# Design for Safety Programme by UK Expert

**Organized by:**
IES Health & Safety Engineering Technical Committee  
(In preparation for DfS Regulations enforcement from 1 August 2016)

## Seminar Highlights

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<th>Time</th>
<th>Session</th>
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<tr>
<td>8:30am – 9:00am</td>
<td>Registration</td>
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<tr>
<td>9:00am – 9:30am</td>
<td><strong>The WSH (Design for Safety) Regulations 2015 – A Quick Overview</strong></td>
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<td></td>
<td><strong>Er. Ismadi Mohd</strong></td>
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<td>Director, (Policy, Information and Corporate Services), Occupational</td>
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<td>Safety and Health Division, MOM</td>
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<td>09:30am - 10:30am</td>
<td><strong>Lessons from the UK CDM Regulations</strong></td>
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<td><strong>Mr. Graham Hayne (UK)</strong></td>
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<td>10:30am – 11:00am</td>
<td><strong>Tea/Coffee Break</strong></td>
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<td>11:00am - 12:00pm</td>
<td><strong>How to undertake effective design for safety</strong></td>
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<td><strong>Mr. Graham Hayne (UK)</strong></td>
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<td>12:00pm - 12:45pm</td>
<td><strong>LTA’s DfS procedure and experience</strong></td>
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<td><strong>Mr. Liu Png Hock</strong></td>
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<td>Director, Safety and Programme Planning of LTA</td>
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<td>12:45pm - 1:45pm</td>
<td><strong>Lunch</strong></td>
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<td>1:45pm – 2:30pm</td>
<td><strong>DfS with BIM</strong></td>
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<td><strong>Prof. David Chua Kim Huat</strong></td>
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<td>Associate Professor, Civil and Environmental Engineering, National</td>
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<td>University of Singapore (NUS)</td>
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<td>2:30pm – 3:15pm</td>
<td><strong>Architect’s Perspective on DfS</strong></td>
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<td><em>(To be confirmed)</em></td>
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<td>3:15pm – 3:30pm</td>
<td><strong>Tea/Coffee Break</strong></td>
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<td>3:30pm – 4:15pm</td>
<td><strong>Conducting DfS review (Singapore Experience)</strong></td>
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<td><strong>Er. Ng Lee Chian</strong></td>
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<td>Associate Director, PH Consulting Pte Ltd</td>
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<td>4:15pm – 5:00pm</td>
<td>**Barriers and Enablers of Design for Safety – A Review of Current</td>
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<td><strong>Research</strong></td>
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<td><strong>Dr. Goh Yang Miang</strong></td>
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<td>Assistant Professor, National University of Singapore</td>
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<td>5:00pm – 5:30pm</td>
<td><strong>Panel Q&amp;A</strong></td>
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## Programme Details

**Seminar**
- **Date:** 19 January 2016  
- **Time:** 9am – 5.30pm  
- **Venue:** Devan Nair Institute for Employment and Employability (Near Jurong East MRT)

**CPD Programme:**
- 6 STU(Structural) (Confirmed),  
- 6 PDU / 6 SDU (To be confirmed)

**One Day Master Class / Workshop**
- **Date:** 20 or 21 or 22 January 2016  
- **Time:** 9am – 5.30pm  
- **Venue:** Devan Nair Institute for Employment and Employability (Near Jurong East MRT)

**CPD Programme:**
- 6 STU(Structural) (Confirmed),  
- 6 PDU / 6 SDU (To be confirmed)

**Fee:**
- **Early Bird for Seminar + Workshop**
  - Registration and payment made before 11 Dec’15
  - $420

**Fee from 12 Dec’15 onwards**
- **Seminar + Workshop**
  - IES, CIJC, IOSH Member: $450  
  - Non-member: $550

- **Seminar Only**
  - IES, CIJC, IOSH Member: $200  
  - Non-member: $250

- **Master class Only**
  - IES, CIJC, IOSH Member: $280  
  - Non-member: $350

*Fees inclusive of 7% GST, course materials, lunch and light refreshments.

