

Minimal Structures and Nature: Form-finding Concept

Form-finding is a process of shaping an object according to the loads acting on it. This produces natural forms of minimum energy configuration, or **minimal structures**.

One of the experimental form-finding techniques that gives minimal forms of dome structures involves **inverted hanging models** as shown on the right, and in the display.



Form-finding techniques that determine minimal forms of fabric structures use **soap film analogy** with its **principle of constant surface tension** and minimum surface area.



Soap film model

The principle of **constant stress** and **minimum surface area** is observed in the growth and healing of trees.



A tree with a lost branch; the healing process minimises surface area over the 'wound'

