Title: CRACT (Reference Center for Art, Science, and Technology)

Abstract:
CRACT (project in progress) is a Reference Center in Art, Science, and Technology. It aims to achieve sustainable environmental and social practices by promoting new habits, behaviors, attitudes, and actions. It intends to encourage the development of such habits, attitudes, and conscious consumption behaviors by evaluating possible sustainable actions' consequences and impacts. It also aims to carry out exhibitions, lectures, and research on semiotic modes of sensory communication to generate and encourage changes in attitudes by outlining a model inducing consumption providing sustainable practices related to Nature appreciation and preservation.

Keywords: sustainable practices, programmed obsolescence, extended durability, material recycling, material reuse, clean energy, sustainability, Nature preservation

Conceptualization:
CRACT aims to carry out exhibitions, lectures, and research on semiotic sensory communication modes to encourage changes in attitudes and behaviors for sustainable art, architecture, and design practices related to Nature appreciation and preservation. It will outline a model inducing consumption based on such sustainable practices. This model will occur through conscious creative consumption actions, thinking about the consequences, impacts, and environmental and social developments of these actions. It also intends to foster partnerships for this purpose. With this objective in mind, CRACT will start its creative actions by proposing EXTENDED DURABILITY as a concept aiming to create durable objects and goods spanning centuries. Therefore, it will elaborate procedures based on scientific knowledge to guide such sustainable actions in art, architecture, and design.

Contextualization:
Planned obsolescence is an economic concept created as an industrial production strategy through which industries establish, in a planned way, a probable end of goods' lives. This model of inducing consumption is one of the main factors responsible for the exponential increase in waste and garbage problems on the planet since it generates a massive volume of waste and garbage. To discard this waste causes a significant impact on the environment.

For over a century, industries undergoing economic difficulties have joined cartels promoting programmed obsolescence as a new consumption model. Gradually, this economic-social behavior spread across the planet, becoming rooted in the industrial actions of the formed cartels. These consumption habits fuel the productive gear generating a model based on non-sustainability. Could industries put their energy into flattening the socioeconomic pyramid by bringing more people to the consumer platform instead of creating non-durable products?

Justification:
It is, therefore, necessary to promote the development of attitudes, behaviors, and consumption habits by addressing these problems, considering the consequences, impacts, and environmental and social consequences of these habits, behaviors, and actions. Only by recovering conscious,

sustainable attitudes will we be able – like soft water on hard stone or bamboo groves flexing in the wind – to gradually undermine this model of harmful consumption.

It may seem quixotic to fight against this attitude ingrained in industrial actions that gather in cartels to defend their lot. It is only through changes in attitudes that it will be possible to re-elaborate such a model and thus, little by little, undermine it. The ingrained habits of consumption of short-term goods based on planned obsolescence keep this gear in motion.

Goals:

- To promote the development of habits, attitudes, and conscious consumption behaviors, evaluating the consequences, impacts, possible sustainable actions, and environmental and social developments, fostering these new habits, behaviors, attitudes, and actions;
- To disseminate the concept of EXTENDED DURABILITY to create durable objects and goods that can span centuries;
- To develop a model for creative actions to disseminate the concept of EXTENDED DURABILITY. To create durable objects and goods that can span centuries. To elaborate procedures based on scientific knowledge to guide sustainable actions and to investigate morphology and geometries for application in art, architecture, and design;

As mentioned above, we propose a new model for these creative actions. Below is a series of preliminary procedures and actions that can complement such DURABILITY and that can support the architectural planning and civil construction strategies to be studied:

- Promote awareness actions to reduce CO2 emissions in daily activities;
- Investigate the use of fungi and microorganisms to transform materials;
- Reuse discarded materials giving them other functions or uses. For example, packaging and leftovers on-site can be shredded and added to other materials for local use (flooring, countertops, shelves);
- Recycle discarded materials by creating other materials on-site. For example, remelting glass, crushing Styrofoam, and packaging materials for filling slabs. Also, these actions could create more workplaces broadening the demand for products;
- Transform sewage into plants. Use organic waste into compost to fertilize the land;
- Investigate cycles, rhythms, and connections in and with Nature, developing theoretical and practical tools to examine the relationship between built space and Nature;
- Investigate sensory experiences in their relationships and connections with Nature to perceive and apprehend intensities and limits related to built space and Nature;
- Use clean energy whenever possible. For example, sun, wind, rainwater;
- Record and document all of the above actions making them known as examples of individual activities that make a difference;
- Carry out local preventive actions to reduce fires. For example, promote the dissemination of knowledge about fire breaks, barriers, and electrical grounding with lightning rods in rural areas;
- Promote awareness actions that pressure industries to reduce the CO2 emissions they dump into the atmosphere. There are researches in Brazil in applied physics that transform this CO2 into nanoparticles of carbon, graphite, and graphene;

