

SELF GROWING LAB

SMART DOCK COMPETITION 2014

The project's concept derives from the possibility of using a bacteria manufactured material genetically manipulated to control its density, rigidity and transparency, but most importantly allow self-growth. This material, fruit of the collaborative and interdisciplinary efforts of One-Lab, is proposed to be laid over a skeleton made of simple and basic components that together compose a structural space frame that make the floors, walls and roof of the space. The struts and nodes of this space frame have not only the ability to manipulate the form, but they will also serve as conduits and contact points for sensors and input feeders for chemical stimulus and bacteria interaction. This complex system of sensors for data retrieving and genetic manipulation of this living shell will allow the space to become a continuous experiment on its own.

The frame can be built to suit the initial needs of the program into what we have called the Core Lab. Through the genetic manipulation of the skin and simple additions of struts and nodes the Core Lab can grow depending program's growth needs and/or specific conditions. In this case we see the Self Growing Lab (SGL) eventually breaching out of the structure of the Smart Dock allowing an exterior presence that can provoke and/or display public interest, aside to the possibilities for

solar harvesting investigations, among others. Within the city the Core Lab will have the ability to physically be located inside or attached to a building, or even stand alone. At the same time we visualize SGL to be part of an interdisciplinary incubator network at an immediate and broader community level as well at a national and global level.

We see the experimental school of the future as an interdisciplinary and community-oriented institution where design and scientific research go by the hand in a non-traditional approach where new theoretical constructs can be prompted, offering new ways to how people interact with each other and their environment. In this sense the future role of the studio environment should be a scientific experimental and multidisciplinary laboratory where people from different backgrounds and perspectives can help the studio act as an incubator of ideas that help solve society's problems at a micro and macro scale. And the connection to the community we serve can be achieved by attending problems the society faces in a holistic and sustainable approach, while prototyping in real surroundings involving the community in the design process and the scientific data collection needed to validate, discard or modify our theoretical constructs.

01 LOCATION

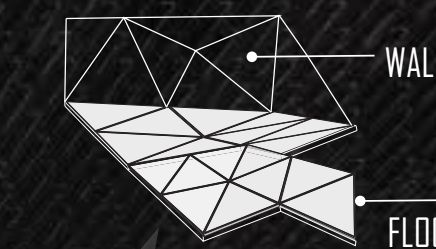
Once a site is determined, whether indoor or outdoor, attached or detached, suspended or grounded the Lab will be able to adapt to any condition.

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SITE VOLUME

02 KIT STRUCTURE

A simple kit of parts made of struts and nodes are to serve as the structural frame, as well as a system of conduits, sensors and feeders for the living envelope.

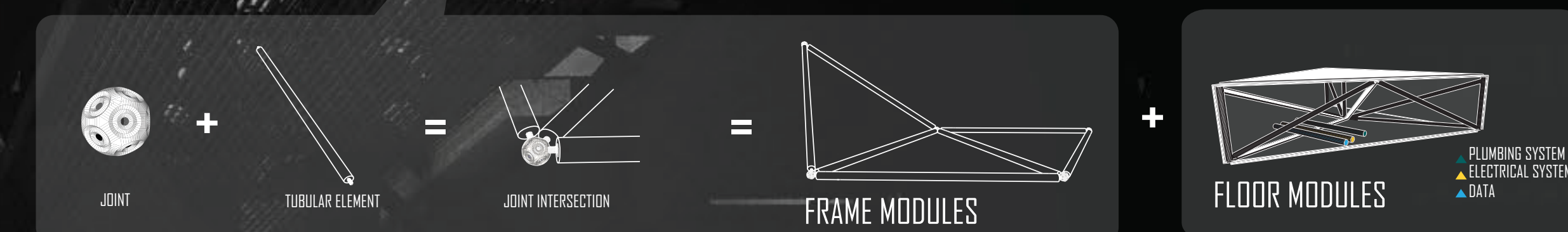


03 ORGANIC GROWING

A bacterial manufactured skin genetically manipulated in a cellular pattern with controlled density, flexibility and translucency can be allowed to organically grow while in place, allowing for a constant evolution of form.

