

Guide 2021-2022 MARB/MAIB14  
 International master in architecture - fase1 – sem1  
 Campus Brussels  
 Engagement: Craftsmanship/ The Brussels way

**MARB/MAIB14 design studio ‘On circular materials and processes – PART 1’**

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Semester	1
Start week	Presentation of studio Tuesday September 28 Studios on Wednesday starting October 2
Reviews	Permanent evaluation, final reviews on December 22 and January 12 (2022)
Credits	15
Studio tutors	Laurens Bekemans, Catherine Mengé in cooperation with BC architects & studies

Important:

This studio MARB / MAIB14 together with the subsequent studio MARB / MAIB24 is based on the objectives set within the ADO (Academic design office) project ‘Designing for an uncertain future’. Starting points and goals of this ado can be found on the website: <https://adocircular.org>  
 Students can choose for this studio without necessarily also for the follow-up studio in semester 2 ‘On circular materials and processes-PART 2’. However, it is interesting as both studios are seen as one and the program is designed for a complete academic year.

Three consecutive years will deal in depth with specific (circular) building materials among which earth, natural stone, local wood, and fibres. In 2020-2021 the studio focused on ‘Earth’.

**ACADEMIC YEAR 2021-2022: Minerals, natural stone and wood**

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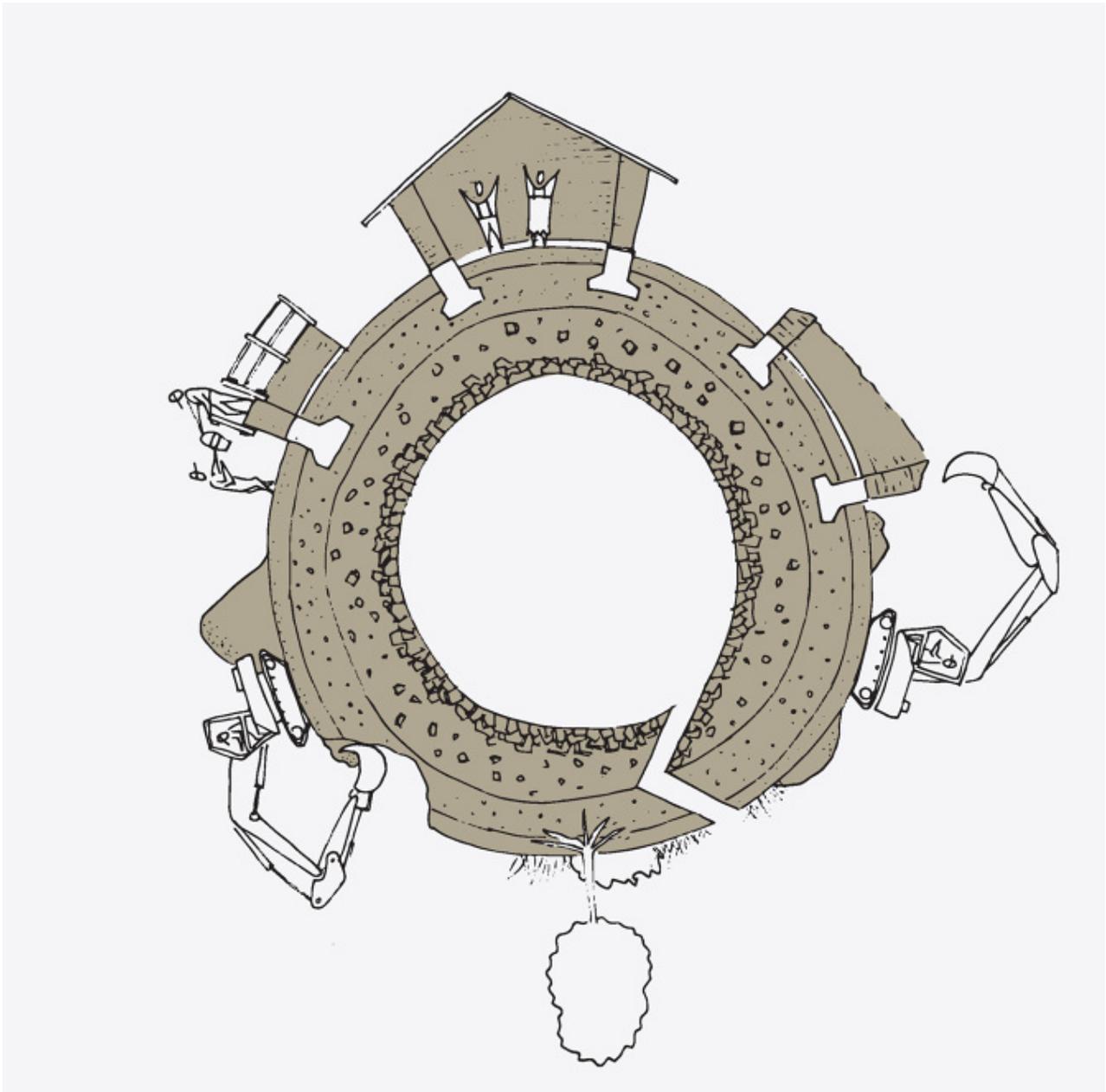
**A) CONTEXT**



