



An Effective Regulator Assuring Engineering Excellence

Discipline Scope-specific Training Guide for registration as a Fire Protection System Practitioner

R-05-FPSP-SC

REVISION No. 0: 13 May 2026

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DEFINITIONS

Term	Definition
Alternative route	See document R-01-POL-SC
Benchmark route	See document R-01-POL-SC
Competency area	Performance area in which all outcomes can be demonstrated at the prescribed level in a specific technology
Engineering science	Body of knowledge based on natural sciences using mathematical formulation to extend knowledge and develop models
Engineering problem	A problematic situation amenable to analysis and solution using engineering sciences and methods
Ill-posed problem	Problems for which requirements are not fully defined or may be defined erroneously
Integrated performance	An overall satisfactory outcome requiring several outcomes to be satisfactorily attained
Level descriptor	A measure of performance demands at which outcomes must be demonstrated
Over-determined problem	Requirements defined in excessive detail, making the solution impossible to attain in all aspects
Outcome	A statement of performance that a person must demonstrate to be judged competent
Practice area	A recognised area of knowledge and expertise developed through education, training and experience
Range statement	Required extent of or limitations on expected performance
Specified category	Registration category with specific engineering competencies at NQF Level 5, related to public safety
Sustainable development	Development meeting present needs without compromising future generations

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ABBREVIATIONS

AILT	Assessment in Lieu of Testing (AILT) where applicable
CPD	Continuing Professional Development
CRC	Central Registration Committee
ECSA	Engineering Council of South Africa
FPSP	Fire Protection System Practitioner
FPSRD	Fire Protection System Rational Designer
GCC	Government Certificate of Competency
IPD	Initial Professional Development
NFPA	National Fire Protection Association
Pr Cert Eng	Professional Certificated Engineer
Pr Eng	Professional Engineer
Pr Tech Eng	Professional Engineering Technologist
Pr Techni Eng	Professional Engineering Technician
SANS	South African National Standard
SC	Specified Category
VA	Voluntary Association

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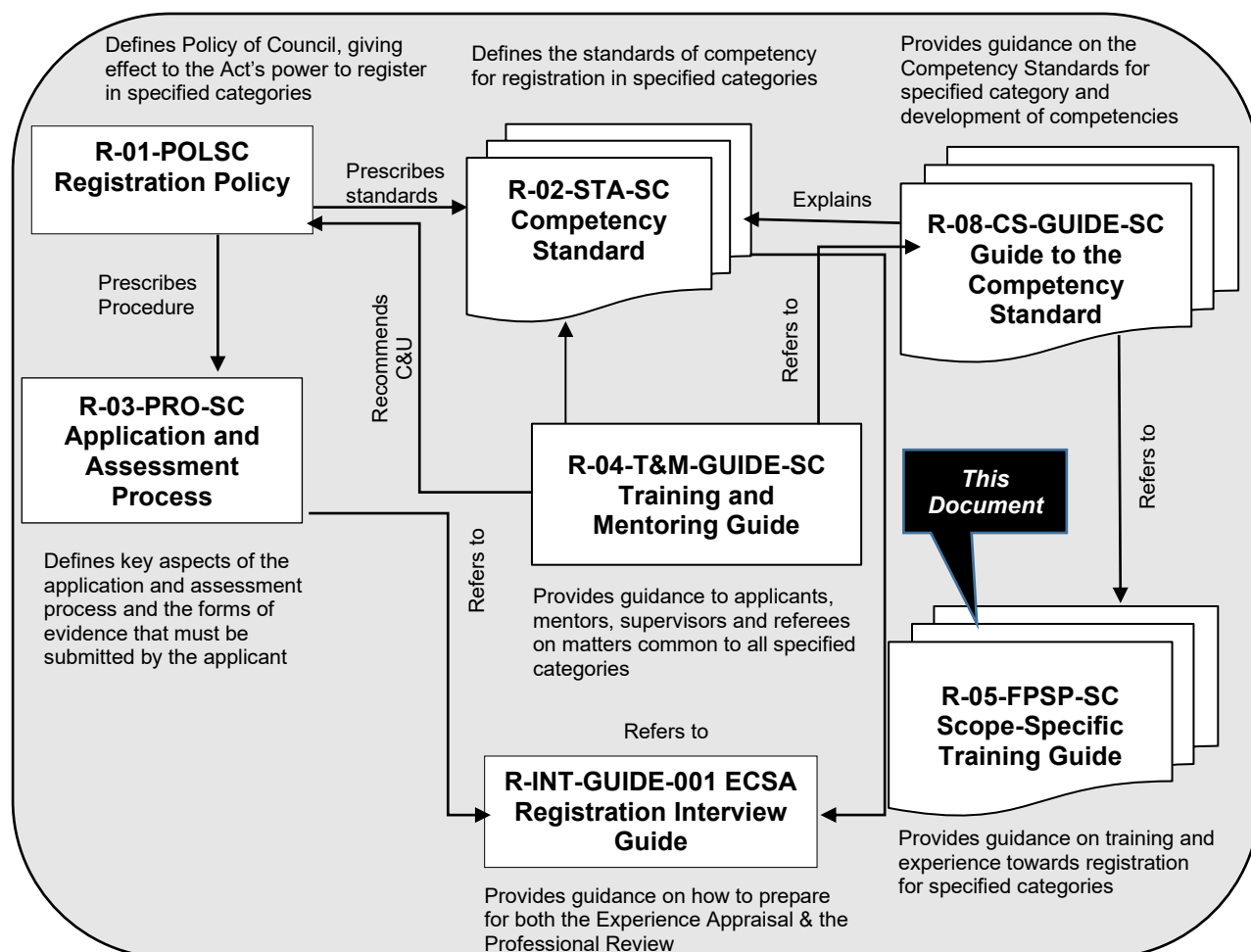
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1. PURPOSE AND SCOPE

