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Dr. Sam C. M. Hui is a Teaching Consultant and an Honorary Assistant Professor of the Department of Mechanical Engineering, The University of Hong Kong. He has a strong technical background in the study of energy efficiency in buildings and is active in promoting sustainable building technology. He has good experience in practical building services design and has carried out teaching, research and consultancy studies on building energy efficiency, renewable energy and sustainable architecture. He has published more than 60 technical articles in academic/professional journals and conferences and has acted as a visiting fellow to research institutes in Japan, Germany and USA. He has been invited to present research papers at different institutions, forums and conferences in Hong Kong, Mainland China and overseas. He has also acted as a Technical Expert in building energy code and green building assessment projects in Hong Kong, Mainland China and Thailand. He was the President of the ASHRAE Hong Kong Chapter in 2006-2007 and has been serving the ASHRAE Region XIII since 1999.

Dr. Hui received a Higher Diploma and a B.Eng. (Hons.) degree in Building Services Engineering from the Hong Kong Polytechnic University in 1987 and 1990, respectively. He also obtained a Ph.D. Degree in Building Engineering from City University of Hong Kong in 1996. He is a Chartered Engineer, a Certified Energy Manager and a Corporate Member of the Chartered Institution of Building Services Engineers, the Hong Kong Institution of Engineers (Building Services Discipline), the American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. and the Illuminating Engineering Society of North America. He is a Life Member of the Association of Energy Engineers and an Associate Member of the American Institute of Architects.

LECTURE TOPICS:

Building Energy Codes and Building Energy Performance Evaluation

Building energy codes and standards are policy measures widely used to promote energy efficiency in buildings. It can help overcome the market barriers and ensure that cost-effective energy conservation opportunities are incorporated. This presentation reviews the building energy codes in the world and discusses the major trends of evaluation methods for building energy performance. By referencing to more advanced standards such as ASHRAE 90.1, it is possible to enhance and upgrade the codes for different societies. Guidance is provided to allow systematic evaluation of building performance using the codes.

Building Energy Labels and Energy Benchmarking

Energy labels could influence consumers and end-users to compare and choose more efficient products. It is an effective strategy for overcoming financial barriers and enabling market transformation. When energy labels are applied to buildings, it is more complex than appliance energy labels. This presentation explains the key principles of building energy labels and the philosophy of energy benchmarking. The approach of different countries in the world to determine and express the energy efficiency rating is described. The impact of energy labels to building design and management is discussed.

Green Building Design and Assessment

Promoting green buildings is essential for achieving sustainable development and good building performance. This presentation explains the important design considerations of green buildings and the key green building assessment methods in the world including LEED, BREAM, CASBEE and HK-BEAM. The basic principles and design strategies of green buildings are described. The philosophy and process of green building assessment are explained. By studying the concepts of green buildings from both engineering and architectural perspectives, it is possible to develop sound knowledge and understanding for practical design and evaluation.

Green Roof Systems and Technology

Green roof systems are living vegetation installed on the roofs and could contribute positively to the mitigation of urban heat island and enhancement of building thermal and environmental performance. Green roof application and development are becoming increasingly popular in many countries. This presentation describes the major types and benefits of green roofs, identifies the planning requirements and explains the important design considerations. It is intended to provide a basic knowledge to building and other related professionals. It also discusses the significance of natural greening methods to building design.

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