



## Circularity for Educators

### 02. Contextualizing circularity in the architectural discourse

#### Green by Need

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Humans have been, what I call, “Green by Need” for a long time. Understanding these historic practices and the interrelatedness of spatial circular dimensions, governance and everyday culture can help us develop a circular awareness and, when necessary, develop new materials, or new methods for designing and building.

Humans traditionally sourced basic building materials locally. Stones, wood or reed had to be carried by people or by animals to the building site. They did not exclude global exchange of goods; occasionally, large items would be shipped to distant locations think of the Egyptian obelisks located on Roman plazas. Or, small and extensive items were exported to distant places, think of Amber or Chinese porcelain as important treasures. However, these items were often carefully preserved and handed down over generations.

Materials were constantly and consciously recycled and replaced as needed. Thanks to the historic practices of avoiding waste, or reusing waste, large historic cities may have disappeared leaving few traces. Think of the archaeological remains of Catal Höyük, that have been excavated and are barely recognizable today.

Humans also developed construction and maintenance technologies that were carried out

by locals, often non-specialists. Circular practices were often embedded in local social structures and cultures, including festivals. Celebrations for seeding or harvests were related to communal living. Paintings, songs, and poems provide a cultural foundation for such circular practices. Woodcuts and paper screens displayed during annual celebrations such as the Gion Matsuri in Kyoto exemplify the social and cultural side of circular building practices.

This historic way of construction adapted closely to local climates. Around the world, people erected vernacular buildings based on in-depth knowledge of local conditions. They selected materials and technologies to protect inhabitants in the local climate, hot and humid in the summer, cold in the winter; and against local natural challenges, such as typhoons, tsunamis, or earthquakes. Just think of the different types of roof slopes or overhangs around the world to protect buildings from rain and snow.

Traditional Japanese buildings represent fine examples of such practices. Despite their varying functions, (housing, religion, governance) these were traditionally built with few materials: notably local stones, wood, bamboo, reed, plaster as well as rice straw and igusa grass for tatami mats. The Imperial Palace of Katsura Rikyu is carefully adapted to the hot and humid summer climate:



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tatami mats serve as flooring, but the floor structure of the building is lifted from the ground to allow air circulation through the tatami mats, which also served to regulate humidity. Wooden pillars are placed on stones, so that the construction could shake in case of an earthquake without collapsing. Because of its resilience, this building system proliferated: the combination of materials was available throughout the country, and multiple carpenters, tatami makers and other craftsmen had shops in every neighbourhood. Temples and housing for citizens featured similar patterns and building materials. Traditional Japanese houses, even in urban centres, comprised of a few tatami rooms, a kitchen and bathroom. This goes not without trade-offs though: for one, heavy furniture damages tatamis. Furthermore, users have little ability to seal the walls, or to build high.

Vernacular structures in Europe are also historically good examples for their use of local materials and for adapting to local climate conditions: think of the traditional farm houses in the Netherlands, for example, those were built on artificial dwelling mounds, called *terps*. These examples can help us think about what kind of temporal interventions or community structures are needed to make them work.

Can you think of similar historic practices, and their socio-cultural context?