

AR-129

Tomographie architecturale

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Cursus	Sem.	Type
Architecture	BA1	Obl.

Langue d'enseignement	français
Coefficient	4
Session	Hiver
Semestre	Automne
Examen	Pendant le semestre
Charge	120h
Semaines	12
Heures	4 hebdo
Cours	2 hebdo
Exercices	2 hebdo
Nombre de places	

Résumé

Cet enseignement situe le dessin technique comme outil d'enquête spatiale, constructive et contextuelle. Il introduit la coupe itérative comme outil sociotechnique de l'architecte permettant de mesurer, comprendre et interpréter des situations construites.

Contenu

The act of drawing fulfills, in architecture, several functions such as prescription, description and/or speculation (Estevez, 2001; Spiro, 2013). In a context of development of integrated modelling strategies, such as BIM, technical drawing tends to be reduced to its predictive capacity. Hence, it is losing its fundamental role in measuring, understanding, interpreting and imagining complex spatial conditions (Dietz and Zamarbide, 2018).

As a counterpoint to this reduction, this course positions the act of drawing as an act of spatial and constructive investigation (forensic dimension). It introduces 2-D sectional drawing, both horizontal and vertical, as a crucial skill in architecture, as well as a critical lens to investigate situated architectures (Bow-Wow, 2007 ; Fromonot, 2018). Sectional drawing shows the gravity-fed morphology of a building and its constructive logic. In a strong analogy with medical discourse and imaging technologies (Colomina, 2019), this course introduces architectural tomography as a way to reveal the architecture *anatomy* and make visible *inner spatial structures* otherwise inaccessible to vision and experience. It is a tool that allows also for contextualization in time and space, going beyond the narrow limits of architecture read as an object and scrutinizing its relational setting to a wider environment. As explored in geology and archeology, sectional drawing allows connection to the ground in all its thickness (natural topography, networks, underground infrastructures). It also gives access to an understanding of time by revealing stratification logics, disjunctions between hardware and software, extensions, partial demolitions, etc. Therefore, in the framework of this course, sectional drawing is regarded as a fundamental and operational sociotechnical tool (Akrich and al., 1987) In order to empower the students to perform sectional drawing while developing a reflexive and critical understanding of this specific act, a series of investigations will be conducted on a corpus of buildings selected for their rich spatial features and their strong link to their environment. It will therefore be about reconstructing matter, structure and spatialities of these projects through 2-D sectional drawing. The annual corpus will focus on unconventional houses. Through the semester, a transition from analog drawing techniques to digital tools will be introduced to perform the sections and articulate a collective production around each house.

Mots-clés

Technical drawing, tomography, 2-D sections, situated architecture, constructive investigation

Acquis de formation

A la fin de ce cours l'étudiant doit être capable de:

- Investiguer des situations construites par le dessin et reconstruire leur logique structurelle, spatiale et contextuelle

- Composer avec des données et documents de nature hétérogène
- Formuler des hypothèses
- Contextualiser une production architecturale
- Manipuler les conventions du dessin technique et développer son propre langage

Compétences transversales

- Communiquer efficacement et être compris y compris par des personnes de langues et cultures différentes.
- Recevoir du feedback (une critique) et y répondre de manière appropriée.
- Faire preuve d'esprit critique
- Faire preuve d'inventivité
- Persévérer dans la difficulté ou après un échec initial pour trouver une meilleure solution.

Méthode d'enseignement

Work will take place in an atelier format and will be supported by ex-cathedra lectures (both in french and in english), small groups pin-ups and collective comparative feedbacks.

Series of analog and digital 2-D sections will be performed by the students to investigate a corpus of unconventional houses. Each house will be introduced through a set of documents (plans, texts, technical documents, construction site photos, post-occupancy photos, videos). The work will then be implemented along 2 main acts of investigation:

- Iterative cross-sections (individual production using the conventions and potentials of orthographic drawing),
- Constructive inhabited profile (collective production),

The first act is analog, the second is digital

Méthode d'évaluation

Ongoing evaluation (individual and collective). Students will be evaluated based on of the following criteria:

- Ability to use 2-D drawing (analog and digital) as a tool for constructive, spatial and contextual investigation,
- Capacity to develop a personal and rigorous take on technical drawing conventions (level of abstraction/figuration, techniques of lines, relations between drawings),
- Collaboration (communication, negotiation, teamwork),
- Engagement (participation, initiative, responsibility)

Act 1_ Iterative cross-sections at scale 1:100 and 1:1 (50%)

Act 2_ Inhabited profile at scale 1:33 (50%)

Encadrement

Office hours	Oui
Assistants	Oui

Ressources

Bibliographie

- AKRICH Madeleine, 1987, « Comment décrire les objets techniques ? », *Techniques et culture*, No 9, Editions Maison des Sciences de l'Homme, pp. 49-64
- ATELIER BOW-WOW, 2007, *Graphic Anatomy*, Toto, Tokyo
- COLOMINA Beatriz, 2019, *X-Ray Architecture*, Lars Müller Publishers, Zürich
- DIETZ Dieter et ZAMARBIDE Daniel, 2018, « Drawing for Real. A Quest into the Space of Imagination », in *All About Space 3. Beyond the Object*, Park Books, Zurich, pp. 259-288
- DUPIRE Alain et al., 1981, *Deux essais sur la construction : conventions, dimensions et architecture*, Mardaga, Bruxelles
- ESTEVEZ Daniel, 2001, *Dessin d'architecture et infographie*, CNRS, Paris
- FROMNOT Françoise, Printemps 2018, « Éloge de la coupe, ou l'enseignement de Rotterdam », *Criticat 20*, pp. 40-63
- SIMONNET Cyrille, 1997, *Imaginaire technique - Les Cahiers de la recherche architecturale*, #40, Parenthèses, Paris

SPIRO Annette, 2013, *The Working Drawing, The Architect's Tool*, Park Books, Zürich

Ressources en bibliothèque

- [Graphic Anatomy / Atelier BOW-WOW](#)
- [X-Ray Architecture / Colomina](#)
- [All About Space : vol. 3 / Dietz](#)
- [Deux essais sur la construction / Dupire](#)
- [Dessin d'architecture et infographie / Estevez](#)
- [The Working Drawing, The Architect's Tool / Spiro](#)
- [Comment décrire les objets techniques ? / Akrich](#)
- [Criticat, no 20, p. 40-63 : "Eloge de la coupe" / Fromonot](#)