Procedure to certify CFPA-E Fire Safety Specialists in Building Design

CFPA-E Guideline No 40:2022 F

CFPAEUROPE®
Fire Safety | Security | Natural Hazards

The CFPA Europe develops and publishes common guidelines about fire safety, security, and natural hazards with the aim to achieve similar interpretation and to give examples of acceptable solutions, concepts, and models. The aim is to facilitate and support fire protection, security, and protection against natural hazards across Europe, and the whole world.

Today fire safety, security and protection against natural hazards form an integral part of a modern strategy for survival, sustainability, and competitiveness. Therefore, the market imposes new demands for quality.

These Guidelines are intended for all interested parties and the public. Interested parties includes plant owners, insurers, rescue services, consultants, safety companies and the like so that, in the course of their work, they may be able to help manage risk in society.

The Guidelines reflect best practice developed by the national members of CFPA Europe. Where these Guidelines and national requirements conflict, national requirements shall apply.

This Guideline has been compiled by the Guidelines Commission in association with the Training Commission and is adopted by the members of CFPA Europe.

More information: www.cfpa-e.eu

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Key words:

1 Introduction

The field of fire protection in building design has developed t throughout the world, including Europe. Due to its basis in science, the areas in which fire prevention knowledge could potentially be applied are many, but at present application of this knowledge is limited. There are gaps regarding fire and its possible interactions with the building environment and occupants.

As an alternative to conventional methods, such as prescriptive code application, fire safety design methods are often applied to provide a holistic fire safety concept that specifically adapts to the environmental conditions and hazard of any building like a tailored suit. This approach is particularly useful for innovative designed buildings, where the conditions are not adequately covered by prescriptive building regulations.

The application and acceptance of fire safe building design differs between the various European countries. Few countries have requirements (for example, a university degree or a diploma in Fire Protection Engineering) for qualification of practitioners. In many countries, there are still limitations to the application of this method. In some countries a performance-based approach must be accepted by authorities on national, regional or local level

In all the processes involved on a site up to when the fire protection concept is implemented on site, the designer plays a very important role, and should be able to demonstrate knowledge of the principles of engineering that are to be applied in this case. This guideline "Procedure to Certify CFPA-E Fire Safety Specialists in Building Design" describes the minimum qualification requirements for a specialist to be considered by the CFPA-E for certification as a CFPA-E Fire Safety Specialist in the field of Building Design.

This guideline forms the basis for the CFPA Europe to recognise the knowledge of an individual, by obtaining the status of a "CFPA-E Fire Safety Specialist in Building Design". National requirements for Fire Safety Specialists in this field shall be considered. By obtaining the status of "CFPA-E Fire Safety Specialist in Building Design", CFPA-E endorses the knowledge and experience of a certain individual having this status, but this status brings no legal competency without fulfilling the national requirements of each country.

2 Scope

There is a need for European recognized diplomas and a European approach to accreditation and registration or certification of fire safety Specialists in building design and other fire safety practitioners in Europe. The approach needs to be based on established levels of competency appropriate to their roles. Qualification of practitioners has been identified by several organizations as an important part of the professional recognition of fire safety engineers worldwide.

This Guideline presents a comprehensive procedure to qualify and recognize the knowledge and experience of a Fire Safety Specialist in Building Design as defined in Section 3, with the curriculum and competencies described in Section 5. The procedure is developed, supported and recognized by the CFPA-E and its member Associations.

3 Definitions

Fire Safety: Condition of built environment, where the individually existing fire hazards and risks to persons and the environment are reduced to an acceptable or tolerable level thereby meeting the fire safety objectives and functional requirements as outlined in building codes, regulations or insurer or building owner requirements.

The fire protection measures are intended for the fire prevention and limitation of fire and smoke propagation in the event of fire to achieve the necessary fire safety and to fulfil the additional interests of building owner and user, e.g. conservation of property, limitation of business interruption and another subsequent damage. Fire protection systems can also contribute to the preservation of life. Thus, some fire protection systems are compulsory by law.