All persons applying for registration in the Specified Category of Fire Protection System Practitioner (FPSP) must demonstrate the competencies specified in document **R-02-STA-SC** at the prescribed level, irrespective of the type of fire protection system applied.

This document supplements **three companion documents**: the *Training and Mentoring Guide* (**R-04-T&M-GUIDE-SC**), the *Guide to the Competency Standards* (**R-08-CS-GUIDE-SC**) and the *Process for Training Engineering Candidates/Applicants* (**R-11-PRO-SC**). All are subordinate to the *Policy on Registration* (**R-01-POL-SC**), the *Competency Standard* (**R-02-STA-SC**) and the *Application Process Definition* (**R-03-PRO-SC**).

Figure 1 below defines the documents comprising the Engineering Council of South Africa (ECSA) system for registration in professional categories. The illustration also locates the current document.



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Figure 1: ECSA system for registration in professional categories

1.1 Intended audience

This document is directed at:

- **applicants** seeking registration as an FPSP and their supervisors and mentors
- **members of the engineering team** listed in Table 1 below, who accept full responsibility for their area of work and adhere to the ECSA Code of Conduct.

Table 1 below summarises the categories of registered practitioners that form the engineering team, their authority, underpinning qualifications and areas of responsibility.

Table 1: Categories of registered practitioners comprising the engineering team

Category	Authority	Underpinning	Area of Responsibility
Professional Engineer (Pr Eng)	Independent practice	4-year accredited engineering degree	Complex engineering problems and activities
Professional Engineering Technologist (Pr Tech Eng)	Independent practice	3-year accredited technology degree	Broadly defined engineering problems and activities
Professional Certificated Engineer (Pr Cert Eng)	Independent practice	3-year accredited diploma	Broadly defined engineering problems and activities
Professional Engineering Technician (Pr Techni Eng) (FPSP)	Independent practice	2-/3-year accredited diploma or N6 + GCC	Well-defined engineering problems and activities
Specified Category Practitioner (FPSP)	Restricted independent practice	NQF Level 5 plus structured training	Specifically defined engineering problems within registered fire protection system

2. FIRE PROTECTION SYSTEMS AND PRACTITIONER CATEGORIES

Fire Protection System Practitioners (FPSPs) operate at subsystem level within the broader fire engineering framework. The following sections describe the hierarchy of fire protection design, the four FPSP practitioner categories, and their relationship to the overarching Fire Protection System Rational Designer (FPSRD).