- Build a remarkable space to exemplify, disseminate, and develop the actions mentioned above.

Architectural design for the construction of CRACT:

Localization:
Lot 16FZD2, Palmeiras Farm, Igaratá, São Paulo, SP. Located at latitude 23°11'0.37 "S, and longitude 46°10'36.10" W, about 8 km from Igaratá, 25 km from Jacareí, 40 km from São José dos Campos, 60 km from Guarulhos airport, 75 km from the center of São Paulo, and 95 km from Campinas, in the center of one of the most developed regions of São Paulo and with access via several federal and state highways.

Figure 1: the land

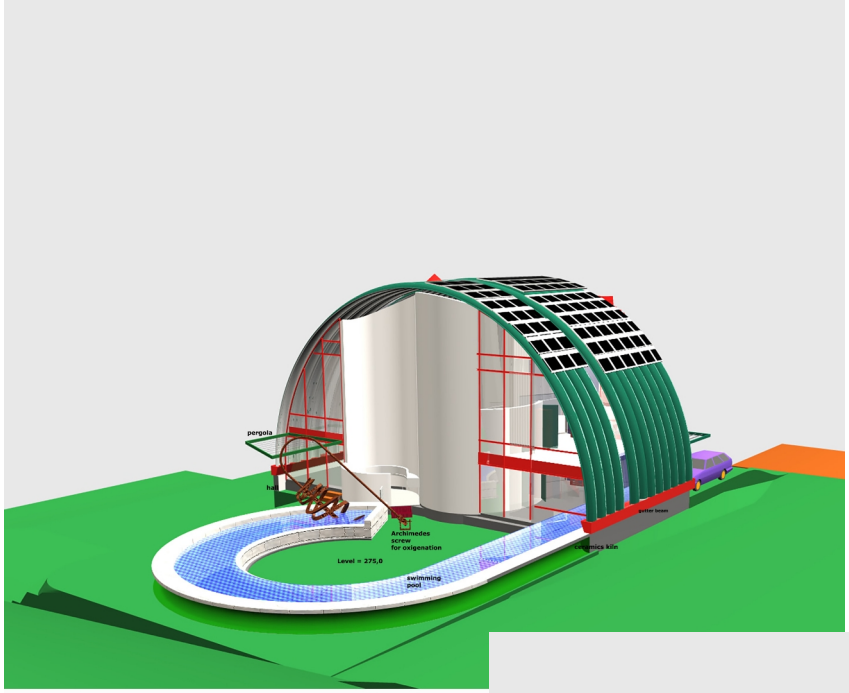
Dimension:

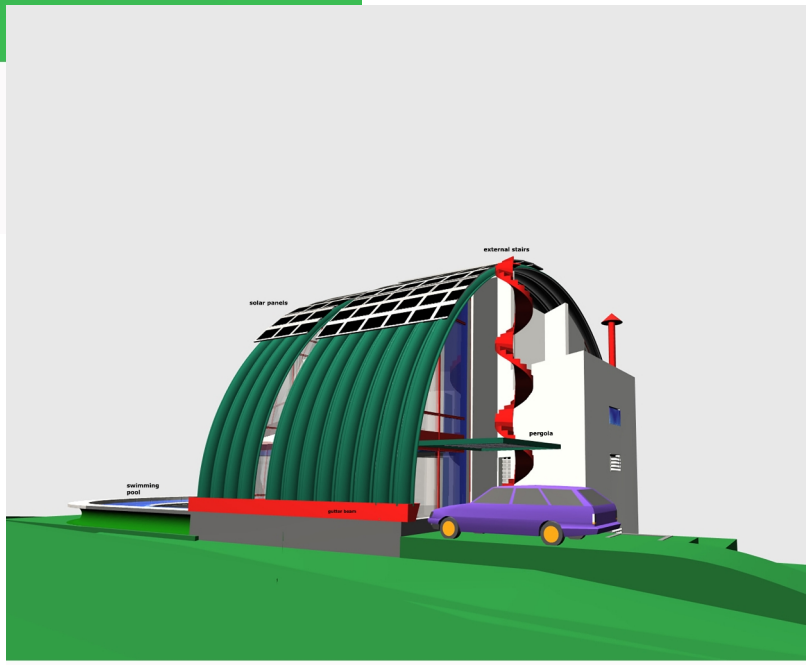
The land measures 25,000 M^2 of area, around 1,600 M^2 of it is a pasture for the built-up construction area, and 23,400 M^2 of preserved native Atlantic Forest.

