

## Environmental Research, Technology Demonstration and Conference Project

<b>ECF Project:</b>	ECF 2022-73
<b>Project Title:</b>	Environment and Conservation Fund - Recycling wasted printed circuit board as fillers for manufacturing sustainable wall partition bricks
<b>Principal Investigator:</b>	Dr Lau Denvid, Department of Architecture and Civil Engineering, City University of Hong Kong
<b>Total Approved Grant:</b>	\$498,947 (ECF & WWGF: 50/50)
<b>Duration:</b>	1/9/2023 to 31/8/2025
<b>Project Status/Remarks:</b>	On-going
<b>Project Scope:</b>	<p>Wasted printed circle board (WPCB) is a significant source of chemical waste in Hong Kong. Due to the lack of locally available disposal options, WPCB is normally disposed of by export (80%) and landfills (20%). Recycling WPCB is of great significance in reducing disposal costs, boosting the local circular economy, and leading regional green technology. This project aims to develop an innovative solution to turn Hong Kong's WPCB into engineered fillers for sustainable wall partition bricks. The results will advance a green WPCB disposal scheme for large-scale adoption and accelerate the green environment development of Hong Kong under the double pressure of waste accumulation and landfill shortage. The main objectives of the project are:</p> <ul style="list-style-type: none"> <li>(a) To develop wall partition brick formulations containing WPCB powder with qualified technical performance as per the specification of precast concrete masonry units BS 6073 Part1 1981;</li> <li>(b) To evaluate the toxicity of the developed bricks to ensure their safe use following toxicity characteristic leaching procedure method 1311;</li> <li>(c) To assess the fire resistance performance of the developed bricks according to BS EN 1364 fire resistance tests; and</li> <li>(d) To compare the environmental merits of the developed bricks with commercially available bricks as per ISO 14040:2006 life cycle assessment.</li> </ul>
<b>Summary of the Findings/ Outcomes:</b>	To be available upon completion of the project