



## KRUSHI BHAWAN

### Written and Contributed by

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Designed by Studio Lotus, Krushi Bhawan is a government facility that reimagines the relationship between the state and its people.

### What is the project about?

Krushi Bhawan is a facility developed for the Government of Odisha's Department of Agriculture & Farmers' Empowerment. The 1,30,000 sq.ft administrative centre has been designed as an office for a team of nearly 600 people, in addition to accommodating spaces for community engagement and learning.

Krushi Bhawan is located in Bhubaneswar, the state capital of Odisha; home to multiple agrarian communities, the state is the third-largest contributor to India's grain supply. The new campus sits adjacent to the old campus for Krushi Bhawan, with several ancillary structures of power in the vicinity, such as the Police Commissionerate Building and the State Guest House.

The project had an undoubted mandate to reimagine the government's relationship with its people. The client initially envisioned a typical glass office building. However, the architects wanted to explore the connection of the city to the building's

interiors and provide a well-lit and ventilated facility. Taking a cue from Otto H. Königsberger's original vision for Bhubaneswar where he saw the Capital Complex with a host of government offices becoming "a lively point of public life," public functions and community spaces were added to create a building that would add to the city's social infrastructure. The ground floor is thus designed as a free-flowing public space that opens out into a plaza, which is an extension of the street.

Congruent to the project objective, the ground floor comprises a learning centre, a gallery, an auditorium, a library, and training rooms. Similarly, the rooftop houses urban farming exhibits for the demonstration of best agricultural practices. The offices for the State department and Directorates, which require restricted access, have been placed on the first, second and third floors. This allows the offices to be secured off, making it possible to keep most of the other facilities open to the public even on holidays. Through exhibitions, workshops, *haats* (weekly markets), lectures and school visits, these public spaces become a hub for imparting skills and sharing knowledge that engages diverse sections of the city's population.

As befits the climatic conditions of the region, the design scheme for Krushi Bhawan consists of a central courtyard that opens through a series of colonnades into the Public Plaza. The Public Plaza consists of a garden with native flora, featuring an informal amphitheatre and a pond that cools the forecourt. The primary entrance pathway is lined by laterite lattices and trees and perform multiple functions—from a common area for employees to congregate in and eat together during lunch hour, to a place for hosting small gatherings. The ground floor, thus, functions as a public node that turns the traditionally austere image of government facilities into one that is welcoming, inclusive and collectively owned.

The distinct visual identity of Krushi Bhawan is derived from the regional materials and vernacular narratives, expressed in a manner that is responsive to the local climate.

Over 100 highly skilled artisans have come together to create a vibrant and contemporary narrative of traditional Odia craft depicting agricultural folklore and mythological stories, envisioned at an unprecedented architectural scale. For instance, the tribal craft of *dhokra* (cast metal craft) is adapted to make light fixtures that wrap around the ground floor columns, as well as metal

screens that line the building corridors. The pedestal level and North Wing use locally sourced laterite and khondalite stone. Hand-carved *khondalite* lattices provide a sense of enclosure to the Central Court. Similarly, agricultural motifs displayed across the building through a variety of craft techniques such as the bas relief carvings in laterite along the Public Plaza, depict ripe paddy crops illustrated in the Odia *Pattachitra* (cloth-based scroll paintings) style. In the Central Court, a crop calendar has been created on a stone inlay floor, which displays the harvesting cycles for the most prevalent crops in Odia farmlands.

The upper floors of Krushi Bhawan feature a distinctive brick façade inspired by Ikat patterns of Odisha handlooms, created using clay in three different colours that represent the geographical diversity of the region. This brick-louvred screen wraps around the building like a second skin.

### **What is the impact?**

Indigenous passive design strategies contribute to the sustainability parameters of the building. The courtyard morphology and the inclusion of a stilt level aid optimal air circulation through the building, whereas the low window-to-wall ratio and deeply recessed windows and balconies help lower heat gain. The building profile along the Central Court is characterized by staggered masses which enable self-shading and block direct glare.

The use of locally-sourced materials has also lowered the carbon footprint of the construction process. The façade has been designed to ensure 100% daylight internal spaces. Further, a double-skin facade strategy has been put in place at the complex, which consists of double-glazed units (DGUs) on all external fenestration with louvres and sill projections that act as shading devices—a system that reduces heat gain to 40% by regulating ingress of sunlight. A simple night-purging system devised for cooling and ventilation considering the significant drop in night temperatures. Through this mechanism, cool air gets pulled into the building through the northern façade when temperatures drop at night, utilizing a custom-designed ‘low-tech’ damper system. The high thermal mass of the building traps the ‘coolth’ and becomes a ‘coolth’ exchanger with the surrounding air in the day when outside temperatures are higher. A deduction of internal air temperatures by 7-8 C° (in comparison to the ambient temperature) has been achieved through the night-purging system. Other interventions include solar panels on the terrace, on-site rainwater harvesting and wastewater treatment, and an anaerobic

bio-digestive solid waste management system which generates compost and fertigation water for the landscape.

The landscape utilizes local flora in the lawns of the public plaza and the creation of green terraces on the first and second floors of the building. The latter have been incorporated with the interior façade design, with each workspace provided with views of the central court, the terraces, or both.

One-fifth of the floor space at Krushi Bhawan is dedicated to crop and fishery samples—housed on the terrace level. These urban farming samples serve to train the state’s farmers in the latest agricultural techniques as well as educate the local population about the ecological diversity of the region.

Krushi Bhawan transcends the typical closed office campus morphology by integrating governmental functions with direct community engagement and education. Through the meticulously developed spatial programme, the complex brings the Odia farmers and the citizens of Bhubaneswar into the fold and facilitates their interaction and collaboration. It thus seeks to present with its design and building process a model of frugal innovation that celebrates culture, seeks to include the neighbourhood and is highly sustainable and relevant to what countries such as India need. It also serves as an example of how the government can become a key patron of regional crafts, and sustain the communities and economies built around them.

#### **Project Funded by**

Government of Odisha’s Department of Agriculture & Farmers’ Empowerment.

#### **Stakeholders Involved**

**Design Firm:** Studio Lotus

**Design Team:** Ambrish Arora, Sidhartha Talwar, Raman Vig, Sachin Dabas

**PMC:** Odisha Industrial Infrastructure Development Corporation (IDCO)

**Structural Consultants:** NNC

**Environmental Consultants:** PSI Energy (Gaurav Shorey)

**Collective Craft** | Sibanand Bhol

Collective Craft collaborates with architects and designers to conceptualize, design, produce and integrate handcrafted

products and/or components in contemporary architectural spaces and products.

**ROHA Landscape** | Aditya Advani

Roha is a landscape design firm with a commitment to creating open spaces that enrich the lives of its users.

**About Studio Lotus:**

Founded in 2002 by Ambrish Arora, Ankur Choksi and Sidhartha Talwar, Studio Lotus is acknowledged as a thought leader in the country for its work in the domain of Architecture and Spatial Design.

Our work is grounded on the principles of Conscious Design, an approach that celebrates local resources, cultural influences, keen attention to detail and an inclusive process. We follow an iterative and incremental methodology of innovation and root our learning in history and local context. We aim to craft benchmark solutions that address society's changing ways of living and working.

**Links to read more:**

[A link to the project.](#)