Descriptive memorial:

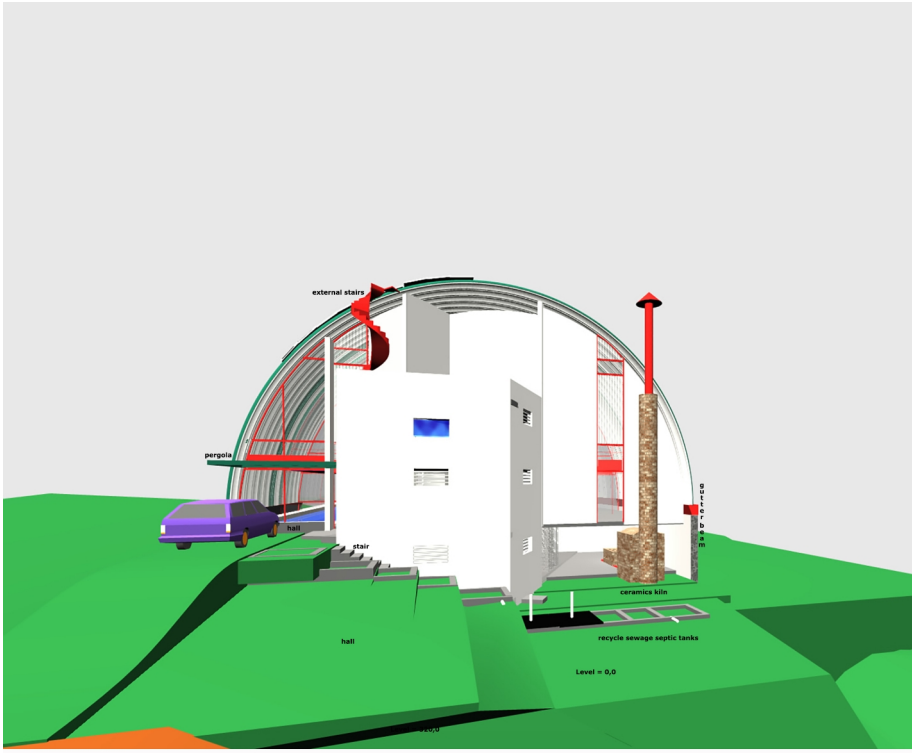
The building will have a self-supporting industrial roof, an underground area for capturing and treating rainwater, a workshop space, a ground floor with indoor and outdoor spaces for exhibitions, lectures, services, and food preparation, a floor with spaces for housing and accommodations. The electric energy will happen through photovoltaic solar panels, and water heating will also be through solar panels. The sewage will follow the EMBRAPA (Brazilian Company for Environment Preservation) model for building septic tanks that recycle sewage by planting flowers and fruit trees. The construction will follow the quoted goals.

