

## THE MAYAN PRACTICE OF NATURAL STUCCO CHUKUM ADOPTED BY THE ECOLOGICAL ARCHITECTURE IN MEXICO

In Mexico, the [ancestral technique using the organic resin of the Chukum tree in buildings](#) is being rescued with great success, to increase the impermeability of coatings. With an ancient Mayan heritage, Chukum natural stucco has become an ecological and sustainable proposal in the framework of the ecological architecture to create environments in harmony with nature

The resin is extracted from the Chukum tree (*Havardia albicans*) endemic to the Yucatan peninsula and also found in other neighboring regions and countries. The Chukum tree, which reaches a height of five meters, is characterized by a thorny bark and a resin rich in tannins that gives it its red color and has multiple properties for use in tanning, traditional medicine and construction. To extract the resin, grooves are drawn on the bark, in such a way that the plant is not damaged and an environmental impact is not generated. Chukum is a mixture of limestone-based stucco with resin extracted from the tree, in proportions known by experts and following national standards, which is applied to the walls to be waterproofed.

Chukum stucco is a waterproof product with a natural aesthetic finish. It prevents the formation of fungi, and it is also economical, easy to apply and to wash. The fine finish left by the Chukum is ideal for water areas, whether they are fountains, water mirrors and pools. Thanks to its resistant setting and plasticity, it prevents cracking, it is very durable due to its great impermeability and its properties allow the use of fewer products for the treatment and conservation of water. Due to the natural components of the material, it reduces installation and maintenance costs in outdoor pools by 80% since it is not altered by the sun or saltpeter. In addition, used in outdoor swimming pools, this stucco makes water protagonist. Although the product has light colors, the contrast of the Chukum finish with the sun and the depth of the pool creates a range of turquoise in the water, giving it shades similar to beaches with a sandy bottom.

Thanks to its high waterproofing performance, Chukum stucco can be applied in wet rooms of the houses (bathrooms, kitchens, saunas) to form countertops, furniture and shower trays, among others, creating functional and highly elegant spaces.

Chukum stucco is also a material with excellent thermal behavior, which places it among the tools of the new bioclimatic architecture. Due to these characteristics, it is used as exterior cladding for facades and as an interior finish, on walls and floors in high-level buildings and hotels.



According to the information disclosed, the important works carried out in the Yucatan peninsula by the competent national authorities of Mexico in the 1990s, for the recovery of the archaeological areas and the great cultural heritage of the Mayan civilization have been decisive in the valorization of Chukum stucco. Its application in ongoing restoration works has made it possible to recover old construction practices and rediscover its potential for an architecture based on the use of local materials and harmony between the buildings and the surrounding landscapes.

In fact, the rediscovery of the extraordinary functional and aesthetic characteristics of Chukum stucco has been a great success in Mexico. Many architecture studios attentive to environmental sustainability and construction companies of new homes have resorted to using this plant-based stucco for waterproofing areas in contact with water, but also to cover exterior and interior walls of high-end homes and hotels. Other companies have built up a supply of finished Chukum stucco products and the market is expanding in Mexico and abroad as well.

The rediscovery of this technology based on traditional knowledge and the use of natural materials and the great success it is having undoubtedly represent a great social, economic and environmental opportunity for the local communities of the Yucatan peninsula. Fortunately, the Chukum tree is an endemic and strong-growing species, widespread in the Mexican states of Yucatán, Quintana Rojo and Campeche, but also in the neighboring states of Guatemala and Belize. Based on the studies and monitoring carried out by the competent national and local institutions in Mexico, the Chukum tree is not considered an endangered species and the risks to which it is exposed and from which it has to be protected are linked to the very common phenomena of abandonment of forests, indiscriminate felling of trees, changes in land use, abandonment of rural areas and their traditional productive activities especially by the new generations.

In 2021, the [University of Xochimilco published an important study on the use of the Chukum stucco](#), presented as one of the traditional constructive knowledge that is part of the biocultural heritage of the country. In addition to framing this practice in the set of cultural, productive and environmental traditions of the native peoples of Yucatan, the study provides a lot of specific information on the techniques and materials used in ancient times to produce the Chukum stucco, suggesting the conduct of new research to recover aspects abandoned by recent practices (such as maceration) that can further improve its waterproof and thermal properties. The study suggests to actively involve artisans and experts from local communities in these research and development works. The study also highlights the great opportunity to use the Chukum natural material to improve the homes of local populations in an ecological and sustainable way, taking advantage of the natural resources of their forests.

The rediscovery of this ancient technology undoubtedly offers great opportunities for the communities in Yucatan peninsula to implement local chains of enterprises for the production and use of Chukum stucco, while taking care of the forests where the tree can grow and prosper, ensuring environmental and economic benefits and highly qualified jobs for young people within the framework of the new growing trends for an ecological and sustainable architecture and the great demand already existing in the market.

#### To know more

[Chukum in yucatanathome.com](http://Chukum.in.yucatanathome.com)



[El Chukum en la arquitectura in jgarqs.com.](http://jgarqs.com)

[Chukum, un material natural de orígenes Mayas in arprmexico.com](http://arprmexico.com)

[Estudio – Universidad de Xochimilco uam.mx](http://uam.mx)

[Estudio - itchetumal.edu.mx](http://itchetumal.edu.mx)

[Estudio - Universidad de Quintana Roo](http://Universidad de Quintana Roo)

[Estudio IJETR - erpublication.org](http://erpublication.org)

[Estudio - Universidad Michoacana in umich.mx](http://umich.mx)

[Chukum video in archdaily.mx](http://archdaily.mx)

[Video in estamosaqui.mx](http://estamosaqui.mx)

[Chukum in tectonica.archi](http://tectonica.archi)

[Chukum in playacarmagazine.com](http://playacarmagazine.com)

[Pasta de chukum CHICHÉN Yucatán website](http://CHICHÉN Yucatán website)

[CHUKUM website](http://CHUKUM website)

[Chukum en fachadas - CHICHÉN website](http://CHICHÉN website)

[Article in yucatan.gob.mx](http://yucatan.gob.mx)

