Columbia University
Graduate School of Architecture, Planning and Preservation
ARCHA4512_001_2014_2: Design Seminar, Summer 2014

Instructors: Hilary Sample, Associate Professor, hms2155@columbia.edu
Avery Hall, M,TH 2:00-6:00pm and Friday 2:00-4:00pm

Architecture and the Micro-Urban
Rio de Janeiro

Studio Description

In this design studio, students will explore the micro-urban as a condition of contemporary Rio de Janeiro's development. As our understanding of the "urban" has become increasingly global it in turn illuminates the importance of another scale that is small and condensed into micro-conditions. Micro-urban is a term that can be used to describe an approach to architecture that is at once urban-seeks an urban approach, and includes subjects such as the construction of an individual in relation to a collective public health and the consideration of maintenance as part of its framing. Focused on the complex intersection between urban health, architecture, planning and development, students -through a series of workshops and specific points of study-will address both the city of Rio at large and a site specifically through a proposal to re-adapt and build anew. The program of social housing will be deeply studied and explored in the studio. Located in western Rio de Janeiro alongside a vibrant favela is a series of abandoned housing towers within sight of Barra de Tijuca and the Olympic village. In this site, where nature and wild have taken over, and man and building have pushed back against it, competing for a healthy ground, we will ask questions about what can and should be built. Additionally what supports an architecturally rich housing project is as important to consider.

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As one of the most modern cities in Brazil, Rio has experienced contemporary health crises that have shaped their urban development and social landscape. As a studio, students will research typological and physiological forms within the stressed urban environment of Rio das Pedras. How has urban health, both historically and through the contemporary, shaped this vibrant favela and the overall city of Rio? And similarly, how has the form of the city shaped the health and wellness of its population? This studio is as much a record of a search as it is a forum for creating design guidelines and proposals. The themes of stress and wellness represent the content of the studio, with the aim to better understand situations of stress and wellness in relation to design and the micro-urban. The studio will be structured through reading two scales; first students will focus on Rio's urban fabric, infrastructures, and building types and study the subject of design guidelines, and then focus on programmatic development in addition to environmental and material properties in designing a new health typology for the future. This study includes, but is not limited to, proposals for schools, housing, infrastructures, parks, among others. Students are invited and encouraged to invent program, structures, and new thinking about architecture through the lens of the micro-urban within the local conditions of Rio de Janeiro.

Requirements

The studio will be structured around weekly studio meetings and guest experts leading workshops on the subjects of structures, climate, facades, and designing and making tiles. Large models and drawings are a requirement of the studio. While in Rio de Janeiro students will complete local research and design assignments that will focus on three things, climate/light, tiles, and the street. Please see an example with the following tile workshop.

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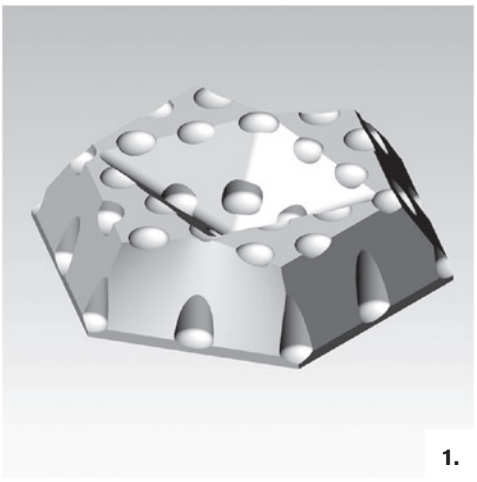
Tile Workshop

Process:

