

DEVELOPMENT OF A LOW-COST ROOFING SYSTEM
USING DOUBLY-CURVED CONCRETE TILES

N.B.M. Ranatunga

National Building Research Organisation, Colombo 05.

The roofing system using Doubly Curved Concrete Tiles has been found to be economical because timber is not required for the roof. Use of reinforcing steel too is minimised. Tiles designed on the principle of a simple shell with double curvature has the advantage of being able to resist static and shock loads.

Experimental studies were carried out to optimise the design taking into consideration the various loading conditions. Studies were also carried out on other functional properties under laboratory conditions and that of actual usage.

The trials revealed that Doubly Curved Concrete Tiles could be usefully applied in many situations to reduce costs, especially where a flat roof is desired or in instances where a reinforced concrete hood is required. The system of construction is labour intensive and suitable for low-cost construction.

The paper also discusses the economics of the system based on the experience of applying it for the construction of a prototype garage roof.