Fire Safe Building Design: Procedures, which are based on scientific principles, and their application to the determination of physical characteristics of a fire in the built environment and its impact regarding fire safety, e.g. development of the temperature propagation of fire and smoke. Protection methods can be taken into account in the design parameters of a fire safe building. Protection methods include the design of passive and active systems that fulfil the fire safety objectives. The design procedure may rely on installation rules, calculation procedures, experimental evaluations and operational arrangements.

CFPA-E Fire Safety Specialist in Building Design (CFPA-E BDS): A person who has successfully demonstrated knowledge, skills and experience in Fire Safe Building Design in terms of the criteria outlined in this document.

Examination Committee: Entity composed of voluntary members from the CFPA-E Association. The committee will prepare the wording of the examination, and will submit it to every member country of CFPA-E association willing to implement the certification procedure in its country.

Examination Board: In every member country willing to implement this certification procedure, the local CFPA-E Association will appoint suitable persons to the Examination Board, which will evaluate applicants in terms of the competency requirements outlined in this document. The examination board will be composed of at least 3 members from different fields related to fire safety (for example, fire brigades, insurers, consultants, construction companies). It´s up to every national Association to decide the components of the board in that country.

4 Requirements to be eligible as CFPA-E Fire Safety Specialist in Building Design

4.1 Education

The title of CFPA-E Fire Safety Specialist in Building Design can be awarded to any candidate with a **proportional balance of education and experience**; and who has successfully passed an examination attesting to that level of education and experience.

The curriculum needs to have a good foundation of mathematics, physics, chemistry and engineering practice. These feed into good skills in fluid mechanics, thermodynamics, heat transfer, etc, which in turn underpins fire dynamics and the understanding of fire and smoke spread which is fundamental for the knowledge of fire safe building design.

Candidates with the following educational background are eligible to apply for CFPA-E BDS registration:

- Master's degree (at least 4 years) in Fire Safety related discipline from an accredited college or university. These programs are geared toward the development of theoretical skills, and consist of a sequence of courses on fire safety fundamentals and design, built on a foundation of physics, mathematics and science courses.
- Bachelor's degree (at least 3 years) in Fire Safety related discipline from an accredited college or university. These programs are oriented toward application, and provide their students the basics in physics, mathematics and science courses.

To be eligible as a CFPA-E BDS candidate, the background education must include specific subject matter as specified in the next subchapter.

In every case, candidates will also have to demonstrate professional experience in the field of fire safety.

4.2 Specific Training

CFPA-E offers specific training modules in fire safety throughout Europe. In addition, some colleges and universities offer programs and individual courses in topics related to fire protection engineering.

In fire safety, as in other scientific disciplines, experience is required to become a specialist. Experience can also be a good supplement of specific training courses in a certain field.

Every candidate must have completed the education and specific training with professional experience. The years of experience needed to be eligible will be different depending on the education and training base of each candidate.

Experience shall include the project-related use of specific design tools, for example (not an exhaustive list):

- Quantitative and qualitative risk analyse methods.
- Hydraulic calculation software.
- Calculation of Fire performance of structures.
- Fluid dynamic design tools.
- Smoke extraction calculation.
- Evacuation modelling software.
- Fire and Smoke modelling software.

4.3 Requirements to be a candidate for examination

The candidates to the examination as CFPA-E BDS must demonstrate that they fulfil the requirements stated in the next subchapters regarding Education, Specific training, and Professional Experience.

Candidates must attain at least 50 points to be eligible for examination. A minimum of 10 points in each of the categories are needed.

Candidates in possession of a Master in Fire Safety Engineering, accredited by a Professional Engineering Institution, shall only demonstrate at least 10 points coming from "Professional Experience" category.