1. 3D digital model of tile. [Rhinoceros]
2. Milled foam positive. [CNC]
3. Foam formwork to contain plaster mixture, positive fastened to base of formwork.
4. Plaster curing in foam formwork.
5. Removal of foam formwork for faster drying.
6. Finished plaster mold, ready for dispatch. [Ceramicist]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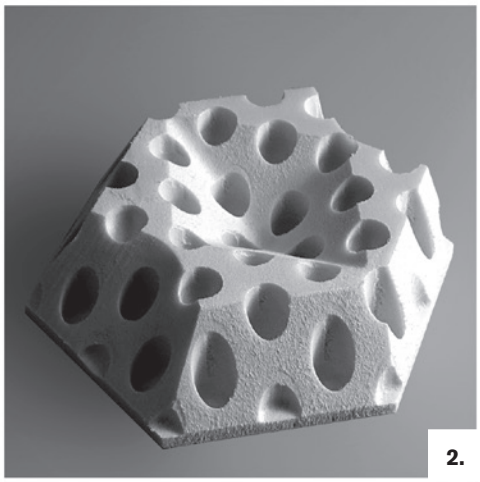
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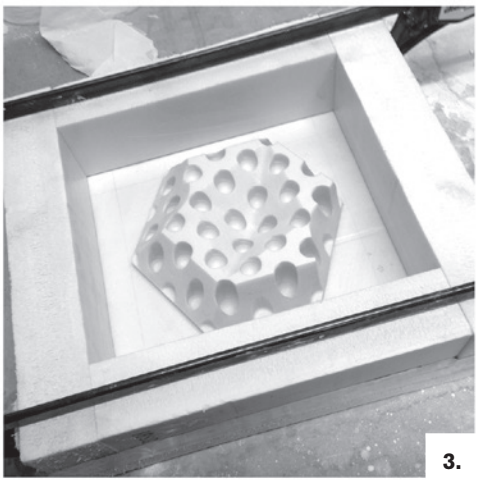
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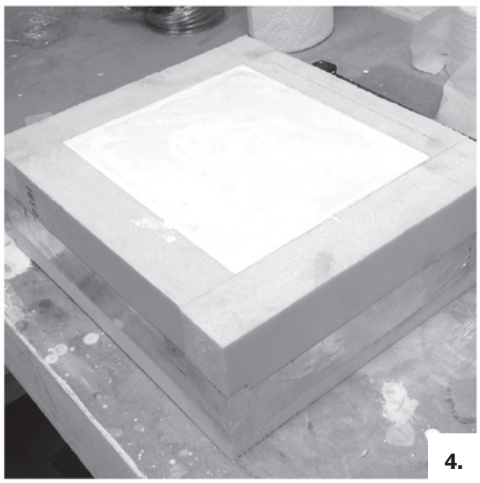
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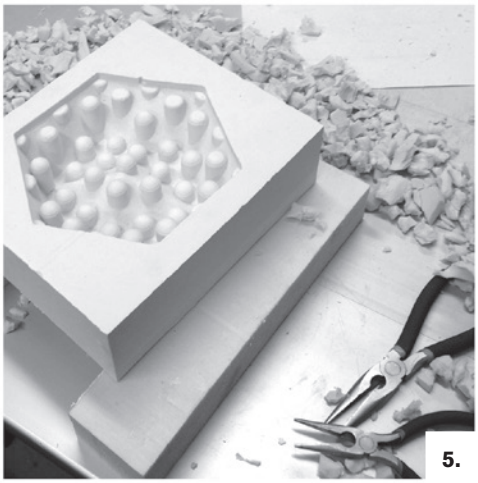
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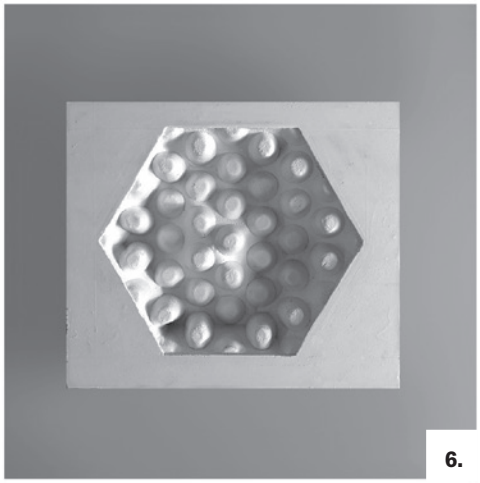
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Tile Workshop

Instructions:

1. Software + Formwork:
Using a CNC router, milll a foam positive [Process 1 + 2]. The positive foam mold is fastened to a base and additional blue foam is used to construct the sides of the formwork [Process 3]. You may use double sided 3M tape to secure the positive foam positive to the bottom of the formwork. If you use glue, make sure that the glue completely dries before casting. You may otherwise choose to mill the positive and the bottom of the formwork as one part. Regardless of which method you choose, the thickness of the base of the formwork should be at least 1" thick.