*Certificate of Attendance will be issued to participants with 100% attendance.

**Contact Person:**
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DID: 6461 1248
Fax: 64639468
E-mail: christine.lau@iesnet.org.sg

**Supported by:**
- Ministry of Manpower
- WDA (Workforce Development Agency)
- WSH Council
- IOSH
CV and Abstract of Speakers

Topic: The WSH (Design for Safety) Regulations 2015 – A Quick Overview

Er. Ismadi Mohd

Er. Mohd Ismadi is currently the Director of OSH Policy, Information and Corporate Services Department of the Ministry's Occupational Safety & Health Division. Er. Ismadi has over 20 years of professional experience in the field of Workplace Safety and Health (WSH) particularly in the areas of WSH Policy and Legislation, WSH Management Systems, WSH Operations and Engineering. Er Ismadi has contributed immensely in the rollout of the Ministry’s new WSH framework and new National Strategy WSH 2018. This includes overseeing the completion of key WSH Legislative Reviews as well as the development of flagship programmes and initiatives to support the new WSH framework.

At the national level, Er. Ismadi is currently a member of the Building and Construction Standards Committee (BCSC) under SPRING Singapore which champions the development, promotion and implementation of relevant building and construction standards to improve the quality, safety and productivity of the construction industry. On the professional front, Er. Ismadi has also actively contributed to the work of various technical and professional committees such as with the Professional Engineers Board (PEB), SPRING, and the Singapore Accreditation Council (SAC) on specific WSH and other technical subjects. Er Ismadi also presents regular papers and talks on WSH and Technical subjects both locally and internationally. A Mechanical Engineer by profession, Er. Ismadi is a registered Professional Engineer with the Professional Engineers Board, Singapore.

Abstract/ Synopsis

Singapore’s Workplace Safety and Health (WSH) performance has been improving with its workplace fatality rates halved from 4.0 in 2005 to 1.8 per 100,000 employees in 2014. Despite so, the WSH performance of the construction industry is still an area of concern with its sectoral workplace fatality rates still at a high of 5.5 per 100,000 employees last year, with 2014 seeing 27 construction fatalities, the second highest in the last 5 years. There is an urgent need to improve the WSH performance in the construction industry and arrest this rising number of fatalities and injuries. With that in mind, Singapore has taken a proactive approach to raise the WSH standards by getting the stakeholders to manage the WSH risks upstream at the design and planning phase instead of mitigating the risks downstream at the construction phase. Just as productivity can be increased with early planning, safety can also be enhanced with greatest impact at the design stage. With Design for Safety or DfS, it starts at the conceptual and planning phases of a project with collective and conscious decisions by stakeholders to improve the planning and effective management of WSH risks throughout the entire lifecycle of the construction project i.e. from design to construction stages and maintenance.
To foster greater industry ownership, MOM has recently gazetted the WSH (Design for Safety) Regulations in July this year to place responsibility on developers and designers to address foreseeable risks at the design and planning phase. The shift to bring WSH intervention upstream will reduce the downstream issues during the building’s construction and maintenance phases. The Regulations will come into effect one year later in Aug 2016 to give the industry more time to comply with the requirements. To support its implementation, MOM and the WSH Council will work with the industry to train about 1,000 DfS Professionals by 2018.

This presentation will share on the salient points of the WSH (Design for Safety) Regulations, its key features and requirements.
Topic: How to undertake effective design for safety and lessons learned from the UK legislation.

Mr. Graham Hayne

Graham is a Chartered Civil Engineer with over 30 years’ experience of the Construction Industry. Starting his career as a trainee draughtsman and progressing to become a Project Director for Buro Happold. He has successfully led the delivery of the designs for large, complex, multidisciplinary projects at home and in the Middle East. In his role as a director Graham gained extensive experience of undertaking design reviews of projects that included a design for safety aspect. He has witnessed first-hand the implementation of the UK Construction (Design and Management) Regulations and seen how industry has reacted to the three versions of the legislation.