Climate mitigation requires a new attitude to materials and innovation in ecological and environmental engineering. Architects must research building materials and design the process of construction as much as its architectural outcome.

The earth is a closed system, and our stay here is only temporary. That’s why we need to behave responsibly and consciously deal with everything that makes our stay possible on this planet. However, we have created a system that focuses on continuous, exponential growth, which means that products have to be produced in a more and more increasing amount. That is why many people already argue to organize our economy in a fundamentally different way: where it is no longer about 'take, make and waste' but about a circular economy where we re-use products, where waste becomes a ‘new’ raw material, where locally (bio)sourced materials are mainstream and where design is thought for the long-term.

Circular economy is necessary and promising. Due to energy, materials and climate transition, our environmental laws will soon become stricter. Long transport chains will push up the price of products. Residuals and waste will need to become the resources for tomorrow's economy. This offers opportunities for shorter and closed production chains. These circular chains are most promising in places where many people live: in and around the city<sup>1</sup>.



Within this context the pre-industrialized concept of a master-builder might come back. It reflects the idea of an integral approach to architecture, embedded in local context, local materials, and local craftsmanship. The professional architect should become more hybrid again. He should understand the flows and larger network that is touched by his design. He should research and understand design as the result of materials and processes. He should test / make / fail and start all over on scale 1:1.

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<sup>1</sup> Inspired by the text From A Good City Has Industry booklet for the exposition in Bozar in the winter of 2017

## B) STUDIO APPROACH

The studio is partly organized at the campus Brussels and partly on a permanent off-site school workshop space on the Tour and Taxis site. This combined on/off-site studio makes it possible to develop a dynamic and hands-on studio.

The Brussels campus will be used for most lectures, architectural theory classes, design discussions/meetings, etc.



All material research, prototyping, modelling, workshops, etc. would take place in the laboratories at the Tour and Taxis site. This gives the possibility to the students to test materials, understand construction on scale 1:1, prototype details on scale 1:1, build walls, build corners, etc.

The final goal of the studio is to design a structure with researched circular and local materials.

## C) DESIGN APPROACH

### Theory and Research

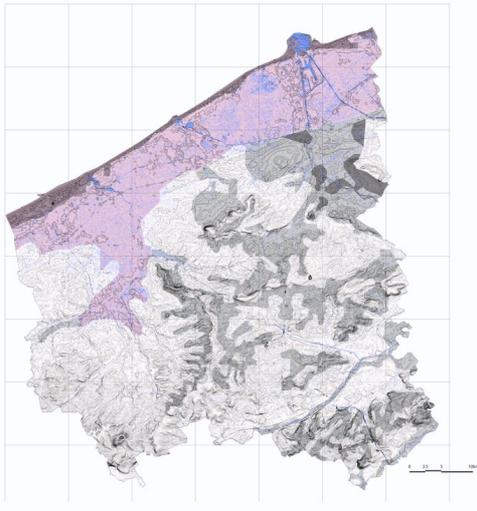


The first semester will focus firstly on analysing the Brussels region and Wallonia from the perspective of a building material researcher.

Students will study these territories and its cities as a quarry, as a material and resource supplier.

By studying existing geological maps and visiting quarries, the student gets to know the local minerals and natural stones present in Wallonia. In Brussels, more attention will be paid to the use of locally sourced wood and materials available from demolition contractors.

The goal of this research is to gain insight into locally available and possible circular building materials.



Students will draw out the results of the research in raw material maps and Anthropocene maps.

The map will be a public tool for the students and all architects to understand the potential of locally found building materials. This study has as goal to re-orient the current economical construction landscape towards a more bioregional economy.

### Practice



In the second half of the semester, students will be asked to develop prototypes with the studied material. Subsequently, a structural system will be developed that is logical and consistent and that meets the characteristics of the context and the material.

