Archaeological sites account for a large percentage of the world’s cultural heritage and they rank among the most at risk from natural and human threats. The protection of exposed masonry walls and other architectural features depends ultimately on control of moisture, temperature fluctuations, and structural movement. Exposed walls traditionally have been protected by hard cappings of lime, cement, and modified soil mortars. However, hard capping has been found to be inadequate in addressing the long-term management of moisture ingress and thermal movement that stresses and damages masonry walls. Instead of protecting the wall as initially designed, hard capping can actually accelerate deterioration over time. Moreover, such approaches to stabilization and display have been challenged by culturally affiliated groups (e.g., Native American tribes) as to their insensitivity to the environment. In order to counter such problems posed by hard capping, a procedure called ‘soft capping’ has been introduced in recent years. Soft capping replaces hard caps with vegetation planted on top of layers of soil, gravel, and geo-synthetics. The idea is to prevent water penetration and to reduce thermal fluctuations by taking advantage of plants’ abilities to utilize the water and provide a protective barrier on the wall top. The concept is very similar to green roof technology that has gained increased popularity in recent years.

Moisture Storage
1. Soil absorbs water & reduces surface run-offs
2. Change in hydraulic conductivity of materials improves water storage capacity of soil

Moisture Drainage
3. Water evaporates from soil
4. Excess water accumulates below gravel to drain
5. Geomembrane blocks liquid water but breathable to water vapor
6. Rubble core establishes dry and stable condition

Soft cap controls moisture through two main methods: Moisture storage and drainage.