CATEGORY	CRITERIA	POINTS	ACCEPTABLE DOCUMENTATION
EDUCATION	Master (at least 4 years) in Engineering (other than Fire Engineering), Architecture, Applied Physics or similar disciplines.	20	Diploma copy
	Bachelor's degree (at least 3 years) in Fire Safety Disciplines	20	
	Bachelor's degree (at least 3 years) in Engineering (other than Fire Safety Disciplines), Architecture, Applied Physics or similar disciplines.	10	
	Master (at least 4 years) in other disciplines and at least 60 ECTS credits in Fire Safety related disciplines	20	
	Bachelor's degree (at least 3 years) in other disciplines and at least 60 ECTS credits in Fire Safety related disciplines	10	
TRAINING	CFPA-E Basic Fire Safety Engineer Training Program as described in section 7.1	Max. 20	Certificate or Diploma (including examination)
	CFPA-E Application-Focused Fire Protection courses as described in section 7.2	Max. 10	
	Other Fire Safety courses (1 point/ 30h course)	Max. 10	
	Project Director (10 points/year)	Unlimited *	
PROFESSIONAL EXPERIENCE	Responsible for one area in the project (5 points/year)	Unlimited *	Fire Safety Engineering Design Brief (FEDB) or; Curriculum Vitae and list of references witnessed by at least two persons working in the field of fire safety
	Responsible for one area in the project (5 points/year)	Unlimited *	

Table 1. Requirements to be a candidate for examination to CFPA-E BDS

Education degrees shall be documented through a diploma copy issued by the University or College, specifying the degree obtained and duration.

Training shall be documented through a certificate or diploma, issued by the course organizer. The course must include an examination on the training topics to check the course has been profitable for the student.

Professional experience shall be demonstrated by the presentation of a Fire Safety Engineering Design Brief (FEDB) of the project, with the following minimum content:

- Project Scope. Define scope/extent of fire safety engineering works e.g. new construction of a building, additions and alterations to partial building or whole building or renovation of an existing building for a change of use.
- Structure of the project; responsibility areas.
- Applicant's area of responsibility within the project.
- Duration of the project.
- Safety objectives and Acceptance criteria.
- Building characteristics: Description, proximity to neighbouring buildings, number of floors and general layout.
- Occupant characteristics: Occupant load, physical attributes, awareness level…
- Choice of Fire Scenarios: Describe the plausible fire scenarios considered, why they were used and identify the 'worst credible' fire scenario.
- Design parameters: Identify and select design parameters, e.g. design fire, design occupant groups.
- Method of evaluation. The evaluation should include description of the analysis method and the design tools used; any computational tools used should be discussed along with the input and output.
- Assumptions and Limitations.
- Conclusions.

The candidate will also present a responsible declaration indicating how much time was directly involved in the project.

In the case of FEDB being unavailable, experience shall be demonstrated by a Curriculum Vitae witnessed by two persons working in the field of fire safety or building design. The applicant and the witnesses shall not be related to each other. In addition to the CV, the applicant shall provide a list of references, with approximations on time spent on the project and the contents of the applicant's attribution to the project in detail. The list of references shall also be witnessed, to be true by two persons working in the field of fire safety or building design.

5 Recommended curriculum content for a Fire Safety Specialist in Building Design

The field of fire safe building design can be described as broad and deep. Design issues can require many levels of understanding, ranging from the qualitative understanding, to the simple calculation, the zone model and eventually CFD implementation.

The problem is that with each increasing level of complexity, the breadth of knowledge required to deliver that complexity increases. For example, only a little knowledge is required to have a qualitative understanding of smoke control. To carry out simple calculations, a knowledge of

mathematics is required as well. To use a zone model requires a person to spend time learning how to use the model, and to know its limitations. To use CFD to work out a smoke control problem, even more skill is required while still keeping the depth of knowledge to implement proper scenarios. Finally, to make a fire safety approach, interactions between smoke control and extinguishing systems, detection and alarm systems, and egress time, must be carefully considered and implemented in the fire scenario.

In summary, there is a limit to the amount of knowledge which one person can have. A person's knowledge can be broad but shallow or it can be narrow but deep. It would be difficult to find any individual whose knowledge was both, broad and deep.

For these reasons, it is necessary to state a minimum level of fundamental knowledge and competence for a Fire Safety Specialist in Building Design. This minimum level is composed of core topics that the Specialist has to understand and demonstrate adequately. In a second stage, the Specialist can specialize and focus on certain topics.

The following chapters describe the core expertise topics and the additional "application focused" topics or courses. These topics generally agree with the definitions of skills and competences that constitutes a Fire Safety Specialist in Building Design. A similar approach has been defined by the Society of Fire Protection Engineers (SFPE) in their "White Paper for Professional Recognition for Fire Safety Engineering".