**D) GOAL**

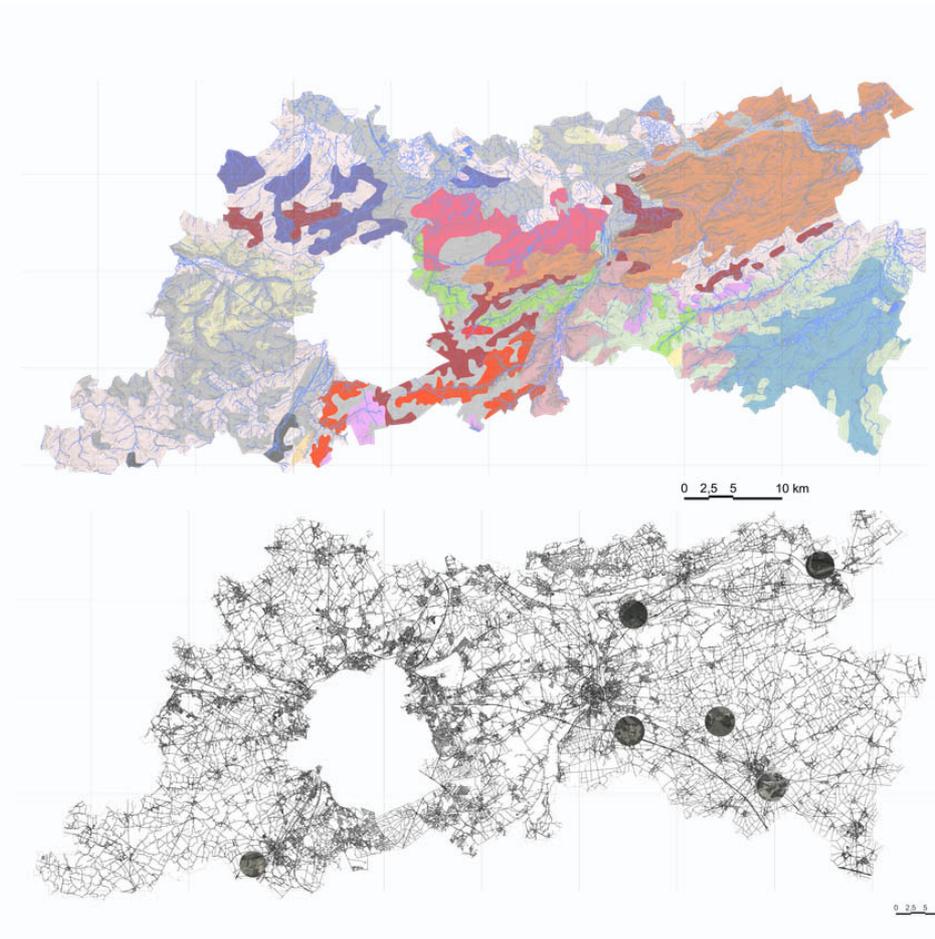
The main goal of this first semester is to have

- 1) an introduction to minerals and wood as a construction material
- 2) map the potential of the territories of Brussels and Wallonia and research the impact the used materials have on our environment
- 3) create maps with information on the researched materials
- 4) design and built a prototype on scale 1:1
- 5) develop a logical structure with the studied material and the prototype.

The student is challenged to understand in a more holistic way the meaning of Architecture as a profession in a world in transition. The student will develop affinities with minerals, natural stones and wood as a local and circular resource, and with production processes, construction techniques, materiality, structure, bioclimatic principles, and executional drawings. These explorations will bring students closer to materials and their constructive features, bridging the existing gap between architectural education and the craftsmanship of architecture.

**E) OUTPUT**

- 1) A map:



Students will develop a raw material map and Anthropocene map of Wallonia and the Brussels region showing all the locations/colours/quarries/... of the local underground.

The 5 provinces of Wallonia and the Brussels Region will be divided between the students in groups of 4/5 students.

**2) A prototype:**



The students will design and make a prototype 1/1 with their studied material. In other words, the student will develop a building material which will afterwards be used in the design of their structure.

**3) A design: model 1/20**



With the studied material and based on the developed prototype, a design is made that is elaborated in a scale model 1/20.

**F) BC materials production hall**

The off-school site is located at the BC materials production hall:

Havenlaan 104

1000 Brussels



BC materials opens during the studio hours parts of their workshop to the students. The students will be able to use tools, test materials, ... under the supervision of BC materials.

The studio will alternate between the campus Brussels and the BC production hall. The place of teaching is written in the calendar (see below). Changes will be communicated by mail.

