

# *Singapore Government*

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**SPEECH BY ASSOC PROF KOO TSAI KEE, SENIOR  
PARLIAMENTARY SECRETARY, MINISTRY OF NATIONAL  
DEVELOPMENT, AT THE MOU SIGNING ON THE ESTABLISHMENT  
OF THE CENTRE FOR TOTAL BUILDING PERFORMANCE ON 25  
NOV AT 9.50AM, MND AUDITORIUM.**

His Excellency Mr Orstrom Moller, Ambassador of Denmark

Professor Hang Chang Chieh, Dean of the School of Design & Environment,  
NUS

Mr Tan Siong Leng, CEO of BCA

Ladies & Gentlemen:

## INTRODUCTION

1 Except for the relatively short periods spent outdoors for recreation or travelling, most of our time is spent inside buildings. We live, work and have our recreation mostly within the comfort of enclosed spaces in buildings. The performance of a building has therefore a significant impact on the quality of our life. It is crucial that we design, construct and maintain buildings that, besides performing their intended functions, are also comfortable, 'healthy' and yet affordable. This includes being energy-efficient, especially since our buildings currently consume some one-third of our annual energy demand.

## DESIGN APPROACH

2 We have heard of Intelligent Buildings, Green Buildings and so on. Over the last few years, there is a growing trend towards using the "total approach" to design "high performance" buildings. This integrated design method takes into consideration all the key factors that affect the performance and efficiency of a building. It examines how a building interacts with its internal and external environment. It also takes a life-cycle cost approach to come out with optimal systems and best practices that improve the design, construction and operational performance of buildings.

## OVERSEAS R&D

3 In fact, many developed nations are greatly concerned about the performance of their buildings, the quality of the indoor environment and the resources needed to achieve that level of quality. In these countries, national research institutes have been established to research these complex issues. Some prominent examples include the National Institute of Standards and Testing of the USA, TNO Building and Construction Research of the Netherlands, the Danish Building Research Institute of Denmark, the Building Research Establishment of the UK and the National Research Council of

Canada.

4 Their R&D programmes have resulted in many excellent technologies and methods of delivery and assessment, which have helped to raise the quality and efficiency of their respective national building stocks. We should learn from them. However, these major research institutes are located in the temperate zones. Hence, their R & D are naturally more skewed towards application in their respective climates. To design for better total building performance in the tropics would require an understanding of the climatic impositions and the lifestyle and socio-economic characteristics here. But so far, there is no world-class establishment in this region dedicated to such R & D for the tropics.

#### CENTRE FOR TOTAL BUILDING PERFORMANCE OF THE TROPICS

5 I am therefore glad the Building and Construction Authority and the National University of Singapore have taken up the challenge of setting up a **Centre for Total Building Performance in Singapore.**

6 BCA is a natural co-host for this new Centre. As the agency responsible for the development of Singapore's construction industry, it is essential that BCA sponsors and promotes strategic R&D to keep itself and the industry abreast with international developments. NUS, on the other hand, through its School of Design and Environment, has been championing the development and application of Total Building Performance in Singapore. I am confident that this new collaboration between BCA and the School of Design and Environment of NUS has the potential to make a difference to the building industry here.

## AREAS OF R & D FOCUS

7 The Centre will focus on three key areas of R & D in the next few years. They are indoor air environment, maintainability and energy efficiency. I will elaborate on each of these areas.

### ***Indoor Air Quality***

8 In the past, ventilation, especially in residential buildings has not been a matter great concern. But today, besides offices, houses and apartments in Singapore are also mostly air-conditioned. They are built much closer and at a higher density and people are less likely to open their windows because of noise and pollution. This will result in less ventilation which can lead to problems with indoor air-quality. On the other hand, our more affluent population will increasingly demand a healthy and comfortable indoor environment, in addition to high quality building structures. I am glad to note that the Centre will enter into an MOU with the International Centre for Indoor Environment and Energy for R&D in this area.

### ***Maintainability***

9 Improving the maintainability of buildings is one of the key Construction 21 initiatives. Maintenance costs and building maintainability have been rather neglected at the design and construction stages, resulting in buildings that are difficult or costly to maintain. The Centre for Total Building Performance will study the best practices in other developed countries to introduce practices and methods in the design, construction and maintenance of buildings which will result in the most cost-effective life-cycle.

### ***Energy Efficiency***

10 I am particularly pleased to note the emphasis on energy efficiency in buildings. This is in line with a recommendation by the Inter-Agency Committee

on Energy Efficiency (IACEE) that the BCA develops a Building Energy Efficiency Master Plan for the building sector. The Master Plan begins with a set of energy efficiency standards to ensure buildings are designed efficiently from the start. It should continue with a programme of energy management to ensure their operating efficiency is maintained throughout their life span.

11 In this respect the Centre will examine energy efficient building design protocols and technology development. This will assist designers in checking their own designs for energy performance and adopting appropriate systems and controls for optimal energy efficient indoor environmental quality. This will help to promote best practices and cut future running costs.

12 Even before the official establishment of the Centre, BCA and NUS have already jointly developed a **Building Energy Website**. Hosted in the Department of Building, School of Design and Environment of NUS, it is the first official and comprehensive website that focuses on energy efficiency of buildings in Singapore. For a start, building owners, managers and designers of office buildings can now benchmark the energy performance of their buildings against others of the same category. The interactive website will be further developed to cover other building types. I am delighted to launch this website today.

## CONCLUSION

13 Ladies and Gentlemen, I congratulate NUS and BCA on the signing of today's Memorandum of Understanding on the establishment of the Centre for Total Building Performance. The setting up of this Centre is one of BCA's

moves to implement and realise its C21 vision. The Centre will serve as a dedicated channel for BCA to plan and conduct R&D, formulate and document good practices and promote such practices among the various building professionals.

14 I also wish to congratulate the Centre for Total Building Performance and the International Centre for Indoor Environment and Energy (ICIEE) of the Technical University of Denmark on the signing of their MOU.

15 I wish the Centre and its partners success in your endeavour to become the leading Centre for tropical building research in this region. Thank you.

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