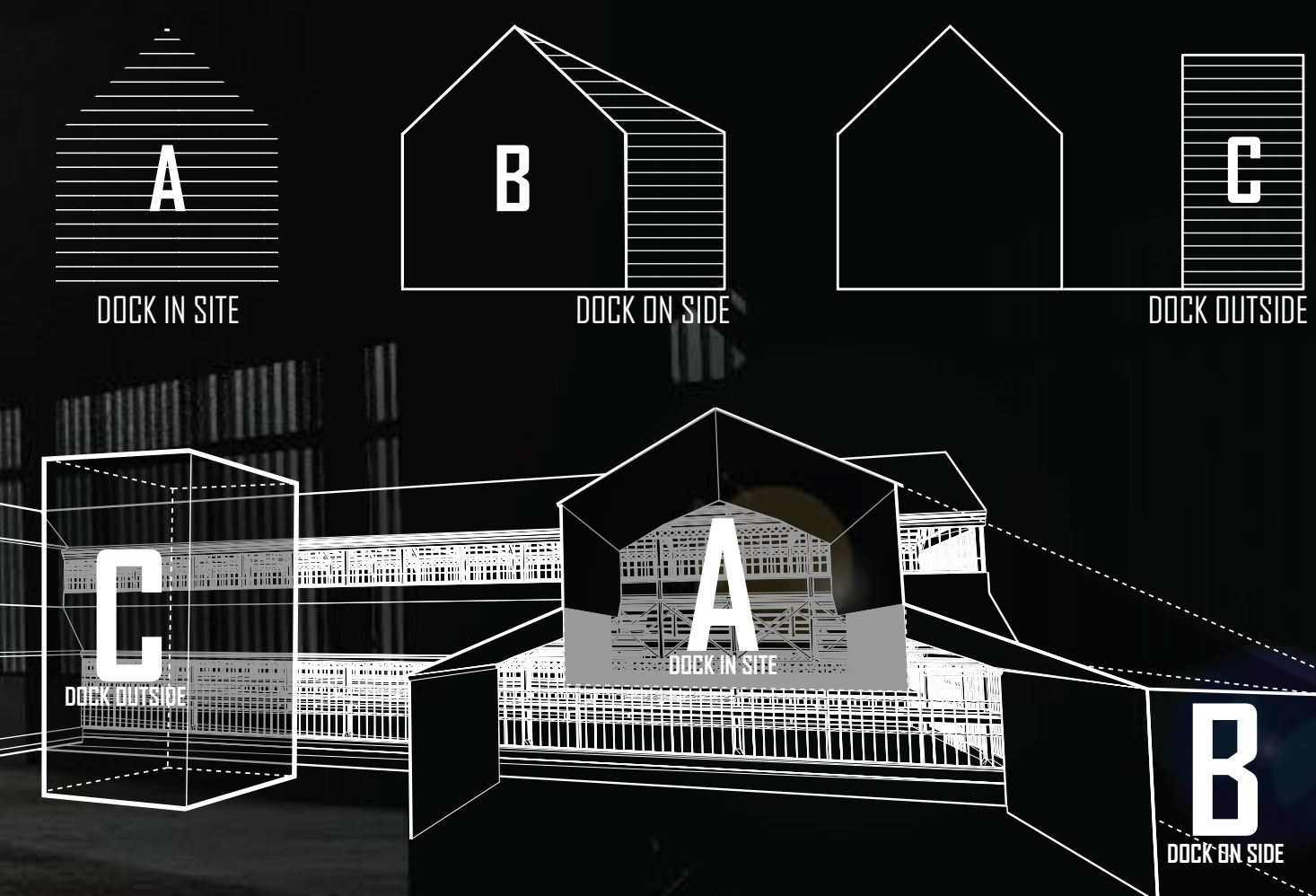


THE CORE LAB



DOCK EVERYWHERE

The principle behind the Self Growing Lab is that it can adapt to any condition, may that be INSIDE a building as it is the case of this competition, ON the SIDE of a determined structure, or OUT-SIDE of any given building or location. The Self-Growing Lab is to adjust itself to its environmental as well as physical conditions.



