# Fire Safety Engineers (FSE) workshop

Date: 5 July 2023 (Wednesday)

Time: 10am to 12pm

Mode/Venue: Physical Workshop (HQ SCDF City Campus Classroom, level 3)

S/N	Agenda for discussion	Summary of discussion
01	Update on	<u>Presentation</u>
	<ol> <li>PB Regulatory System (Update)</li> </ol>	See Annex A for the presentation slides.
	<ul> <li>FSE Registration</li> </ul>	
	<ul> <li>Number of PB cases</li> </ul>	The workshop was attended in person by 44 participants. Ms Eunice Lim started by sharing
	2. CPE Program (update)	with the FSEs on the number of registered FSEs and the number of performance-based (PB)
	3. Admin Requirements (update)	and fire engineering waiver submissions.
		Ms Eunice reminded FSEs on the Continuing Professional Education (CPE) requirements and that the CPE hours for online courses reinstatement (1 CPE hour awarded for every 2 hours of online training, max 5 CPE hours per cycle) from September 2023. FSEs suggested to include a section for physical and online CPE hours for email circulation for approved CPE program.
		FSEs enquired about the ways to prove physical attendance for overseas courses and conferences. SCDF replied that besides the certificate of attendance, the signed conference register from the event organizer if available would suffice. The plane ticket as evidence could be considered.
		Ms Eunice also asked the FSEs to check their particulars on Fire Safety Engineer Register on SCDF website and to update SCDF if there are any changes.
		CORENET 2.0 & NetTrust token
		Mr Nicholas provided an update about the roll out of CORENET 2.0 on 22 Aug 2022 which
		allows all FSEs to submit FEDBs and sign off FSER/PR reports via CORENET, regardless of

			whether the FSE is a QP. SCDF will generally also no longer accept submissions via email or at SCDF front counter
			Eligibility as Peer Reviewer (PR)  Mr Nicholas informed that the Fire Safety Regulations for Peer Reviewer eligibility will be amended soon. To be eligible as a Peer Reviewer, the FSE must have at least 10 years of experience as an FSE.
			Mr Nicholas reminded all FSEs with less than 10 years' experience that if they accept peer reviewer appointments, they risk disqualification once the Fire Safety Regulations are updated.
			<u>Submission of PB documents</u> Mr Nicholas suggested FSEs to inform the PB team via email (with SCDF reference number) after submitting their FEDBs or Fire Engineering Reports through CORENET so that the PB team can keep a look out and review the fire engineering reports once they are transmitted.
02	Fire Engineering Technical Re (update)	quirements	Presentation See Annex A for the presentation slides.
			Mr Nicholas reminded FSEs of the following:
			<ul> <li>a) Assessment method for deviations to exit staircase ventilation.</li> <li>b) Issues that cannot be address using Fire Safety Engineering.</li> <li>c) Importance of clearly articulating the waiver description as the description will appear in the wavier decision letter.</li> </ul>
			Visibility Factor for Computational Fluid Dynamics  Mr Khai shared that currently, FSEs have been adopting different visibility factors in their CFD simulations. SCDF will be standardizing the visibility factor to the value of 3. SCDF explained that the practice to use visibility factor of 3 is to ensure sufficient level of life safety.

Regarding the effective date of implementation, SCDF has clarified that it is with immediate effect. For on-going cases, SCDF will assess on a case-by-case basis. The outcome could be that design team may need to provide enhancement(s) to the fire safety engineering design.

## Soot Yield for Industrial Building Warehouse

Mr Khai informed FSEs that the default soot yield for industrial buildings and warehouses shall be 0.1 and that FSE may propose a different value only if the type of fuel load in the building is of specifically known usage during operation and doesn't change over its occupancy period.

FSE Ruth enquired if the soot yield requirements are applicable for bus depots, train depots and carparks. SCDF replied that FSE may propose and justify a different soot yield value if the building is of a specific usage.

