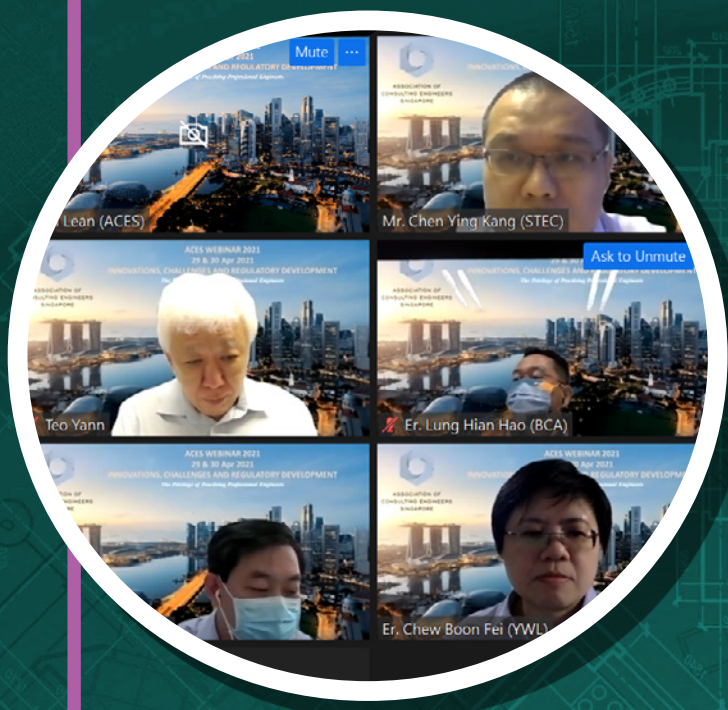


CONNECT 2 ACES

A QUARTERLY PUBLICATION BY THE ASSOCIATION OF CONSULTING ENGINEERS SINGAPORE

04

ACES WEBINAR - INNOVATIONS, CHALLENGES AND REGULATORY DEVELOPMENT



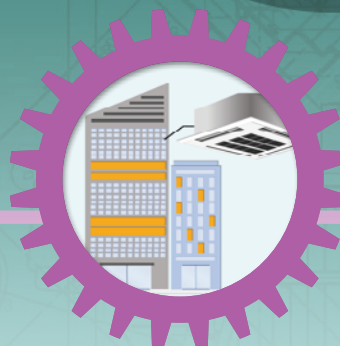
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REVIEW OF SS553/SS554

*Thankfully, we have many members who are willing to assist and be involved.
We truly look forward to more to be involved.*

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A QUARTERLY PUBLICATION
BY THE ASSOCIATION OF
CONSULTING ENGINEERS
SINGAPORE

JUNE 2021 ISSUE

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President's Message

It has been 15 months since the pandemic hit us in Apr 2020. Just when we thought things are returning to normalcy, we are hit by a resurgence. Whilst that may be the case, the Engineering Consultancy and ACES cannot afford to stay still. Indeed, much has also taken place since we last reported to the community.



On the business front, we have been highlighting to relevant agencies, the plight of the Consultancy practice in view of the pandemic through CIJC (Construction Industry Joint Committee). There has been some response, for example, the allowance to claim for work in support of Contractors prolongation claim and the claim from prolongation from some agencies.

At the same time, we are pushing to consider a wider context to review contract terms, inclusive of scope of work that is commonly by others, variation, tender evaluation and even request for stand-alone engineering consultancy instead of being included within the multi-discipline tender.

In fact, the Minister of State, Mr. Tan Kiat How met us recently to hear our concerns and thoughts for a more viable future to engineering consultancy. On ACES part, we will try to improve the situation. But on the fee submission, as a community, we need to review how we submit our fees and better protect the future of our young engineers. On this aspect, we hope to hold a session, in the near future, be it in a physical or virtual format to discuss this issue.

On the training front, we have just completed a combined 2-day C&S and M&E Engineering Webinar. Our thanks to the organisers and speakers. Trust all who have attended benefitted. On the digital transformation, we have arranged several sessions with more to be organised in the coming months.

In addition, we have just formally submitted an ESG (Enterprise Singapore Grant) application to support our ambitious M&E Design Automation Platform. The plan is to encourage all of us, to be committed and be part of the process to formulate the process for ease of automation. Subsequently, it is to work with appointed Software

Vendors to transpose our calculated provisions as model input to Revit. All your contribution to the process would be compensated through the grant. Some of us have already reverted their support and we look forward to more committing to the program. We are embarking on this initiative to improve our productivity and control the future subscription cost for all committed users. When this is all done, we might be the first in the world to have a comprehensive platform.

We also held an EOGM recently on 12 May 2021 to obtain approval for \$200K loan to the iNPQS, our tripartite JV with SIA and IES, should the iNPQS need funds to support their cash flow in securing payment from BCA on the iNPQS grant. The EOGM was also to obtain approval for a \$200K investment to the M&E Design Automation Platform. We are thankful for the support of the community for the necessary approval.

ACES is also very well represented on various committees and work groups to ensure improvement to agencies' requirements is incorporated with our consideration. One recent issue is the Common Data Environment. Thankfully, we have many members who are willing to assist and be involved. We truly look forward to more be involved.

We have planned for a 50th Anniversary Gala Dinner in August and are still hopeful for the opportunity to gather and celebrate the occasion. If the occasion cannot be celebrated via a Gala Dinner, we will arrange a virtual celebration.

The ACES-YPC has been a very active entity within ACES. To date, they have been supporting ACES involvement in attracting talent via BCA Built Environment Formation Programme. In addition, they have spear headed our Community Social Responsibility initiative via a Blood Donation Drive. We encourage all to participate and make necessary arrangement with the Blood Bank. Remember to inform them you are contributing as part of ACES Code P1005.

Our AGM is scheduled for 25 Jun and we hope to hold a physical meet. If in the event it is not possible, we would arrange for a virtual meet.

Er. Teo Yann
President

ACES Webinar 29 & 30 April 2021 (Virtual) – Innovations, Challenges and Regulatory Development

On 29th & 30th April 2021, ACES organized their Annual Seminar Series **INNOVATIONS, CHALLENGES AND REGULATORY DEVELOPMENT 2021**. This is the 3rd ACES series and the two-day webinar is conducted via a virtual platform this year to facilitate participation. We have also combined the Civil and Structural (C&S) Practice Committee with Mechanical and Electrical (M&E) Practice Committee to diversify the topics this year.

The sharing of innovative experiences in line with productivity, sharing of challenges in underground / infrastructure projects and updates of regulatory requirements were part of the topics curated specifically for our participants. We are pleased to have received encouraging responses with 220 participants from Professional Engineers and Practitioners (QP(D) and QP(S)), Engineers, RE/RTOs and Builders in the industry. The topics covered in this seminar varied from different engineering feats to advancement in the construction industry.

