

ครั้งที่ 1 (ASHRAE Technical Seminar # 1)

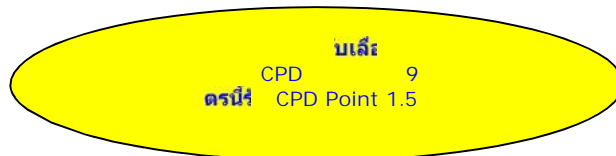
Co-organize a Technical Seminar presented by ASHRAE Distinguished Lecturer Titled: -

1. Design and Analysis of Natural Ventilation Systems
2. Stratified Air Ventilation Systems
3. Application of Computational Fluid Dynamics (CFD) for Built Environment
4. The Dynamics of Air Distribution in Data Center

Date: **Tuesday, February 21st 2017**

Time: 08:30 – 16:00 hrs.

Swissotel Le Concorde Bangkok



By... ASHRAE Thailand Chapter
Air-Conditioning Engineering Association of Thailand (ACAT)
CRC2016 Co.,Ltd.

Abstract

1. Design and Analysis of Natural Ventilation Systems
Presented by: Dr. Kishor Khankari, ASHRAE DL
A good design of a natural ventilation system maintains harmony between the local climates, space sensible heat loads, and the design of operable openings (windows). Poorly designed systems can perform miserably even in the best climatic conditions. Several factors such as building orientation, building massing, effective opening areas and their locations, relative height differences, internal heat loads, furniture and seating arrangement within the occupied spaces can affect the performance of natural ventilation systems. This presentation will discuss basics of natural ventilation and with the help of case studies demonstrate how basic analyses can help predict number of hot and comfortable hours for occupants and how to optimize the performance of natural ventilation designs.
2. Stratified Air Ventilation Systems
Presented by: Dr. Kishor Khankari, ASHRAE DL
Displacement ventilation systems which are also referred as “stratified air distribution systems” work on the principle of thermal buoyancy – hot air due to lower density rises above the cold air. Stratified distribution systems are becoming popular due to their ability to provide better indoor air quality with low energy demand. Stratified air distribution systems come mainly in two flavors – traditional displacement ventilation

(TDV) systems and the under floor air distribution (UFAD) systems. This presentation will cover the basics of stratified air distribution systems and discuss various design and operational parameters that affect their performance

3. Application of Computational Fluid Dynamics (CFD) for Built Environment
Presented by: Dr. Kishor Khankari, ASHRAE DL

Air is the primary carrier of heat, moisture, and contaminants in and around built environments. Airflow patterns determine the distribution of temperature, contaminant level, and importantly air quality and thermal comfort of occupants. System level HVAC designs cannot envision the potential risks due to poor airflow distribution. Such risks are realized only after commissioning and occupancy of the buildings. This presentation will show how Computational Fluid Dynamics (CFD) can help in identification and mitigation of such risks at early stages in the design. After providing a brief introduction to CFD, this presentation with the help of several case studies will show application of CFD to a wide variety of scenarios involving displacement ventilation, active and passive chilled beams, airflow patterns in enclosed spaces, radiant heating and cooling, smoke propagation in atria, clean rooms, data centers, patient rooms, plume dispersion from cooling towers, and several other situations related to built environment.

4. The Dynamics of Air Distribution in Data Center
Presented by: Mr. Chriz Lam, Regional Principal Consultant – Data Center Lifecycle Services
Schneider Electric IT BU (Thailand)

With the growing emphasis of energy efficiency and effectiveness in Data Center environment, using an efficient cooling system in today's data center itself does not guarantee that objective can be achieved. The industry player have shifted their attention to air management to be the key to solving their cooling challenges, such as hot spot, hot air recirculation and stranded capacity etc.

By understanding the concept of air dynamics in data center, designer and operator will be able to manage and redirect cooling air to the intended load to remove the heat capacity. The correct air distribution path with equipment optimization can itself provide a saving up to 30% with very minimal investment and remove availability and reliability risk to DC operation.

The presentation will provide a brief introduction to the data center risk, cooling design, good design practices and case study for application example.



