

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2020-92
Project Title:	Development of high performance acoustic windows using hybrid control techniques for existing building retrofit
Principal Investigator:	Professor Tang Shiu Keung, Department of Building Services Engineering, The Hong Kong Polytechnic University
Total Approved Grant:	\$1,198,400 (ECF & WWGF: 50/50)
Duration:	6/1/2021 to 31/5/2024
Project Status/Remarks:	On-going
Project Scope:	<p>This project is an attempt to help alleviate the current noise exposure problem of residents living in existing buildings in the built-up areas where all traditional noise mitigation measures are proved ineffective. Though acoustic windows, which can offer sufficient noise reduction but at the same time allow for acceptable level of natural ventilation in residential units, have been successfully implemented in new buildings already, they have not been applied to existing buildings because of the practical constraints in replacing the corresponding casement windows by the acoustic windows. The ever increasing urban noise levels due to the more and more intensive human and economic activities could now put about 900,000 citizens living in existing buildings at risk of excessive traffic noise exposure as all traditional noise mitigation measures cannot be applied to tackle the increased noise levels. Closing windows, the use of multi-glazing windows or mechanical ventilation are not encouraged because of indoor air quality, energy and sustainability considerations.</p> <p>This project aims to develop an effective active and passive hybrid system which can work with acoustic windows of all practical sizes for retrofitting the windows of existing buildings for improved living quality of Hong Kong residents.</p>
Summary of the Findings/Outcomes:	To be available upon completion of the project