Regarding the effective date of implementation. SCDF clarified that it is with immediate effect. For on-going cases, SCDF will assess on case-by-case basis. The outcome could be that design team may need to provide enhancement to fire safety engineering design. The rationale of this requirement is due to the difficulty in enforcing and monitoring the type of contents that can be present in industrial building and warehouses.

## Tunnel Ventilation System (TVS) Design

Mr Khai shared with FSEs on the suitable type of TVS for different types of road/service tunnel.

FSEs understood the concept behind the various designs. FSEs asked if PB is still allowed for road/service tunnel design. SCDF clarified that a fire engineering assessment can still be undertaken, provided that the proposed TVS design follows the guidelines shared.

FSE Peter asked how to define whether a service tunnel is bi or unidirectional. SCDF clarified that a service tunnel shall be deemed bidirectional if the maintenance vehicle access and foot path access is bidirectional.

FSEs asked if NFPA 502 is applicable to service tunnels. SCDF clarified that NFPA 502 is applicable for service tunnels as there is no other design standard specifically for service tunnels.

SCDF will not accept TVS design which does not follow this design principle as per NFPA 502.

### Review of Setback Distance

Mr Nicholas presented on the review of setback distance. The FSEs generally have no comments/concerns except for the assumption of sprinkler spacing which is 3m by 3m. SCDF explained that there are other input parameters that are conservative, and the purpose is to obtain an onerous fire size to determine the setback required. The results of the study would be in the form of a table which will eventually be part of the fire code. QPs can then refer to the table to determine the setback required under a prescriptive approach. SCDF clarified that FSEs can still perform PB analysis if their specific layout is not reflective of the input parameters considered in the study. This can be submitted through a PB-waiver application.

### Report Standardization: Sensitivity Case Table

Mr Khai shared with FSEs a standard way of documenting the sensitivity case table. FSEs are to tabulate the sensitivity case table according to SFEG 2015 section 2.2 to provide explanation how certain sensitivity study tests are chosen/ considered by the FSE for each fire location.

FSE Bryan asked if there is any change to how wind impact is assessed. He asked if SCDF has a preferred method (blocking off the longest side of the opening or simulating wind blowing from the most onerous direction). SCDF clarified that FSEs are to propose the most onerous method for the specific building based on their assessment. FSEs can consider modelling both methods if unsure.

The sensitivity case table is generally not applicable to residential fire engineering assessment.

Report Standardization: Natural Ventilation Opening Sizing

		Mr Khai reminded FSEs to document clearly the dimension of the openings used for means of natural ventilation and make-up air in FER and O&M manual. FSEs can also help remind QP to indicate on BP drawings that such openings are used for PB natural ventilation.
		FSEs generally agree with the proposal. FSE Matthew was concerned that FSE would be held liable if there are changes to the BP drawings (pre TFP/FSC) which FSE was not informed or post-TOP changes (e.g., vents being blocked by trees). SCDF clarified that following the requirements will safeguard the FSEs as it will provide proper documentation to show the basis and requirements of their study. FSEs need to emphasize in their briefing to owners and in their manuals that such openings need to be maintained at all times.
03	AOB	Presentation See Annex A for the presentation slides.
04	Q&A Session	FSE Shyam shared that he had experienced an issue with submission over CORENET when the QP has 2 roles (e.g. Mechanical PE & FSE). He could only register for 1 role and not for 2 roles simultaneously. Deregistration as a M&E PE will be required before being able to register as FSE to proceed with FEDB submission. SCDF has advised that they will get the IT to look into this.
		FSEs who attended the workshop at HQ SCDF would be awarded 2 CPE hours.

Drafted by: Ms Eunice Lim

Amended by: Mr Nicholas Lee (Principal Consultant/PBP, FSD) and Mr Looi Khai Chern (Consultant/PBP, FSD)

Vetted by: Mr Heng Chai Liang (Senior Assistant Director, FSD)

Cleared by: SAC Lian Wee Teck (Senior Director, FSD)

Date: 14 July 2023