TS Material

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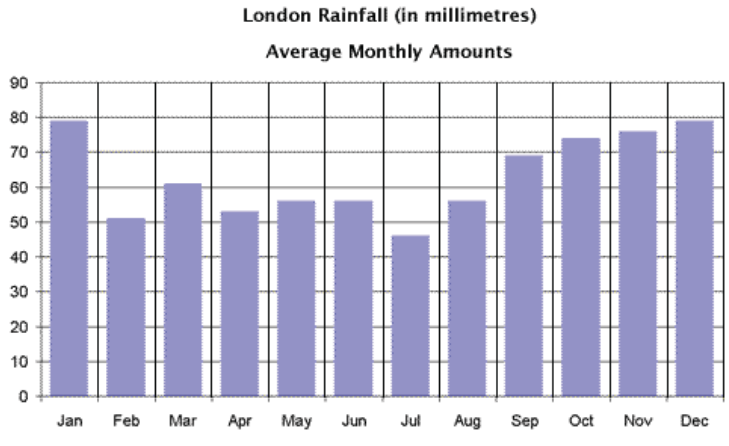
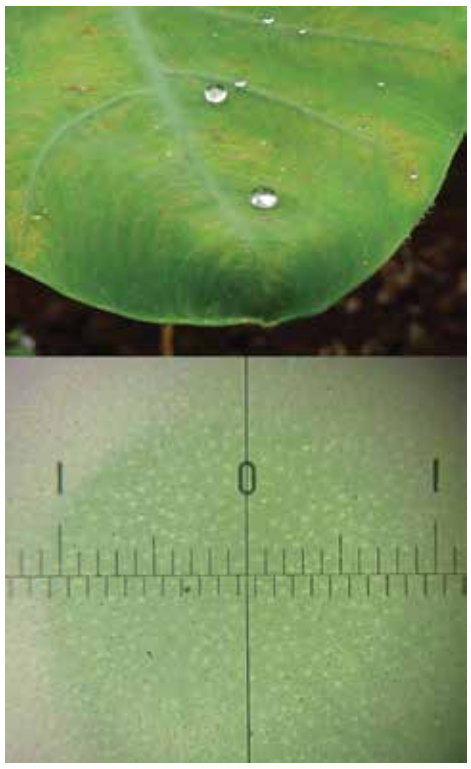
Best Thermal Perfomance:

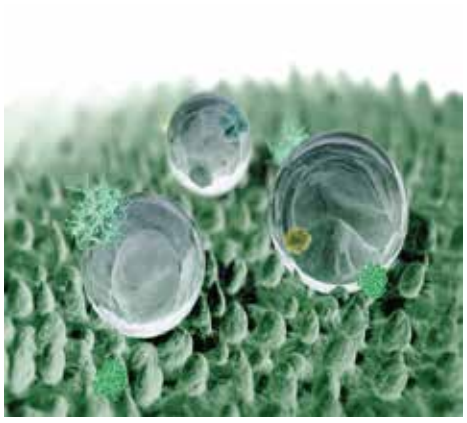
The challenge is to construct a 30 x 30 cm facade for a London location. The main challange is the humid climate, as the average rainfall per month is about 60 mm. Therefore the design must consider an innovative idea that considers all the different conditions such as humidity, climate variablity, shading requirements, ect...

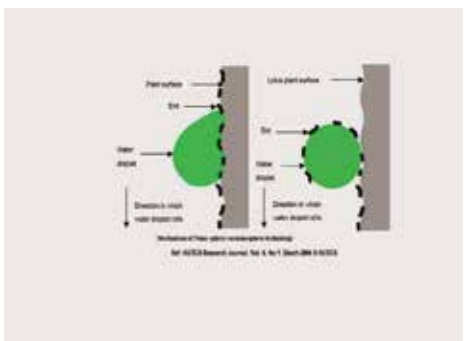


Lotus Leaf effect

The lotus effect refers to self-cleaning properties that are a result of very high water repellence (superhydrophobicity), as exhibited by the leaves of the lotus flower. Dirt particles are picked up by water droplets due to the micro- and nanoscopic architecture on the surface, which minimizes the droplet's adhesion to that surface. Due to their high surface tension, water droplets tend to minimize their surface by trying to achieve a spherical shape. On contact with a surface, adhesion forces result in wetting of the surface. The cause of self-cleaning properties is the hydrophobic water-repellent double structure of the surface. This enables the contact area and the adhesion force between surface and droplet to be significantly reduced resulting in a self-cleaning process







Light

Since we have established that the rainfall in London is very high, it also means the lighting condition of the building / space needs to be considered. Therefore Materials that are see transparent need to be considered that add additional natural to the space

Proposal

The proposal constitues of a facade in which the main body and shape is formed by concrete to add rigidity and structure to the facade. To improve the lighting conditions, the concrete is punched with squared holes (about 5 cm). By doing that, the solid concrete facade becomes semi see through, yet preserving the strucural strength of concrete. The last material that is to be added is a thin layer of waterproof spray which recreates the conditions of a lotus leaf. The facade will therefore be a self cleaning facade, as it is water repellant.

The acrylic sheets create a bix in layers, to sandwhich air to reduce the heat loss. they act the same way as double glazed windows