

HOW THE FIRE INDUSTRY CAN INFLUENCE THE FUTURE OF IOT

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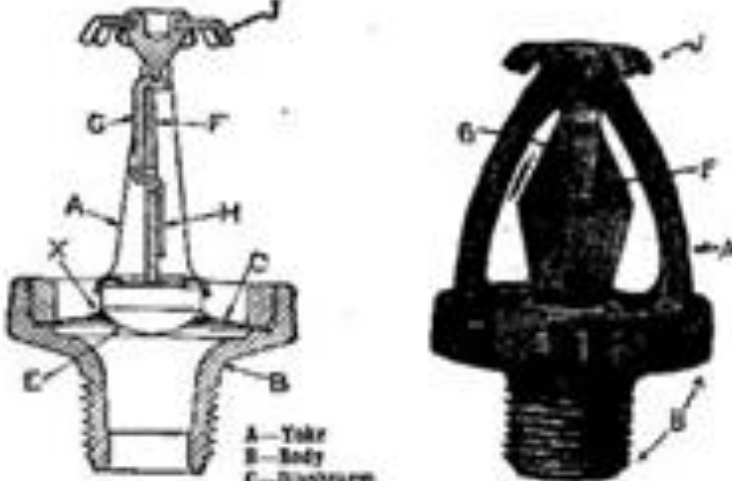
AGENDA

1. Introduction
2. The history of fire sprinklers
3. The problems associated with fire sprinklers
4. Parallels with the insurance industry
5. The insurtech revolution
6. The future of fire sprinklers



FREDERICK GRINNELL

GRINNELL
AUTOMATIC SPRINKLERS
"Standard of the World"
Protect more than \$2,000,000,000 of Business Value



A—Yoke
B—Body
C—Diaphragm
D—Glass Valve
E—Main Strut Piece
F—Bolt on Strut
G—Key on Strut
H—Deflector

17,000 fires extinguished.
Average loss \$265

No life ever lost where "Grinnell's" were in commission

Insurance saving and interest, \$475,000,000

General Fire Extinguisher Company
277 West Exchange St., PROVIDENCE, R. I.

1882 FIRST PRACTICAL FIRE SPRINKLER

1890 GLASS DISC SPRINKLER

COMMONPLACE DESIGN



STANDARDS

Table 4-1 Sprinkler System and Water Supply Design Requirements for Sprinklered Facilities

OCCUPANCY CLASSIFICATION ^a	SPRINKLER SYSTEM		HOSE STREAM ALLOWANCE L/Min (GPM)	DURATION OF SUPPLY Minutes
	DESIGN DENSITY L/min/m ² (GPM/ft ²)	DESIGN AREA m ² (ft ²) ^b		
Light Hazard	4.1 (0.10)	280 (3000)	950 (250)	60
Ordinary Hazard Group 1	6.1 (0.15)	280 (3000)	1900 (500)	60
Ordinary Hazard Group 2	8.2 (0.20)	280 (3000)	1900 (500)	90
Extra Hazard Group 1	12.2 (0.30)	280 (3000)	2840 (750)	120
Extra Hazard Group 2	16.3 (0.40)	280 (3000)	2840 (750)	120

^a Refer to Appendix B for occupancy hazard classification.
^b See paragraph 4-2.3.3.

Note: The protection requirements identified in practices followed throughout civilian industry for Table 4-1 represents the minimum requirements necessary for life safety, and property loss prevention. Table 4-1 is based on loss experience from 1950 to 1977 for occupancies from 1968 to 1977 and from 1981 to 1991 for occupancies from 1988 to 1997 and from 1998 to 2001.

Design and Installation Standards

- Other fire sprinkler standards
 - Used when:
 - Level of hazard exceeding the scope of NFPA 13
 - Specific design requirements for a hazard
 - The approving authority requires the use of a different standard
 - NFPA 30, 30B, 214, 804
 - Insurance providers may develop own standards.
 - Design professional determines best to use.