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2.1 Hierarchy of fire protection design

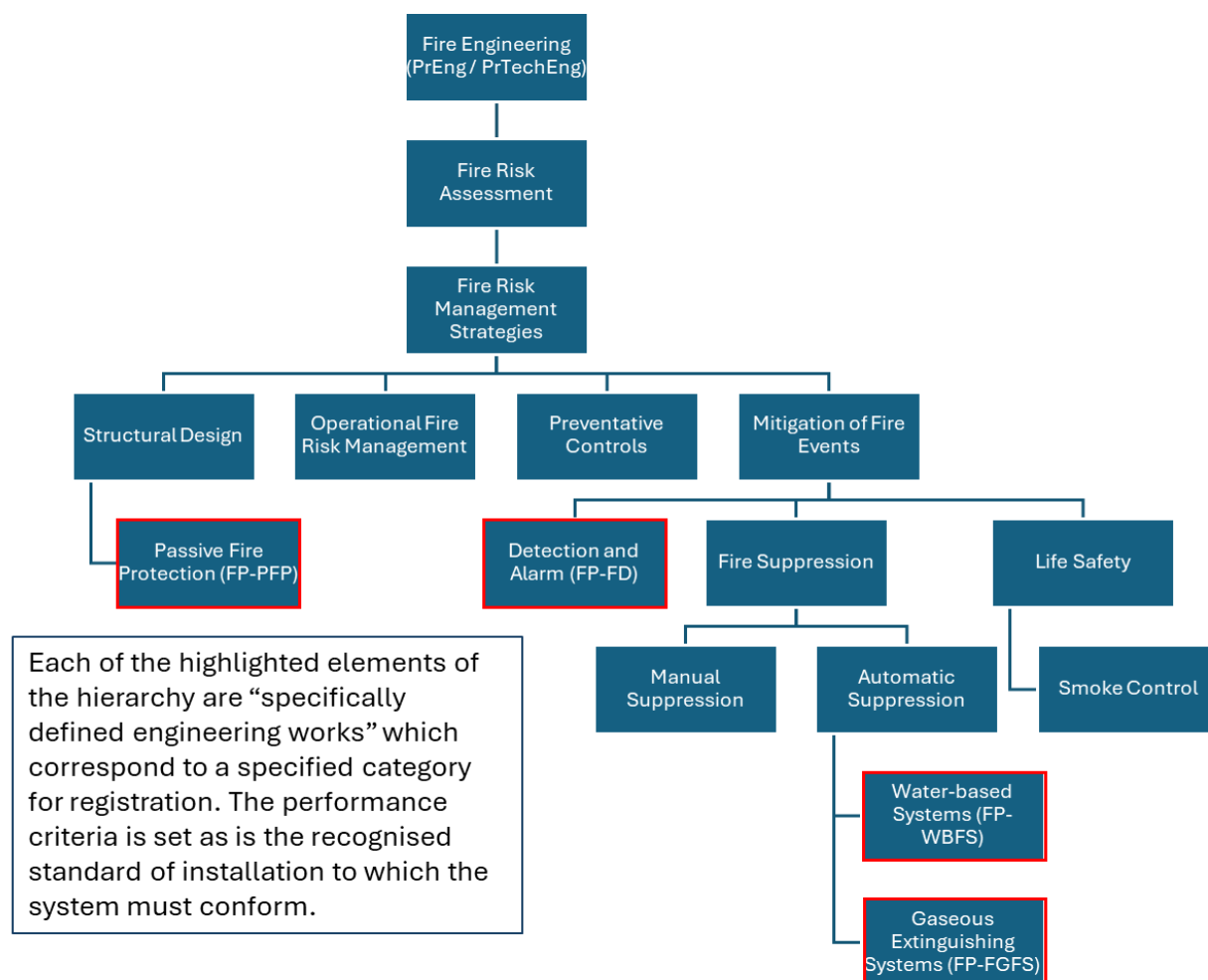


Figure 2: Hierarchy of Defined Engineering work from Fire Engineer to FPSPs

The Fire Engineer (Pr Eng/Pr Tech Eng with specialisation in fire – either by postgraduate qualification or “grandfathered” through registration as a FPSRD) is the competent person responsible for holistic fire engineering design and acts as the system integrator across all fire safety disciplines.