5.1 Core topics of expertise

Fire Dynamics and Fire Chemistry

The objective is to understand the various stages of fire, to provide a knowledge base concerning the different methods and techniques applied in the analysis of a fire sequence and develop ability to critically examine those methods in terms of practical application. Fire Chemistry may be taught within a Fire Dynamics course to provide further background knowledge regarding combustion reactions and heat transport. Collectively, information should increase design-related skills.

Fire Risk/Hazard Analysis

The objective is to provide knowledge in the areas of probability and statistics, of the concepts, tools and methods of hazard assessment and risk analysis, and of the use and application of these in fire related scenarios. A general understanding of how fire affects people (including egress), property and society as a whole should be provided.

Performance-Based Design

The objective is to provide knowledge regarding development of fire safety engineering solutions from first principles to achieve fire performance objectives. This requires skills developed from previous fundamental fire safety engineering coursework. Various levels of design and consequences should be discussed as well as the specification of all key parameters that are the basis for the performance-based design.

Building Fire Safety

The objective is to provide a general understanding of building fire protection, code and standard concerns, and may include fundamental concepts of equivalencies and/or Performance Based Design.

Fire Protection Measures
The objective is to provide a general understanding of fire mitigation, including structural fire protection; mechanisms of escape and alarm system; water and non-water based suppression; detection systems; smoke and heat exhaust ventilation systems; general possible interactions of different fire protection measurements; fire modelling; fire testing and code and standard concerns.

5.2 Additional "Application focused" topics

Fire Modelling
The objective is to provide knowledge of zone and field (CFD) models, including the technical basis for enclosure fire model elements, the limitations of computer-based fire models and the use of current computer-based fire models for practical FSE problems.

Fire Testing
The objective is to provide knowledge of test scenario, apparatus, methodologies, processes and data analysis related to fire hazards, assessment methods of fire characteristics of building materials and structures for engineering and research. It is also important that the CFSE knows the background and limits of fire tests.

Water-Based Suppression
The objective is to provide knowledge of fundamental principles, design criteria and installation requirements for water-based and foam water fire suppression systems, including, classification of occupancy hazards in order to establish the proper sprinkler design criteria, the design of sprinkler and water mist systems for the specific construction features and occupancy involved, and the effects of various forms of heat transfer and oxygen displacement characteristics relating to water-based suppression.

Special Hazards – Non water-based suppression
The objective is to provide knowledge of fundamental principles, design criteria and installation requirements for non-water based fire suppression (including halon, carbon dioxide, inert gas, halocarbon agents, and dry chemical) used in different types of application (deluge, and local applications.

Detection, Alarm & Smoke control Systems
The objective is to provide knowledge of fundamental principles, design criteria and installation requirements for fire detection, occupant notification and smoke control systems, including how to analyze, evaluate, and specify these systems.

Explosion Prevention & Protection
The objective is to provide basic knowledge related to deflagrations and detonations and methods used to prevent ignition and limit the effects of deflagrations, including explosion suppression systems and pressure resistant & pressure relieving construction; BLEVE theory and prevention.

Structural Fire Protection
The objective is to provide knowledge regarding the impact of fire exposure on materials used in construction assemblies, the role various construction features play in the fire resistance of the assembly and the application of mechanics and heat transfer engineering principles. Computer based analysis of structures exposed to fire.

Fire Investigation
The objective is to provide knowledge of fire investigation with regard to gathering and interpreting fire scene evidence; utilizing laboratory forensic testing; researching related codes, standards & technical reports and re-construction of the fire scenario with physical and numerical models.

Fire Protection Related Codes & Standards
The objective is to provide knowledge of the use and application of building codes and related reference standards, including both active and passive fire protection, people evacuation, interaction between systems.

Egress and Life Safety Analysis
The objective is to provide knowledge of human behaviour in fire, including physiological and psychological response, decision-making and movement and of approaches, tools and methods to integrate this knowledge with knowledge gained from other courses to evaluate life safety issues in the event of fire. While a basic knowledge may be provided within several other separate courses, focused applications level course work is helpful for those students that will design egress systems, including special situations using performance-based designs with complicated occupancies that potentially modify human behaviour.

