19. Development of Heat Shielding Technology for Roofs of Buildings - Investigation of Methods for Verifying and Analytically Assessing the Thermal Screening Performance -

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Rooftop greening, thermal insulation coating, and roof spraying have been developed to mitigate the heat-island phenomenon, lower the surface temperature of building roofs, and improve the indoor thermal environment. Responding to the demands for technologies to insulate the outside of buildings, roof heat shielding system was developed for folded-plate roofs. The system uses water-retaining sheets and is cheaper and easier to work than roof greening. A large-scale model experiment verified that the system has a heat insulating performance equivalent to that of thermal insulating double roof, and a full-scale model experiment showed that the system is easy to construct. A simulation method was developed to estimate drops in roof surface temperature by the system, enabling its thermal insulation performance to be assessed.

Key words : folded-plate, water-retaining sheet, spraying, sunshade, water transpiration