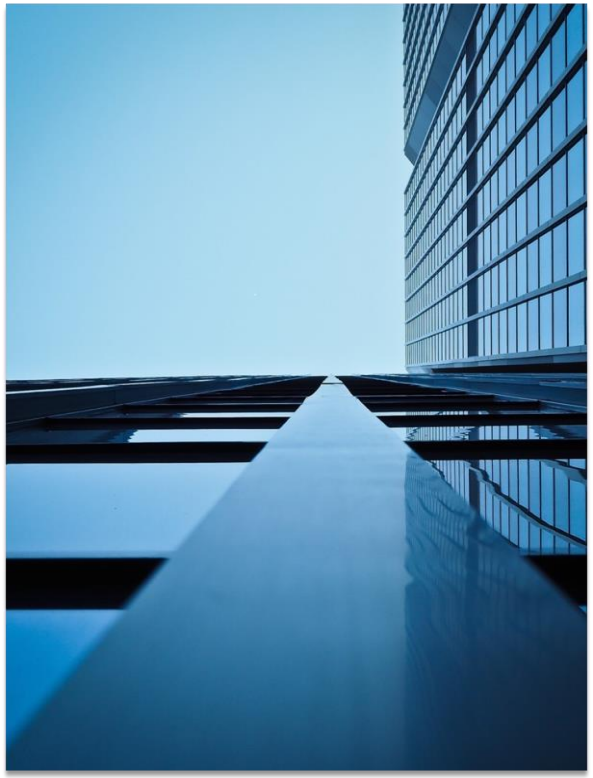
Automatic Opening Smoke Vents
Are You Compliant?

Will Perkins

SMOKE CONTROL ASSOCIATION

About the SCA



The Smoke Control Association (SCA) is an independent body involved in various aspects of smoke control; including design, CFD, manufacturing, install, commissioning, service and maintenance.

Past projects include the publication of guides related to the design of smoke control systems and projects.

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Automatic Opening Smoke Vents - Are You Compliant?

- Why?
  - What do the regulations say I MUST to do?
- How?
  - Which products should I be using?
  - Which products should I NOT be using?

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- Why?
  - What do the regulations say I MUST to do?

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Stages of construction and operation

RIBA/CIC STAGE	STAGE 0	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7
STANDARD PHASE	BRIEFING			DESIGN		CONSTRUCTION	DEFECTS & AFTERCARE	EVALUATION
	Strategic Definition	Preparation and Briefing	Concept Design	Spatial Coordination	Technical Design	Manufacturing and Construction	Handover	Use
BUILDING SAFETY BILL			Fire Safety Strategy	Fire Safety Coordination	Fire Safety Specification	Inspection Reports, Digital Record		
GATEWAYS			GATEWAY 1	GATEWAY 2		GATEWAY 3		
BS 8644 Part 1 INFORMATION EXCHANGE POINTS	IEP A			IEP B		IEP C	IEP D	IEP E

As a ‘single point of truth’, the golden thread will record changes, including the reason for change, evaluation of change, date of change, **the decision-making process** and who made the changes.

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The principles, concepts and approach relating to fire safety that have been applied to the development

6. Building Schedule

Site information				Building information			Resident safety information		
a) Block no. as per site layout plan above	b) Block height (m) Number of storeys excluding basements Number of storeys including basements	c) Proposed use (one per line)	d) Location of use within block by floor level	e) Standards relating to fire safety / approach applied	f) Balconies	g) External wall systems	h) Approach	i) Automatic suppression	j) Accessible housing provided
Choose an item	Choose an item	Choose an item	Choose an item	**Choose an item.** Approved document B vol 1 BS9991 Approved document B vol 2 BS9999 Fire engineered approach BB100 HTM0502 BS7974		se m	Choose an item	Choose an item	Choose an item

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- ADB States
- 3.49 There should therefore be some means of ventilating the common corridors/lobbies to control smoke and so protect the common stairs.

- 3.51 Smoke vents should comply with one of the following.