Storage & Transportation of Hazardous Materials
The objective is to provide knowledge of the handling, transportation and storage of hazardous materials including limitations of amounts stored, determination of required separation distances and proper identification. Such information may be of particular interest to those that work in public service or are responsible for public transportation of such materials.

Management of Wildland-Urban interface Fires
The objective is to provide knowledge regarding technological, economic, social and political issues affecting fire management in the interface of rural and urban areas. Includes related codes and standards, fire risk analysis, evacuation and incident response planning.

Industrial Fire Safety
The objective is to use principles of fire dynamics, heat transfer and thermodynamics are combined with a general knowledge of automatic detection and suppression systems to analyze fire protection requirements for generic industrial hazards. Topics covered include safe separation distances, plant layout, hazard isolation, smoke control, warehouse storage, and flammable liquid processing and storage. Historic industrial fires influencing current practice on these topics can also be discussed.

Consequence Analysis
The objective is to provide an introduction to the field of Consequence Estimations, within the fire safe building design operational field. It will also form a valuable complement to the course, Fire Risk Analysis, insofar as the consequences of undesirable leakages of gases and liquids are concerned.

Risk Based Land Use Planning
The objective is to provide the applicant with sufficient knowledge to allow collaboration at early stages in the planning process so that risk analyses can be included and used to create a base at a strategic stage of the planning work where the objective is a robust and sustainable society.

6 Certification Procedure

6.1 Eligibility

The candidates to the examination as CFPA-E BDS must demonstrate that they fulfil the requirements stated in Section 4 ”Requirements to be a candidate for examination”. The supporting documents are to be submitted to the CFPA-E member association in the country where the applicant wishes to do the exam. All the documentation must be sent in the official local language of the country or in English.

An examination committee will study the documents and decide how many points can be achieved by the applicant. Where the applicant obtains the minimum number of points to be eligible, they will be permitted to undertake the competence evaluation.

6.2 Examination

All the candidates must pass a competency exam to demonstrate their competence as Fire Safety Specialist in Building Design. The examination will be offered by the CFPA-E member association in each country. The examination requirements and standards will be similar level in all countries. To ensure this, an examination committee will develop the contents of the exam. The examination committee will be composed of voluntary members of the CFPA-E associations that are willing to implement the certification process.

The exam will have two parts, a practical case for designing the adequate fire safety measures, and a battery of questions related to different aspects of fire safe building design.

6.2.1 Practical case

The wording of the case will provide information about the functionality and activities carried out in the building: construction, occupancies, occupants’ characteristics, etc.

The examination committee would be responsible for developing the wording of the practical case. The practical case must cover the applications of the principles of fire safety engineering including the approach and development of the fire safety concept for a certain building or industry. The committee will provide 5 fire safety objectives to be met in the scenario referred to in the statement of the case. The candidate will choose 3 of the 5 objectives and will develop a fire safety concept to meet these objectives. As an example, some of these objectives can be: Ensuring a safe evacuation, guarantee the continuity of activity, contain the fire smoke in a limited area, avoid the collapse of the building structure under a fire condition, etc.

The candidate will apply a technical base to make the safety approach: prescriptive or voluntary design codes, technical publications, engineering handbooks, and in general, every document that can be used to justify the validity of the solution proposed. If some calculations are needed to prove the performance of the solution, they shall be included in the dossier. For those requirements that cannot be fulfilled under a prescriptive design method, the applicant will develop a solution based on the application of a Performance Based Design method that will provide at least an equivalent fire safety level. The safety approach is based on the procedure described in the SFPE Engineering Guide to Performance-Based Fire Protection. The candidate will have two months to study the case and make a fire protection approach.

The proposal with the Fire Safety approach will be submitted to the local CFPA-E member association, where an examination board will evaluate the solution. The candidate will be summoned to describe and defend his proposal in front of this examination board. The board will

ask the applicant specific questions about the design, and will ask him for a new approach in case some of the acceptance parameters are changed. The examination board will also be able to ask the candidate during examination on how to make a basic fire safety approach for the fulfilment of any of the safety objectives that have not been developed.

The duration of this test will be approximately 3 hours. At least 50 % of answers shall be correct in order to pass the exam.