After working for a large contractor in Saudi Arabia, he returned to higher education in 2011 at Glasgow Caledonian University, completing an MSc in Construction Management. He is currently researching how BIM processes and technologies can be harnessed to improve design for safety in construction. Graham also represents the University at the HSE BIM for Health and Safety task group.

Abstract/Synopsis

The presentation will introduce the broad principles of design for safety (DfS) illustrating the accepted link between design and accident causation. By the use of industry examples it will be demonstrated how DfS fits within the recognised H&S management systems and how early design choices can improve safety of the construction, operation and demolition phases of projects.

An overview of the UK Construction (Design and Management) Regulations will be presented with comparisons being made with the new Singapore Workplace Safety and Health (Design for Safety) Regulations 2015. The lessons learned from the implementation of the UK regulations will be presented as well as outlining the opportunities that are afforded by the Singapore regulations.

The method of undertaking DfS will be introduced with explanations of how to prepare and manage design risk registers, the cornerstone of the . The experience required to undertake DfS reviews will be introduced alongside the responsibilities of the main project stakeholders.
Mr. Liu Png Hock

Mr Liu is currently the Director, Safety and Programme Planning of LTA. He is responsible for road and rail total safety management including construction safety and system safety audit as well as overall project planning and LTA projects schedule planning and control. He has more than 30 years of professional working experience in heavy engineering projects. An engineering graduate of the University of Wales, United Kingdom, Mr. Liu joined Singapore Mass Rapid Transit Corporation in 1985 and was involved in the construction of the North-South and East-West lines. Later, in 1990, he moved to Shanghai for the construction of Shanghai Metro Line 1 before rejoining LTA in 1994. He had since being involved in LTA infrastructure planning, construction and project management.

Mr Liu is also the General Manager and Director for MSI Shanghai Engineering Consultancy Pte Ltd, a consultancy arm of LTA for China market. At MSI, Mr Liu focuses on the Asia business development. He was involved in Nanjing Metro Line 1, Shanghai Line 10 and a number of city transport planning and traffic management consultancy projects in China.

Abstract/ Synopsis

“As the major developer of transportation infrastructure projects in Singapore, LTA manages many aspects of project risk and associated safety hazards. Under the ambit of its Safety Policy, LTA pioneered a total safety management framework, and successfully implemented the Project Safety Review (PSR) in Singapore since 2004. The PSR framework has instilled strict discipline into the safety management processes where risks are identified and designed out early at source. The process covers the entire project life cycle of project, starting from feasibility studies stage, concept stage to design, construction, testing, handover and operation. Over the years, LTA has introduced requirements above the industry standards and worked with its partners to raise the safety awareness and enhanced standards for design, construction safety and its operation.
Associate Professor Dr. David Chua Kim Huat

A/P David Chua Kim Huat is a registered professional engineer in Singapore and is currently an Associate Professor in the Department of Civil and Environmental Engineering at the University of Singapore. He is also Assistant Dean for Student Life and Associate Director for Engineering Alumni. He obtained his PhD degree in 1989 from University of California, Berkeley, USA, majoring in construction management. He has more than 25 years of research and practical experience in the industry.

His research interests in the recent years have been in lean construction, computer integrated and IT-based construction management, construction simulation, risk management and construction safety. Arising from his research works, he has written over 120 technical publications, editor for two books, and contributed a chapter to two books. He had been a Council Member of the Society of Project Manager from 2001-2005, and a council member of System Safety Society since 2006. He is appointed member of the International Panel of Experts on BIM, and also Honorary Fellow of WSHi. He is also a member of the Construction Research Council, USA and a member of the American Society of Civil Engineers, USA. He is a member of the Board of Directors of the Engineering Production and Project Management Association. He had served as the specialty editor for Cost and Scheduling for the Journal of Construction Engineering and Management, ASCE, and serves in the editorial board in other international journals and several international conferences.