- a. They should be located on an external wall with minimum free area of

$1.5m^2 = 0.9m^2$ Aa

- Free area of smoke ventilators
  - The free area of a smoke ventilator should be measured by the declared aerodynamic free area in accordance to **BS EN 12101-2**

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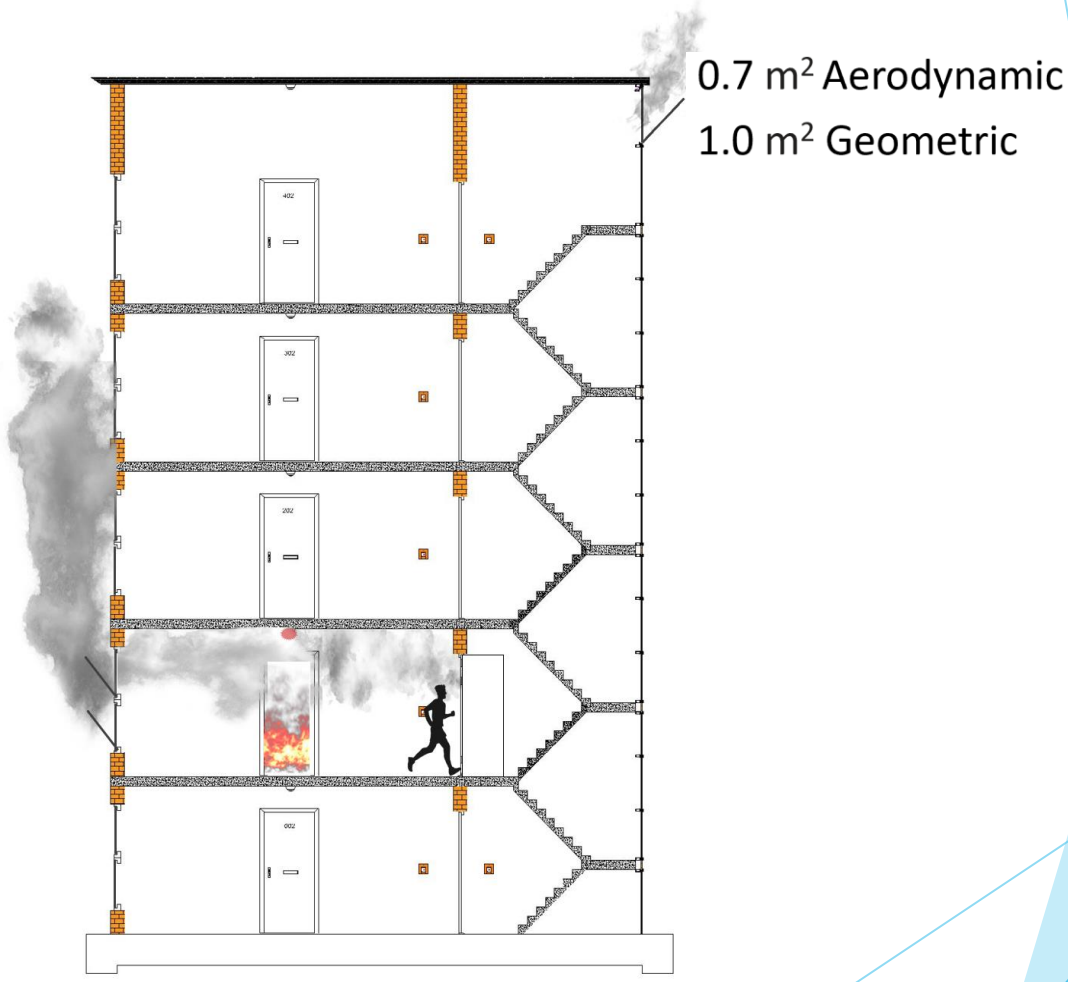
Escape Stairs



0.7 m^2 Aerodynamic
1.0 m^2 Geometric

End of Corridor

0.9 m^2 Aerodynamic (Aa)
1.5 m^2 Geometric

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- How?
  - Which products should I be using?