The candidate must be able to describe clearly in his proposal:

Fire safety objectives:
The objectives of fire safety and protection design shall be clearly defined. These objectives are generally quite broad and deal with life safety, property protection, business interruption and environment preservation.

Functional requirements:
The objectives are very broad but they are not sufficiently specific to provide a basis for an engineering design. It is therefore essential to stablish functional requirements associated with performance criteria that can be used to assess whether the fire safety objectives have been adequately achieved.

Qualitative design review:
The qualitative design review includes:

- The definition of acceptance criteria.
- The risk analysis and selection of fire scenarios.
- The initial proposal of fire safety and protection design.

Prior to carrying out fire engineering calculations, it is necessary to set certain criteria, which results must meet before they will be considered sufficiently close to reality to be acceptable. These criteria are called "acceptance criteria".

The candidate must then select the most likely or hazardous fire scenarios, according to a previous risk analysis.

According to the results of the corresponding fire scenario, the candidate will propose the fire safety and protection solutions, which will limit the frequency and the consequence of the fire.

Quantitative analysis of design:
This quantitative analysis of design involves the determination of the consequences of the design fires (fire scenarios) considering the proposed fire safety solutions. Engineering methods are used to evaluate the potential solutions.

Fire protection systems:
The candidate will be able to make a basic design of the fire protection systems proposed in each zone, for both active and passive fire protection systems.

6.2.2 Battery of questions

On the same day the candidate is summoned to defend the design proposal, he will have to answer a battery of 20 short questions regarding different fire protection and fire safety aspects related to the "Application focused topics" described in Section 5.2.

The examination committee will decide how many questions will be related to each topic. The examination board in every country will decide the wording of every question. The battery of questions will include some regarding to local (national) regulations. The duration of this part will be 2 hours.

At least 50 % of answers shall be correct in order to pass the exam.

6.3 Certification

Where the applicant succeeds in passing both tests, and has paid the examination fee, he will be awarded with a certificate that accredits him as a CFPA-E Fire Safety Specialist in Building Design.

Where the applicant fails one of the two tests, they will be permitted to repeat only the test failed in the next call for examination, by paying the examination fee for that specific test. Where the applicant fails again and remains interested in obtaining the certificate, full re-examination will be required.

6.4 Certificate validity

The certificate is valid for a period of 5 years. After the end of each period, the certificate can be renewed provided that:

- The applicant has paid the renewal fee to the entity that issued the certificate.
- The applicant has demonstrated that he/she is involved in a Continual Professional Development process that enables knowledge and skills in fire safety to be maintained. Certification is evaluated according to a scoring system that includes credits for working experience, for continuous training programs, and for attending conferences. See chapter 6.5 to see how to demonstrate skills maintenance.

In case the certificate´s period of validity expires and the applicant has not been able to demonstrate skills maintenance according to 6.5, the only possible way to obtain the certification is by passing the exam again. The applicant may re-validate an expired certificate within one year of the expiration date.

6.5 Skills maintenance

To renew the certification, the applicant must accumulate at least 30 points in different activities related to fire protection, during the 5 years cycle between recertification. As the fire safety engineer must keep his knowledge up-to-date, at least 3 points will have to come from professional development activities:

CATEGORY	ASSIGNED POINTS	MAX. PERMITTED POINTS	ACCEPTABLE DOCUMENTATION
Professional practice	Project Director (1 point/dedicated month)	27 points per cycle	Fire Engineering Design Brief (FEDB) [1] or; list of references witnessed by at least two persons working in the field of fire safety or building design
	Responsible for one area in the project (0,5 points/dedicated month)	25 points per cycle	
Professional development – CFPA-E courses	3 points per course and day or equivalent [2]	25 points per cycle	Attestation of participation
Professional development – other fire protection courses	1,5 points per course and day [3]	15 points per cycle	Attestation of participation
Professional development – fire protection conferences	1 points per conference day or equivalent [5]	15 points per cycle	Attestation of participation

[1] Fire Engineering Design Brief to demonstrate professional practice will have the minimum contents described in Section 4.4.
[2] 1 day = At least 6h of effective training or course = 3 points. See Tables 3 & 4.
[3] 1 day = At least 6h of effective training or course = 1,5 points
[4] 1 day = At least 6h of effective conference = 1 point
[5] 1 day = At least 6h of effective conference = 0,5 points

Table 2. Requirements for recertification of CFPA-E BDS

For re-certification, to justify "Training" requirements (attendance to courses and conferences) will be enough to present an attestation of participation (no need for examination).

