

Research on
'Anti-heat Stress Clothing for Construction Workers in Hot & Humid Weather'
Receiving
Dean's Award for Outstanding Achievement in Technology Transfer 2015

Bravo! Under Prof. Albert Chan's leadership, his research team's project 'Anti-heat Stress Clothing for Construction Workers in Hot & Humid Weather' has recently won 'Dean's Award for Outstanding Achievement in Technology Transfer 2015'.

This project titled "Anti-heat Stress Clothing (AHSC) for Construction Workers in Hot and Humid Weather" is funded by a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China. This multi-disciplinary study involved demonstrable experts and professionals from the fields of occupational safety and health, textile sciences, and biological and exercise sciences.

This brilliant research team is composed of the elites from the Department of Building and Real Estate (BRE) and Institute of Textile and Clothing (ITC), PolyU, and the Technological and Higher Education Institute of Hong Kong (THEi), HKU School of Professional and Continuing Education (HKUSPACE), and the Hong Kong Institute of Education (HKIEd). More member details are available in the table on page 3.

Cater for Industrial Need

Construction workers are susceptible to heat stress while working in a hot environment. Wearing appropriate summer clothes is one of personal protective controls to protect workers from heat stress. However, there is a lack of definite industry standards for identifying the appropriate summer clothes. Meanwhile, scientific research to design such clothes for construction workers is sparse. To bridge these gaps, the research team takes initiatives to design and engineer the appropriate summer clothes to help workers combat heat stress.

AHSC's Outstanding Features

1. Light and thin
2. UV protection
3. Superior capacity in sweat absorption and releasing after chemical treatment
4. Meshed warp knit fabric on the side of the body promoting evaporation transfer
5. Porous reflective strips balancing air permeability and visibility
6. Loose-fit design improving mobility and wearing comfort
7. Different front and back design improving visibility and safety



Benefits to Workers and Industry

Wearing the AHSC with excellent thermal and moisture performance may encourage people not to take off these clothes in the heat. So it not only protects workers from ultraviolet radiation but also provides comfortable microclimate environment. As it can be expected, the well-being of construction workers will be improved when they are willingness to wear the AHSC when working in hot weather. Eventually, their productivity can be enhanced that is certainly beneficial to the industry.

Based on a scientific approach with robust research methodologies, the findings of the current research demonstrate that the AHSC is applicable in industrial settings and eventually in large populations and locations. Thus, the convincing research findings enable both the academia and practitioners to improve work practice in the construction industry through developing an industry standard.

The AHSC has received wide attention from academics, industry, and the public. The impacts of the AHSC to the construction industry have been expanded through a series of promotion and exhibition activities.



快速排汗吸濕 五月首批試穿
理大夥內地生研工人防護服

基礎工程是本港重要經濟活動之一，面對高溫高濕的工作環境，工人容易出現中暑的情況。理工大學多名學者聯同內地博士後學生，研發「透氣排汗功能」大棉質工人中褸的可行性。研究人員目前正在人工模擬實驗室進行最後測試階段，預計今個夏季將會首批約一百名工人試穿防護服，最快今年年底完成整項研究。記者 曹曼琳



專訪 研發透氣排汗功能大棉質工人中褸的可行性。研究人員目前正在人工模擬實驗室進行最後測試階段，預計今個夏季將會首批約一百名工人試穿防護服，最快今年年底完成整項研究。記者 曹曼琳

花兩年收集數據 研究人員在過去兩年收集了約一千名建築工人的工作環境數據，包括溫度、濕度、輻射量等。這些數據將用於開發防護服的材料。

「透氣排汗功能」大棉質工人中褸的可行性。研究人員目前正在人工模擬實驗室進行最後測試階段，預計今個夏季將會首批約一百名工人試穿防護服，最快今年年底完成整項研究。記者 曹曼琳



Research Team

Team Leader (Department)	Prof Albert PC Chan, Department of Building and Real Estate (BRE), PolyU
Team Members (Departments)	Prof Francis KW Wong, BRE Dr Michael CH Yam, BRE Dr Daniel WM Chan, BRE Dr Edmond WM Lam, BRE Prof Y Li, Institute of Textile and Clothing, PolyU Dr YP Guo, ITC Dr WF Song, BRE Dr W Yi, BRE Miss Y Yang, BRE
External collaborators:	Dr Del Wong, the Technological and Higher Education Institute of Hong Kong Dr Esther Cheung, HKU School of Professional and Continuing Education Prof Joanne Chung, the Hong Kong Institute of Education