Lubricate the blue foam formwork with Vaseline. Rub the Vaseline in thoroughly because any Vaseline that clumps will present itself in the plaster mold.

Use clamps to secure the mold [Process 3]. Use metal HVAC tape to tape the seams of the foam formwork [Process 4]. It is recommended to construct the base of the formwork and positive as one piece and the walls of the formwork as a separate piece so that it is easier to remove the formwork once the plaster dries.

2. Mixing:
You may Google the "Island Method."

Fill a vessel with water. Gently sprinkle in powdered plaster. Try to sprinkle evenly throughout the vessel and avoid clumping. DO NOT MIX OR STIR. Keep sprinkling plaster in the water is saturated with the plaster particles and an "island" starts to form as you sprinkle [1:1]. You may begin to mix once the "island" floats, without sinking into the rest of the mix for 3-4 seconds.

It is key to gently mix with the bottom of the stick. To prevent air bubbles from forming, try to avoid disturbing the surface of the mixture. Keep stirring until you reach a nice consistency [approximately 10 minutes]. The desired consistency should be that of pancake batter. The longer you stir and the thicker the mixture, the better the results. However, be mindful of waiting too long and having the mixture set in the container.

3. Pouring:
Try not to splash, splashing causes air bubbles.

4. Post-Pour:
For an even top surface, after pouring slap the sides of the mold in order to get rid of air bubbles. Shake/slap the formwork until the plaster mixture sets. Avoid tilting while the mixture sets [Process 4].

5. Excavation + Cleaning:
After 20 minutes touch the top of the mold to monitor progress. The mixture will be very hot while curing [Process 4]. Wait approximately an hour to allow the mixture to cool down to room temperature before dissembling the formwork [Process 5]. The sooner you take the plaster out of the formwork, the sooner it can begin drying out. It will take a few days for the plaster to dry out completely. As the plaster dries it gets much lighter. To expedite the drying process, set the mold to dry on a towel.

If you find air bubbles once you dissemble the formwork you may use a clean paintbrush to apply additional plaster into the holes. Try to get an even texture and keep in mind that you may later sand the plaster to achieve a smooth finish.

6. Sanding:
Wait for the plaster to be completely dry before sanding. Start with a 120 grit and finish with a finer, 340 grit. Sand the plaster till smooth.

7. Packaging:
Once the plaster mold is smooth and perfectly free of air bubbles, it is ready to be sent out to the ceramicist [Process 6]. Make sure you securely wrap the mold with bubble wrap.