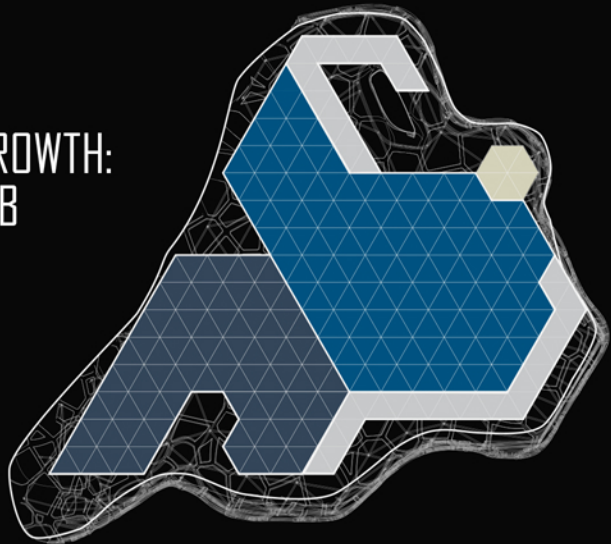
CORE TO WORLD LAB

The same way we see the Core Lab becoming a Self-Growing Lab (SGL) and physically growing out of the Smart Dock structure, we see SGL outgrowing its local community network and becoming part of a much larger interdisciplinary incubator network of ideas into what we have called the World Lab.