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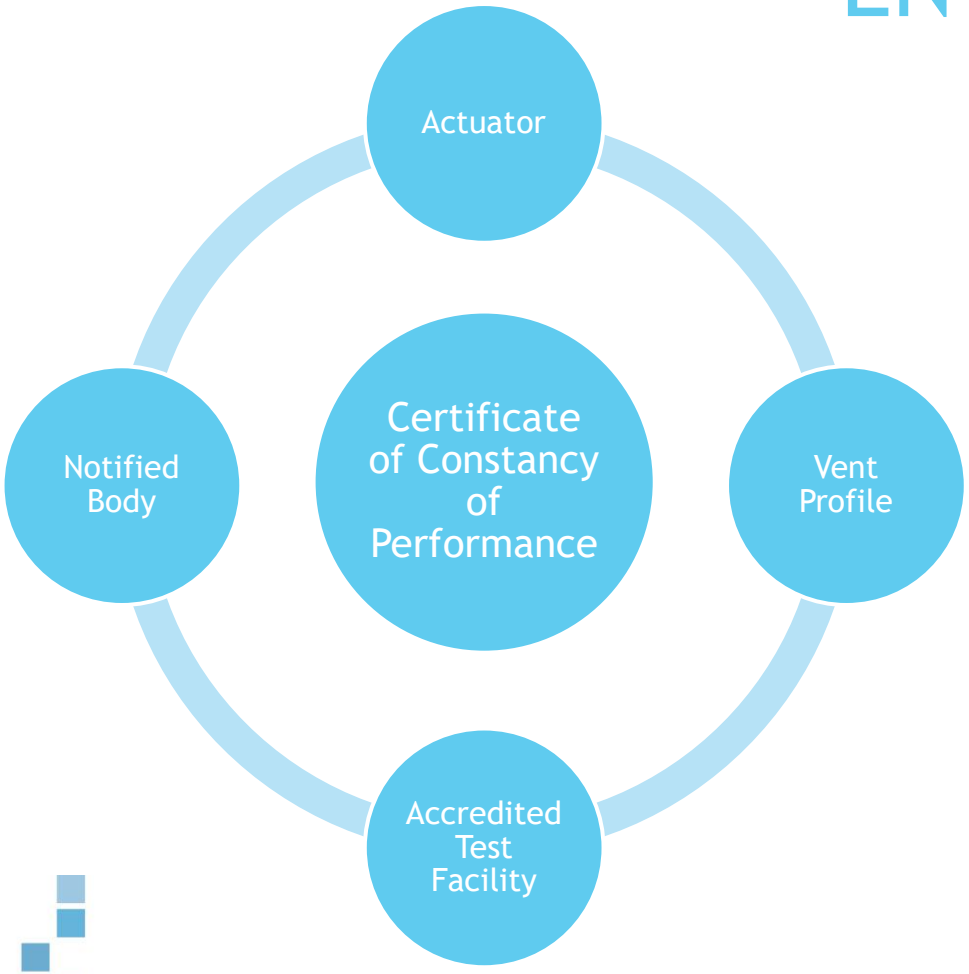
EN12101-2 Test Criteria



Annex A
(normative)

General testing procedures

A.1 Test sequence

For type approval testing carry out the tests in the following sequence:

- annex B, determination of the aerodynamic free area;
- annex C, reliability test;
- annex D, opening test under load;
- annex E, low ambient temperature test;
- annex F, wind load test;
- annex G, heat exposure test.

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Performance Criteria

- Declared Essential Characteristics - table ZA.1 of the CPR.

Construction Products: Natural smoke and heat exhaust ventilators

Intended use(s): Natural smoke and heat exhaust ventilators for smoke and heat control in construction works

Table ZA.1 — Relevant clauses

Essential Characteristic	Requirement Clause in this European Standard	Mandated levels and/or classes	Notes:
nominal activation conditions/ sensitivity	4.1 4.2		
response delay (response time)	7.1.2		s
operational reliability	7.1 7.4		
effectiveness of smoke/hot gas extraction	6		
aerodynamic free area	6.		m^2
performance parameters under fire conditions	7.5		
fire resistance – mechanical stability	7.5		
ability to open under environmental conditions	7.2 7.3		
reaction to fire	7.5.2.1		

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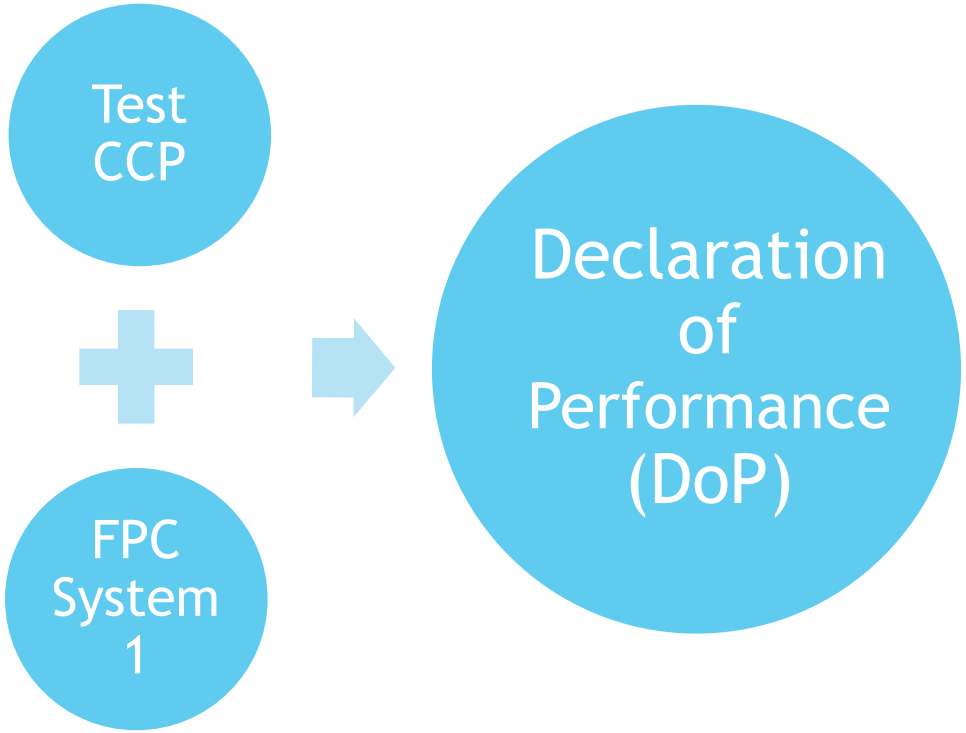
Proof of Compliance – The DoP