Some of the exciting topics shared includes an overseas bridge failure case study from BCA, adoption of risk-based approach to building impact assessments for underground works from LTA to innovative construction solutions such as the vertical shaft jacking (Shanghai Tunneling Engineering Co.), top-down construction with modified Circular Hollow Section (CHS) kingpost (Woh Hup Pte Ltd) and the local engineering feat of Keppel Viaduct widening (YWL Engineering Pte Ltd). The webinar also saw sharing of technical knowledge in applications of ground improvement (Keller Foundations Pte Ltd) and challenges and ingenuities applied in Paya Lebar Square (Arup Singapore Pte Ltd). Apart from local projects, ACES also included an international project sharing on the famous Hong Kong-Zhuhai-Macau Crossing by China Communications Construction Company. This international engineering feat is currently the longest sea-crossing project in the world and the sharing in this webinar was primarily focused on the immersed tube tunnel section and its challenges and innovative solutions.

C&S Session



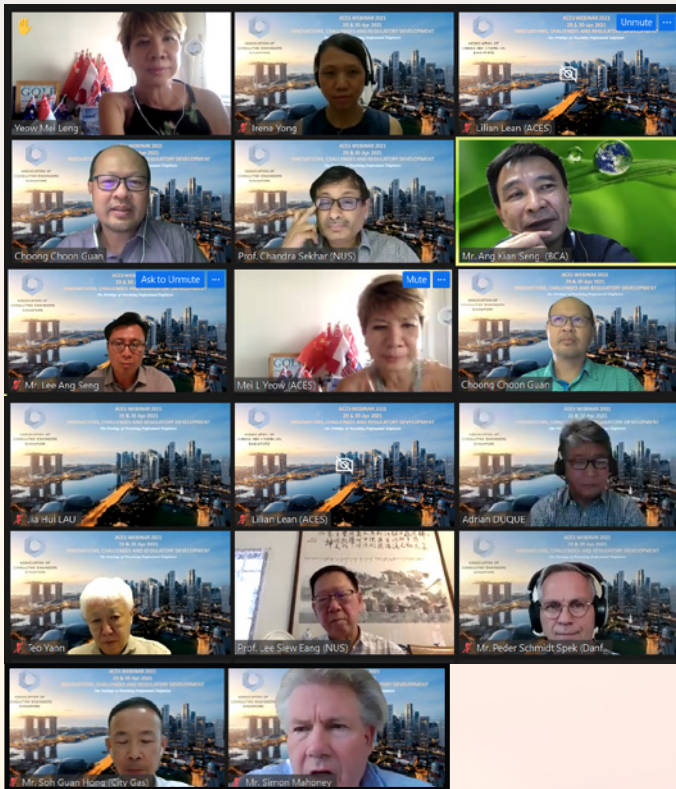
ACES will continue to bring forth more webinars and technical sharing to enrich the industry and expand the horizon of engineering ideas to all our members.

The topics covered by the distinguished speakers are as follows:

C&S Topics	Speakers
1. Challenges in Regulatory Compliance	Er. Lung Hian Hao (BCA)
2. Innovative Solutions for Keppel Viaduct Widening	Er. Chew Boon Fei (YWL)
3. Application of Vertical Sinking Machine Method for Shaft Construction	Mr. Chen Ying Kang (STEC)
4. Innovative Engineering Solutions in Hong Kong-Zhuhai-Macau Crossing	Mr. Tong YuQiang (CCCC)
5. Adopting a Risk-Based Approach to Building Impact Assessment	Dr. Goh Kok Hun (LTA)
6. Top-Down Construction and Installation of Plunged-In CHS Kingposts	Er. Roby Gunawan (Woh Hup)
7. Applications of Ground Improvement in Managing Geotechnical Risks	Dr. Leong Kam Weng (Keller)
8. Challenges and Innovative Engineering Solutions in Paya Lebar Quarter	Er. Rudi Lioe (Arup)

MEP Session

The webinar topics covered in the MEP session includes various advancement in construction industry, new technologies and sustainability.



There was a line-up of nine interesting topics shared by our distinguished speakers as follows:

M&E Topics	Speakers
1. Key Highlights of the Singapore Green Building Masterplan and Overview of the Green Mark 2021 Framework	Mr. Ang Kian Seng (BCA, Group Director for Environmental Sustainability)
2. Sustainability and Resiliency – A Paradigm Shift in ACMV System Design and Operation	Prof. Chandra Sekhar (NUS)
3. Delivering MEP Consultancy Services for Public Healthcare Projects + Q&A	Er. Joseph Toh Siaw Hui (MOHH)
4. Environmental Sustainability through Efficient M&E Design	Mr. Lee Ang Seng (SGBC/Beca)
5. Domestic Hot Water Heaters' Usage and its Climate Impacts on Singapore	Prof. Lee Siew Eang (Honorary Fellow, NUS)
6. Introduction and Live Demonstration of Smart IoT Appliances for Low Carbon and Sustained Living of Today's Residential Homes	Mr. Soh Guan Hong (City Gas)
7. Improved Efficiency and Operation with Intelligent VLT Drives	Mr. Peder S. Spek (Danfoss)
8. Building Data and "the Cloud"	Mr. Simon Mahoney (Easy I/O)
9. eMobility and Schneider Electric – Driving Towards a 100% Electric Mobility to a Net-zero Destination	Mr. Adrian DUQUE / Ms. Lau Jia Hui (Schneider Electric)

ACES would like to thank all our speakers for their valuable time and support in delivering a fruitful sharing of various topics to our members.

ACES Awards 2021

As per the previous years, the Committee has organized the ACES Lifetime Achievement Award and ACES Young Consulting Engineer of the Year Award to honour individuals in 2021.

The ACES Lifetime Achievement Award honours the recipient who has made outstanding contributions to ACES throughout their lifetime. The Award also aims to recognize contributions made by the recipient on engineering excellence, and recognition of achievements within the profession, business or industry, that has set a benchmark for engineers to strive for. We congratulate our award winner, Er. Ling Shiang Yun for his significant contribution to the Built industry.

The Young Consulting Engineers of the Year Award provides a platform to identify promising young engineers for the future of the Consultancy Industry. The Award aims to recognize, celebrate and encourage young consulting engineers who are below the age of 35 years working in Singapore who have demonstrated leadership skill in their course of work as well as contributed to the profession and community at large. They are also assessed to have displayed engineering competence, creativity and innovation in employing their solution.

We have 10 promising young recipients receiving the award this year. This augurs well for the future of the industry in ensuring a good succession and we look forward to them participating actively in ACES activities as well as contributing to our Built Environment.

Name	Company	Category
Mr. Alistair Sargeant	Arup Singapore Pte Ltd	Civil & Structural
Ms. Lee Pei Yu	CPG Consultants Pte Ltd	Civil & Structural
Mr. Tan Kok Hoe Jason	CPG Consultants Pte Ltd	Civil & Structural
Er. Chong Fui Lip	Meinhardt (Singapore) Pte Ltd	Civil & Structural
Ms. Soon Shurong	WSP Consultancy Pte Ltd	Civil & Structural
Mr. Jack Wang	Beca Carter Hollings & Ferner (S.E.Asia) Pte.Ltd	Electrical
Mr. Goh Xiang Fei	DSCO Group Pte Ltd	Electrical
Mr. Fu Chuanming	Arup Singapore Pte Ltd	Mechanical
Mr. Darren Nixon Burrows	Beca Carter Hollings & Ferner (S.E.Asia) Pte.Ltd	Mechanical
Mr. Eugene Fu Tian Hui	WSP Consultancy Pte Ltd	Mechanical

The Business and Professional Practice Committee will continue to work with our members to represent their concerns on business issues to government and industry partners in Singapore. We welcome the input and feedback from our member firms on the issues that require our joint attention.