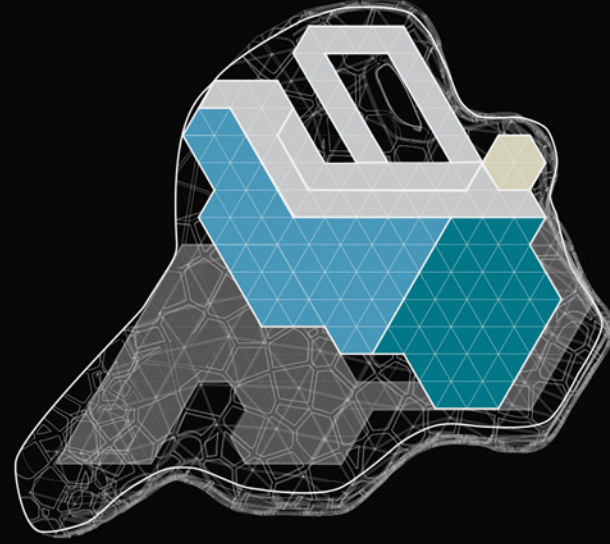
SPATIAL GROWTH & DISTRIBUTION

SCALE = 4FT 8FT 16FT

01 FIRST GROWTH: CORE LAB

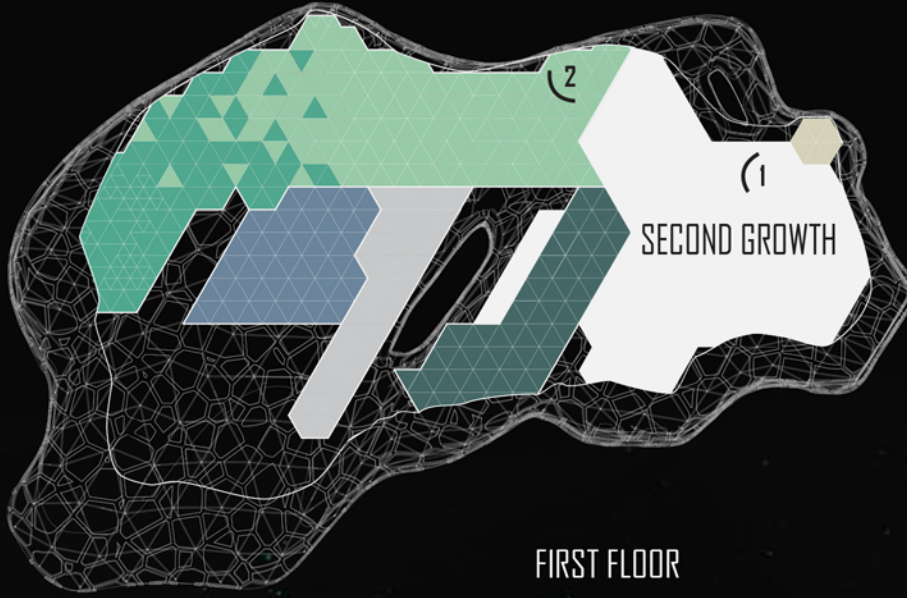


FIRST FLOOR

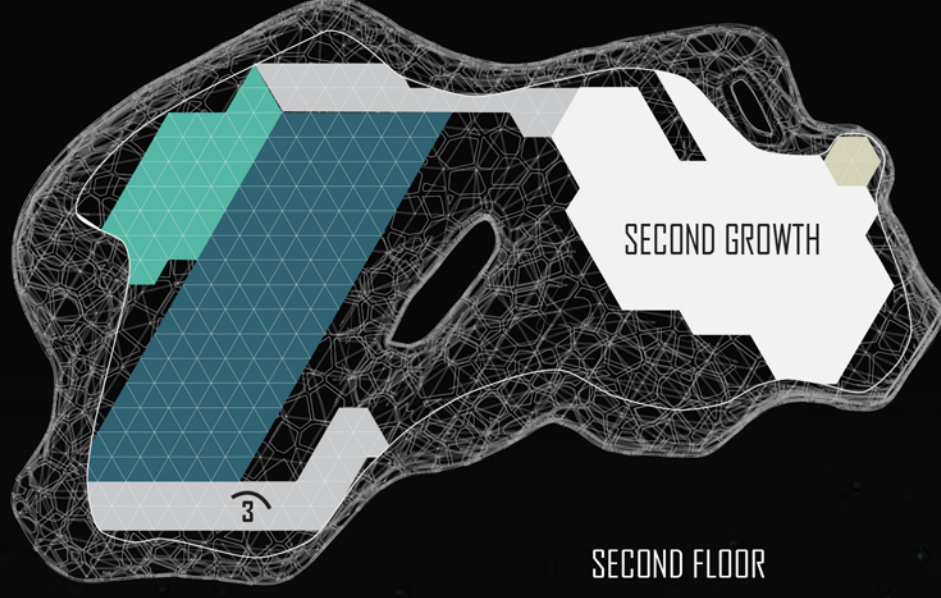


SECOND FLOOR

02 SECOND GROWTH: ORGANIC GROWING



FIRST FLOOR



SECOND FLOOR

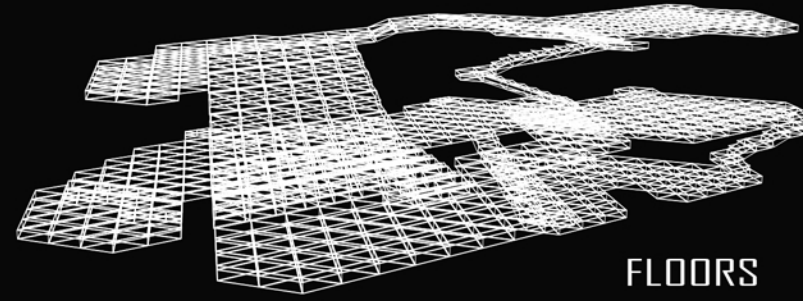
03 THIRD GROWTH: ORGANIC GROWING



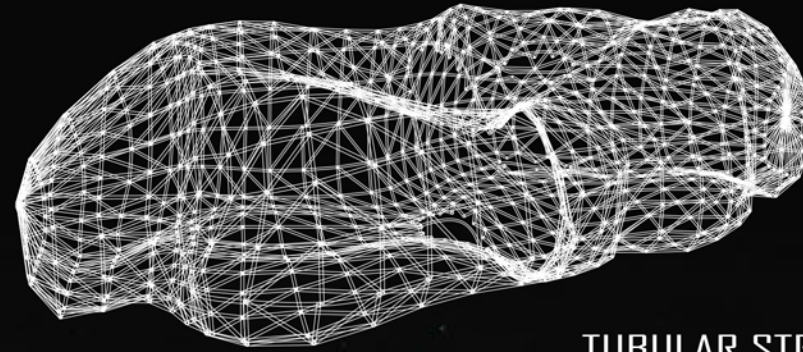
PROGRAM LEGEND:
GALLERY HALL
LIBRARY
AUDIOVISUAL ROOM
WORKING LAB
LOUNGE / EXPO.
CIRCULATION
LIFT
OFFICES
MACHINE LAB
KITCHENETTE
FUTURE PROGRAM
AMPHITHEATER

GROWING LAB STRUCTURE

The skeleton that make the floors, walls and roof of the space are of simple components. Struts and nodes systems have tremendous ability to adapt its form to a given envelope, especially a self growing organic skin, such as this one. Besides its structural purpose these elements can further serve as conduits and contact points for a network of sensors and genetic switches for bacteria interaction and manipulation of the living skin.