G) CALENDER

Week 1	Tuesday Sept 28	morning	presentations and questions	<b>Brussels Campus</b>
Week 2	Wednesday Oct 6	from 9:30	intro of studio workshop : introduction to earth 1 *	<b>BC materials</b>
Week 3	Wednesday Oct 13	09:00-18:00	A map	<b>Brussels Campus</b>
Week 4	Wednesday Oct 20	09:00-18:00	A map	<b>Brussels Campus</b>
Week 5	Wednesday Oct 27	09:00-18:00	A map	<b>Brussels Campus</b>
Week 6	Wednesday Nov 3	09:00-18:00	The final map *** + ****	<b>Brussels Campus</b>
Week 7	Wednesday Nov 10	from 9:30	workshop : introduction to earth 2 **	<b>BC materials</b>
Week 8	Wednesday Nov 17	09:00-18:00	Prototyping	<b>Brussels Campus</b>
Week 9	Wednesday Nov 24	from 9:30	Prototyping ****	<b>BC materials</b>
Week 10	Wednesday Dec 1	09:00-18:00	A design	<b>Brussels Campus</b>
Week 11	Wednesday Dec 8	09:00-18:00	A design	<b>Brussels Campus</b>
Week 12	Wednesday Dec 15	09:00-18:00	A design	<b>Brussels Campus</b>
Week 13	Wednesday Dec 22	09:00-18:00	Presentation of design***	<b>BC materials or Brussels Campus</b>
CHRISTMAS HOLIDAY				
Week 14	Wednesday Jan 12	09:00-18:00	FINAL REVIEW *** + ****	<b>BC materials or Brussels Campus</b>

\* WORKSHOP – INTRODUCTION TO EARTH 1 – 1 DAY: carazas test + field tests + samples

\*\* WORKSHOP – INTRODUCTION TO EARTH 2 – 2 DAY: TBC

\*\*\* OUTPUT PRESENTATIONS AND REVIEWS:

All expected output for the presentations and reviews will be communicated by email during the course of the design studio.

\*\*\*\* PUBLICATIONS ON THE WEBSITE

Full cooperation will be asked to provide all documents in the requested formats for the website to the website team

## H) METHOD OF EVALUATION

Ects file see:

[https://onderwijsaanbod.kuleuven.be/syllabi/e/A41310E.htm#activetab=doelstellingen\\_idp2588640&bl=all](https://onderwijsaanbod.kuleuven.be/syllabi/e/A41310E.htm#activetab=doelstellingen_idp2588640&bl=all)

### Permanent evaluation and reviews

Evaluations are a combination of permanent Design-Studio assessments of students' performance during group- and individual work and close follow-up on development of group-work as well as individual projects.

One or more reviews are organized followed by a final and conclusive evaluation on the 26<sup>th</sup> of May, requiring students to present their work concisely along pre-set common guidelines and minimum output along the entire development of their design project.

Part of the permanent evaluation criteria, students must attend at least 80% of this course's designated 'contact-hours' and engage actively during all sessions. Students found to be regularly absent, or who fail to contribute to the group project and / or to develop their individual project and/or skirt team-based output may be declined participation to the final review.

For the final evaluation, partner institution professors may be invited. Reviews can be presented using various formats such as power-point presentations, desk-crit sessions, exhibitions, peer-reviews, digital delivery, presentation on paper format, discussions, ... Submission procedures and detailed output requirements per review will be communicated at least two weeks prior to presentations and/or final submission dates.

All deliveries are to be handed-in strictly on time and must be in line with requested output criteria to pass this course.

Failure to deliver any requested materials or output of any kind for any sub-task within the given deadlines is without exception considered as 'non-delivered' and will result in a NA mark or Not Participated (Niet Afgelegd).

Students who cannot attain deadlines or attend evaluations / presentations must deliver their task 'as its stands' within the given deadline, either in person, or delivery by a third-party in exchange for an acceptance-receipt.

## I) REFERENCES

- The Act of Building, BC architects & studies, Exhibitions International, isbn 978-94-92-567-09-3 - Material Matters, Thomas Rau and Sabine Oberhuber, isbn 978-946-156-22-58

- Fuck concepts! context! San Rocco summer 2012

- Cradle to cradle, Michael Braungart, isbn 978-0-099-535-47-8

- Massive Change, Bruce Mau, Phaidon Press, isbn 978-0714844015

- Towards a phenomenology of architecture, Norberg-Schulz Christian, Genius Loci, Academy editions, 1980

- A good city has industry:

[http://www.architectureworkroom.eu/documents/ABXL\\_Bozar\\_GUIDE\\_ENG\\_DEF\\_webres.pdf](http://www.architectureworkroom.eu/documents/ABXL_Bozar_GUIDE_ENG_DEF_webres.pdf) - - Missing link iabr: [https://www.iabr.nl/en/editie/iabr2018\\_2020](https://www.iabr.nl/en/editie/iabr2018_2020)

- How Buildings Learn, Stewart Brand, isbn: 978-0140139969