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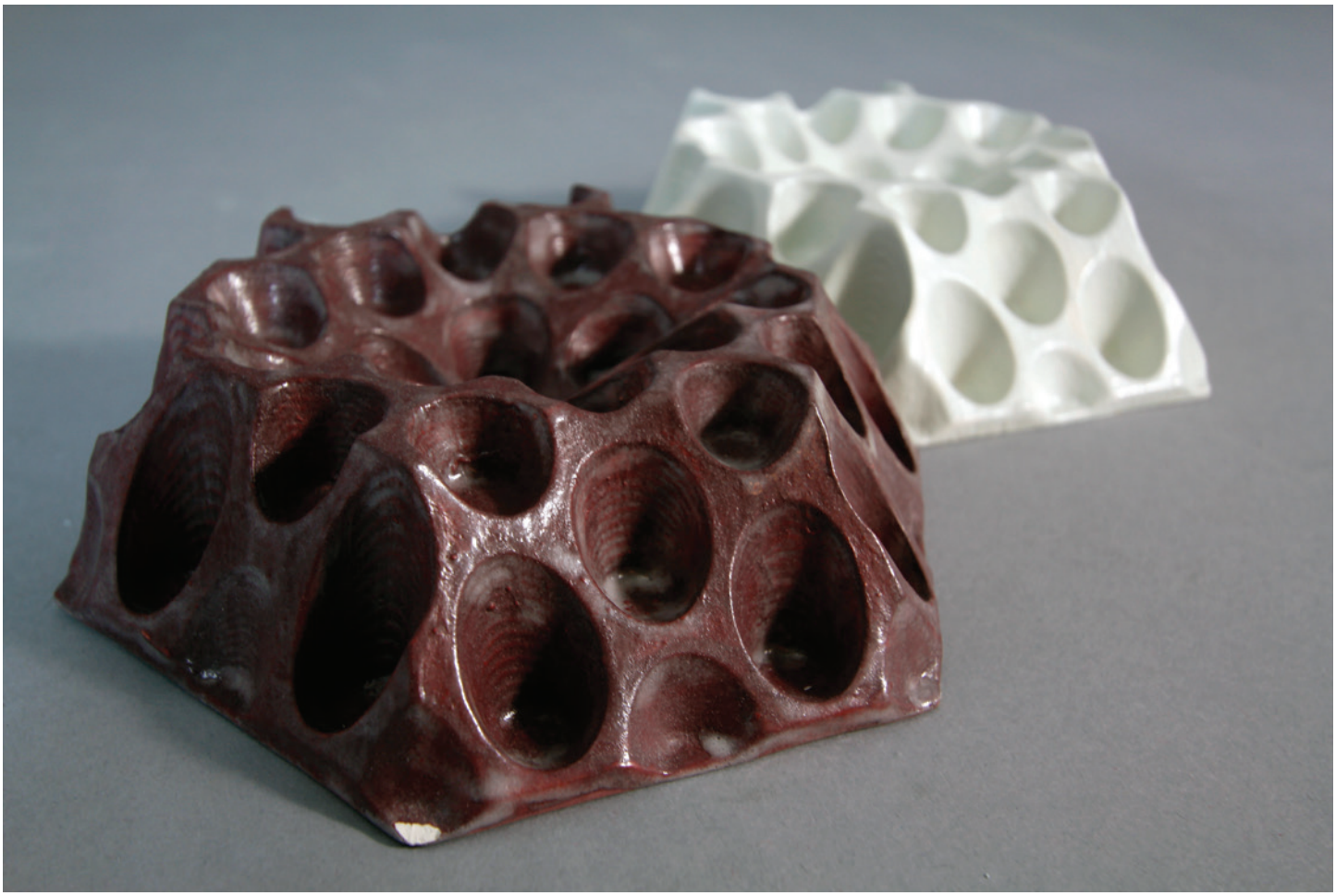
Tile Workshop

Final Requirements:

Maximum Tile Dimensions: 8” x 8” x 8”
Minimum Tile Dimensions: 6” x 6” x 6”



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SCHEDULE

Week 1 — **LEARNING FROM CONTEXTS (RIO DE JANEIRO)**
Expand the understanding of type and form through two scales: the city and social programs- including housing. This two week study will focus on city, site, typology, zoning, accessibility, health, and infrastructure, among other subjects in the context of both an aging and a youthful urban population within the stressed and well urban settings of Rio de Janeiro.

January 21, Wednesday:	1:00 PM	Studio Presentations and Lottery, 113 Avery Following All-School Orientation
January 22, Thursday:	1:00 PM 2:00 PM	Lecture: *Rio-Studio Overview by Hilary Sample* Introduction of Assignment #1
January 23, Friday:	2:00 PM	Connector

Week 2 — **UNDERSTANDING THE CITY / SITE ANALYSIS**
Further explore cities through their urban morphology and begin to examine particular building forms and typologies through guidelines.

January 26, Monday:	1:00 PM 6:30 PM	Studio Meeting / Individual Pin-ups (prints) / Individual Portfolio Reviews Lecture:
January 29, Thursday:	1:00 PM 6:30 PM	Studio Meeting / Desk Crits Lecture:
January 30, Friday:	2:00 PM	Connector

Week 3 — **LEARNING FROM TYPOLOGY**
Expand the understanding of type and form through two scales: the city and social programs- including housing.

