THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學

SFPE Hong Kong Student Chapter

Department of Building Services Engineering 屋宇設備工程學系

Using solar chimney for building fire safety

Dr. Long Shi is a Senior Lecturer and ARC DECRA Fellow at RMIT University, Australia. He obtained his PhD degree from the National University of Singapore. Long has been focusing on solar thermal energy, thermodynamics and fluid mechanics, CFD modelling and programming, and risk assessment for over 10 years. He has authored and co-authored over 80 refereed journal papers, such as in Renewable and Sustainable Energy Reviews, Energy and Buildings, and Building and Environment. His research outcomes have also led to the solutions of practical problems and applications, such as the optimization design of solar chimney for the Kingston City Council building in Melbourne, which is the world's-first building that considered the design of solar chimney for both life and energy saving.

Abstract: A solar chimney is a passive solar heating and cooling system that harnesses natural ventilation to regulate the temperature of a building. Its original function is focusing on natural ventilation to reduce energy consumption in buildings. Under the same principles with smoke exhaustion when there is a fire, solar chimney has been adopted in buildings to exhaust hot smoke and largely extend the available safety egress time to save lives from fires. The related studies have been made to expand solar chimney's sole function of natural ventilation to both life and energy saving under daily and fire conditions, respectively. Based on our developed theories, the solar chimney has been adopted in a real building, for the first time, for both natural ventilation and smoke exhaustion. This progress is significant to enhance the viability and cost-effectiveness of solar chimney for its practical implementations in different types of buildings.

SFPE Webinar (CPD Event)

Date: 7 December 2020 (Monday)
Time: 6:30 - 7:30 PM (HK)
9:30 - 10:30 PM (AEDT)
10:30 – 11:30 AM (GMT)

For Registration: Click Here

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World-first multifunctional solar chimney