

# Flow: Parametric Techniques for a Meditative Retreat

The *Flow* project, located at the [Universidad del Sinú](#) in Montería, Colombia, is a pioneering initiative blending architectural innovation with holistic well-being. Designed by architect Mauricio García with collaborators Eder García, Eligio Fuentes, José Hernández, and Francisco Martínez, *Flow* represents the first university-based happiness center in Colombia. The structure's mission is clear: to elevate the quality of academic life through yoga, mindfulness, and spaces for introspection.



## DESIGN INSPIRATION: BRIDGING TRADITION & NEUROSCIENCE

The project draws inspiration from contemplative temples of Hindu and Buddhist traditions, notably the Dhyanalinga Temple in India. These spaces, characterized by their expansive, dome-like designs, serve as places for collective meditation and spiritual growth. In *Flow*, this inspiration is reimagined through principles of neuro-architecture to shape an environment fostering relaxation, emotional balance, and a sense of connection.

To create a fully immersive experience, the design emphasizes visual and tactile sensory stimulation. The dome's geodesic structure, composed of scalene triangular panels, forms a warm and tranquil atmosphere, ideal for both individual and group activities. A material palette of natural plywood and light-filtering copper-hued polycarbonate enhances the spatial ambiance, wrapping users in a

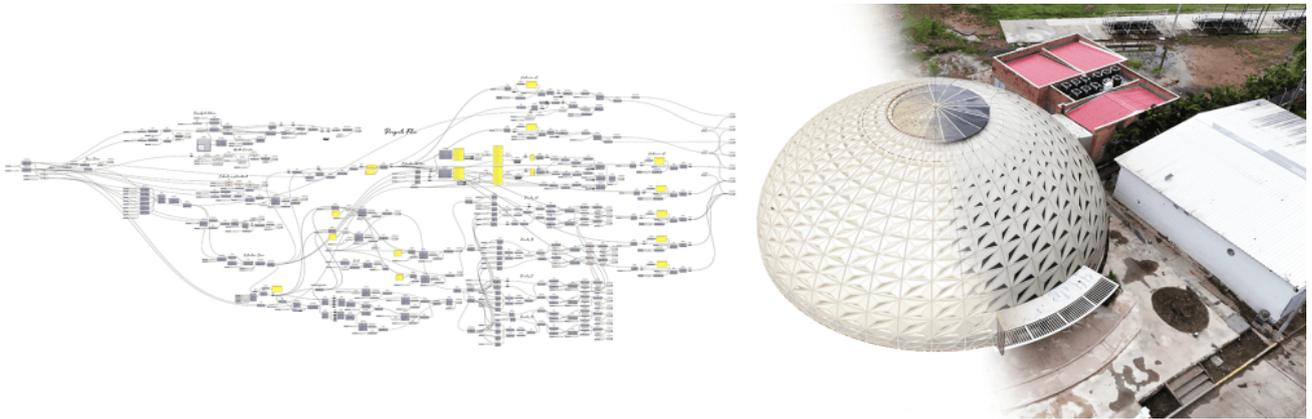
comforting, cohesive environment.



