Underground and windowless spaces: a neuroscience approach

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I. EXTENDED ABSTRACT

The proliferation of Mega-Cities, especially in Asia, has an effect on the available space. Because of lack of space, an increasing number of workers spend a significant portion of their time in window-less environments (WLE). In addition, underground spaces (UGS) have been promoted as viable solution for places that space is at premium. However, there has yet to be a unified, systematic and holistic examination of the interaction of human psychology and health with WLE/UGS spaces and this may affect the public's acceptance to the idea of potentially working underground in future.

Here, we present the key elements of, probably the only currently running, inter-disciplinary, sys-tematic research program aiming to examine the relationship between the design, environmental and architectural characteristics of WLE/UGS with critical aspects of human behaviour and well-being. Specifically, we examine how (i) working in WLE/UGS influences (positively or negatively) human psychology, cognition, performance and well-being (ii) critical aspects of human health are affected by such environments (such as circadian rhythms, including core body temperature) and (iii) general attitudes and lay beliefs towards working at UGS. The research outcomes will eventually be combined and summarised by employing a Risk Analysis approach, to translate the results to practitioners. In addition, assessment tools, recommendations, solutions, case studies and standards will be developed and disseminated to assist the industry, policy makers, researchers and the public to reach well-informed decisions.

The main aim of this presentation is to introduce the research program and invite interested stakeholders for a possible global research effort to better understand the effects of working at WLE/UGS on the population. To that end, we invite ANFA members to actively contribute to this extraordinary research effort.

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A/ Prof George Christopoulos holds a Ph.D. (Cambridge) in Decision and Social Neuroscience. He is currently Assistant Professor at Nanyang Business School, NTU and his current research examines the relationship between the built environment and human decision making, psycho-physiological responses and brain function. Lab webpage: https://sites.google.com/site/labdeon/home.

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*** Presenter**