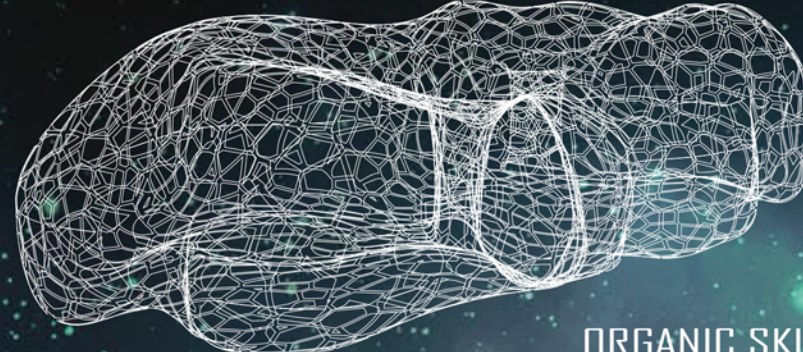
FLOORS



TUBULAR STRUCTURE



JOINTS



ORGANIC SKIN

GROWING MATERIAL

As a greener way to build, we propose the use of a bacteria manufacture material in which protein cells can be genetically altered to create a new living material with the ability to heal itself, adapt to the environment and grown in specific patterns, thickness, rigidity and densities. Thus the proposed Self Growing Lab can become an experiment on its own where further research on other greener technologies like solar harvesting can offer future developments for a more sustainable global growth.

01 PROTEIN CELLS



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02 GENETIC MANIPULATION



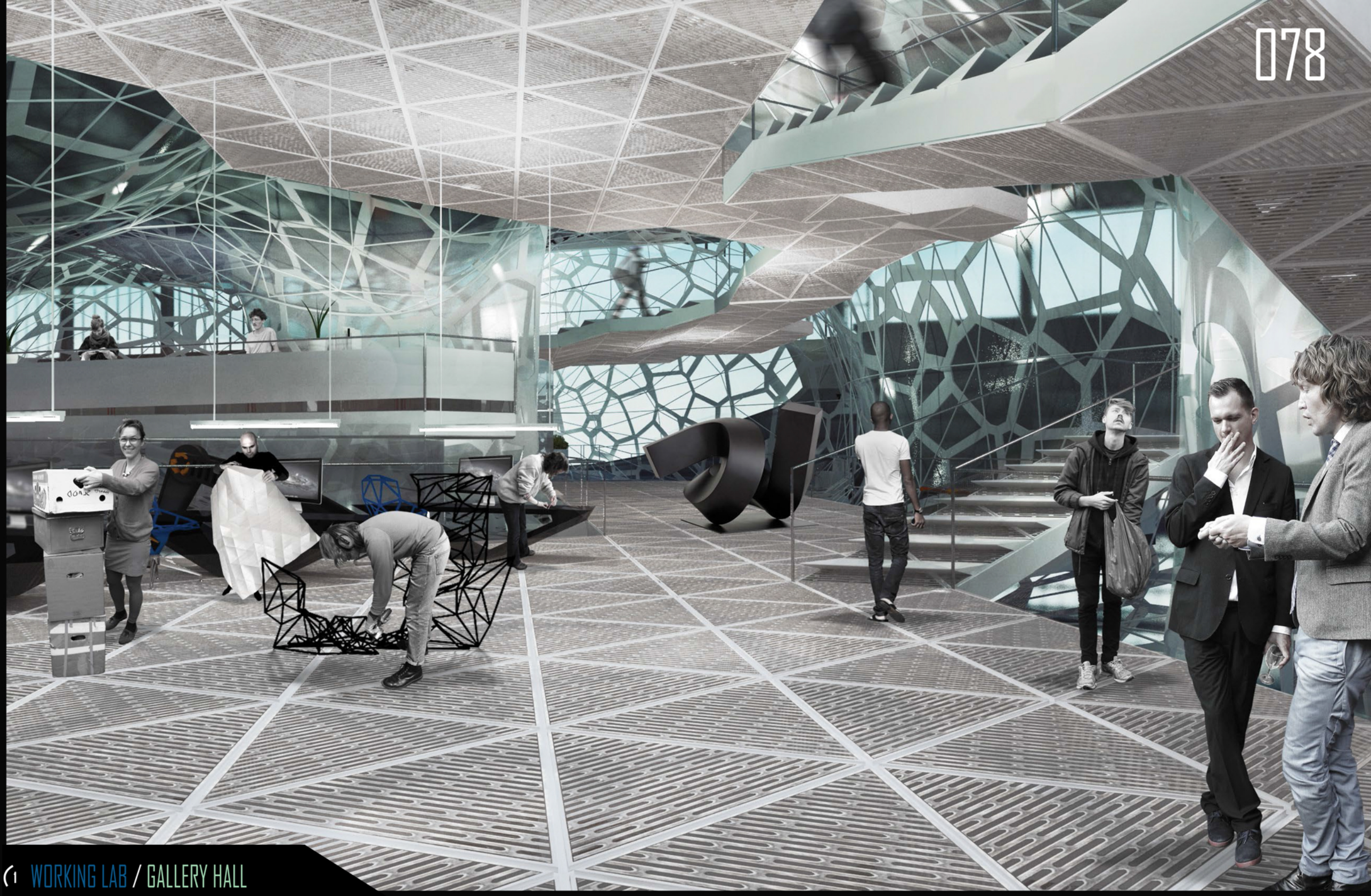
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03 GROWING MATERIAL