National WSH Campaign 2021

On 29th April 2021, over 850 people joined the Workplace Safety and Health (WSH) Council in the opening of our year-long National WSH Campaign which was launched on-site and online for the first time. This event was supported by the Ministry of Manpower, National Trades Union Congress and Singapore National Employers Federation.

Carrying the same Campaign message as last year, "Take Time to Take Care of Your Safety and Health", this year's Campaign places the spotlight on WSH ownership and seeks to encourage the industry, employers and employees to set aside 'Care Time' to put WSH into action so that everyone can go home safely and healthily to their loved ones every day.

'Care Time' is a scheduled time of half an hour every week for workers to assess their surroundings for hazards, or to engage in healthy activities such as taking a rest, drinking water or doing simple stretching exercises. Workers are encouraged to save 'Care Time' in their mobile phone's calendar, and make a conscious effort to take concrete safety and health actions.

Chairman of the WSH Council Mr. John Ng shared how these actions could help workers in his welcome address. He said: "When conducted regularly, these actions become habitual and can improve the worker's health and heighten his awareness of unsafe acts or conditions in his work environment in the long run."

Mr. Zaqy Mohamad, Senior Minister of State for Manpower, in his opening address, emphasised that "WSH is a collective responsibility". He urged workers: "Do not be afraid to report unsafe conditions and near-misses to your supervisors." He also reminded employers to be diligent in completing risk assessments and to encourage their employees to take time to care for their health.

The speeches were followed by campaign activities and entertaining performances to engage our participants. 'Care Time' was brought to life by our Campaign personas – Zombie and Raisin – in a live skit which shared the importance of getting enough rest to stay focused at work, and heeding safety measures and not cutting corners at work.



Read the speech by Mr. Zaqy Mohamad, Senior Minister of State for Manpower [here](#).



Read the speech by Mr. John Ng, Chairman of the WSH Council [here](#).



Participate in the National WSH Campaign 2021

Companies can do the following:

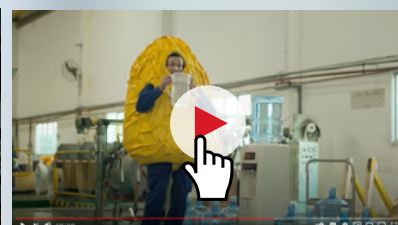
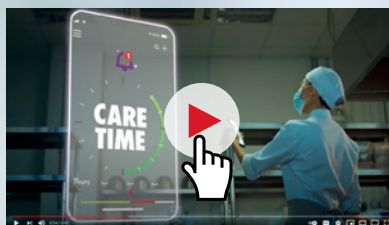
- Encourage or help their employees to **set up 'Care Time' as a weekly reminder** on their mobile phones.
- Use their company's mobile app to **push out 'Care Time' notification** to employees.
- Visit www.taketimetotakecare.sg for more ideas on the safety and health actions that their employees can do during their 'Care Time'.



Simply scan the QR code below and save 'Care Time' in your mobile phone's calendar. Steps on how to do so can be found on the Campaign microsite.

Share Campaign videos with your employees

Learn more about 'Care Time' through the eyes of our Campaign personas and workers in various workplace scenarios in our light-hearted [safety](#) and [health](#) videos.



#WSHCareTime

Workers are encouraged to talk to their supervisors should they need to seek their supervisors' support when setting up their weekly Care Time at work, or to discuss the best possible time to schedule their 'Care Time'. Workers should check their company policy on the use of mobile phones at work.

Companies and workers are welcome to share on Instagram and Facebook what they do during their 'Care Time' and hashtag "WSHCareTime" in their posts. Their social media posts will be collated on the Campaign microsite to inspire others to do the same.

Overview of SGBMP and GM: 2021

Environmental Sustainability Group, Building and Construction Authority

Singapore Green Building Masterplan (SGBMP)

Singapore is making a greater, whole-of-nation push on environmental sustainability with the Singapore Green Plan 2030. The built environment sector will have an important role in mitigating the effects of climate change and building a more sustainable and liveable city.

To accelerate Singapore's transition to a sustainable and low-carbon built environment, BCA worked with the Singapore Green Building Council (SGBC) to co-create the Singapore Green Building Masterplan (SGBMP) together with the industry and community. Besides traditional industry stakeholders, we also reached out to a wider group of over 5,000 stakeholders, including tenants, home buyers, youths and students, to generate a broader mind share. The result was a Masterplan that captured our collective commitment to pursue more ambitious sustainability standards in the next lap of our green building journey.

Under the SGBMP, we set three key targets: "80-80-80 in 2030".

(i) 80% of buildings (by GFA) to be green by 2030

Firstly, we will green¹ 80% of our buildings (by GFA) by 2030. This is an existing target, to ensure that the majority of Singapore's buildings are sustainable and energy-efficient. As of end-2020, we have greened over 43% of our buildings.

Our buildings are built to last, and they will stay with us for a long time. Hence, to future-proof our building stock, we will raise the minimum energy performance requirements for new buildings and existing buildings that undergo major retrofitting, to be 50% and 40% more energy efficient compared to 2005 levels respectively.² These requirements will apply to new developments from the fourth quarter of this year, followed by existing buildings from 2022.

To step up the pace of greening our buildings, we will disclose the names of buildings in the building energy performance data that we publish, starting with commercial buildings from the second half of this year. This will allow building owners to benchmark their buildings against others and spur them to improve their energy efficiency and reduce their energy consumption.

(ii) 80% of new developments (by GFA) to be SLE buildings from 2030

Secondly, 80% of our new developments (by GFA) will be Super Low Energy (SLE) buildings³ from 2030 onwards. In the coming years, we must push more industry stakeholders to build SLE buildings, so that we set a high bar for sustainability going forward.

The Government will take the lead in bringing SLE buildings into the mainstream under the GreenGov.SG initiative. By creating lead demand through public sector buildings, we aim to build industry capability to develop SLE buildings and provide more use cases for the private sector to take reference from. In addition, we are exploring further measures to drive the adoption of SLE buildings in the private sector.

(iii) 80% improvement in energy efficiency for best-in-class buildings by 2030

Thirdly, our best-in-class green buildings⁴ will achieve an 80% improvement in energy efficiency (over the 2005 baseline) by 2030, up from 65% today. This will allow us to reap more energy savings, and remain at the forefront of the global green building movement.

The Green Buildings Innovation Cluster (GBIC) programme was launched in 2014 to support the research, development and demonstration of green building solutions, and help bring these solutions to market. We are looking into further enhancing funding support for GBIC to push the boundaries of building energy efficiency and accelerate the deployment of cost-effective green solutions to support the push for more SLE buildings.

Green Mark 2021 (GM: 2021)

Since it was first launched in 2005, the Green Mark (GM) scheme has been a key lever and performance benchmark for Singapore's green building policies. As part of SGBMP efforts, BCA and the Singapore Green Building Council (SGBC) engaged key stakeholders to review the GM framework to be more flexible, globally relevant and outcome-based.

