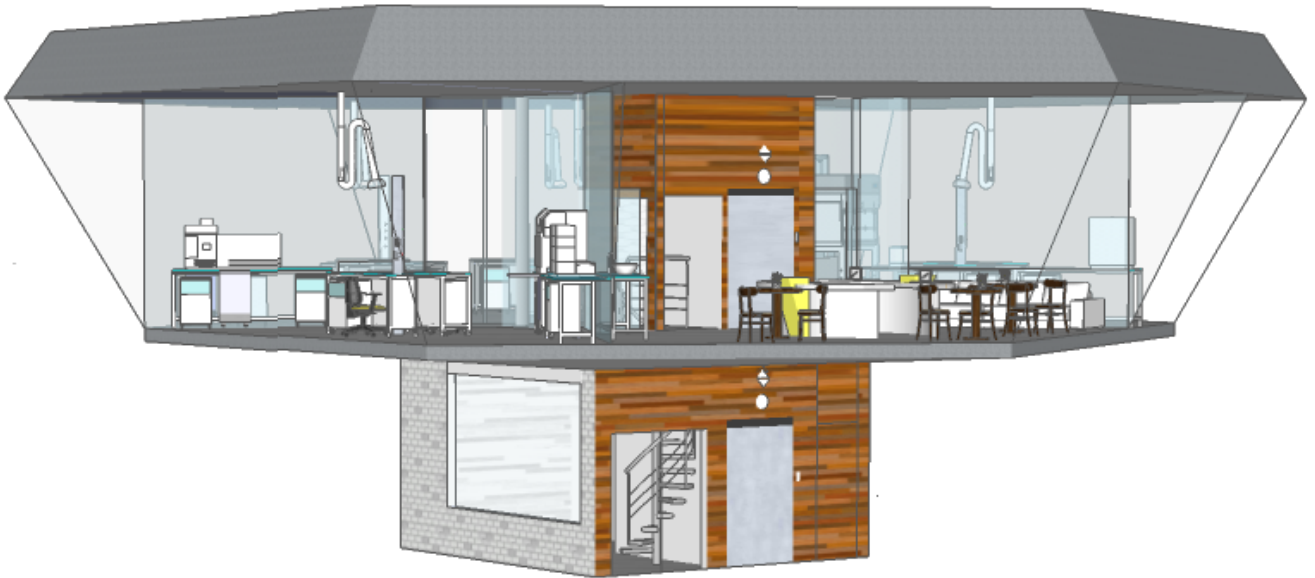


PROJECT

# LABORATORY INNOVATION OF THE INCLUSION FUTURE INTEGRATION



FUTURE VISION

## HEXAGONAL LAB DESIGN

Texto By Júlio Alves  
Projetos By Cirso Nicolau

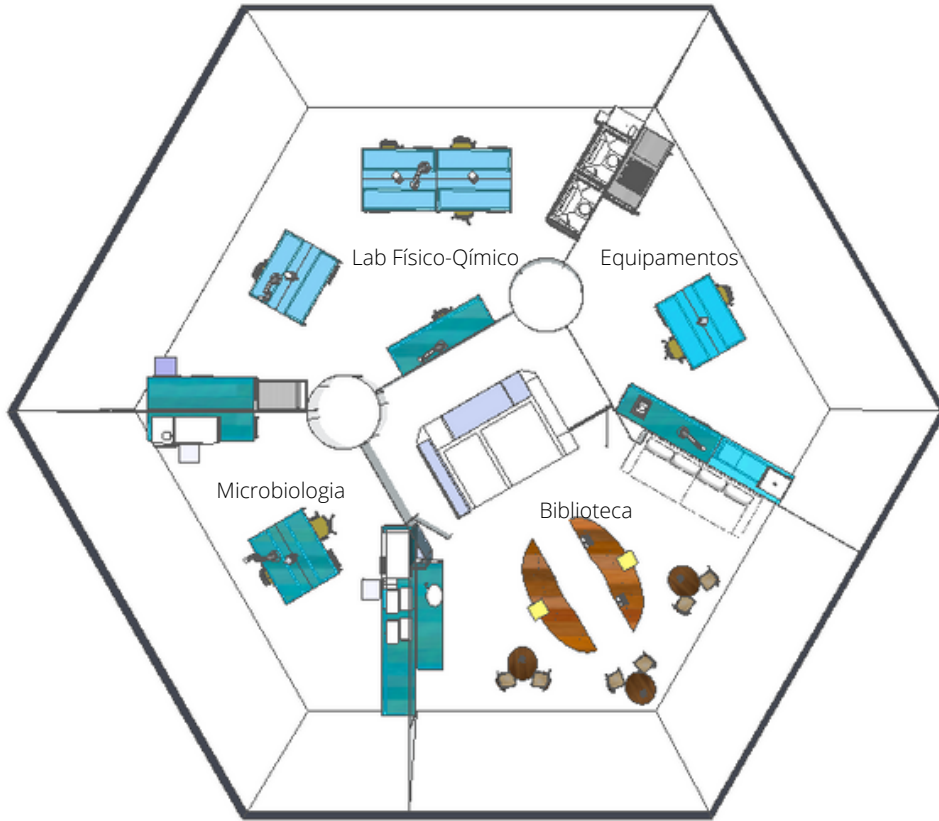
O AT THE CENTER OF RESEARCH

“

Innovative ideas to  
create the ideal  
scientific  
workplace  
continue to evolve  
as the practice of  
science itself. ”



**DESIGNSLAB**  
PROJETANDO  
INOVAÇÕES **FUTURO**



The concept of the new innovative laboratory covers well-known disciplines and also includes behavioral science: Human performance and well-being combined with architecture, flexible and collaborative design are part of the common living areas. Studies show that reduced spaces, sensory perception, lack of noise control, crowding and absence of natural light are characteristics that directly affect human performance. For obvious reasons, our conceptual study of the Hexagonal laboratory started with these main factors.