The Fire Engineer:

- conducts or oversees fire safety risk assessments
- develops the fire engineering strategy and performance objectives
- integrates passive, active, smoke control, pressurisation and evacuation systems

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- produces, reviews and signs off rational fire system designs
- interfaces with Authorities Having Jurisdiction (AHJs), insurers and stakeholders

Fire Protection System Practitioners (FPSPs) operate under the coordination and overall responsibility of the FPSRD where a fire engineering strategy or rational design is required. FPSPs may not undertake whole-building fire engineering design, performance-based fire analysis or issue rational fire engineering sign-off, unless separately registered.

2.2 Fire engineering scopes

Table 2 provides an overview of fire engineering scopes, showing which fall under the FPSRD and which are performed by FPSPs.

Table 2: Fire engineering scopes and responsible parties.

Scope	Responsible	Key Activities
Fire Safety Risk Assessment	Fire Engineer (PrEng/PrTechEng only)	Hazard identification; occupancy analysis; likelihood/ consequence assessment; risk mitigation; input to system selection
Evacuation & Life Safety	Fire Engineer (PrEng/PrTechEng only)	RSET vs ASET analysis; evacuation modelling; tenability assessment; egress evaluation
Smoke Control	Fire Engineer (PrEng/PrTechEng only)	Mechanical/natural smoke extraction design; zone models and CFD; integration with detection and suppression
Pressurisation Systems	Fire Engineer (PrEng/PrTechEng only)	Staircase, lift shaft and lobby pressurisation; pressure differential design per EN 12101-6; commissioning criteria
Passive Fire Protection	FP-PFP, FP-FD, Fire Engineer (PrEng/PrTechEng only).	Fire resistance; compartmentation; fire stopping; fire doors and dampers; fire-rated glazing; structural fire protection
Water-Based Fire Suppression	FP-WBFS, Fire Engineer (PrEng/PrTechEng only)	Sprinkler, deluge, water spray and mist systems; hydraulic calculations; water supply assessment; commissioning
Fire Detection & Alarm	FP-FD, Fire Engineer (PrEng/PrTechEng only)	Detection/alarm design; device selection; cause-and-effect matrices; system interfaces; power supply resilience
Gaseous Suppression	FP-FGFS, Fire Engineer (PrEng/PrTechEng only)	Clean agent, inert gas and CO ₂ systems; enclosure integrity; discharge calculations; safety and pressure relief

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2.3 FPSP practitioner categories and system standards

Table 3 lists the four FPSP registration categories with applicable systems and primary standards. Where SANS standards are legally invoked under the National Building Regulations, they take precedence. International standards may be applied where adopted in the project design basis.

Table 3: FPSP categories and applicable standards (non-exhaustive)

No.	FPSP category	System types	Primary standards
1	Fire Detection (FP-FD)	Fire detection and alarm systems	SANS 10139, NFPA 72, BS/EN 54
2	Water-based Fire Suppression (FP-WBFS)	Automatic sprinklers, deluge, water spray, water mist	SANS 10287, NFPA 13/15/16/750, SANS 10400-W
3	Fixed Gaseous Suppression (FP-FGFS)	Clean agent, inert gas, CO ₂ , aerosol systems	NFPA 2001/12, SANS 14520, SANS 246, SANS 306
4	Passive Fire Protection (FP-PFP)	Fire resistance, compartmentation, fire stopping, fire doors, fire-rated glazing	SANS 10400-T/W, BS 476 (20–24), EN 13501, ASFP

2.4 Competent person requirements

The National Building Regulations define a competent person as one qualified by education, training, experience and contextual knowledge to decide on the performance of a building in relation to a functional regulation.