The revised framework will continue to have a strong emphasis on improving energy performance and reducing carbon emissions, with buildings needing to meet higher standards of energy performance to achieve GM certification. To ensure buildings remain holistic in nature, there will also be additional recognition for higher standards of sustainability, with sustainability standards revised according to the following criteria:

- i. Intelligence. Use of smart technologies employed within the buildings.
- ii. Health and Wellbeing. Facilitation of mental, physical and sociological well-being of occupants via building design and operations.
- iii. Whole-of-life Carbon. Low embodied carbon (i.e. carbon footprint) and use of sustainable construction methods.
- iv. Maintainability. Design for Maintainability (DfM) (which refers to designing buildings for resource efficient maintenance regimes downstream) and use of smart Facilities Management (FM) technologies and processes that can help improve FM productivity and service delivery.
- v. Resilience. Demonstration of climate mitigation and adaptation strategies, such as the use of nature-based or natural climate solutions.

We have embarked on a pilot of the revised GM scheme and will take into account industry feedback before launching the scheme in Q3 2021.

For more info, please visit [here](#).



References:

¹ BCA considers buildings to be greened if they meet minimum environmental sustainability standards (effective as of Apr 2008) or achieve BCA's Green Mark (GM) certification.

² Currently, new and existing buildings are required to be 30% and 25% more energy efficient compared to 2005 levels respectively.

³ SLE buildings refer to buildings that have achieved at least 60% improvement in energy efficiency compared to 2005 levels.

⁴ Best-in-class buildings refer to buildings that achieve the highest possible energy efficiency standards with the technology available at the time. In 2020, such buildings were estimated to have achieved 65% improvement in energy efficiency compared to 2005 levels.

Review of SS553/SS554

Environmental Sustainability Group, Building and Construction Authority

COVID-19 is mainly transmitted through respiratory droplets from an infected individual to those around them. This risk is higher when there is a prolonged contact, especially in enclosed environments with limited airflow and poor ventilation. In view of the importance of ventilation and indoor air quality in mitigating the risk of transmission, the Enterprise Singapore has initiated a review on Singapore Standards. They include the SS553:2016 Code of practice for Air-Conditioning and Mechanical Ventilation (ACMV) in buildings, and SS554:2016 Code of practice for Indoor Air Quality (IAQ) for air-conditioned buildings. The review committee took into considerations the latest international standards and best practices as the knowledge on COVID-19 is still evolving.

The SS553 review committee (chaired by NTU/Mr. Raymond Wong and IES/Er. Joseph Goh) with members from agencies, academia and industry stakeholders (BCA, NEA, MOH, NUS, SGBC, SIA, ACES, SEAS, SIFMA, REDAS, SCDF and LTA) had come together to develop an addendum to SS553:2016 providing immediate and practical ACMV measures for existing building services operations amid pandemics in Singapore's context. Some of the key recommendations include setting outdoor air supply to the maximum to improve ventilation, purging indoor air at least once a day prior to occupancy, and use of high-efficiency filters such as MERV 14 to enhance air cleaning.

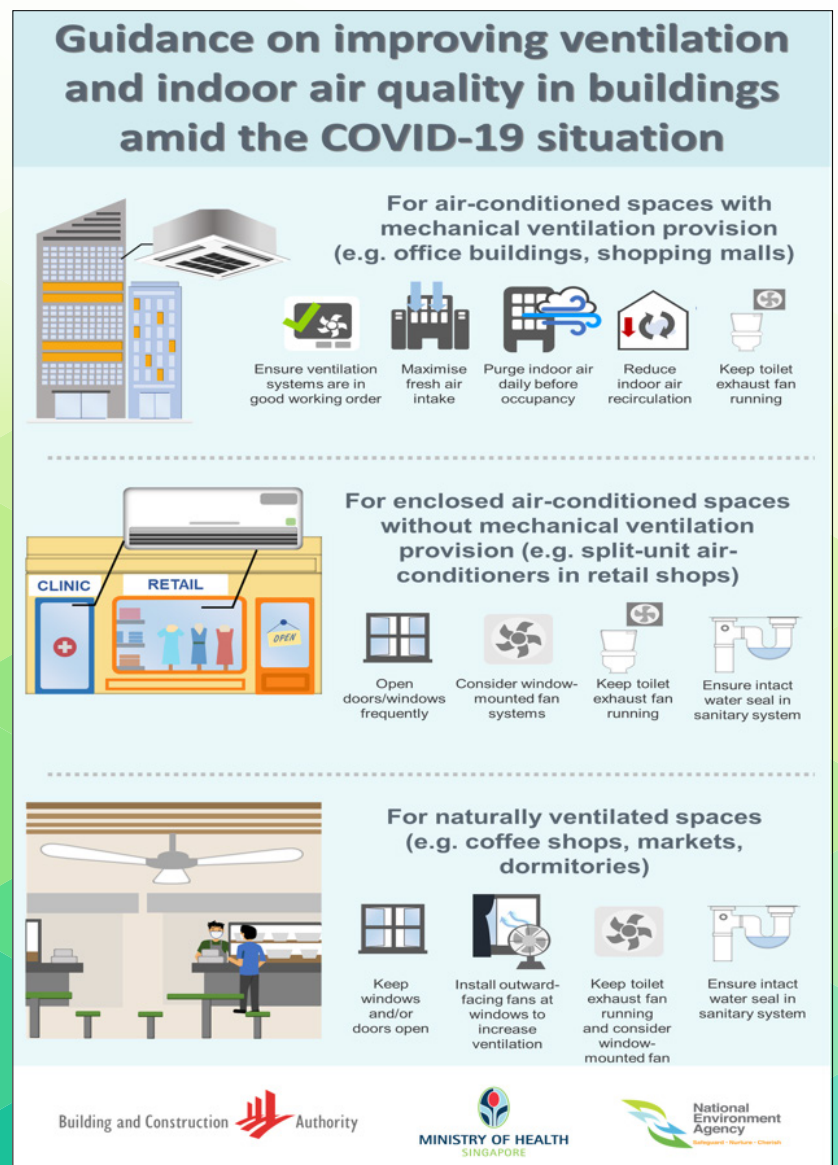
Download the draft document [here](#).

Similarly, the SS554:2016 committee is also reviewing the Code of practice for Indoor Air Quality (IAQ) for air-conditioned buildings. Work is on-going to include information on airborne infectious diseases, to provide guidance on risk assessment parameters and to recommend best practices to maintain and enhance IAQ during a pandemic. The committee is chaired by NEA/Dr. Ng Lee Ching and NUS/Prof. Tham Kok Wai with members from BCA, JTC, MOM, LTA, NUS, IES, ACES, SIFMA and ENGIE SEA.

Interim findings and recommendations from both SS review committees have been weaved into the Joint BCA-NEA-MOH Guidance Notes, which aims to guide to industry stakeholders and FM practitioners for building operations amidst pandemic situation. Two guidance notes were issued on May 2020 and May 2021.

The documents provided a list of precautionary measures and recommendations to increase ventilation and enhance air cleaning in buildings. They also serve as supplementary mitigation measures to enhance the well-being of occupants, but they should in no way be seen as a replacement for the mandatory safe management measures under the COVID-19 (Temporary Measures) (Control Order) Regulations 2020. Building owners and occupants must continue to adopt primary measures such as individual hygiene, safe distancing measures such as wearing masks, regular cleaning of high-touch points, safe entry etc.

A summary of the guidance on improving ventilation and indoor air quality in buildings amid the COVID-19 situation is illustrated in the infographic below.