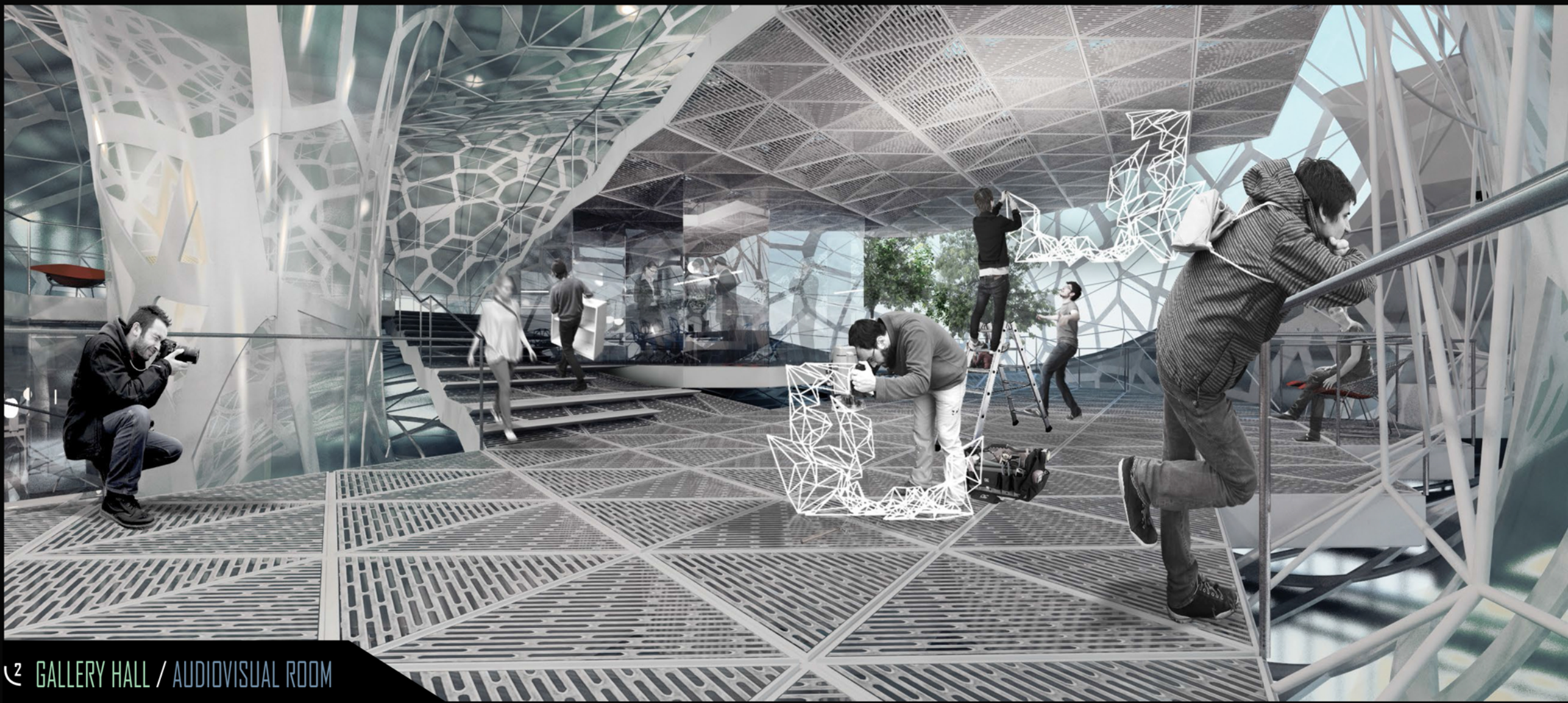


SOLAR HARVESTING RESEARCH

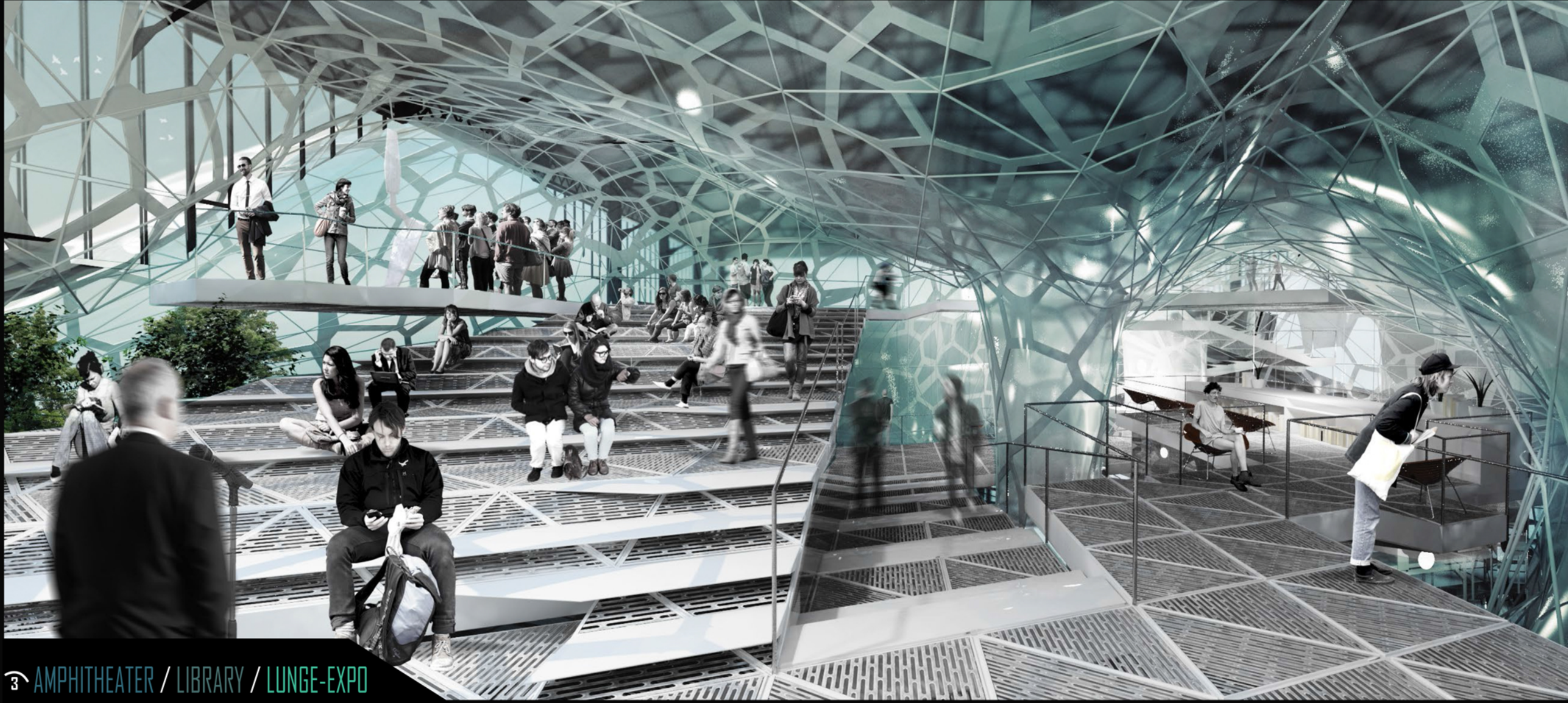
VIVARIUM LAB



01 WORKING LAB / GALLERY HALL



02 GALLERY HALL / AUDIOVISUAL ROOM



03 AMPHITHEATER / LIBRARY / LOUNGE-EXPO

GROWING TO THE FUTURE

We see the lab of the future in constant evolution in terms of ideas as well as physical needs and environments. Our proposal, the Self Growing Lab, reflects such beliefs allowing for adaptation and sustainable growth, while at the same time the space created becoming an experiment in itself, and a platform for research and investigation to design the ideas of the future that can positively transform our society.