

L2C PFP



THE INSTITUTION OF FIRE ENGINEERS
Founded 1918 • Incorporated 1924

IFE Level 2 Certificate in Passive Fire Protection

SAMPLE

Duration: One hour and 30 Minutes

Instructions to Candidates

1. You **must** record all of your answers in the answer book provided.
2. This examination paper contains two sections. You must answer:
 - **ALL** of the questions in section one
 - Select **TWO** of the specialist options in section 2 and answer all of the questions within each of the specialist options chosen.
3. At the end of the examination, the answer book and this question paper will be collected by the invigilators. You will not be allowed to keep any examination stationery.
4. The time allowed for this examination is **One hour and 30 Minutes**.

Section 1

There are 20 marks available for this section of the examination. You should answer all questions.

1. State the four elements of the fire tetrahedron. (4 marks)

2. Explain what is meant by the following terms in the context of means of escape:

a) Occupancy (2 marks)

b) Construction (2 marks)

3. Explain why it is essential that “passive fire protection” is provided in buildings. (2 marks)

4. One of the factors that affects the fire resistance of a building is insulation. Identify and describe two other factors. (4 marks)

5. Describe two different types of sprinkler system and state when each type would be appropriate. (6 marks)

Section Two

This section of the paper is divided into four options. There are 30 marks available for each option.

Candidates should select **TWO** options from the following:

Option 1 - Fire protection to the structural frame of the building

Option 2 - Fire resisting walls, floors and ceiling

Option 3 - Fire stopping, penetration seals, cavity barriers, ductwork and dampers and the building envelope

Option 4 - Fire resisting doors, industrial shutters and associated hardware

Note: no additional marks will be awarded where candidates respond to questions from more than two options.

Please Turn Over

Option 1 - Fire Protection to the Structural Frame of the Building

1.1 Describe how structural concrete behaves in fire. (2 marks)

1.2 Describe what is meant by “sacrificial timber” and explain how this improves the stability of timber in fire. (4 marks)

1.3 Explain how steel behaves in fire and the way that this determines the fire protection required. (6 marks)

1.4 In relation to materials used to enhance the structural resistance of steel, describe each of the following methods of application and state when each would be used:

a) Profile (2 marks)

b) Box (2 marks)

c) Solid (2 marks)

1.5 Describe the stages and checks when applying of intumescent coatings for fire protection of structural steelwork. (6 marks)

1.6 State the checks that would be carried out at a site inspection in relation to the use of board systems for the fire protection of structural steel. (6 marks)

Option 2: Fire Resisting Walls, Floors and Ceiling

2.1 Describe the purpose and use of fire walls.

(6 marks)

2.2 Identify and describe three different types of fire-resisting floors.

(9 marks)

2.3 State the purpose of active fire curtain barriers and list four places where active fire curtain barriers may be found.

(6 marks)

2.4 Describe two issues to be taken into account when installing facing boards on fire resisting partitions and state four different types of generic board types.

(6 marks)

2.5 In relation to compartmentation fire performance, state three factors affecting the degree of fire resistance required.

(3 marks)

Please Turn Over

Option 3: Fire Stopping and Penetration Seals, Cavity Barriers, Ductwork and Dampers and the Building Envelope

3.1 Explain the purpose of fire-stopping and state three situations where fire-stopping would be required.

(6 marks)

3.2 Identify four factors to be taken into account when installing fire-stopping and explain why each is important.

(6 marks)

3.3 Mortars (compound) are used in some situations to provide fire-stopping. State two situations where mortars would be used and describe the process involved in installing the mortars.

(6 marks)

3.4 Describe open cavity barriers and state two areas where they would be used.

(6 marks)

3.5 Identify and describe two different types of fire dampers.

(6 marks)

Option 4: Fire Resisting Doors, Industrial Shutters and Associated Hardware

4.1 Explain the difference between door assemblies and doorsets. (4 marks)

4.2 Door leafs may be formed of timber or steel. For each of these two types of fire door, describe the typical design of the door leaf, state the fire-resistant periods possible and give an example where each type of door leaf might be found. (6 marks)

4.3 Describe the use and operation automatic door hold-open/release devices for self-closing fire doors. (6 marks)

4.4 State three types of apertures that may be cut into door leaves and explain the considerations relevant to the cutting of apertures. (6 marks)

4.5 State eight points that should be taken into consideration when carrying out maintenance inspection on fire doors. (8 Marks)