Click [here](#) to see more details on the guidance notes

Business & Professional Practice Committee Updates

BY ER. ALFRED NEO & ER. CHUCK KHO

The Committee continues to seek a platform to give feedback to public sector Clients' to stipulate fair commercial conditions in contracts that reflect correct accountability of consultancy role as well as measures to addressing fee diving issues.

We continue to engage the Industry through the following activities;

Following the earlier two Webinars on the implication of the COVID-19 in July and November 2020 on Understanding Employers' obligation and duties on Cost Cutting Measures by Legal Counsel, Mr. David Shanmugam, a third Webinar was conducted on 19 January 2021 on understanding the recent Amendments on Construction and Engineering Contract.

We continue to have dialogue with BCA and provide feedback to them on the following;

1. **Fair and Transparency on Consultants' Assessment for BCA – CPAS scheme with the intention to improve on service delivery.**
2. **Discussion with BCA on Skills Framework Accreditation Scheme.**
3. **Awards by GPEs for Consulting Tender that is extremely low and unsustainable. Proposed mechanism to discourage fee diving.**
4. **Challenges faced by Consultant on variation claim arises from additional, abortive and prolongation of contract.**
5. **Suggestion on nominal or acceptable rates for staffs in Consulting Industry.**

Through the CIJC Procurement Discussion Group, ACES continue to provide feedback to BCA on the proposal to discourage unhealthy fee diving from strengthening Procurement Policies to support Industry Transformation for the sustainable business environment.

In November 2020, we also launched the ACES Lifetime Achievement Award and the ACES Young Consulting Engineers Award.

This year Er. Ling Shiang Yun was conferred the ACES Lifetime Achievement Award to honour his significant contribution to ACES and the built industry throughout his career. We also have 10 promising young recipients receiving the award for the ACES Young Consulting Engineers Award. This augurs well for the future of the industry in ensuring a good succession and we look forward to them actively participating in ACES activities as well contributing to our Built Environment.

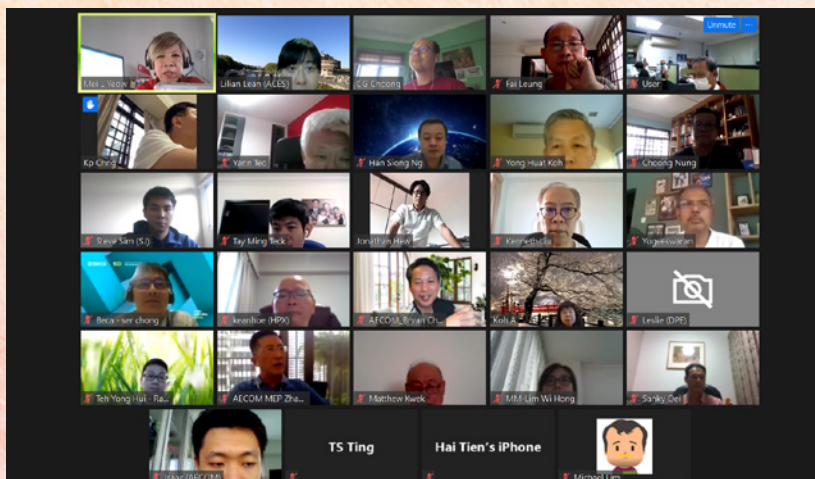
We urge members to continue to feedback to us on any contractual issues that they are facing that are deemed too onerous or unfair with your rationale and proposal so that we can use this Procurement Discussion Group platform to take this up with the relevant parties. Through this platform, we strive to understand the consideration and limitation of GPEs on having such clauses which unduly expose the Consultancy Industry to excessive risk that does not commensurate with their remuneration.

We will continue to work with all stakeholders to work towards a sustainable business environment for the Industry.

BY ER. YEOW MEI LENG

1. M&E Practice Dialogue

The quarterly Dialogue session was held on 31 March 2021. There was a good turnout, about 40 members attended. ACES representatives to the technical committees provided briefings on their committees and their impact on the M&E works. The dialogue provides a good platform for everyone to share and exchange views, at the same time, aligned the practice.



2. Digital Automation

Though the M&E Digital Automation will be largely funded by ESG, part of which will still be funded by ACES. ACES would have to present their business case to the LEP on 20 May 2021. In order to secure approval for funding of \$200k, which will be used initially for seed money to kick start the project, an EGOM was held on 12 May 2021. A total of 30 members turned out for the EOGM and approved the funding.

3. INPQS (intelligent National Productivity and Quality Specification)

iNPQS had been officially launched on 26 November 2020, however the take-up rate is slow due to the current pandemic situation that affects the entire built environment. Also, GPEs were not using the specification when they called for tender. These factors affected the cash flow, and additional funding from the consortium is required to sustain the operations. In the same EOGM, members had also approved a loan of \$200k to iNPQS, to be expended only when other consortium members provided their fair share.

As a result of cash flow, members who had rendered their services, either as DE or DL will be unable to receive their overdue payments, and we request for DEs and DLs understanding on this delay.

At the same time, ACES encourage members to support the platform and to sign up for their subscriptions.

iNPQS Subscription

INPQS is now having a 2-years introductory Subscription Offer (1+1 Offer) for subscriptions paid by 30 September 2021.

For more details on the subscription plans and pricings, please do not hesitate to contact iNPQS office at enquire@inpqs.com.

4. SCDF Fire Code Review meeting held on 22 Mar 2021 attended by Er. Choong Choon Guan

The following were some of the issues discussed:

- HDB was proposing for the alarm noise level for open sky terraces of 65bBA to be waived or exempted. Subsequently, when HDB did their testing, it was found that the level is achievable, therefore there is no exemption of the fire alarm and sprinkler system for open sky terraces.
- EM locks are to be released under either Fire Alarm or Power Failure mode in the building or under any system fault of the Security System. EM lock provision with battery supply is not allowed as this will invalid the Fail-safe mode. This does not apply to tenancy areas, M&E plant rooms, etc.
- BS EN standard equivalent to BS 476 is included in the Fire Code for spray on FR material only.
- Isolation switch is to be provided for EV charging station at not less than 3m away but not more than 15m away. Two-way isolation switch would be acceptable if switch cannot be more than 3m. This to be operated by fire responders.
- SCDF clarified that the required hydrant flowrate can be achieved over multiple hydrants (up to 3 hydrants). This is already in SS 575.
- Definition of free area of NV was debated on. QPs are advised to seek confirmation from the louvre suppliers on the available net free area if unsure. This will also apply to louvres for smoke control system.
- Though FCU cannot be located in FLL, SCDF has no objection for FCU inside FCC based on current Fire Code. ACES to propose edits to Fire Code, if necessary, to clarify.

Visit the INPQS website *here*.