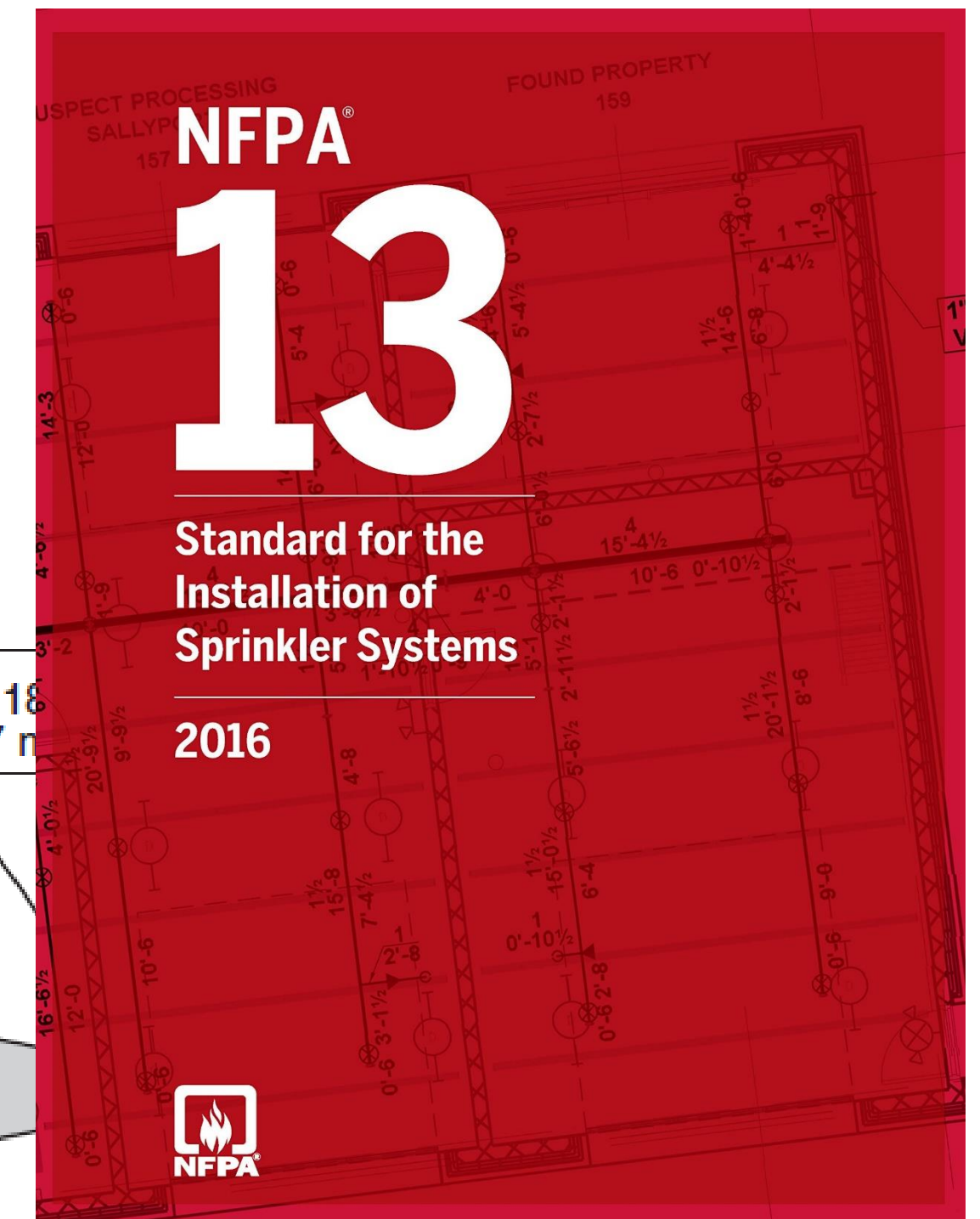
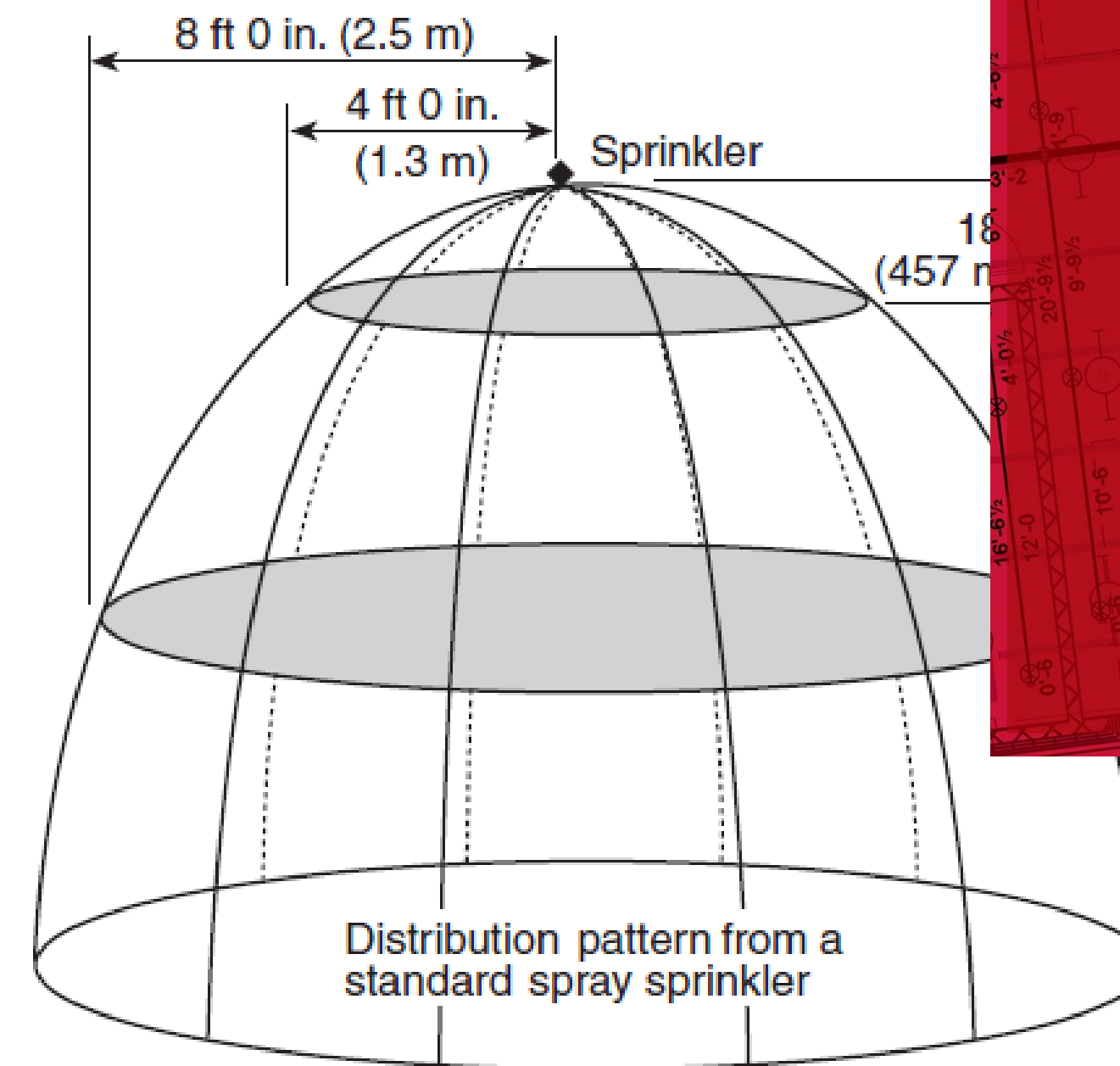
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Components for residential sprinkler systems – Specification and test methods for residential sprinklers

