



# PRESS RELEASE

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## **PolyU licenses the technology of the anti-heat stress construction uniform to CIC**

The Hong Kong Polytechnic University (PolyU) and the Construction Industry Council (CIC) entered into an agreement today, with PolyU licensing the technology of the anti-heat stress construction uniform to the CIC. Designed and produced by PolyU, the anti-heat stress construction uniform set comprising a T-shirt and trousers are made from Coolmax fabric and a new generation of moisture-management textiles made from nano-materials. With excellent one-way transferability and liquid moisture management capacity, the technology improves fabric breathability, speeds up sweat evaporation and helps construction workers to reduce heat stress.

In order to maximize its benefit to construction industry practitioners, under the signed agreement, the CIC will sublicense the technology of the anti-heat stress construction uniform to contractors. The latter can fabricate the uniforms under the specification provided by PolyU. PolyU's Institute for Textiles and Clothing (ITC) will provide testing services to ensure that the fabricated uniforms meet the required standards. It is estimated that the uniform will make its debut at the Construction Safety Week 2015, with an aim to garner wider support from the industry.

Local construction workers have to work outdoors for long hours under hot and humid weather conditions. To alleviate their strain, the research team led by Professor Albert Chan of PolyU's Department of Building and Real Estate (BRE) aimed to develop suitable clothing that met industry specific requirements. After testing the properties of over 30 types of fabric available in the market, the team discovered that Coolmax fabric was most suitable for producing the T-shirt. As for trousers, the team used a new generation of moisture-management textiles made from nano-materials. Retro reflective strips are printed on both sides of the T-shirt and trousers to cater to the needs of the construction industry.

To evaluate the effectiveness of the anti-heat stress uniform in protecting construction workers from hot and humid weather, during February – May 2014, the PolyU team invited 12 participants to put on the whole set of uniform for testing inside a climatic chamber (34.5 degree Celsius; 75% humidity). The quantitative results showed a remarkable reduction of physiological strain by 16.7% and body heat storage by 28.8% over conventional work-wear, with participants having lower core temperatures and skin temperatures, and better physiological strain indices. A field study undertaken during July-August 2014 with the participation of 184 construction workers revealed that the anti-heat stress uniform received over 87% support from the workers. They considered it cooler, dryer and more comfortable.

The study was jointly conducted by BRE, ITC, as well as the Technological and Higher Education Institute of Hong Kong under the Vocational Training Council, and supported by the Research Grants Council. It is the first scientific research dedicated to designing and engineering suitable clothing to protect construction workers from extreme heat and high humidity.

PolyU Interim Vice President (Campus Development and Facilities), Professor Ko Jan-ming remarked, “The University is delighted that the study received strong support from the CIC. We hope that by licensing the technology to the CIC, we could promote wider use of the anti-heat stress construction uniform by the industry. PolyU will continue to work closely with the CIC, embarking on research to meet the needs of the construction industry.”

Mr. Cheung Hau-wai, Chairman of the Committee on Construction Safety of the CIC said, “The CIC has been taking a leading role in fostering a caring and safety culture in the construction industry. With PolyU licensing the technology of the anti-heat stress construction uniform to the CIC, the CIC will further promote the technology to contractors for site adoption to enhance the health and well being of construction workers.”

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Photo 1.jpg	(From left) Mr. Cheung Hau-wai, Chairman, Committee on Construction Safety, Construction Industry Council; Dr. Christopher To, Executive Director, Construction Industry Council; Dr Alwin Wong, General Manager, PolyU Technology and Consultancy Company Limited; Professor Ko Jan-ming, PolyU Interim Vice President (Campus Development and Facilities)
Photo 2.jpg	The anti-heat stress construction uniform developed by the research team led by Professor Albert Chan.