5. SCDF Fire Standing Committee meeting held on 4 May 2021 attended by Er. Choong Choon Guan

The following are some of the issues brought up by members and their outcomes:

- On the need to provide fire-rated enclosure for PUB incoming supply pipe to sprinkler tank, SCDF confirmed that there is no requirement.
- Architect is required to indicate the storage areas in factory exceeding 100m² to be warehouse, in BP submission.
- SCDF requested feedbacks/suggestions on effective methodology to disseminate information to all industry professionals involved in fire safety requirements. It appears that many QPs are probably not members of associations and hence, are not aware of issues/circulars issued by SCDF. *(post meeting note: ACES Secretariat is always very up to date on agencies' circulars and will circulate them in ACES weekly posting.)*
- SCDF sought members' opinion on whether it is appropriate to engage RI in the early stages of the project to review the plans.
- On basement sub-station requirements, ACES will submit their proposal for discussion at the next Fire Code Review Committee.
- SCDF confirmed that a common Authorisation Letter from Employer to QP is sufficient, and there is no need to have one for each service.
- SCDF clarified that safe entry gantries may be installed based on prescriptive approach. Fire safety features such as connection to fire alarm to open the gantries shall be provided.
- It was brought up that C&S Engineers has been submitting plans for FM200, kitchen chemical suppression system, and architectural plans. SCDF appeared keen to review the competency of C&S Engineer for Fire Safety System.

6. IACC Meeting – 18 Feb 2021 attended by Er. Yeow Mei Leng

- SIA raised issues of last-minute audits conducted by agencies & their comments from inspections resulted in delay to TOP.
- BCA also highlighted that one of the delays to TOP was caused by QPs calling for inspection when the site was not ready for TOP, such as unfinished works.
- To align BCA and QPs standard of completion, BCA would be proposing a checklist for building works supervision and would work with TACs on this list.
- SCDF rejected SIA suggestion to carry out audit before NOA as this defeats the purpose of self-regulation.
- According to the authorities, non-compliances usually arise due to QPs wrong interpretation of the codes and called for more intense continual education for QPs.
- Members provided feedback that SCDF had been inspecting every project upon receiving application of TFP and this has resulted in delay in obtaining TFP.

7. PUB/NEA Dialogue attended by Er. Ng Han Siong

NEA Dialogue Session was held on 13 Jan 2021 and PUB Dialogue Session on 4 Feb 2021. ACES had provided feedbacks on the revision in Code of Practice for Environmental Health (COPEH) concerning public toilet ventilation requirement and New Chapter: Aquatic Facilities, in which PUB had taken ACES feedbacks on board.

ACES also provided feedback to PUB on BIM Checkers such as the hurdle of adding a large amount of information to use the E-checker. Furthermore, information from various disciplines is also required. PUB mentioned that they are exploring to allow the checking of individual disciplines (e.g. Architectural, M&E and C&S) without involving too much information from other disciplines.

PUB planned to have a dialogue with ACES tentatively in July 2021. Members are encouraged to provide inputs for upcoming discussion with PUB.

8. New Working Groups (WG) & ACES Representatives Nominated in Q1 and Q2 of 2021

We appreciate members who had answered our calls for representations. The members to the new technical committees are as follows:

- a) Er. Christopher Eng – IES (SDO) WG on Technical Reference Building Inspection and Diagnostic using Infrared Thermography (IRT)
- b) Er. Jaclyn Lee – SCDF WG – Technical Study on the Fire Safety Requirements for Roofed Terrace Garden
- c) Thomas Or – IES (SDO) TR Securing the Cyber-Physical Systems for Buildings
- d) Er. Mok Lip Wee Sandy – SCDF WG: Petroleum and Flammable (P&FM) Committee

9. ACES Representatives in Technical Committees

The following is a short report from ACES representatives for the Q1 and Q2 of 2021:

Standards WG / Committees	ACES Representatives	Updates/Status
TC2 WG1: Emergency Alarm and Communication Systems	Er. Kenneth Liu	The review of SS546 has been completed. For ESG's clearance with international standards institutions on the copy right issue before seeking TC/EESC's approval for public comment
TC1WG10: Solar PV Product and Accessories	Er. Loh Wei Tong	SS IEC 61730 Part 1 & Part 2 EESC had approved the two drafts for publication on 6 November 2020. The drafts were with the ESG publication team for final review.
TC3: Solar PV Systems	Er. Wan Fook Sing	No further updates
SS 556: CP for the Design and Management of Aquatic Facilities	Er. Lim Wi Hong	<ul style="list-style-type: none"> Ventilation: Added guideline for minimum outdoor air provision for air-conditioned indoor aquatic facilities based on ASHRAE & CDC MAHC. Underwater Lighting: New section under development to be included.
WG for Waste Management Recycling Plant handling flammable materials	Er. Steve Sim	First work group meeting held on 18 Jan 2021 Objective: To review additional fire safety requirements for waste management recycling plants. Additional enhancements to Fire Code 2018 chapters 9 and 10.
SS 608 WG meeting	Er. Yeow Mei Leng	<ul style="list-style-type: none"> CityGas had introduced the use of Corrugated Stainless-steel tubing (CSST) for internal service pipes for residential units only to help with PPVC. This was met with objections from several members of the WG. Convenor's concern is fire within the apartment will cause tubing failure and spread of fire. CityGas will review on mitigation measures.
TC1/WG2: Electric Cables (SS299)	Er. Chan Heng Lim	The New SS299 includes the technical considerations: Cable construction; Testing requirement; Safety The changes would have some impact to the industry, mainly the cable manufacturers due to the testing requirement. Proposed the launch/promotion of revised SS 299 likely in Q3 of 2021.
WG on Infrared Thermography (IRT)	Er. Christopher Eng	Introduction meeting; no issue to share

Standards WG / Committees	ACES Representatives	Updates/Status
Working Group for the Review of Fire Safety on BAPVv	Er. Soh Kai Yea	<ul style="list-style-type: none"> BAPV panels located near unprotected openings – requires compliance to minimum distance Fire fighting for PV panels installed above 60m and beyond fire engine reach (considering drencher or manual water monitors). Need to avoid additional plants such as pumps and tanks. Cable entry into buildings (less likely) External cabling serving PV only and to be located in Junction boxes or metal trunking Fire Hazard Tests MST21 to 26 required (local tests house unable to provide all tests) BAPV to be under Scheme 1B of Product Listing Scheme with local CoC Requires annual surveillance for modules, junction boxes and cabling every 2 years
Design for Maintainability (DfM) Taskforce Kick off meeting is scheduled on 29 March 2021	Er. Goh Yong Ping	During the previous term, the enhanced DfM guide was launched and the TF provided guidance on shaping the Maintainable Design Appraisal System (MiDAS) for New Buildings. For this term, the TF will focus on developing the MiDAS for existing buildings framework, enhancing the MiDAS for New Building framework (currently undergoing pilot studies) and enhancing the DfM guides.
Electric Vehicle Charging System Technical Reference (TR) 25 Revision	Er. Galvin Chua	<p>Key Notes</p> <ul style="list-style-type: none"> New Division within LTA to drive EV regulations (National EV Centre) Public Feedback will be done through limited invitation industry dialogues Drafts will be sent to targeted industry stakeholders <p>Key Dates</p> <p>Aug 21 – 1st Draft</p> <p>Oct 21 – Final Draft</p> <p>Dec 21 – TR Published</p>
Workgroup to review Fire Code requirements for Pedestrian Network	Er. Sanky Oei	SCDF is still in the process of working with LTA and URA to verify on the proposed OL to check if it is too stringent. At the same time, SCDF is also studying the Performance Based approach.
TC/WG: Singapore Fire Safety Engineering Guidelines (SFEG)	Bryan Chin	<p>Provide means for FSE to carry out performance-based design to meet the objectives of the Fire Code.</p> <p>Guide the FSEs and Peer Reviewers in preparing the relevant documents for SCDF submission/ approval.</p>
Work group – Review of sprinkler system for PG VIII buildings	Er. Koh Yong Huat	Review meeting has not been held yet.