Images:





CRACT Igaratá
Northeast Perspective
Achitect: Tania Fraga
A110011-4 CAU-SP



CRACT Igaratá
West Perspective
Achitect: Tania Fraga
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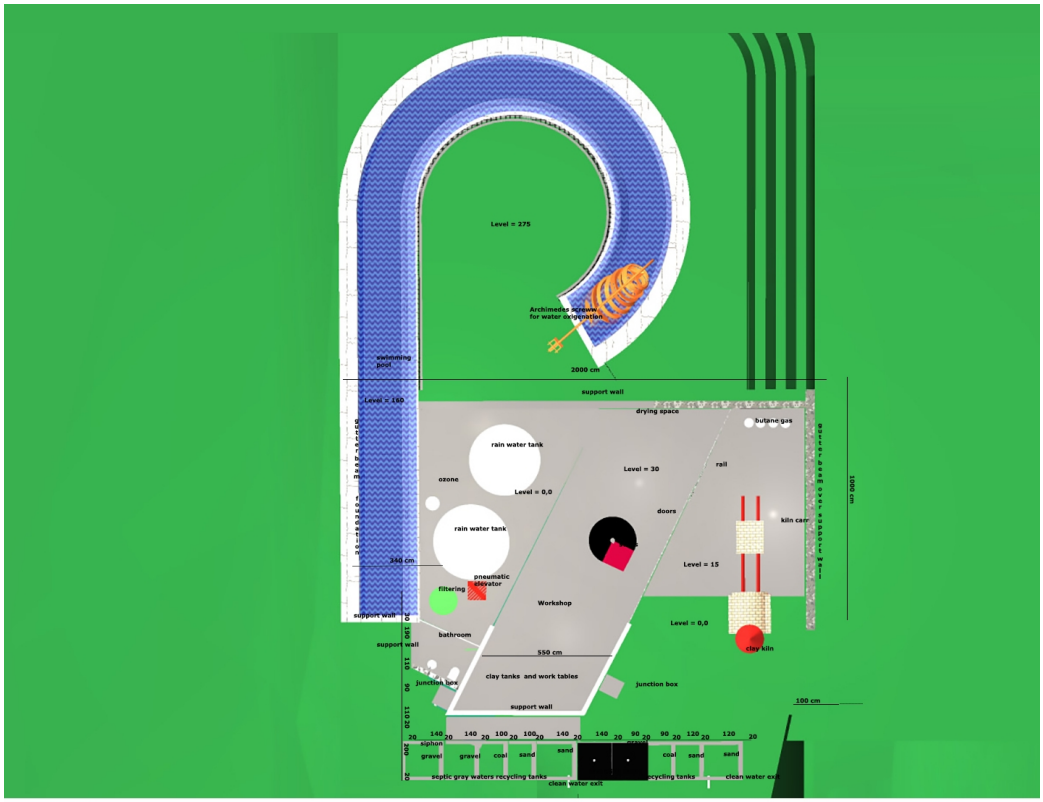

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Subsolo
Achitect: Tania Fraga
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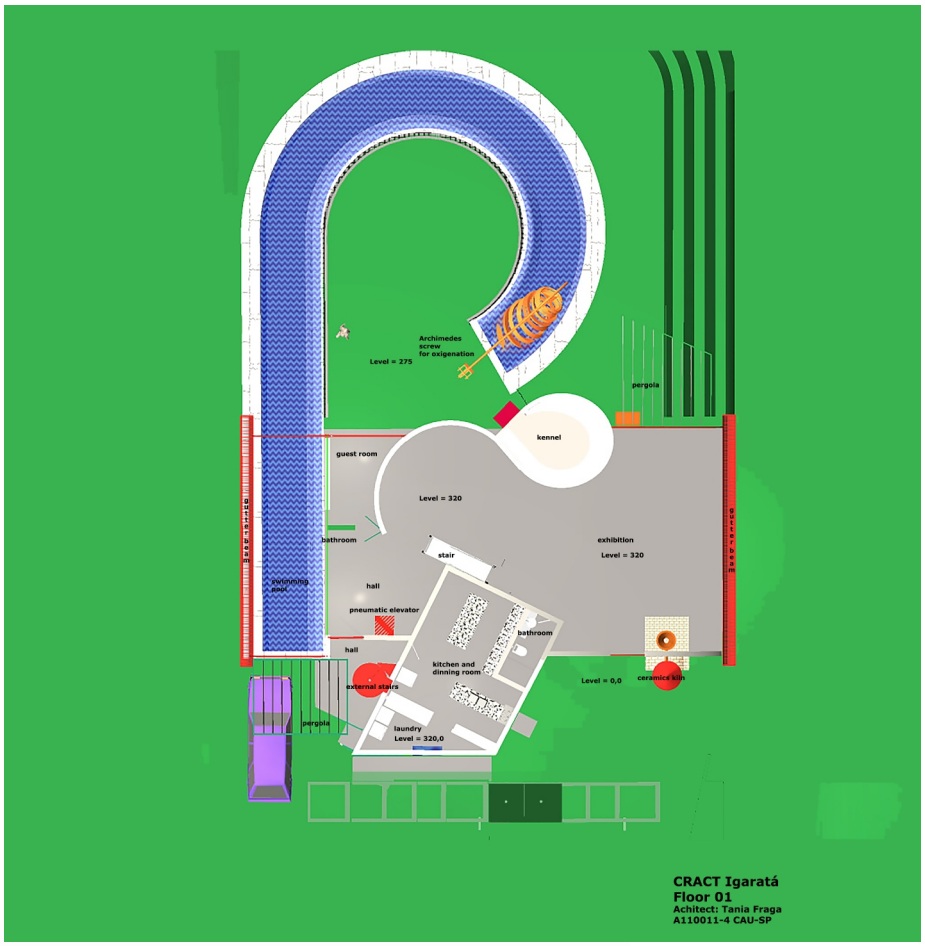

