

CORE OBJECTIVES (FRE)

1. Fire Engineering Fundamental	Code	ES initials and Date of Assessment			
		G	K	E	C
<p>1.1 Properties of Combustion</p> <ul style="list-style-type: none"> - Fuels - Flame Types - Heat Transfer - Ignition - Fast Burning Fire - Deflagration and Detonation - Hazardous Combustion Production - Traveling Smoke 	*E/K				
<p>1.2 Behaviour of Building Elements Under Action of Fire</p> <ul style="list-style-type: none"> - Types of Building Elements - Fire Resistance - Standards - Fire Tests of Materials - Fire Resistance Treatment 	*C/E				
<p>1.3 Fire Detection and Suppression Systems</p> <ul style="list-style-type: none"> - Types - Application - Installation Standards - Standards of Performance Rating - Specification 	*C/E				
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<p>1.4 Materials of Smoke Extraction System</p> <ul style="list-style-type: none"> - Fans - Ductings - Materials - Insulating Materials - Joints and Connection - Specification 	*C/E				
<p>1.5 Foot Traffic Flows and Their Characteristics</p> <ul style="list-style-type: none"> - Synchronous movement and nonsynchronous movement - Traffic Movement Speed - Flow Traffic along a path and on an escalator 	*E/K				
<p>1.6 Properties of Consumer Items</p> <ul style="list-style-type: none"> - Fire Properties of Consumer Items including clothing and upholstery - Effects of Fire Retardants 	*E/K				
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2. Engineering Design	Code	ES initials and Date of Assessment			
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<p>2.1 Fire Safety Design</p> <ul style="list-style-type: none"> - Stages of Design (on buildings, industrial processes, transport activities, cities and communities) - Use of Computer Codes - Specification and Standards Design Verification 	*C/E				
<p>2.2 Fire Simulation / Modeling</p> <ul style="list-style-type: none"> - Zone Model - Field Model - Evacuation Model - Fire Tests / Simulations - Verification of Simulation/Test/Modeling Results 	*C/E				
<p>2.3 Active Fire Protection</p> <ul style="list-style-type: none"> - Fire Detection and Alarm Systems - Gas Detection and Alarm Systems - Fire Extinguishing and Suppression Systems - Portable Equipment - Supervisory and Control System Smoke and Gas Control and Management System - Code and Standards, Specification 	*C/E				
<p>2.4 Passive Fire Protection</p> <ul style="list-style-type: none"> - Compartmentation and Fire Separation - Fire Resistance Rating - Fire Escape Egress and Fire Rescue Access Codes and Standards 	*C/E				
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<p>2.5 Design Aspect</p> <ul style="list-style-type: none"> - Compatibility of Occupancies - Fire Load - Life, Fire Risk Assessment - Offsite Risk Assessment - Legislation 	*C/E				
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3	Operational Reliability	Code	ES initials and Date of Assessment			
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3.1	System Interface <ul style="list-style-type: none"> - Compatibility with Different Types of Installations - Automatic Interfacing with other Building Services Installation - Audio, Visual and Voice Emergency Notification System - Fire Egress Signage and Lighting 	*C/E				
3.2	System Testing & Commissioning <ul style="list-style-type: none"> - Procedures - Preparedness - Testing 	*C/E				
3.3	Instrumentation <ul style="list-style-type: none"> - Selection - Performance Monitoring - Calibration 	*C/E				
3.4	Maintenance <ul style="list-style-type: none"> - Planning & implementation of Maintenance - Systematic Maintenance System - Preventive Maintenance - Emergency Repair - Diagnostic Techniques 	*C/E				
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4. Fire Management	Code	ES initials and Date of Assessment			
		G	K	E	C
4.1 Fire Fighting Operation <ul style="list-style-type: none"> - Fire Fighting Equipment and Appliances - Command, Control and Communication - Fire-ground Strategies and Tactics 	*C/E				
4.2 Fire Investigation <ul style="list-style-type: none"> - Preserving the Scene - Fire Ignition, Growth, Spread - Point of Origin - Source of Ignition 	*E/K				
4.3 Fire Safety Management <ul style="list-style-type: none"> - Emergency Action Plan - Evacuation Routes and Rescue Access - Fire Drill - Fire Safety Audit 	*C/E				
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5. Engineering Administration & Management	Code	ES initials and Date of Assessment			
		G	K	E	C
5.1 - Interpretation, Preparation and Communication of requirements, specifications and drawings	C				
5.2 - Materials/equipment procurement procedures, tender and/or contract appraisal and administration.	C				
5.3 - Planning, Budgeting	*C/E				
5.4 - Estimating labour, materials, installation and transport costs	*C/E				
5.5 - Project/Work Scheduling and Management Information Services	C				
5.6 - Written Reports & Oral Presentations	C				
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