SANS 10400 further specifies Form 2 (PrEng / PrTechEng) and Form 3 (FPSP) appointments.

A competent person is required in terms of SANS 10400 for design, installation and maintenance of fire-fighting systems, fire extinguishers, liquid fuel installations, pressurised emergency routes, detection and alarm systems, and passive fire protection systems.

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3. DEVELOPING COMPETENCY

Applicants must demonstrate insight and ability to interface various engineering aspects through verifiable performance in providing engineered solutions to specifically defined problems.

3.1 What is a specifically defined engineering problem?

ECSA defines a ***specifically defined engineering problem*** as one composed of inter-related conditions, requiring underpinning methods, procedures and techniques with judgement to create a solution within specifically defined conditions.

The design or development process requires FPSPs to apply their minds carefully to develop solutions to specifically defined problems. This involves analysis of systems, assembly of mechanical and electrical components and integration of engineering elements through the application of basic and engineering sciences. Applicants must incorporate calculations with clearly defined inputs and detailed interpretation of results, and demonstrate how calculated results were used to solve the problem at hand.

3.2 Degree of Responsibility scale

Table 4 presents the five levels of the Degree of Responsibility scale from **R-04-T&M-GUIDE-SC**. Applicants must progress through these levels, reaching Level E by the end of training.

Table 4: Degree of Responsibility scale (from R-04-T&M-GUIDE-SC)

A: Being Exposed	B: Assisting	C: Participating	D: Contributing	E: Performing
Undergoes induction, observes processes and work of competent practitioners	Performs specific processes under close supervision	Performs specific processes as directed with limited supervision	Performs specific work with detailed approval of outputs	Works without supervision, recommends outputs, responsible but not accountable
Responsible to supervisor	Limited responsibility for output	Full responsibility for supervised work	Full responsibility to supervisor for quality	Responsibility appropriate to registered person, supervisor accountable

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3.3 Functions and competency groups

Special considerations for each fire protection system type must be given to these competency groups during development:

- **Level A:** Knowledge-based problem-solving
- **Level B:** Management and communication
- **Level C:** Identifying and mitigating impacts
- **Level D:** Judgement and responsibility
- **Level E:** Independent learning

All outcomes will be evaluated at level E for registration of an applicant.

3.4 Problem-solving experience

Problem-solving experience may be obtained in any of the following work categories:

- **Design or development:** Modifications (after approval) for fluid systems, mechanical/electrical components, commissioning/testing procedures and structures of fire protection systems.
- **Operations:** Investigating failure or underperformance, implementing proven solutions and optimising operational efficiencies. Includes assessing conformance with specifications, health and safety, constructability, maintainability, environmental requirements, life-cycle costs and alternatives.
- **Research and development:** Performed in research centres or academic institutions; predominantly mechanical/electrical engineering in nature and includes product or system testing under controlled conditions.

4. INDUSTRY CONTEXT AND STATUTORY REQUIREMENTS

4.1 Nature of the industry

FPSPs may be employed in the private sector (contracting, supply, manufacturing/installation) or the public sector (national, provincial and local government, state-owned enterprises, public utilities, academic institutions and research organisations).

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4.2 Applicable legislation and standards

Applicants must have working knowledge of:

- Occupational Health and Safety Act, 85 of 1993, as amended
- Environment Conservation Act, 73 of 1989, as amended
- Labour Relations Act, 66 of 1995
- National Building Regulations and Building Standards Act, 103 of 1977, as amended
- Industry-specific work instructions and manufacturer's instructions
- SANS and international standards (ISO, EN, BS, NFPA, FM Global – refer to Table 3).

Many other Acts may also be pertinent. Applicants must investigate whether additional Acts apply to their particular work environment.