## DESIGN HEXAGONAL

POR JÚLIO ALVES

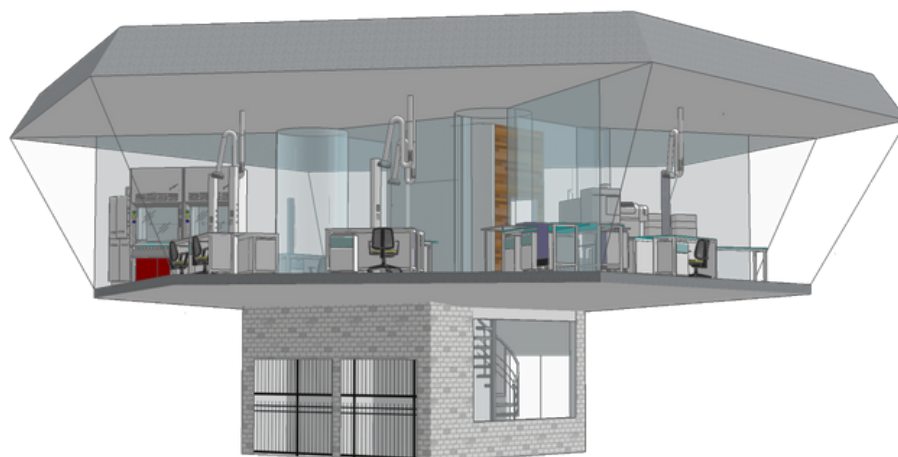
The Laboratory has long ceased to be an adjunct to the organizational structure, in short, the improvements in the research environments help as associations to be successful. Treating the laboratory as a sector of the results of the testing process or, simply, testing of new ideas appeared to be adequate, the trend of the new laboratory essentially brought together all organizational sectors, from the administrative, project development, processes to the appropriate technologies for guide the advances in science.



The hexagonal layout of the laboratory was planned to provide collaborative work spaces with intermediary areas of social interaction, strategically inserted with access to all other areas of the building, including the elevator and stairs, has space for meetings, a library, computers and provides, as leisure, the employees' "coffee".

### VISION OF CONCEPTUAL LABORATORY

- Safety
- Inclusive
- Flexible
- Integrated
- Multifunctional
- Sustainability



The architectural design considers the aspects that value the breadth and security between spaces, giving greater visibility, communication, collaboration to use, ease of sharing equipment and flexibility for future needs. The partitions in special glasses integrate connected to the intelligent electronic control panel and transform, by voice command or a simple touch, into a large interactive LED panel, the monolithic floor through sensors automatically defines the number of people in the place and adapts to the best environmental comfort and its safety classification, an example of this technology: The intensity of the indirect light adjusts as, also if necessary, with the external lighting opting the window glass. Like Janelas, this is one of the highlights of the project that offers an incredible visual connection between the work environment and the natural world, although the Hexagonal Laboratory can also be installed inside a shed. The intelligent central control system automatically calculates the local mass study, recognizes the activity and defines, with complete information, the best temperature and humidity, also considering the monitoring of the necessary quality and quantity of safe air exchange in the environment.



Innovation and safety recommend the application of materials in the construction of the Hexagonal laboratory: aluminum, carbon steel, carbon fiber, tempered and laminated glass, fireproof materials, flat base prepared in concrete. The glass cylinders are - airlocks - with differentiated air pressure, one door must be closed to unlock and open the other, in the glass circle is the decontamination spray and the safety shower. The access corridor to the rooms will have different air pressures. The internal equipment, such as the fume hood - EPC (collective protection equipment), will be automated, inclusive and integrated with adaptable furniture; highlight to the TopGlass countertops, glass interactivity with cell phones and central artificial intelligence system. Flexible Furniture: benches structured in metal frames with casters, mobility concept, the separate lower modules will accompany the user in the environment. Connectivity: The concept of virtual glasses will assist in productivity, combining online research work, as well as virtual experiments and maintenance planning will be located and thus can be managed with greater peace of mind.

# HEXAGONAL LAB DESIGN



## CHARACTERISTICS OF THE HEXAGONAL LABORATORY

Panoramic glass structure (internal application on the shop floor or outside);

Special glazing on the front windows with opacity system;

Internal glasses with a touch screen system or voice command connected to an intelligent data and logic center;

Green roof had accommodated all interconnections; roof / windows with photovoltaic system and water collector for cistern, based on the reduction of electricity and sustainability;

Sensors installed on the smart floor, determine the people in the space and define the best comfort and safety to the environment;

Internal spaces completely adaptable to the needs of the activities, such as: Physical / Chemical, biological, metallographic, R&D, instrumental, disciplinary, etc. The common transition corridor, which connects all rooms, the glass circle was designed for be an "airlock", offering differentiated air pressure and safety;

The sections of the shape that make up the hexagonal design allow for future modifications and extensions;

Bathrooms and electrical panel / batteries at the bottom of the structure.

Access to the laboratory by bidirectional elevator and / or stairs;

Division of the intermediate and laboratory environments integrate partitions that house a fully automated vertical aquarium.