Abstract/ Synopsis

Accidents during construction, operations and maintenance phases of a building can often be reduced or eliminated if proper attention is paid to the design and location of the building’s components. Manually checking for safety issues in the design of a building is a time consuming task and is prone to mistakes. To overcome this an automated checking system using a specially design for safety language (DfSL) has been developed. The DfSL allows interested parties to interrogate BIM compliant files for any safety issue they wish to check. The language, which uses English-like sentences, supports checking of safety issues at a building element level, at a meta-element level and also the use of equipment such as gondolas and self-propelled articulating booms which are classified at ‘agents’.
Er. Ng Lee Chian

Ng Lee Chian is a Professional Civil Engineer and an Associate Director in PH Consulting Pte Ltd. She has successfully managed projects from diversified domain, and led design and construction teams to timely completion of such projects within budget. These include the Changi Water Reclamation Plant and Sungei Sembawang Abstraction Ponds; and infrastructure rail and expressway projects like the Kallang/Paya Lebar Expressway Contract and CTE/Braddell Road Interchange in Singapore. She has also designed many structures such as the MFA building and supervised the construction of ICA Building.

In her career, she has accumulated wide knowledge on different areas of engineering skills. She is a certified Design for Safety Coordinator and currently practices as a Design-for-Safety Professional. She has facilitated numerous challenging projects such as hospital, medical centres, multi-storey integrated complex and infrastructures.

Abstract/ Synopsis

Guidelines on Design for Safety (DfS) for buildings and structures was launched by MOM/WHSC in 2008 to be in line with the WSH Act of addressing risk at source. Although the concept of DfS was officially introduced to Singapore seven years ago, there is still limited knowledge on what is DfS and how it can be carried out efficiently in the built environment industry.

There are a numbers of projects that have implemented DfS for the past few years. Design for Safety Professional (DfSP), previously known as Design for Safety Coordinator (DfSC), had carried out their design reviews based on the Guidelines on DfS. The DfS Guidelines provide DfSP the technicality of when and how to convene design reviews but not how to infuse DfS into the project schedule, identify foreseeable risks and mitigate them to as low as reasonably practicable.

The speaker will share her experience in managing DfS review as an independent DfSP and how she had overcome the challenges encountered during the process.
Abstract/ Synopsis

Design for Safety (DfS) (also known as prevention through design, safe design and Construction (Design and Management)) promotes early consideration of safety and health hazards during the design phase of a construction project. With early intervention, hazards can be more effectively eliminated or controlled leading to safer worksites and construction processes. DfS is practiced in many countries, including Australia, the U.K., and Singapore. However, there are many barriers to the implementation of Design for Safety. At the same time there are enablers that facilitate its implementation. This presentation will compile international and local research so as to identify these barriers and enablers and to promote successful adoption of Design for Safety in Singapore.
One Day Design for Safety Master Class by Mr. Graham

Date: 20 or 21 or 22 January 2016
Time: 9am – 5.30pm

Learning Outcomes / Objectives
1. To understand the principals of DfS and how to carry out effective DfS reviews
2. To understand design risk registers and their application
3. To identify, analyse and assign hazards
4. To understand DfS management processes, procedures, roles and responsibilities
5. To appreciate how BIM and new technologies may be able to help the processes

Master Class Outline
• Introduction
• Delegates identify and mitigate hazards using hazard perception
• Processes of carrying out DfS reviews. How, when and why
• Explanation of design risk registers
• Ownership of hazards
• Exercise of identifying hazards for the Liverpool site
• Discussion of hazards identified and assigned
• Exercise of hazards associated with the construction of the balanced raft foundation for Liverpool
• Management processes and procedures. Change control, value engineering, what information should be passed to the contractor
• How BIM and new technologies can be used to help the process
• Summary
Registration Form