4.3 Ability to provide complete training

Where in-house opportunities are insufficient, employers are encouraged to appoint an external mentor. Secondments with other organisations are common practice to ensure applicants develop all required competencies.

5. PROGRAMME STRUCTURE AND SEQUENCING

There is no single ideal training programme structure. The programme depends on available work opportunities. Applicants should work with mentors to select appropriate equipment types for exposure to design, installation, commissioning and maintenance.

Minimum duration: 3 years' experience (ECSA minimum), typically, longer depending on availability of functions.

5.1 Orientation requirements

Before substantive training: company introduction, safety regulations, code of conduct, staff code, records and record-keeping, typical functions and activities.

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5.2 Non-conventional paths

Section 10 of **R-08-CS-GUIDE-SC** describes expectations for academics, researchers and specialists. The overriding consideration: irrespective of route, the applicant must provide evidence of competence as stipulated in the Competency Standard.

5.3 Changing applicant programmes

When changing job environments, the following must be carried out:

- Complete TES and TERs for previous programme, signed off by previous mentor/supervisor.
- New mentor/supervisor reviews past development and plans next phase.
- Complete SDSRR on elements already covered.

5.4 Compulsory scope-specific requirements

Applicants must submit the applicable SDSRR form as part of the registration application:

- **SDSRR-FPSP-FG** (Fixed Gaseous)
- **SDSRR-FPSP-WBS** (Water-based)
- **SDSRR-FPSP-FD** (Fire Detection)
- **SDSRR-FPSP-PFP** (Passive Fire Protection)

5.5 Recommended formal learning

Useful course types include: CPD courses, project management, negotiation skills, risk analysis, quality systems, OHS, maintenance engineering, environmental impacts, report writing, planning methods, and internationally recognised fire protection programmes (NFPA, BAFSA, LPCB, BAFE, FIA, ASFP).

Note: Completion of training does not confer engineering authority. Competence must be demonstrated through outcomes as required by **R-02-STA-SC**.

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Rev 0 Draft A	14 Jan 2026	The working group submitted the first draft Major restructuring: fire protection content moved forward; duplication removed; normative Appendix B added with 3-year training tables; commentary per reviewer recommendations.	Working Group
Rev 0 Draft B	13 Feb 2026	Draft submitted to Registration BU for comments	Registration BU
Rev 0 Draft C	19 Mar 2026	The document was shared with stakeholders for inputs and comments	RID BU
Rev 0 Draft D	30 Mar 2026	The RID BU hosted a webinar with industry stakeholders to solicit inputs and comments	RID BU & Working Group
Rev 0 Draft E	31 Mar 2026	Review and recommendation for Approval	Acting Executive RSIR: Ms NM Mtshali
Rev 0	13 May 2026	Approval	RPSC

The Discipline Scope-specific Training Guide for:

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Revision 0 dated 13 May 2026 and consisting of 14 pages reviewed for adequacy by the Business Unit Assistant Manager and is approved by the Acting Executive: Regulatory Services & International Relations (**ERSIR**).


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Business Unit Assistant Manager

18 June 2026
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Date


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Acting Executive: RSIR

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Appendix A: Training Elements – Competency Outcomes

This appendix aligns applicant progression with the Degree of Responsibility Scale (Table 4, Section 3.2). The 11 competency outcomes are grouped as follows:

- **Group A – Problem-solving:** Outcomes 1–3
- **Group B – Managing engineering activities:** Outcomes 4–5
- **Group C – Impacts of engineering activity:** Outcomes 6–7
- **Group D – Judgement, responsibility and professionalism:** Outcomes 8–11

Detailed outcome tables, competency indicators and range statements are in the SDSRR forms and **R-08-CS-GUIDE-SC**.

An applicant at Level E carries responsibility appropriate to a registered person; the supervisor remains accountable.

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Appendix B: FPSD Scope, Training and Competency Requirements (Normative)

B.1 General provisions

- B.1.1 FPSPs shall operate at subsystem level within the limits of their registered category.
- B.1.2 FPSPs shall work under a competent Fire Engineer (PrEng / PrTechEng) coordination where fire engineering strategy or rational design is required.
- B.1.3 FPSPs shall not undertake whole-building fire engineering design, performance-based fire analysis, or issue rational fire engineering sign-off.