Digital Delivery Committee Updates

BY ER. MAK SWEE CHIANG

It has been an eventful year and further justifies the need to elevate the industry to another level of digital transformation. The industry has done well thus far with more than 85% of consulting firms adopting BIM in their workflows. BCA is now embarking on to the IDD Roadmap having completed BIM and VDC phases of the digital transformation. In other words, we should be using the information embedded into our BIM models and improving our practice and other stakeholders, either upstream or downstream.

IFM Workgroup

IFM is the development & integration of facilities management in BIM into the design and construction and finally the operation stage. Through 3D modelling complete with digitalized maintenance sequence and animated routine, maintenance strategies can be illustrated via colour coded scheme or QR code. Further to this, this will be enhanced with the developed in-house FM platform with the as-built data input.

Currently invitations are extended to various property managers and FM such as Mapletree, Cisco etc.

ACES scope comprises of the followings:

1. Oversee the administration of the IFM scheme & criteria guidelines;
2. Be part of work group to evaluate **ALL** the guideline for early FM engagement, draft of guideline for asset information management and combining and finalizing COP for industry feedback.

DDM Accreditation Scheme

DDM is to provide a progressive pathway for individuals to build up relevant digital skillsets. This includes a structured framework to assess individual skillsets and to assist employers in deciphering individuals with the right skillset. Lastly, this will ensure firms are managed by qualified digital professionals to deliver. Current status of DDM accreditation scheme has been launched on the portal with the link below:

Click [here](#) to view the DDM accreditation scheme



ACES scope consists of the followings:

1. Oversee the administration of the DDM accreditation scheme.
2. Contribute to the question bank for the assessment test (each to provide 10 MCQ for both Specialist and Lead on one or 2 TSCs so total may be 20 questions each)
3. Be part of question assessment work group to evaluate **ALL** the questions contributed (starting with 10 core TSCs for both Specialist and Lead so total min 200 questions) and to decide if these can be included into the assessment test.
4. Be members of either Assessment or Appeal Panels to execute the respective functions accordingly.

DfMA Workgroup

DfMA Domain Workgroup task to develop the DfMA ecosystem encompassed a wide network of members with complementary expertise to develop of Collaborative production planning tool for DfMA project. Prototype projects are carrying out to established features and workflow process. The team task the following in the workgroup:

1. To develop DfMA Domain requirement to use data and digital solutions to improve DfMA process.
2. To put in place policy that drives adoption of IDD enablers for DfMA.
3. To identify how IDD could facilitate and support DfMA by addressing key gaps/pain points.

ACES scope comprises of the following:

1. Oversee the administration of the pilot software production planning tool evaluation.
2. Be part of work group to evaluate the workflow process of pilot project.
3. Be part of the DfMA ecosystem and feedback on the Designer concern and requirement on production planning.

IDD Enablers Workgroup

In this workgroup, the team sets up the framework to enable the industry digital transformation in a more cohesive and aligned manner. Common data environment (CDE) standards are agreed upon by the various stakeholders. These standards are parameters required in the BIM model so that the other stakeholders downstream can easily use the information to automate their processes. Also discussed actively is establishing measurable aspects of a project to gauge the degree of digital adoption. This led to the "11 Essential Digital Use Cases" which can be used to define level of adoption and help guide practitioners across the project stages.

ACES scope comprises of the following:

1. Review the proposed CDE standards
2. Review the 11 Essential Digital use cases and ensure the relevance to our industry

ACES Digital Initiatives

TRAINING COURSES

- In collaboration with Casugol, ACES facilitated the Python Programming Essentials course. The program was designed to be generic and allows participants to start or improve their digital capability.
- Collaborating with advance users of Rhino/Grasshopper, another digital course is planned to be rolled out in June. In this course, engineers will learn how to transform engineering design process into scripts which are parametric in nature. This allows solutions or options to be efficiently generated.

SEMINARS

- IDD seminar 2021 is planned for August 2021. This is the second run after the successful IDD seminar in May 2020. In collaboration with BCA, the seminar aspires to help members understand the benefits of IDD and to help them jump onto the bandwagon with real examples and tips from practitioners.

AUTOMATED DESIGN FOR MEP

- This large scaled initiative gathers like-minded consultants to collectively develop plug-ins into Revit to link up the information from design calculations to Revit. The exercise attempts to increase productivity, standardize work and improve quality.
- To ensure acceptable, like-minded consultants would be encouraged to be part of the team to standardize the design process. Such contributions would be compensated from the grant application.
- Software Vendor would also be engaged to code the process to read off Revit architectural requirements for design calculation automation and then transpose the calculated provision back as a model input to the Revit.
- Submission to ESG for grant approval of \$3.6 mil has been forwarded on 24 May 21 and we are looking forward to approval by Sep 21.
- ACES will hold the rights to this platform and intends to charge minimal subscriptions for all like-minded consultants who has assisted in the development.

ACES Past and Upcoming Events

ACES Webinar: New COVID-19 (Temporary Measures) Act 2020, Understanding the Recent Amendments on Construction and Engineering Contracts – 19 January 2021

We are glad to have Mr. David Shanmugam who is an Advocate and Solicitor of the Supreme Court of Singapore to share with our members for a third webinar, this time with the topic on “New COVID-19 (Temporary Measures) Act 2020, understanding the recent amendments on construction and engineering Contracts”.

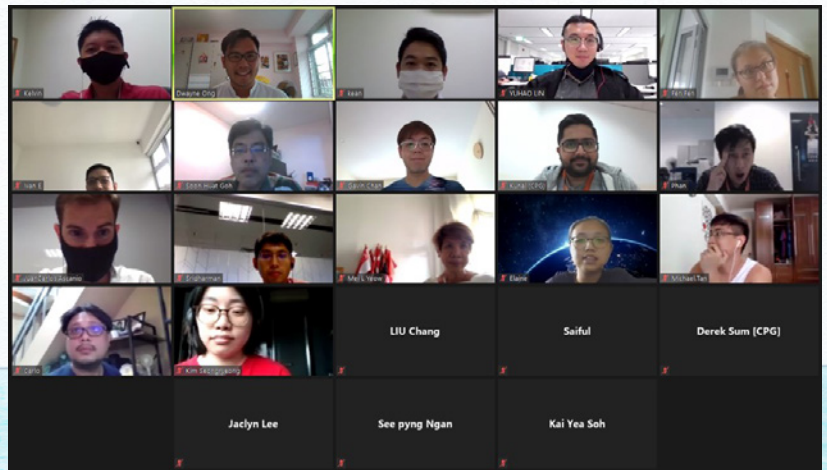
The one-hour sharing covered what reliefs contactors look forward to in the light of the Act; understanding the legal obligations for supply and engineering contracts, including recent amendments to Act; examining the types of reliefs that are granted during this interim period, and how engineers can mitigate them; as well as handling and resolving disputes from an engineer's perspective.

ACES-CASUGOL Python Programming Essentials (PPE) – 27 to 29 January 2021

The course was designed for anyone interested in acquiring the essential knowledge and skills required to begin Python Programming to complement other digital tools used to automate our daily engineering tasks. A total of 20 participants had attended this three-day course conducted using Zoom platform on 27 to 29 January 2021.

