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To the Adjudicating Officer,

My name is Soheil Soleimanikutanaei, and I am a thermal engineer at Google. My research interests span heat transfer, computational fluid dynamics, combustion modeling, turbulent flow, and multiphase flow. I obtained my BS in mechanical engineering from the University of Mazandaran, an MS in mechanical engineering from Babol Noshirvani University of Technology, and a PhD in the same field from Florida International University. This introduction serves to substantiate my reliability in serving as a recommender for Mr. Masoud Valinejadshoubi and his research in the field of zero-energy buildings. Although we have never worked together, my familiarity with his research enables me to offer this recommendation from an objective standpoint.

Mr. Valinejadshoubi's recent research into zero-energy buildings has yielded a wealth of innovative designs that truly showcase the utility of advanced solar technologies and sustainable materials in modern architecture. He utilized recycled plastic bottles to enhance thermal insulation and structural integrity, promoting waste reduction and cost efficiency. His innovative solar wall system, integrating semitransparent solar panels, maximizes energy collection and reduces reliance on non-renewable energy sources, improving thermal comfort and decreasing greenhouse gas emissions. Additionally, his kinetic solar windows dynamically adapt to environmental conditions, optimizing energy efficiency. By pushing boundaries in these areas, Mr. Valinejadshoubi's work significantly contributes to environmental sustainability and energy independence, positioning the United States at the vanguard of green building technology and fostering advancements that bolster national interests in sustainability and energy security.

Mr. Valinejadshoubi's research merits widespread dissemination through respected peer-reviewed publications. His work has been featured in prominent journals such as *Biomimetic,* the *Journal of Building Engineering, Automation in Construction,* and the *Ain Shams Engineering Journal*. The stringent standards for publication in these respected journals further underscore the recognition and relevance of Mr. Valinejadshoubi's research to the field of zero-energy buildings.

In a series of research projects, Mr. Valinejadshoubi focused on integrating advanced solar technologies and sustainable materials to revolutionize zero-energy building design. By repurposing recycled plastic bottles, he developed high-performance building materials that enhanced thermal insulation and structural integrity while promoting sustainability. His innovative solar wall system, incorporating semitransparent solar panels, optimizes energy collection and thermal regulation in prefabricated components, offering a scalable solution for modern construction. As the first inventor of a solar energy-absorbing window structure, Mr. Valinejadshoubi combined solar panels with thermal components to generate both electricity and heat, providing a unique retrofit option for older buildings. Furthermore, he advanced sustainable architecture by

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creating a kinetic solar energy-absorbing window system that dynamically adapts to environmental conditions, balancing energy absorption and shading for optimal comfort and efficiency. These adaptive windows represent a significant leap in smart building technology, responding in real-time to climatic changes. Throughout his work, Mr. Valinejadshoubi demonstrated how innovative design and material selection significantly reduce the environmental impact of construction while enhancing energy efficiency. His research not only contributes to the development of more sustainable building practices but also paves the way for a new generation of structures that actively participate in energy generation and management, moving closer to the ideal of truly zero-energy buildings.

Without a doubt, Mr. Valinejadshoubi has revolutionized the field of zero-energy buildings through his exceptional innovations in sustainable materials and advanced solar technologies. His work on recycled plastic bottle construction, solar wall systems, and adaptive solar energy-absorbing windows demonstrates his unparalleled creativity and profound understanding of sustainable architecture. Mr. Valinejadshoubi's achievements in developing energy-efficient, environmentally friendly building solutions underscore his immense value to global efforts in combating climate change and advancing sustainable urban development.

Cordially,

2024-07-14

Dr. Soheil Soleimanikutanaei

Thermal Engineer

Google