

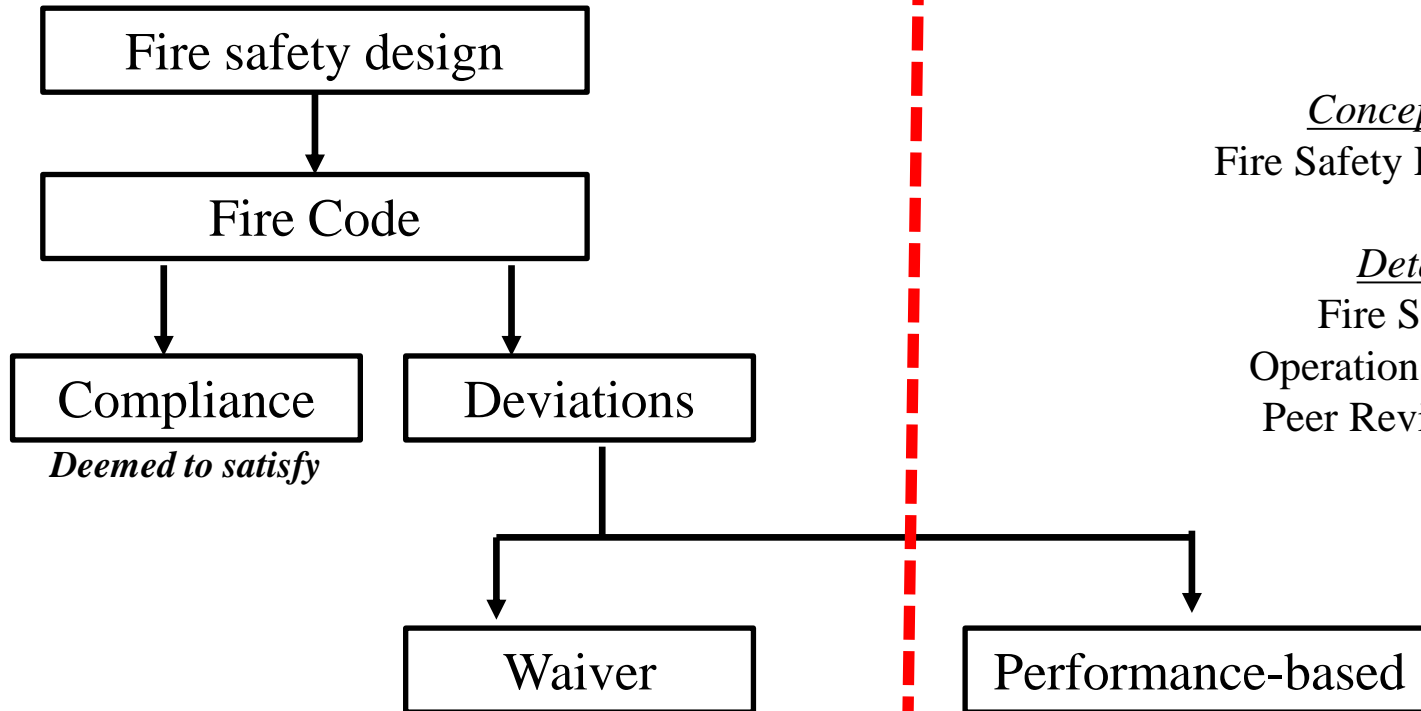
Singapore Fire Safety Engineering Guidelines (SFEG)

**Fire Safety & Shelter Department
Singapore Civil Defence Force**



Singapore Fire Safety Engineering Guidelines

Background



*Performance-based approach
to fire safety design*

Conceptual Design Stage (FSE)
Fire Safety Engineering Design Brief

Detailed Design Stage (FSE)
Fire Safety Engineering Report
Operations & Maintenance Manual
Peer Reviewer Report (Indpt FSE)

Fire Safety Certificate
R.I. (FSE)

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Conceptual Design Stage

Fire Safety Engineering Design Brief

- Deviations and fire safety provisions
- Methodology
- Design fires
- Input parameters
- Acceptance criteria
- Software
- Trial design

Detailed Design Stage

Fire Safety Engineering Report

- Results and conclusions

Ops & Maint^{ce} Manual

- Do's and don't's

Peer Reviewer Report

- Indpt checker's rpt

Fire Safety Certificate

R.I. (FSE)

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Need for SFEG

- 2004 – Adopted international guidelines¹.
 - Critical design assumptions:
 - Acceptance criteria
 - Design fire size
 - Safety factors
 - Sensitivity analysis to perform
 - High volume of consultation

¹- SFPE Engineering Guide to Performance-Based Fire Protection
- BS7974: Application of Fire Safety Engineering principles to the Design of Buildings
- ISO 13387: Application of the Fire Performance Concepts to Design Objectives
- International Fire Engineering Guidelines

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Opportune time for Guidelines to reflect local PB landscape.

PB Guidelines Committee formed on 16th May 2013.

- Invited FSEs to join.

Part	Focus
1	Fundamentals and general requirements.
2	Methods of assessing common alternative solutions.

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SFEG

Part 1 – Fundamentals and general requirements

- Fire scenarios
- Available safe egress time
- Acceptance criteria
- Required safe egress time

- Marked-up drawings – Show essential fire safety provisions
- Ops and Maint^{ce} Manual – For building owner/operator
- Peer Reviewer – Roles and resp
- Registered Inspector – Roles and resp

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SFEG

Part 2 - Method of assessment for common alternative solutions.

1. Smoke reservoir
2. Travel distance
3. Internal discharge of exit stairs
4. Set back distances
5. Fire resistance rating
6. Use of combustible materials

**New items would be added during the next SFEG review when they become common items address by PB.*

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Benefits of the SFEG

- Clarity and Transparency.
 - Design fundamentals known to all.
 - Allows design team to crystallize concept design earlier.
- Shortened FEDB submission process.
 - Less consultation
 - PB Plan officers can approve SFEG-compliant FEDBs. (Internal arrangement)

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Shortened FEDB process

PB Plan officers can approve FEDBs that adhere to design parameters in the SFEG.

- Time saving for SCDF – 4 man-hours per project.
- For FSE, waiting time for approval is 2 weeks shorter.

Full audit/discussion at the detailed design stage.

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Publication of the SFEG

- Launched on 1st April 2015
- Downloadable free (similar to Fire Code) from SCDF website.

http://www.scdf.gov.sg/content/scdf_internet/en/building-professionals/fire-safety-plan-approval/plan-approval/performance-based-approach/fire-safety-engineering-fse.html



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Thank you.