February 2, Monday:	1:00 PM 5:30PM 6:30PM	Pin-up of Assignment #1 Introduction of Assignment #2 Lecture:
February 5, Thursday:	1:00 PM	Studio Meeting / Desk Crits
February 6, Friday:	2:00 PM	Connector

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Week 4	**SCHEMES: PROGRAM + STRUCTURE** Students will create two schemes based on their research on programs, structure and climate.	
February 9, Monday:	1:00 PM	Studio Meeting / Pin-up of Assignment #2
	6:30 PM	Lecture:
February 12, Thursday:	1:00 PM	Studio Meeting / Desk Crits
February 13, Friday:	2:00 PM	Connector
Week 5	**SCHEMES: PROGRAM + STRUCTURE** Students will continue to create two schemes based on their research on programs, structure and climate.	
February 16, Monday:	1:00 PM	Studio Meeting / Pin-up with Guest
February 19, Thursday:	1:00 PM	Studio Meeting / Desk Crits
February 20, Friday:	2:00 PM	Connector
Week 6	**MODELING ENVIRONMENTS**	
February 23, Monday:	1:00 PM	Studio Meeting / / Pin-up with Guest
February 26, Thursday:	1:00 PM	Studio Meeting / Desk Crits
February 28, Friday:	2:00 PM	Connector
Week 7	**MID-REVIEW WEEK**	
March 2, Monday:	1:00 PM	Studio Meeting / Desk Crits
March 5, Thursday:	**1:00 PM**	**MID-REVIEW**
March 6, Friday:	2:00 PM	Connector
Week 8 March 9 – 13	**TRAVEL TO RIO DE JANEIRO** See Travel Itinerary	
Week 9 March 16 – 20	**SPRING BREAK** No Studio	
Week 10	**MODELING ENVIRONMENTS**	
March 23, Monday:	1:00 PM	Studio Meeting / Pin Up and Review of Travel Week
March 26, Thursday:	1:00 PM	Studio Meeting / Desk Crits

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March 27, Friday:	2:00 PM	Connector
Week 11	**MAKING TILES**	
March 30, Monday:	1:00 PM	Workshop #1 / Pin Up with Guest
	6:30PM	Lecture:
April 2, Thursday:	1:00 PM	Studio Meeting / Desk Crits
	6:30 PM	Lecture:
April 3, Friday:	1:00 PM	Connector
Week 12	**MAKING TILES**	
April 6, Monday:	1:00 PM	Workshop #2 / Working Session with Guest
April 9, Thursday:	1:00 PM	Studio Meeting / Desk Crits
April 10, Friday:	1:00 PM	Connector
	6:30 PM	Lecture:
Week 13	**MAKING TILES**	
April 13, Monday:	2:00 PM	Pin Up with Guest / Workshop #3
April 16, Thursday:	2:00 PM	Studio Meeting / Desk Crits
	6:30 PM	Lecture:
April 17, Friday:	2:00 PM	Connector
Week 14	**REPRESENTING ENVIRONMENTS**	
April 20, Monday:	2:00 PM	Pin Up
	6:30 PM	Lecture:
April 23, Thursday:	1:00 PM	Studio Meeting / Desk Crits
April 24, Friday:	2:00 PM	Connector / Last Day of Classes
Week 15	**FINAL REVIEW WEEK**	
April 27, Monday:	1:00 PM	No Studio
April 30, Thursday:	1:00 PM	Final Review
May 1, Friday:	2:00 PM	Exit Interviews

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Week 16	**EXAM AND PAPER WEEK**
May 4 – 8	5:00 PM Studio PDFs due Friday, May 8
Week 17	**END OF YEAR SHOW**
May 13, Wednesday:	10:00 AM Architecture Portfolios Due
May 16, Saturday:	5:00 PM End of Year Opening
Week 18	**GRADUATION**
May 20, Wednesday:	Graduation Day