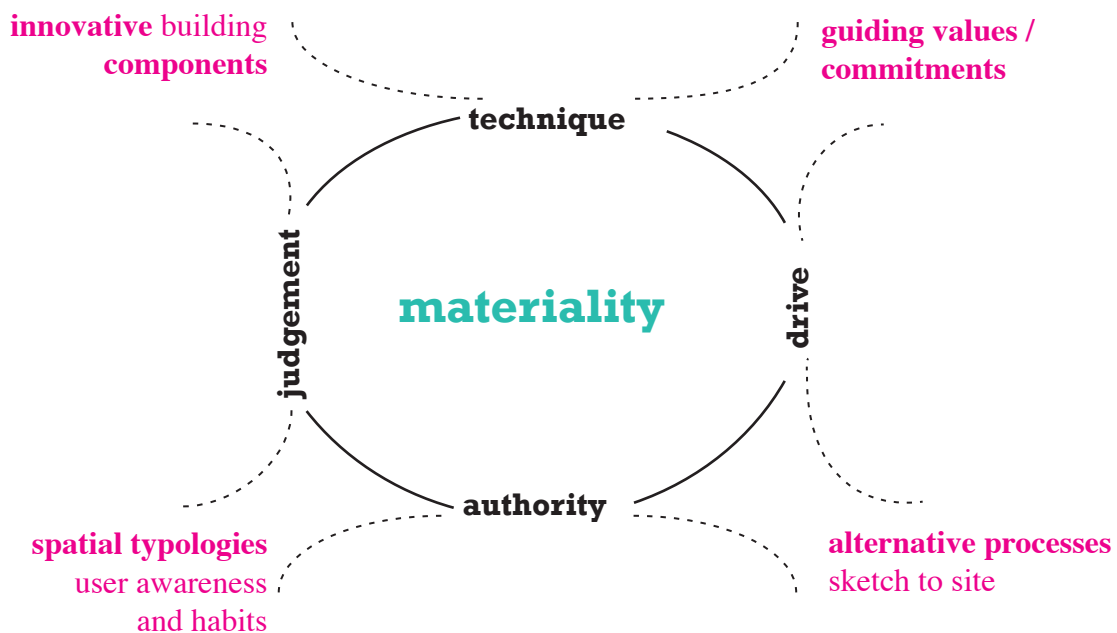
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Part of the ANCB Theme
**RESPONSIVE CITY: Combining Local Knowledge with Digital Systems**

**Municipal decision-making and user experiences of cities are steadily relying more and more on digital computing of geodata; information linked to latitudinal and longitudinal coordinates. The advancement in digital technology that makes capturing and real-time analysis of this and other 'big data' possible is also enabling the production of entirely new types of basic and so-called 'smart' or responsive materials. Both promise revolutionary and innovative impacts on the functioning and on the form of cities, often in the name of greater resilience or sustainability.**

So far, in practice, efforts have mostly produced apps and systems for monitoring, measuring and analysing quantifiable data. Comparatively little has been achieved to harness the more qualitative, analog information that is so fundamental to cities, and equally critical in achieving resilience and sustainability.

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