bsi.

...making



PROBLEMS WITH TRADITIONAL FIRE SPRINKLERS



POOR RELIABILITY



DIFFICULT TO
RETROFIT

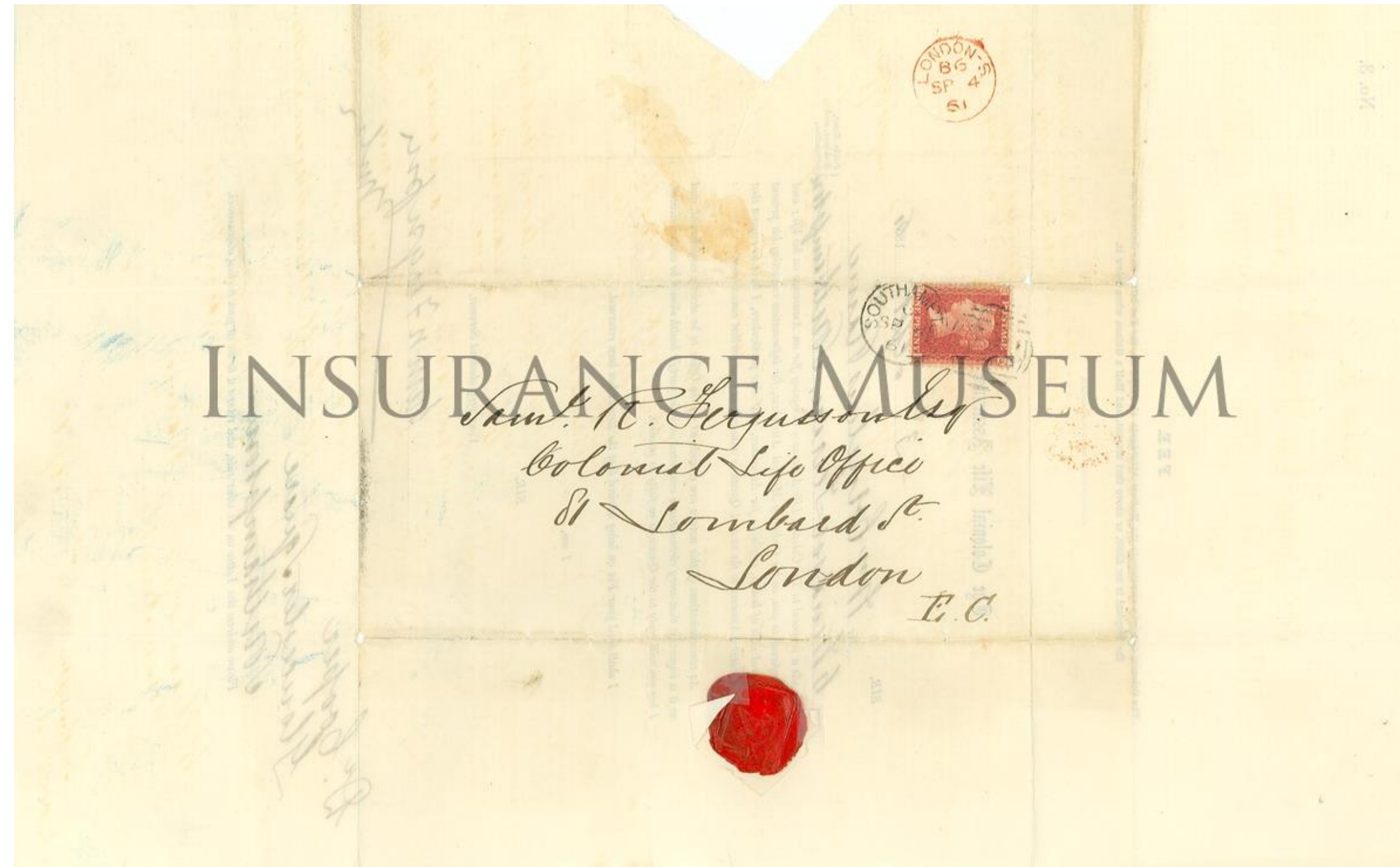


WATER DAMAGE

EFFECTIVENESS



BACKGROUND OF MODERN INSURANCE