7 CFPA-E Courses related to Fire Safe Building Design

7.1 CFPA-E Courses

The following table describes which CFPA-E Courses deal with the core topics as detailed in section 5.1.

Core Topic	CFPA-E Course	Duration (hours/ credits)	Points for certification *	Points for recertification **
Fire Dynamics and Fire Chemistry Building Fire Safety Fire Protection Systems	Fire Safety – Management Cycle	60	5,0	27
	Fire Safety – Technical Cycle	90	7,5	27
Fire Risk/Hazard Analysis	Fire Risk Management	30	2,5	15
	Fire Risk Assessment	30	2,5	15
Performance Based Design	Performance Based Design for Fire Safety	90	7,5	27
	Principles of fire safety engineering	30	2,5	15
	* Related to Table 1 ** Related to Table 2			

Table 3. CFPA-E Courses for Core FSE Topics

7.2 CFPA-E Courses & Guidelines for "Application focused" topics

The following table describes which CFPA-E Courses deal with the additional "application focused" FSE topics as detailed in section 5.2. These courses complement the basic competences of a FSE by specialization in certain topics.

Application Focus Topics	Related CFPA-E Courses	Duration (hours/ credits)	Points for certification *	Points for recertification **	Related CFPA-E Guidelines
Water-Based Suppression systems	Sprinkler operator	12	0,5	6	--
	Sprinkler system: basic course	12	0,5	6	--
Non water-based suppression (special hazards)	Gas system operator	12	0,5	6	No.14:2007F: Fire protection in information technology facilities
	Operator of Stationary Fire Protection Systems containing Fluorinated Greenhouse Gases	12	0,5	6	
Detection, Alarm, & Smoke Control Systems	Fire Detection and Alarm Systems Operator	6	0,5	3	--
	Smoke and heat Exhaust Systems Operator	6	0,5	3	
Explosion Prevention & Protection	Explosion protection manager	30	2,5	15	No.31:2013F: Protection against self-ignition and explosions in handling and storage of silage and fodder in farms
	Explosion (Prevention and Protection in places where explosive atmospheres may occur)	12	1,0	6	
	Classification of explosive Hazardous areas	12	1,0	6	
Structural Fire Protection	Installation and inspection of products for passive fire protection in buildings	12	1,0	6	--
Fire Investigation	Fire Investigation	30	2,5	15	--

Egress & Life Safety Analysis	Evacuation Steward	6	0,5	3	No.2:2013F. Panic & emergency exit devices No.5:2003F. Guidance signs, Emergency lighting and General lighting No.19:2009F. Fire safety engineering concerning evacuation from buildings No.33:2015F: Evacuation of people with disabilities
Management of Wildland-Urban Interface Fires	Risk Management of Natural Hazards	30	2,5	15	No.6:2015N: Forest Fires
Industrial Fire Safety	Fire Safety in Transformation Facilities	12	1,0	6	No.22:2012F: Wind turbines-Fire Protection Guideline No.14:2007F: Fire protection in information technology facilities No.18:2003F: Fire & Protection in chemical manufacturing site No.12:2012F: Fire safety basics for hot work operatives
	Introduction to thermography	18	1,5	9	
	Thermography of electrical installations	30	2,5	15	
	Hot works	6	0,5	3	

Non-Industrial Fire Safety	Introduction to the Management of Hotel Fire Safety	6	0,5	3	No.29:2013 F: Protection of paintings: Transport, exhibition and storage No.30:2013 F: Managing fire safety in historical buildings
	Fire Safety and Security Museums and Historical Premises Specialist	30	2,5	15	
Consequence Analysis	Risk management of technical safety	30	2,5	15	No.4:2010F: Introduction to qualitative fire risk assessment
	Business continuity planning	12	2,5	6	
Risk Based Land use planning	Fire Protection Management System	6	0,5	3	No.1:2015 F Fire protection management system No.21:2012F: Fire prevention on construction sites
	Fire Safety During Construction Works	6	0,5	3	
	* Related to Table 1 ** Related to Table 2				

Table 4. CFPA-E Courses and Guidelines for "Application Focused" FSE Topics

8 Quality and Independency

Quality Control and Independence are of key importance for the development of the certification.

