

## Roof Cooling Device



Applications	Provides a cool roof in buildings for thermal comfort of occupants. Saves electrical energy in air-conditioned buildings.
Salient Features	The device is meant for small individual houses. It eliminates heat radiation from hot ceiling and cools indoor air by a few degrees. It contains all components like pump, electronic controller, sensors etc in a single unit. It can be easily installed at site by local craftsmen. Provides thermal comfort by using less energy. Keeps inside cool even during short power cuts with inverter operated ceiling fans. Reduces power consumption of AC units by up to 30%. A 1/2 to 1 HP water pump works for a total of about 15 min in 24 hrs. Consumes less energy as compared to desert cooler, not adds humidity to indoor air. Highly environment friendly and cost effective. Reduces thermal stress on humans by reducing heat gain in a natural manner.
Technology Package	Know-how for commercial production of domestic unit.
Techno-Economics	Installation cost is Rs.300/sq.m. of roof area. Water consumption is 6 to 9 litres/sq.m./day.
Scale of Development	Commercial Scale
Status of Commercialization	Licensed
Raw Materials	Electric water pump, electronic components, sensors, steel hardware for chassis and housing, HDPE water tank, miscellaneous hardware
Plant, Equipment and Machinery required	A general mechanical workshop with steel cutting, bending, drilling and welding facility. Small printed circuit board electronic assembly unit.
Environmental Aspects	Does not use green house gases and not adds humidity to indoor air, Creates less humid healthy indoor living environment compared to desert coolers, Requires less energy than desert coolers, Highly environment friendly.
IPR Status	Not applied for Patent

# Urethanized Bitumen System for Waterproofing Roof



Applications	Sealing, coating, adhesives and foam
Salient Features	Urethanized bitumen has been prepared with variable viscosity, adequate elastic resiliency and a reduced thermal susceptibility. These behaviour are confirmed by the thermal (DSC), rheological and IS: 1208-78. Its waterproofing functions is further assessed by IS: 1580 and IS: 1834-84 & ASTM D-3409-95 respectively. After assessing the materials suitability, compositional variables in products and parameters related to blend preparation are optimized. The urethane bituminous system has been prepared as per the requirement of end use applications.
Technology Package	Technical know-how produced on lab scale products with all details <ul style="list-style-type: none"> <li>• Standardization of manufactured products</li> <li>• Preparation of product hand book/data sheet</li> <li>• Guidelines of setting of testing lab for Q.C. and documents</li> <li>• Intellectual knowledge base related to project and other users support strategy</li> </ul>
Techno-Economics	Rs. 35/- kg.
Scale of Development	Lab level.
Status of Commercialization	Commercialized.
Raw Materials	Bitumen, polymer, stabilizer, adhesion promoter, filler etc.
Plant, Equipment and Machinery required	Blender & Mixers.
Environmental Aspects	No adverse affect on the Environment.
IPR Status	Not applied for Patent