

# Study sheds light on prevention of heat stroke for outdoor workers

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A pioneering study by researchers of The Hong Kong Polytechnic University (PolyU) has shed light on the prevention of heat stroke for outdoor workers in a scientific manner. One of the major recommendations is to link up the Very Hot Weather Signal issued by the Hong Kong Observatory with additional breaks for outdoor workers on stuffy work days.

The study has brought together the expertise of PolyU's Department of Building and Real Estate (BRE), The Hong Kong Institute of Education and the Technological and Higher Education Institute of Hong Kong; with Professor Albert Chan of BRE leading the inter-disciplinary team

made up of construction health and safety, exercise physiology, health science, and building science experts. It was based on a number of clinical and field studies to determine the best recovery time for steelworkers who have worked to exhaustion in a hot and humid environment at construction sites.

Based on 411 sets of meteorological and physiological data collected over 19 hot and humid days in last summer, researchers have developed a sophisticated model to compute the optimal recovery time. It was found that on average, a steelworker could achieve 58 per cent recovery in five minutes, 78 per cent in 15 minutes and 92 per cent in 30 minutes. The longer they have the resting period, the better the recovery of their strength. The various stakeholders, including the government, developers, contractors, trade union representatives can negotiate and agree amongst themselves how often rest time should be given between works and how long each break should last based on the objective and scientific findings of the study.

According to the study, heat stress is determined by ten critical factors. Drinking habit, age and work duration are the top three factors to determine steelworkers' physiological responses. Other factors include air pollution index, percentage of body fat, smoking habit, Wet Bulb Globe Temperature Index (measured primarily by temperature and relative humidity), respiratory exchange rate, resting heart rate, and energy consumption.

Professor Albert Chan also advised site workers not to consume any alcoholic drink during lunch time as it will lead to dehydration and make the workers prone to heat stress. In the next stage, Professor Chan and his team will study anti-heat stress clothing for workers.

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The research finding was published in *Building and Environment*, an authoritative international journal of building science and its applications.

Provided by Hong Kong Polytechnic University

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