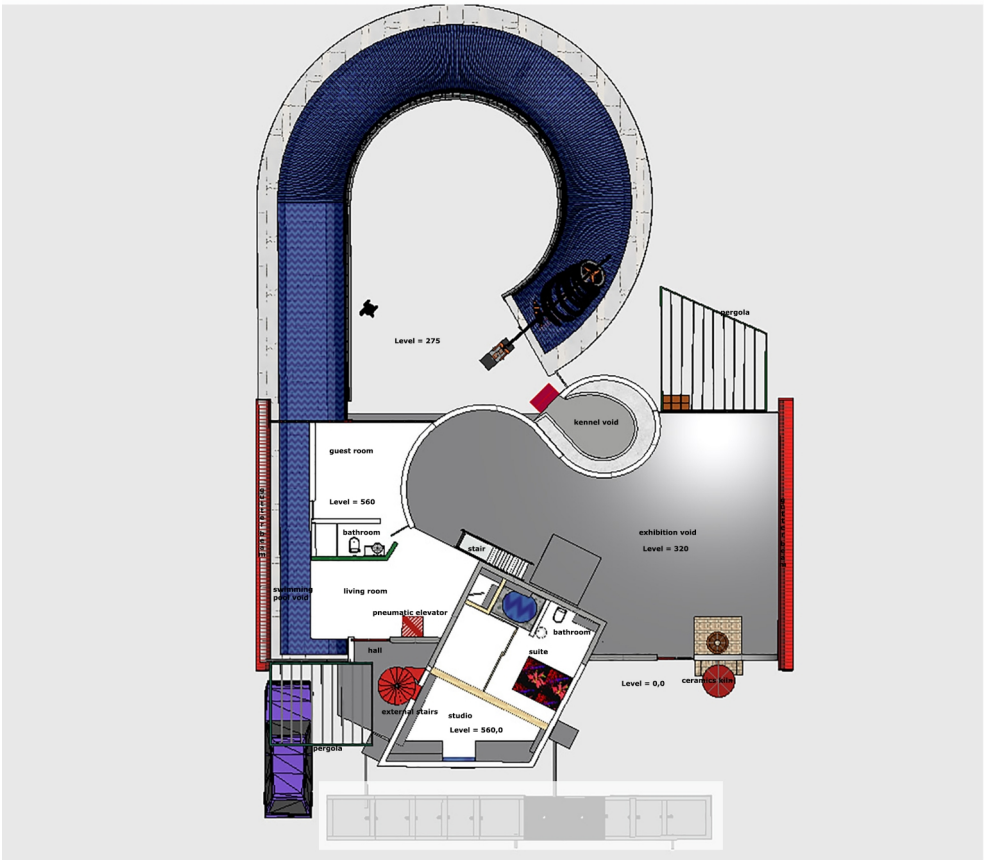

CRACT Igaratá
Floor 02
Achitect: Tania Fraga
A110011-4 CAU-SP