



Method for Improving Design of Loose-Laid, Including Photovoltaic, Roofing Systems

The present state-of-the-art methodology for the construction and design of roofing systems utilizing loose-laid materials (e.g. loose-laid photovoltaics) does not take into account geographical effects on system performance. Due to the inherent strong influence of these factors (such as altitude and temperature) on system performance, there is considerable potential for further cost reduction through the use of more sophisticated calculation methods.

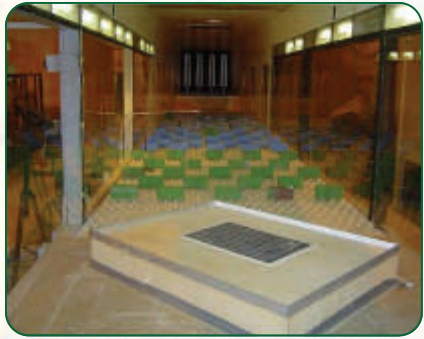
Researchers in the Department of Civil and Environmental Engineering at Colorado State University have developed a novel method for the design and integration of loose-laid photovoltaic roofing systems. Their unique method customizes each system for the specific geographic location in which it is to be installed. In particular, the effects of altitude and climate (ambient temperature range) are incorporated through adjustment in the air mass density. This allows the maximum allowable height of a building (for a given system configuration) to be calculated. Utilizing laboratory results and sophisticated analyses, the optimal configuration of the roofing system can be selected using an iterative computational procedure.

Considering the sizeable influence of geographical effects on system performance, dramatic cost reduction can be achieved when this newly developed location-dependent methodology is employed in the selection of an optimized loose-laid roofing system. In addition, this sophisticated technique is not limited to just photovoltaic roofs and may be incorporated into the design of any loose-laid roofing system.

Contact us for more information on licensing and commercialization opportunities.

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Features and Benefits

- Novel method for the design of loose-laid photovoltaic systems.
- Other systems do not incorporate geographic location-specific factors, such as altitude and climate.
- Geographic effects are significant and represent an untapped opportunity for cost reduction in roofing systems.
- This technique utilizes laboratory results, calculation, and iterative computational procedure to select optimal roofing system configuration.

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