B.2 Fire Practitioner – Water-based Fire Suppression (FP-WBFS)

Scope: Refer to Table 2 (Section 2.2). This category covers design, verification, commissioning and certification of water-based fire suppression subsystems.

The practitioner must:

- conduct all design work in accordance with recognised codes of practice and standards of installation
- perform risk assessment for interdependence with water-based suppression
- design and verify sprinkler, deluge, water spray and water mist systems, depending on experience and area of registration
- prepare and review hydraulic calculations and system layouts
- assess water supply adequacy and interface requirements
- supervise acceptance testing and commissioning
- certify water-based subsystem compliance.

The practitioner may not:

- undertake whole-building fire engineering design
- perform evacuation modelling or life safety analysis
- assume authority for smoke control design
- issue rational fire engineering sign-off.

Minimum training: 3 years' structured training; progressive responsibility for system design, testing and commissioning and documented multi-system interface exposure.

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Table B.2 below presents the summary 3-year training programme.

Table B.2: Summary 3-year training – Water-based Fire Suppression (FP-WBFS)

Year	Focus	Standards	Typical Tasks	Evidence	Outcomes
1	Fundamentals & exposure	NFPA 13 basics, SANS 10287, SANS 10400-W	Assist installations, observe commissioning, basic hydraulic calcs	Photos, notes, certificates, logbook	1,3,5,7,11
2	Independent calcs, commissioning, RCA	NFPA 13 Intermediate, NFPA 20/25, FMDS	Own designs, lead commissioning, root-cause investigations	Calc packs, commissioning reports, RCA reports	1,2,3,4,5,7,9,10,11
3	Lead design, peer review, mentoring	Advanced NFPA, FM, ethics	Lead major design, optimisation, mentor juniors, ECSA submission	Signed reports, reviews, CPD logs, certification	All 11 (2,4,6,8,9,10,11)

Minimum evidence for registration: Risk assessment, design calculations and drawings; commissioning and acceptance test records; mentor confirmations and CPD records.

B.3 Fire Practitioner – Fire Detection Systems (FP-FD)

Scope: Refer to Table 2 (Section 2.2). This category covers fire detection, alarm and control subsystems.

The practitioner must:

- conduct all design work in accordance with recognised codes of practice and standards of installation
- perform risk assessment for interdependence with detection systems
- select and locate fire detection and alarm devices
- develop cause-and-effect matrices and system logic
- verify interfaces with suppression, smoke control and evacuation systems
- certify alarm and detection subsystem compliance.

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The practitioner may not:

- undertake evacuation modelling or life safety analysis
- assume authority for smoke control design
- issue rational fire engineering sign-off.

Minimum training: 3 years' structured training; progressive responsibility for system design, testing and commissioning; and documented multi-system interface exposure.

Table B.3 below presents the summary 3-year training programme.

Table B.3: Summary 3-year training – Fire Detection Systems (FP-FD)

Year	Focus	Standards	Typical Tasks	Evidence	Outcomes
1	Fundamentals & exposure	SANS 10139, NFPA 72, BS/EN 54	Assist installations, observe testing, basic device placement	Photos, notes, certificates, logbook	1,3,5,7,11
2	Applied design & commissioning	SANS 10139, NFPA 72, BS/EN 54 adv.	Design small systems, C&E matrices, commission with supervision	Design docs, C&E matrices, commissioning reports	1,2,3,4,5,7, 9,10,11
3	Advanced practice	Advanced standards, ethics	Lead design, peer review, mentor juniors, AHJ interface, ECSA submission	Signed decisions, peer review notes, CPD, IPD/TER	All 11 (2,4,6,8,9, 10,11)

Minimum evidence for registration: Risk assessment, design calculations, commissioning records, mentor confirmations and CPD records.