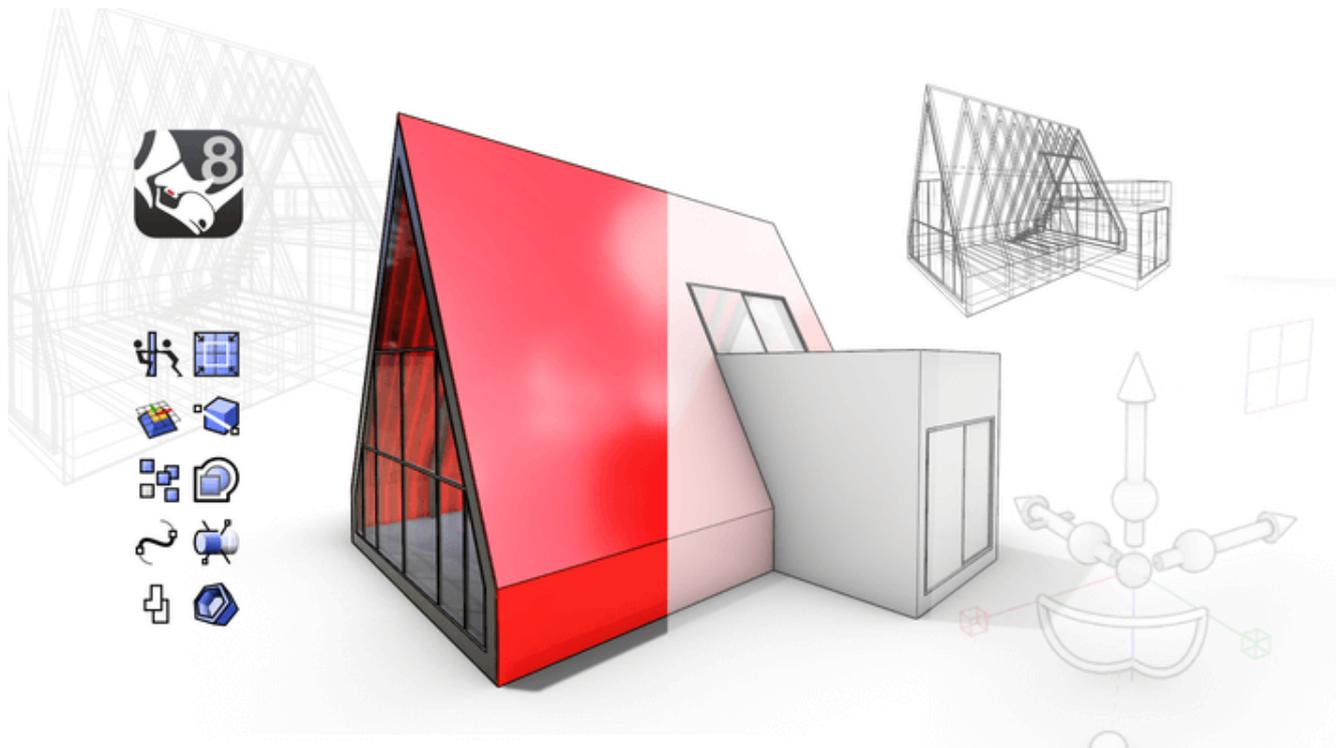
## PARAMETRIC TOOLS IN CREATIVE & TECHNICAL DEVELOPMENT

The architectural vision for *Flow* came to life through advanced parametric tools, primarily [Rhinoceros 3D](#) and [Grasshopper](#). The design team utilized these tools to address the complex geometry of the dome, ensuring precise modulation of its structural and non-structural components. Grasshopper scripts allowed for parametric control, enabling adaptive scaling of triangular panels based on solar exposure and functional requirements.

The team employed plugins like Ladybug to refine the interplay of light and material. This software simulated solar trajectories, guiding the positioning and size of openings in the panels. For example, areas with higher solar intensity featured smaller apertures to limit light penetration, while shaded zones had larger openings to maximize natural illumination.



The dome's expansion—a last-minute requirement to accommodate more users—highlighted the efficiency of the parametric workflow. Grasshopper scripts facilitated rapid adjustments to the dome's dimensions and automatically updated associated fabrication documents. These tools also enabled the exploration of diverse panel configurations, balancing aesthetic variety with structural functionality.



[See Also](#)

[INTRODUCTION TO RHINO 8](#)

