AR-401(bj)

Théorie et critique du projet MA1 (MacIver-Ek et Chevroulet)

Chevroulet Axel, Mac Iver Ek Anna Celié

Cursus	Sem.	Type
Architecture	MA1, MA3	Obl.
Mob. AR	H	Opt.

Langue d'enseignement	français / anglais
Crédits	12
Retrait	Non autorisé
Session	Hiver
Semestre	Automne
Examen	Pendant le semestre
Charge	360h
Semaines	14
Heures	**6 hebdo**
Cours	2 hebdo
Projet	4 hebdo
Nombre de places	

Il n'est pas autorisé de se retirer de cette matière après le délai d'inscription.

Remarque

Inscription faite par la section

Résumé

Le défi des énergies renouvelables est le stockage, non la rareté. Massive par nature, l'architecture est la batterie idéale: l'énergie façonne structure, forme et espace. Ravivant l'archétype du moulin, le stockage dépasse l'infrastructure et devient architecture civique unissant culture et énergie

Contenu

Everything Is a Battery
One hour of sunlight reaching the planet provides enough energy for a whole year of human consumption. We build vast fields of solar panels, plant windmills across the ocean, flood valleys with water. Yet renewable energy is still not considered reliable. The sun doesn't always shine, the wind doesn't always blow, and our society goes back to its old lovers: coal, gas, oil, nuclear. Scarcity isn't the issue - the missing link is the ability to store energy. In an era fixated on the lithium-ion panacea, on sleek batteries forged from rare metals scraped from the ocean floor or extracted from distant, exploited territories, we have neglected a simple fact: everything is energy storage. A suspended volume of water, a coiled spring under tension, a mound of salt - all are reservoirs waiting to be tapped. The potato on your plate is as much a battery as the high-tech cells we covet.

A Love Affair
Low-tech energy storage has one fundamental limitation: to store a meaningful amount of energy, it must be big. The sheer size needed to create a viable battery often leads to its dismissal. Architecture, on the other hand, inherently possesses both qualities. Buildings are, by definition, composed of hundreds, if not thousands, tons of inert material. When energy storage is conceived not as an isolated object but as part of the building itself, these shared requirements form a symbiotic relationship: the storage makes use of architecture's mass and scale, while the energy generates productive distortions of form, structure and space.

Energy as a design tool
As architects, we have abdicated part of our role, relegating energy to a peripheral concern addressed by engineers and technocrats. We bolt solar panels onto facades, plant trees on our balconies, and congratulate ourselves on sustainability. By reclaiming energy as the very bones of our buildings, the typological principle around which design revolves, architects can initiate a paradigm shift in making it visible, palpable and an integral part of daily life.

A Not-So-New Type of Civic Architecture
The twentieth century saw the rise of immense power plants and endless, centralised electrical grids. Energy production

became increasingly remote, invisible. Energy storage, however, may well become this century's gold rush. But there is an alternative to multiplying mute lithium boxes across industrial estates. Renewable energy unleashes another possibility: smaller, decentralised systems embedded within communities. An extinct archetype returns: the village mill, not merely a piece of infrastructure but the centre of communal life, where farmer, baker, blacksmith, and miller work together as its agents. In this case, energy transcends its infrastructural role and becomes a piece of civic architecture, whereby cultural, social and energetic interactions coalesce under one roof.

Apéro Riche
Our method is unapologetically empirical, like pseudo-scientists, each group begins by constructing a 1:1 battery made of low-tech materials: potatoes, soil, ice, water, salt. This prototype must be able to produce a dish for the first review, which will take the form of an apéro riche. A tangible demonstration that energy need not be the exclusive domain of rare earths and complex chemistry.

Having developed extensive energetic expertise (and hopefully feeling full), each group will then scale up their storage principle into an architectural project. We have selected sites on the periphery of Lausanne: towns not yet entirely absorbed by the expanding city, and villages still marked by the loss of a sawmill, quarry, or other centre of collective production. The projects will explore how energy storage can generate a new typology of civic architecture that combines energy infrastructure with public life and becomes embedded in the everyday practices and rituals of its inhabitants. The battery shifts meaning, becoming a building as opposed to an object, intentionally blurring the lines between infrastructure and civic space.

Mots-clés

Architecture, Energy, Battery, Typology, Civic, Construction, Storage, Commons, Periphery, Structure

Acquis de formation

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

- Démontrer demonstrate, through design work, a critical understanding of climate change and the ethical responsibilities of the architect
- Développer demonstrate, through design work, a growing knowledge of contemporary and historical architectural discourse
- Conduire use archives to conduct systematic analysis into social history, uses, materials, etc.
- Exprimer clearly and effectively convey your ideas through oral presentations
- Développer develop a constructive, structural and environmental concept for the project
- Concevoir design with reference to historical, political, cultural and other creative and technical fields
- Développer develop an understanding of different media of representation and know when to use them
- Faire at all times demonstrate honesty, integrity and respect for fellow students, teachers and staff.

Méthode d'enseignement

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Trip
Drive down the South-West
Freehweeling down towards Toulouse and the Pyrenees in some rented vans, exploring Félix Trombe's solar furnaces,

fantastical energy infrastructures built decades ahead of their time, disguised as follies in the landscape. Along the way, we'll encounter the architectural scene of the southwest: BAST, Lacaton & Vassal, Betillon Freyermuth, practices that share a stubborn faith in simple, direct construction. And as the sun sets over the Atlantic, we'll top if off with a glass of Armagnac and a slice of Cabécou.

Expected costs:
Semester materials and printing: around 200.- per student
Trip: around 250.- per students. The trip will last four days (evening 18.9 to 22.9 noon) and is recommended but not mandatory

Méthode d'évaluation

Grading will be based on your performance over the entire semester, with each task being given equal weight in relation to the time spent on it. We will also take into account your engagement and commitment when in the studio. Grades will be given to individuals and not to pairs or groups.

We will provide you with a provisional feedback after the Interim Review II. In order to get an idea of the first impression so far, projects will receive ratings between +,++,+++, with +++ being the best. The final grade is awarded after completion and submission of your final work at the end of the semester,
interim assessments are only an indicator. We will issue written warnings to any students that are at risk of failure. If this is the case, we will work to find a way to overcome this situation together. Each student is responsible for recording the feedback of discussions and is encouraged to ask a colleague to take notes. Even after grades have been given, we are open to discussion in case students have something they wish to discuss.

Ressources

Bibliographie

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Liens Moodle

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