B.4 Fire Practitioner – Fixed Gaseous Suppression (FP-FGFS)

Scope: Refer to Table 2 (Section 2.2). This category covers design, verification, commissioning and certification of fixed gaseous fire suppression subsystems.

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The practitioner must:

- conduct all design work in accordance with recognised codes of practice and standards of installation
- perform risk assessment for interdependence with gaseous suppression
- design and verify clean agent, inert gas, CO₂ and aerosol systems
- conduct enclosure integrity assessments
- prepare discharge and concentration calculations
- address safety considerations and pressure relief
- certify gaseous suppression subsystem compliance.

The practitioner may not:

- undertake whole-building fire engineering design
- perform evacuation modelling or life safety analysis
- issue rational fire engineering sign-off.

Minimum training: 3 years' structured training; progressive responsibility for system design, testing and commissioning; and documented multi-system interface exposure.

Table B.4 below presents the summary 3-year training programme.

Table B.4: Summary 3-year training – Fixed Gaseous Suppression (FP-FGFS)

Year	Focus	Standards	Typical tasks	Evidence	Outcomes
1	Fundamentals & exposure	NFPA 2001/12, SANS 14520, BS EN 15004	Assist inspections, integrity tests, observe commissioning	Photos, notes, certificates, logbook	1,3,5,7,11
2	Applied design & commissioning	NFPA 2001/12, SANS 14520, FM DS	Design small systems, run calcs, commission with supervision	Calc packs, design basis docs, commissioning reports	1,2,3,4,5,7, 9,10,11
3	Advanced practice	Advanced NFPA/SANS/BS, FM DS, ethics	Lead major design, peer review, mentor juniors, insurer interface	Signed decisions, peer review notes, CPD, IPD/TER	All 11 (2,4,6,8,9, 10,11)

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Minimum evidence for registration: Risk assessment, design calculations, enclosure integrity test reports, commissioning and safety records, mentor confirmations and CPD records.

B.5 Fire Practitioner – Passive Fire Protection (FP-PFP)

Scope: Refer to Table 2 (Section 2.2). This category covers inspection, assessment, verification and certification of passive fire protection systems.

The practitioner must:

- conduct all design work in accordance with recognised codes of practice and standards of installation
- perform risk assessment for interdependence with passive fire protection
- inspect and verify fire resistance and compartmentation
- assess fire stopping, penetration seals, fire doors, dampers and fire-rated glazing
- evaluate test evidence and perform Assessment in Lieu of Testing (AILT) where applicable
- issue non-conformance reports and certify subsystem compliance.

The practitioner may not:

- undertake whole-building fire engineering design
- perform structural design work
- perform evacuation or smoke modelling
- issue rational fire engineering sign-off.

Minimum training: 3 years' structured training; progression from supervised inspections to independent audits, Assessment in Lieu of Testing (AILT) where applicable and judgement-based verification experience.

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Table B.5 below presents the summary 3-year training programme.

Table B.5: Summary 3-year training – Passive Fire Protection (FP-PFP)

Year	Focus	Standards	Typical Tasks	Evidence	Outcomes
1	Foundation: PFP principles & site exposure	SANS 10400-T/W; BS 476; EN 13501; ASFP	Assist inspections; review fire stopping; observe fire door checks	Site photos, notes, certificates, logbook	1,3,5,7,11
2	Applied Practice: independent inspection	SANS 10400; BS 476; BS 5950-8; EN 1366/1634	Fire stopping inspections; assess compartments; review test evidence; issue NCRs	Inspection reports, NCRs, marked-up drawings	1,2,3,4,5,7,9,10,11
3	Advanced: complex assessments	SANS 10400; BS/EN fire resistance; AILT docs	Lead PFP audits; assess deviations/AILT; interface FPSRD/AHJ; mentor juniors	Signed audit reports, deviation justifications, CPD, IPD/TER	All 11 (2,4,6,8,9,10,11)

Minimum evidence for registration: Risk assessment, inspection and audit reports; marked-up drawings and photos; AILT assessments and deviation justifications; mentor confirmations and CPD records.

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