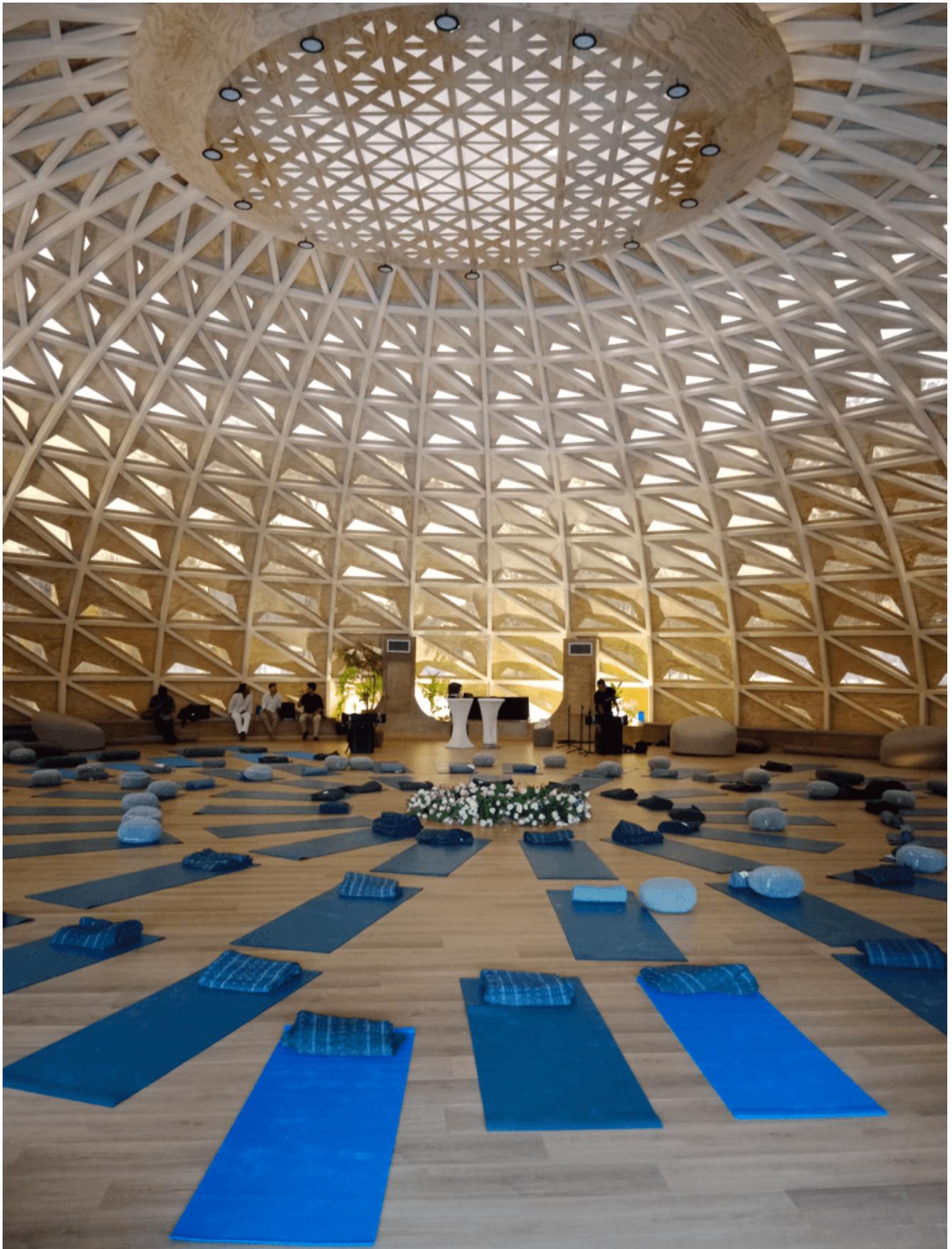
# MATERIALITY & LIGHTING STRATEGY

Material and lighting decisions were fundamental to creating *Flow's* immersive atmosphere. Using plywood as an interior cladding material contributed to the sense of warmth and uniformity. At the same time, polycarbonate inserts in the triangular panels softened natural light, casting dynamic patterns across the interior.

A suspended, centrally located light diffuser further enriched the space. Designed with parametrically modulated openings, this feature distributed light evenly, directing it toward the dome's core. Complementary LED light rings ensured consistent illumination during evening activities, harmonizing with the natural light effects.

# CHALLENGES & ADAPTIVE SOLUTIONS

The project encountered significant challenges, including the intricate geometry of the dome and its numerous apertures. One particularly demanding issue involved sealing the windows to prevent water infiltration. Initial attempts at applying structural silicone proved insufficient, leading to extensive rework. Despite these setbacks, the design's parametric foundation allowed the team to implement solutions efficiently without compromising timelines or budget constraints.



The reliance on CNC fabrication at the university's FabLab exemplified the seamless translation of digital designs into physical components. Parametric models ensured high precision in cutting and assembling the geodesic panels, reinforcing the project's commitment to craftsmanship

and innovation.

# A GLOBAL VISION FOR LOCAL WELL-BEING

*Flow* benefits from collaborations with international institutions, including [Harvard University](#) and Indian spiritual leaders. These partnerships enriched the project's approach to well-being, combining cutting-edge academic insights with time-honored meditative practices.

Ultimately, *Flow* is more than a building; it is a testament to architecture's potential to nurture the mind and spirit. By leveraging parametric tools and thoughtful design strategies, this project redefines spaces for education and wellness, setting a benchmark for innovative, human-centric architecture.

## CREDITS

**Client:**

Universidad del Sinú

**Designer:**

Mauricio Garcia

**Other Collaborators:**

Eder Garcia

Eligio Fuentes

José Hernández

Francisco Martínez