1	**Unique Identification Code of Product Type:** Description of the SHEV
2	**Manufacturing Date Code and Serial Number:** As appears on product.
3	**Intended Use:** Natural smoke and heat exhaust ventilator for smoke and heat control in construction works.
4	**Name of Manufacturer:**
5	**System of Assessment and verification of constancy of performance:** System 1
6	**Harmonised Standard covered by Construction Products Regulation:** EN 12101-2:2003 Smoke and Heat Control Systems –Specification for Natural Smoke and Heat Exhaust Ventilators.
8	**Notified Body:** Name & Address of NB Notified body number Performed the initial inspection of the manufacturing plant and of factory production control (FPC), and the continuous surveillance, assessment and evaluation of FPC, and issued the certificate of constancy of performance. Certificate ref
9	**Essential Characteristics:**

Declared performance		EN12101-2:2003
Nominal Activation Conditions	Voltage	4.1/ 4.2
Response Delay	<60s	7.1.2
Operational Reliability	Re (cycles)	7.1/ 7.4 (Annex C/F)
Effectiveness of Smoke/ hot gas extraction	Av area	6 (Annex B)
Aerodynamic Free Area	Av area	6 (Annex B)
Performance Under Snow Load	SL in N/sqm	Annexes D&E
Performance Under Wind Load	WL in N/sq/m	Annex F
Performance Criteria under Fire Conditions	B temp	7.5 (Annex G)
Fire Resistance –Mechanical stability	B temp	7.5 (Annex G)
Ability to open under Environmental Conditions	T temp	7.2/ 7.3 (Annex D/E)
Reaction to Fire	A1	7.5.2.1

10	**The performance of the product identified in sections 1 and 2 above is in conformity with the declared performance in section 9 above.** The declaration of performance is issued under the sole responsibility of the manufacturer identified in section 4 above.

Date:		Signed:	
Place of Issue:		Title	

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NSHEV Manufacturing Process

- Manufacturing certification - table ZA.2 of the CPR.

ZA.2 Procedure(s) for the attestation of conformity of products

Natural smoke and heat exhaust ventilators for the intended use listed shall follow the system of attestation of conformity shown in Table ZA.2.

Table ZA.2 — Attestation of conformity system

Product	Intended use	Level(s) or class(es)	Attestation of conformity system
Natural smoke and heat exhaust ventilators	Fire safety	-	1
System 1: See Construction Products Directive Annex III.2.(i), without audit testing of samples.			

The product certification body will certify the initial type testing of all characteristics given in Table ZA.1, in accordance with the provisions of 8.2 and for the initial inspection of the factory and of the factory production control, and for the continuous surveillance, assessment and approval of the factory production control, all characteristics shall be of interest to the approved body, see 8.3.

The manufacturer shall operate a factory production control system in accordance with the provisions of 8.3.

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Who Is Responsible ?

- The company or person that placed the product onto the market MUST provide a DoP

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Product Certification Mark

- Up to and after Jan 2023

- Until Jan 2023

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- How?
  - Which products should I NOT be using?

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'tested in accordance with'

'suitable for smoke ventilation'

'tested to Annex G of EN12101-2'

'tested to principles of'

<u>No DoP - No Compliance</u>

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Guidance on Smoke and Heat Exhaust Ventilators.

Applications and the use of Actuators and Ventilators.

EN 12101-2: 2003

Dec 2021

www.smokecontrol.org.uk

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Thank you

Any questions?

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