About Speakers :

Dr. Kishor Khankari
President, AnSight LLC
3814 Mill Pond Lane, Ann Arbor, MI 48108
United States, (734) 327-4079



Speaker's Profile

Dr. Kishor Khankari, Ph.D. provides engineering solutions and insights through Physics based simulations and analyses. Kishor has several years of experience in providing optimized HVAC solutions to a wide variety of applications involving external wind engineering, plume dispersion, displacement ventilation, natural ventilation, radiant heating and cooling, and indoor air quality and thermal comfort optimization for office spaces, patient rooms, operating rooms, cleanrooms, justice facilities, data centers, and warehouses. Dr. Khankari has developed a patented technology of a wind band design of exhaust fan assembly systems. He has developed several easy-to-use analytical software tools which are regularly used by design engineers in a variety companies including those in HVAC industry, critical facilities, and automotive industries.

A noted expert in his field, he has a Ph.D. from the University of Minnesota and has been regularly published in several technical journals and trade magazines. Dr. Khankari is an eloquent speaker and has made several presentations worldwide on topics related to design and optimization of HVAC systems at various technical conferences and professional meetings.

Dr. Kishor Khankari is Fellow member of ASHRAE. He is a past President of Detroit ASHRAE Chapter. He is a past Chair of ASHRAE Technical Committee TC9.11 Clean Spaces and a Vice Chair of Research Administration Committee (RAC) at national level. He is a recipient of ASHRAE Distinguished Service Award.

Mr. Chriz Lam

Regional Principal Consultant – Data Center Lifecycle Services
Schneider Electric IT BU (Thailand)
Certified Data Center Audit Expert, Green Grid Member



Speaker's Profile

Chriz joined the Data Center industry since 2010 and had matured rapidly to be a Data Center professional with multiple project in solution design, consultancy and project management.

His advancement of the Data Center Design skills through the integration and adoption of competency through intensive Schneider Training program and external institute, complete with on-the-job execution work enable him to acquire new skill set in Full turn-key design and Energy Management Assessor capabilities. As a certified DC Audit Expert, he had also completed assessment on many customer site in Thailand to provide recommendation to improve data center efficiency by better airflow management and optimization of the equipment operation

Currently holding the portfolio of Regional Principal Consultant for Indochina region, he has been a technical adviser and consultant for Cambodia, Laos, Myanmar and Vietnam to provide designs and reviews to ensure that Data Center maintain the availability and efficiency for its required function.

Chriz is also a certified Uptime Institute Tier Specialist for data center and have been a trusted adviser for owners and operators to apply the Tier Standards to ensure that the critical facilities are designed and built to provide the availability needs of the business. He also provides insights on the Operational Sustainability processes of Data Center to ensure the ongoing management of the infrastructure with mitigation of human error.

Target Audiences

1. ASHRAE Thailand Chapter, ACAT Members
2. RHVAC Designer& Consulting Engineers and Contractors
3. University Lecturers in Dept. of Architecture & Engineering
4. End user, HVAC Facilities Engineers, Building Owner and others.



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Co-Organizers



CRC บริษัท ซีอาร์ซี2016 จำกัด
CRC2016 COMPANY LIMITED

Agendas:-

- 08:30 - 09:00 Registration
- 09:00 - 09:10 Opening Speech: President, ASHRAE THAILAND CHAPTER 2016-2017
- 09:10 - 10:30 Design and Analysis of Natural Ventilation Systems
- 10:30 - 10:45 Coffee-Tea Break
- 10:45 - 11:30 Stratified Air Ventilation Systems
- 11:30 - 12:30 Application of Computational Fluid Dynamics (CFD) for Built Environment
- 12:30 - 12:45 Wrap Up and Q & A
- 12:45 - 13:45 Lunch
- 13:45 - 15:30 The Dynamics of Air Distribution in Data Center
- 15:30 - 15:45 Wrap Up and Q & A
- 15:45 - 16:00 Closing Speech: President, Air Conditioning Engineering Association of Thailand
- 16:00 Coffee –Tea Break

CHAPTER MAY NOT ACT FOR THE SOCIETY

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American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

A N I N T E R N A T I O N A L O R G A N I Z A T I O N



ครั้งที่ 1

เรื่อง Design and Analysis of Natural Ventilation Systems, Stratified Air Ventilation System, Application of CFD for Built Environment, The Dynamics of Air Distribution in Data Center

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