Design for Safety Programme by UK Expert

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<th>Seminar</th>
<th>One Day Master Class</th>
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<td>Date 19 January 2016</td>
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<tr>
<td>Time 9.00am – 5.30pm</td>
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<td>Venue Devan Nair Institute for</td>
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<td>Fees * IES, CIJC, IOSH Member -</td>
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<td>$200 Non-member - $250</td>
<td>$280 Non-member - $350</td>
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Please register online/fax the completed form by 4 January 2016 before 3 pm to:

Christine Lau
IES Academy
70 Bukit Tinggi Road (289758)
Tel: 6463 9211 Fax: 6463 9468

Participant Details

*Name : ___________________________  *NRIC / FIN : ___________________________

(Please written in BLOCK Letter)

Company : ___________________________  *Designation : ___________________________

*Address 1 : ___________________________

*Postal Code : ____________  Sex : Male / Female  *Contact No. : ____________  Fax : ____________

*Your Email: ___________________________

(For sending of confirmation email, preferable personal unless company sponsored)

Please indicate:

Early Bird for Seminar + Master class
(Registration and payment made before 11 Dec’15)

- Seminar + Master class $420

Seminar + One Day Master class

IES, CIJC, IOSH Member $450

Non-member $550

IES, CIJC, IOSH Member $200

Non-member $250

One Day Master Class

IES, CIJC, IOSH Member $280

Non-member $350

Contact Person Details

#Name : ___________________________

#Designation : ___________________________

#Contact No : ____________  Fax : ____________

#Email : ___________________________

Payment Details

~ All Fees are inclusive of 7% GST.

~ Cheque should be made payable to: “Engineers Singapore Pte Ltd”

Acceptance of Terms and Conditions for Registrations of IES Academy’s Events

I agree to abide by the Terms and Conditions for Registration of IES Academy’s Events.

Name : ___________________________  Signature : ___________________________

*Mandatory entry

#Compulsory Entry for participant who choose to be INVOICE to your company
TERMS & CONDITIONS COURSE REGISTRATION

Registration

Registration can be done either online or by faxing in the registration form.

Any registration, whether on-line or fax will be on a first-come-first-served basis and will only be confirmed upon receipt of full payment by Engineers Singapore Pte Ltd. Email and phone registrations will not be accepted.

Closing Date & Payment

The closing date of the event will be 7 days prior to event commencement date. Cheques should be crossed ‘A/C payee only’ and made payable to ‘Engineers Singapore Pte Ltd’, with the Date of event, Title of The Event and participants’ name indicated clearly on the back of the cheque, and post to:

70 Bukit Tinggi Road
Singapore 289758
Attn: Christine Lau

Confirmation of Registration

Confirmation of registration will be given 7 days prior to the commencement date of event via email. If you do not receive the said confirmation email, you are required to contact Engineers Singapore general admin immediately at 6463 9211 (office).

IESA reserves the right to allow only confirmed and paid registrants to attend the Event.

Withdrawals/Refunds of Fees

Notice of withdrawal must be given in writing to IESA. Policy on refund of course fee is as follows:

- FULL refund if we receive your written notice of withdrawal before 11 December 2015.
- 50% refund if we receive your written notice before 11 January 2015.
- NO refund otherwise.

No show of participant would not be accepted as reason for withdrawal/refund.

Replacement is allowed but restricted to once only. Replacement will be allowed only if written notice is received by us at least 3 working days before the commencement of the event. However, when an IES member is replaced by a non-member, the participant has to pay the difference in the relevant fees.

Cancellation/Postponement

Changes in Venue, Dates, Time and Speakers for the Events can occur due to unforeseen circumstances. IES reserves the full rights to cancel or postpone the Event under such circumstances without prior reasons. Every effort, however, will be made to inform the participants or contact person of any cancellation or postponement.

Fees will be refunded in FULL if any Event is cancelled by Engineers Singapore Pte Ltd.

Enquiries

For further enquiries, please contact Engineers Singapore Pte Ltd at general office at Tel: 6463 9211, alternately you may email your concern to christine.lau@iesnet.org.sg.