

DEPARTMENT OF BUILDING

presents

Seminar

on

**TOWARDS HEALTHY, PRODUCTIVE AND
SUSTAINABLE BUILT-ENVIRONMENTS**

by

Dr Henry Cahyadi Willem
Department of Building
National University of Singapore

Date: 11 May 2009 (Monday)

Time: 2:00 pm to 3:30 pm

Venue: SDE2, Level 3, ER1, School of Design and Environment, NUS

SYNOPSIS

A growing number of building clients, architects and building professionals as well as government agencies and the public are becoming aware of and interested in the concept of sustainability of the built-environment, which encompasses the ecological balance, economic viability, and humanity values. These “responsibilities” of built-environment are very much embodied within the advancement of green building strategies and technologies. In recent years, more new developments have sought to be accorded as green buildings, fueled by recent evidence that green building applications can be achieved with minimum additional capital costs and further encouraged by various incentives from relevant authorities.

Sustainable/ green concept aims to achieve coexistence of building and nature throughout the life-cycle. Green building design is intended as a solution to the building-above-nature paradigm. This paradigm is attributable to the fast development of construction technologies and methods, new materials, advanced building systems and the fast growing financial capabilities of major countries/cities in the past two centuries. Today, environmental concerns such as climate change, energy conservation and air-water-land pollution; and building-related issues such as indoor environmental quality, comfort and health, and work productivity demand coordinated multi-disciplinary team players, innovative solutions and integrated building systems. A common problem here is that strategies to optimize the consumption of natural resources and energy in buildings often conflict with the human psycho-physiological requirements of excellent indoor environmental quality. The fuel crisis in the 1970s prompted a trend toward tighter and more energy efficient buildings. Most of these buildings were constructed with windows that cannot be not opened and thus, no direct provision of fresh air. Air exchange was provided through the ventilation and air conditioning systems. Also during this time, the ventilation requirements for

indoor air were lowered and the unintended result was a multitude of unrelated symptoms among the occupants of the modern buildings, which became known as the Sick Building Syndrome (SBS).

Sustainability of the built-environment must be examined from the perspective of sustaining occupants' health and comfort. Any action taken to sustain natural resources and energy require much forethought and careful consideration of possible consequences on the human aspects. This area has been subjected to extensive research in the recent years and cases in both the local (tropical) and international contexts have shown strong implications of thermal and indoor air quality factors on intensity of SBS (in particular the neurobehavioral-related symptoms), sickness absenteeism and even exacerbation of asthma. Further studies on work performance have also shown that thermal condition and indoor air quality could adversely affect the mental performance of the occupants through some mechanisms. Taken together, these effects demonstrate that compromised health and reduced productivity will cause serious consequences to the sustenance of the built-environment if human factor are not taken into consideration.

ABOUT THE SPEAKER

Henry Cahyadi Willem PhD is research fellow of the National University of Singapore. He has a two-year postdoctoral training experience. He also co-lectures a course on Total Building Performance.

Willem obtained his doctorate degree under the joint PhD degree between National University of Singapore and the Technical University of Denmark. He also completed a one-year residential requirement in the Technical University of Denmark as part of research training program during which he worked in the International Center for Indoor Environment and Energy. In 2008, he was awarded the prestigious Ralph-Nevins Award on Human Physiology by the American Society for Heating, Refrigerating, and Air-Conditioning (ASHRAE). The award is given to young researcher who distinguished himself in studies pertaining to human responses to the environment. Later in the same year, he was given the Yaglou Award by the International Society for Indoor Air Quality and Climate (ISIAQ). The purpose of this award is to acknowledge outstanding work of young promising researchers within the indoor air sciences. The award is given every three years at the time of the Indoor Air conference. Willem has published his work in several International-refereed journals such as Building and Environment, ASHRAE Transactions, and Epidemiology. He has contributed an article in the upcoming Encyclopedia of Environmental Health. He has also published 17 articles in the proceedings of several International conferences. Currently, he is an active reviewer for the Indoor Air journal.

Willem holds a degree in Engineering (B. Eng) with majors in Architecture and Building Systems, for which he graduated with first-class honors. His early experience includes planning and design of mixed-use recreational facilities. He obtained his Master of Science degree (M. Sc) under the NUS-ASEAN Scholarship. Subsequent to that, he was granted the NUS Research Scholarship in pursuing his doctorate degree and was awarded the President Graduate Fellowship for four consecutive years. He is experienced in computational fluid dynamics and advance statistical modeling. He is an experimentalist and has a track record of over 10,000 subject-hours based on his laboratory experiments on human responses. He has also conducted field studies in Singapore, Denmark and Sweden together with local and overseas investigators. Willem also enjoys reading books, photography, travelling, and visiting museums of arts and history.

REGISTRATION DETAILS

All are welcome. Please register by emailing to Chelvi at bdg_seminar@nus.edu.sg by **Thursday, 7 May 2009**.

Disclaimer: The organizer reserves the right to cancel or postpone the event due to unforeseen circumstances.