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**Comparing the thermal performance of ancient buildings and modern-style housing constructed from local and modern construction materials**

**ABSTRACT.** The envelope of a building not only provides protection from the outside environment but also provides the thermal comfort required for its residents. Currently, interest is shifting towards the utilization of the passive cooling features of ancient buildings. Now, buildings are designed with a mindset of maximum use of solar and other renewable sources so as to reduce energy consumption and dependency on mechanical systems. Renewable energy utilization makes the building cost-effectively sustainable and almost by definition well suited to local climate. It is observed that the natural cooling arrangements provided in ancient buildings have considerable influence on interior thermal comfort. Such arrangements are often not considered when designing new structures. Hence, energy consumption in a modern structure is often greater for the same thermal comfort. Inside, humidity and room temperature, mean surface temperatures, air variation ratio and lighting are some factors affecting thermal comfort. The materials (such as cement and steel) used in modern construction are highly durable but not energy-efficient. A balance between energy efficiency and durability of modern buildings should be sought. This paper reviews the cooling arrangements in ancient buildings and compares thermal comfort inside them and modern structures.

**Keywords:** air temperature, air velocity, thermal comfort, thermal simulation, DBT = Dry Bulb Temperature, WBT = Wet Bulb Temperature

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