8.1 Internal Audits

This refers to the Internal Audits Procedure for CFPA-E Technical Cycle

8.2 Independency

Only one of the three members of the Examination Committee should be personnel of the CFPA member country.

European guidelines

Fire

Guideline No 1 F - Internal fire protection control
Guideline No 2 F - Panic & emergency exit devices
Guideline No 3 F - Certification of thermographers
Guideline No 4 F - Introduction to qualitative fire risk assessment
Guideline No 5 F - Guidance signs, emergency lighting and general lighting
Guideline No 6 F - Fire safety in care homes
Guideline No 7 F - Safety distance between waste containers and buildings
Guideline No 8 F - Preventing arson – information to young people
Guideline No 9 F - Fire safety in restaurants
Guideline No 10 F - Smoke alarms in the home
Guideline No 11 F - Recommended numbers of fire protection trained staff
Guideline No 12 F - Fire safety basics for hot work operatives
Guideline No 13 F - Fire protection documentation
Guideline No 14 F - Fire protection in information technology facilities
Guideline No 15 F - Fire safety in guest harbours and marinas
Guideline No 16 F - Fire protection in offices
Guideline No 17 F - Fire safety in farm buildings
Guideline No 18 F - Fire protection on chemical manufacturing sites
Guideline No 19 F - Fire safety engineering concerning evacuation from buildings
Guideline No 20 F - Fire safety in camping sites
Guideline No 21 F - Fire prevention on construction sites
Guideline No 22 F - Wind turbines – Fire protection guideline
Guideline No 23 F - Securing the operational readiness of fire control system
Guideline No 24 F - Fire safe homes
Guideline No 25 F - Emergency plan
Guideline No 26 F - withdrawn
Guideline No 27 F - Fire safety in apartment buildings
Guideline No 28 F - Fire safety in laboratories
Guideline No 29 F - Protection of paintings: transports, exhibition and storage
Guideline No 30 F - Managing fire safety in historic buildings
Guideline No 31 F - Protection against self-ignition end explosions in handling and storage of silage and fodder in farms
Guideline No 32 F - Treatment and storage of waste and combustible secondary raw materials
Guideline No 33 F - Evacuation of people with disabilities
Guideline No 34 F - Fire safety measures with emergency power supply
Guideline No 35 F - Fire safety in warehouses
Guideline No 36 F - Fire prevention in large tents
Guideline No 37 F - Photovoltaic systems: recommendations on loss prevention
Guideline No 38 F - Fire safety recommendations for short-term rental accommodations
Guideline No 37 F - Fire protection in schools
Guideline No 38 F - Fire safety recommendations for short-term rental accommodations
Guideline No 39 F - Fire protection in schools

Natural hazards

Guideline No 1 N - Protection against flood
Guideline No 2 N - Business resilience – An introduction to protecting your business

Guideline No 3 N - Protection of buildings against wind damage
Guideline No 4 N - Lighting protection
Guideline No 5 N - Managing heavy snow loads on roofs
Guideline No 6 N - Forest fires
Guideline No 7 N - Demountable / Mobile flood protection systems

Security
Guideline No 1 S - Arson document
Guideline No 2 S - Protection of empty buildings
Guideline No 3 S - Security systems for empty buildings
Guideline No 4 S - Guidance on keyholder selections and duties
Guideline No 5 S - Security guidelines for museums and showrooms
Guideline No 6 S - Security guidelines emergency exit doors in non-residential premises
Guideline No 7 S - Developing evacuation and salvage plans for works of art and heritage buildings
Guideline No 8 S - Security in schools
Guideline No 9 S - Recommendation for the control of metal theft
Guideline No 10 S - Protection of business intelligence
Guideline No 11 S - Cyber security for small and medium-sized enterprises

Comments and corrective actions:

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Fire Safety | Security | Natural Hazards

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