

Abstract

Historic buildings are survivors; they have usually survived because they are durable in terms of their materials and adaptable to other uses. Historic buildings behave quite differently in environmental terms to modern buildings. Structures and design features aid in the conservation of energy. Walls and roofs may be adequately insulated already and have suitable environmental design features, without the need for complex technological solutions

In ancient Sri Lanka, where on the shores or near the coast where humidity was high, construction was often of palm leaf or other light materials which allowed cooling breezes to pass through. Elsewhere, traditionally thick walls were used against the heat. It developed later and then they were built of stone, coral rock or bricks made from the sticky clayed soil of the agricultural lands roofs of palm mats thick thatch or several layers of thick tiles. The later made of the same clayed soil, were used to keep the heat from sun rays from penetrating the buildings. Palm mats and thatch solved the problem best because they provided better insulation against the transfer of the heat, for this reason it was favored even in affluent conditions.

The floor level of the building was raised two feet or more above the surrounding ground and buildings were designed around the courtyards, or else long thin buildings which ensured that cross ventilation was possible in every enclosed room. To achieve the raising of the floor level a masonry platform was built using stone, coral or soil or short vertical posts were embedded in the ground made of stone or a hardwood that was resistant to moisture and termites

Then, structure of the main building erected on the masonry platform, or on the tops of the posts, using the framework of wood or stone pillars. Masonry walling was used, in which case cross – ventilation could be provided through openings left in the walls. Satisfactory privacy could be obtained inside the rooms by screening the opening with matting, grill work or shutters considerable ingenuity was lavished on the design of the pattern of these screens.

Many traditional historic buildings perform well in energy terms. The thick walls and small windows of many pre 1900 historical buildings provide them with a high thermal mass, or capacitance, compared to 21st century construction, which means that they can stay warmer in cold weather and cooler in hot weather. In public buildings they used stack ventilations method. Thermal mass is likely to be of advantage when it is taken into consideration with other issues to reduce energy consumption; such as improving air-conditions and heat controls.

Almost all historic buildings were ventilated naturally, with an increased awareness of the cost and environmental impacts of energy use, natural ventilation has become an increasingly

attractive method for reducing energy use and cost and for providing acceptable indoor environmental quality and maintaining a healthy, comfortable, and productive indoor climate rather than the more prevailing approach of using mechanical ventilation. In favorable climates and buildings types, natural ventilation can be used as an alternative to air-conditioning plants, saving 10%-30% of total energy consumption.

Historic buildings used of locally made materials, careful siting of buildings to take advantage of the prevailing winds and sun patterns, the reliance of natural systems of solar heating and ventilation utilizing physics of thermal mass and transport of air movement, and the use of durable materials means that many historic buildings already meet many of the principles outlined for new structures intended to be of a sustainable design.

The desire for security and privacy resulted, in many areas, in courtyard buildings with rooms arranged around one large central court yard or clustered in small groups around a number of smaller courts the whole surrounded by a screen wall. The latter was often preferred the narrow dimensions of court yards ensuring that they were in shade for most of the day. Alternatively, in other areas, the platforms on which all building was built could be raised higher in order to provide greater security. Each building could then be constructed as an elevated rectangular shape or L or T shape without resort to a courtyard plan. The advantage of raised building was that it was more exposed to winds above the trees and shrubs resulting in more effective cross ventilation but some reduction in convenience was inevitable

It was possible to justify the expense of wide shady eaves thick walls and elaborate covered verandas to help combat the sun. Wide eaves in turn, permitted the builders to leave glass out of the window and close the opening instead with lattice work or grills a better climatic solution as it permitted continuous cross ventilation. During the few weeks in the year when violent wet weather was experienced, cane blinds (tats), could be hung from the eaves to break the force of the winds and the rain. In this way the interior was kept entirely dry.

The ancient Sinhalese excelled in garden designs. The Anuradhapura period produced planned gardens, Sigiriya is one of the oldest landscaped gardens in the

In modern building the costs involved in servicing and running built facilities during their lifetime far exceed the initial costs of construction. But in historic building operational energy costs of a building were not outrun the embodied energy costs of the buildings lifetime.