The trainer, Dwayne Ong is the Founder and Chief Executive Officer (CEO) of CASUGOL. He is an Educator, Organizational Consultant, Corporate Trainer, with extensive experience in Artificial Intelligence, Robotics, Data Analytics, Digital Transformation, Leadership and Management, Business Development, Entrepreneurship and Professional Career Development.

ACES will continue to conduct this course if there is a demand from members.



ACES DfS Workshop: Introduction to Design for Safety (DfS) – 25 May 2021

A total of 38 participants attended the ACES Introduction to Design for Safety (DfS) course delivered by our two experience trainers namely Er. Koh Boon Liang and Mr. Jason Oh on 25 May 2021 via Zoom platform.

This DfS introductory course aims to share the WSH guidelines (DfS) published by WSHC in August 2016. Upon attending this introductory course, participants will know to work together with stakeholders such as Developers, DfS Professionals, Designers and Contractors/Subcontractors to address risks at source and plan for safe work in regard to a building or structure as a workplace. By working together, they can identify and eliminate or reduce, as far as reasonably practicable, all foreseeable design risk(s) to any person's safety or health.

The topics covered included the following:

1. Application of WSH (Design for Safety) Regulations 2015
2. DfS Register
3. Roles and responsibilities of Developers, Designers, Contractors, Registered Proprietors and Subsidiary Management Corporations
4. The GUIDE Process GUIDE-1: Concept Design Review GUIDE-2: Detailed Design Review GUIDE-3: Pre-construction Review
5. Case Studies

ACES-TROX Training Course 'Air-Side Fundamentals' in ACMV Engineering – 20 May 2021 to 15 July 2021

These **online training programs** are designed for practising engineers in the ACMV industry who need to either extend or update their knowledge on a particular subject(s) according to with current developments in the industry.

There are 9 lessons conducted weekly from 20 May to 15 July 2021, the presentation for each lesson is 1 hour and 30 minutes including tests and assignments. A total of 29 members has joined the training which will end by 15 July.

Lesson 1 – Thermal Comfort

Terminologies for thermal comfort; Air movement; Indoor Air Quality (IAQ); Outdoor air requirements; Introduction to mechanical ventilation; Importance of good ventilation.

Lesson 2 – Air Distribution

Terminologies for air distribution; Importance of good air distribution; Type of air terminal devices; Factors affecting air distribution; Air Distribution Performance Index (ADPI); Commissioning of ACMV systems; Air flow measurement at site.

Lesson 3 – Duct Design

Ductwork construction standards; Duct sizing methods; Ductwork installation; Final duct connections; Ductwork insulation; Access and measuring stations.

Lesson 4 – Fans

Types of fan; Fan Laws; Fan curve and system characteristic curve; Fan selection; Fans in series and parallel arrangement; Air flow and fan speed control; Fan installation.

Lesson 5 – Psychometrics

Properties of air; Application of psychometric chart; Understanding psychometric processes; Work examples.

Lesson 6 – Building Science

External building factors; Building envelope; Building structure; Building layout and Building design drawings.

Lesson 7 – Acoustics for ACMV systems

Terminologies for acoustics; A-weighting; Noise Criteria (NC) and Noise Rating (NR); Combination of noise levels; Total sound field; Noise reduction with distance; Noise measurement at site.

Lesson 8 – Fire safety in buildings

Triangle of fire; Stages of fire development; Fire safety strategies; Means of escape; Smoke control; Fire protection systems.

Lesson 9 – Commissioning of ACMV systems

Objectives for commissioning; Setting to work; Measurement of air flow rates; regulation for air flow; Commissioning documentation.

The trainer, Mr. Kenneth Gong is a qualified Chartered Building Services Engineer with more than 30 years working experience in the building services industry. He is currently the Technical Consultant of TROX Malaysia Sdn. Bhd.

ACES Upcoming Events

- **ACES-TROX Training: Air Distribution Technology**
– 23 July 2021
- **ACES Rhino-Grasshopper Essentials –**
The Must-Learn Platform to Kickstart Your Digital Journey
– 17 & 18 August 2021
- **ACES Golden Jubilee 50th Anniversary Gala Dinner**
– 19 April 2022 (Tuesday)

subjected to COVID-19 restrictions and permitted activities.



ACES-YPC Updates

1. BCA iBuildSG BE Formation Programme – Representative as panelist for dialogue sessions

ACES-YPC Committee members have been actively engaging graduates and Young Professionals through our participation in the various runs of the BCA iBuildSG Built Environment Formation Programme (BEFP).

The BEFP is a 4-day virtual industry preparatory programme at the start of student internship, comprising of training workshops, industry sharing sessions and simulation activities. The programme helps interns to understand the Construction Industry Transformation Map (ITM) and to be job-ready through induction to the BE sector.

- **13 Jan 2021: ACES-YPC Speaker**
– Lim Mee Mee
- **17 Mar 2021: ACES-YPC Speaker**
– Lee Wei Wen
- **9 Jun 2021: ACES-YPC Speaker**
– Chew Aik Loong
- **8 Sep 2021: ACES-YPC Speaker**
– Lam Siew Ping

3. LOOK OUT FOR OUR NEXT EVENT! – Joint Virtual Escape Room by ACES YPC & BATUs

ACES-YPC and BATU (Building Construction and Timber Industries Employees' Union) are organizing a joint Virtual Escape activity tentatively at the end of July 2021. The virtual escape room is an interactive online game built-in with clues and tools, where participants from ACES-YPC & BATU will work together to solve puzzles and uncover the mystery. The activity targets to promote connections and friendship among ACES-YPC and BATU members. Form a team and we hope to see your participation!!!



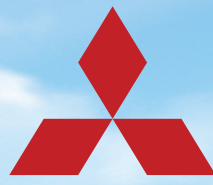
2. ACES-YPC Blood Donation Drive

ACES-YPC recognises the need to give back to our community and as part of a continuous effort, the team has organised a yearlong blood donation drive to encourage engineers to give the "Gift of Life". So far, ACES-YPC has planned with organisations such as Aurecon and CPG in small groups to go for Blood Donation during March and April 2021. We strongly encourage all members to participate in this meaningful event. Do also keep a lookout for our emails and follow our Instagram account (@aces_ypc) for more information.



Members can make the blood donation at their timing and use **ACES code P1005** when making an appointment with the Bloodbank. Through the organisation code (P1005), we will track the participation rate from ACES.





MITSUBISHI ELECTRIC

Changes for the Better

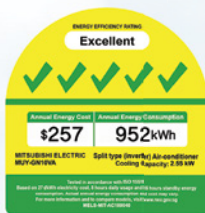


EXCELLENT
Energy Savings

QUIETEST
19dB

EASY
To Clean!
Easily accessible
Inner vent

Mitsubishi Electric
star MEX
Air-Conditioner



MUY-GN10VA



MXY-2G20VA2



MXY-3G28VA2



MXY-4G33VA2



MXY-4G38VA2



MXY-5G48VA2



MXY-4C100VA



MXY-5C125VA



MXY-6C140VA

WIDE RANGE OF EXCELLENT ENERGY SAVINGS 5-GREEN TICKS AIR-CONDITIONERS IN SINGAPORE