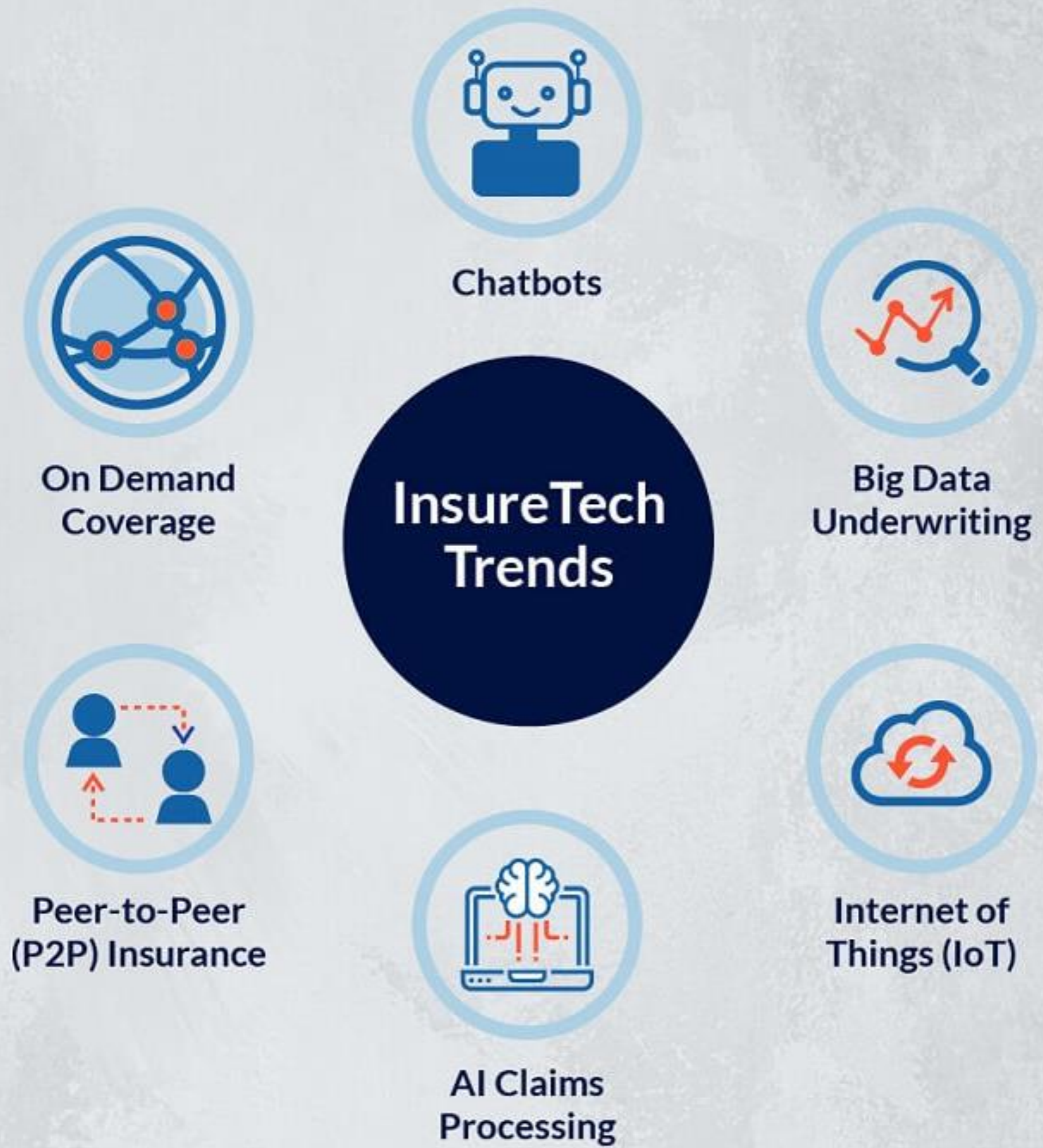


1861 UNDERWRITERS SOLD THE FIRST PAPER POLICIES
TO PROTECT LONDON HOMES FROM FIRE

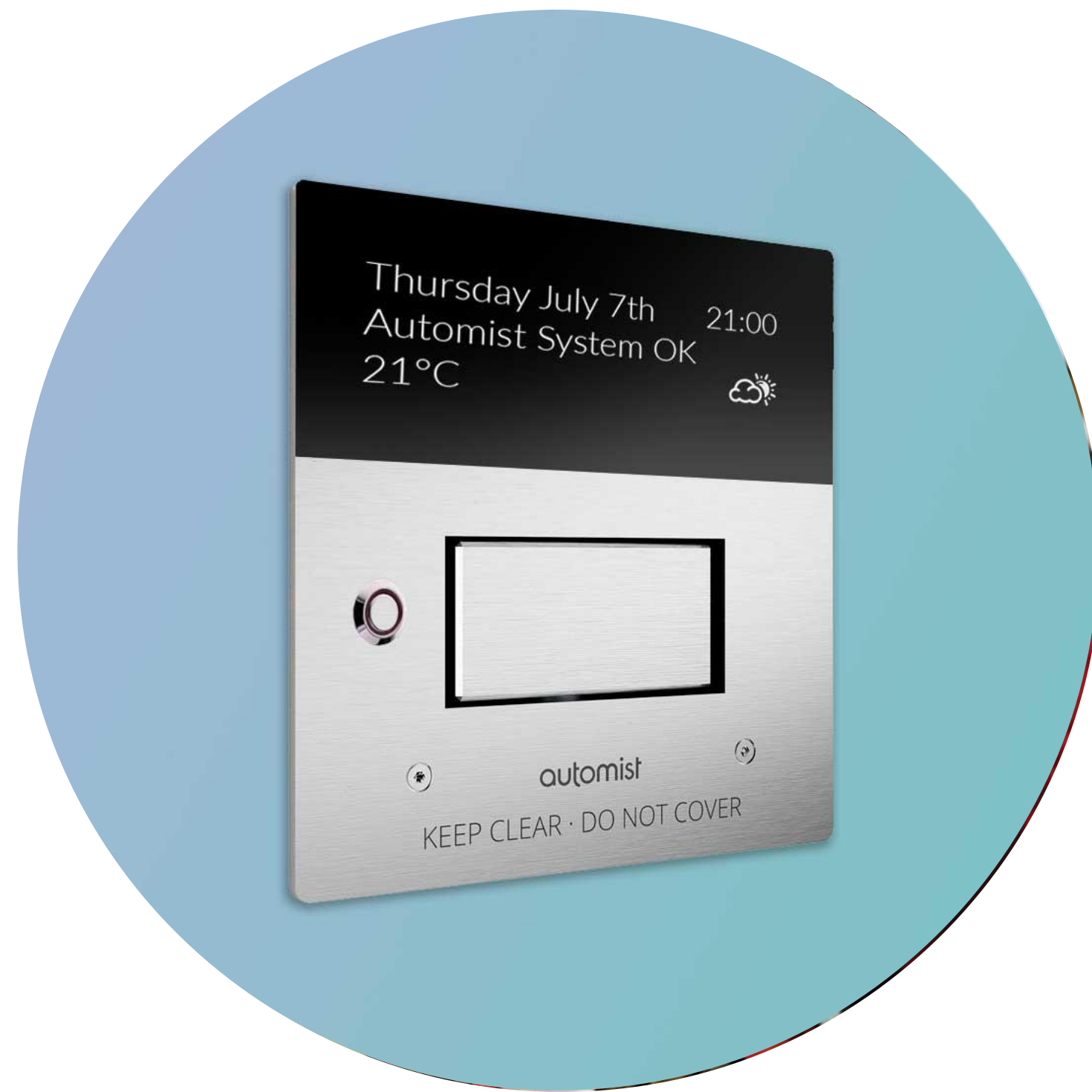
PARRALELS

1. MANDATED
2. PRICE SENSITIVE
3. IGNORED DURING ITS LIFETIME
4. SMALL OVERSIGHT CAN RESULT IN PROBLEMS
5. POOR CUSTOMER SATISFACTION WHEN ACTIVATED

MODERNISATION OF INSURANCE



MODERNISATION OF FIRE SPRINKLERS



USER ENGAGEMENT

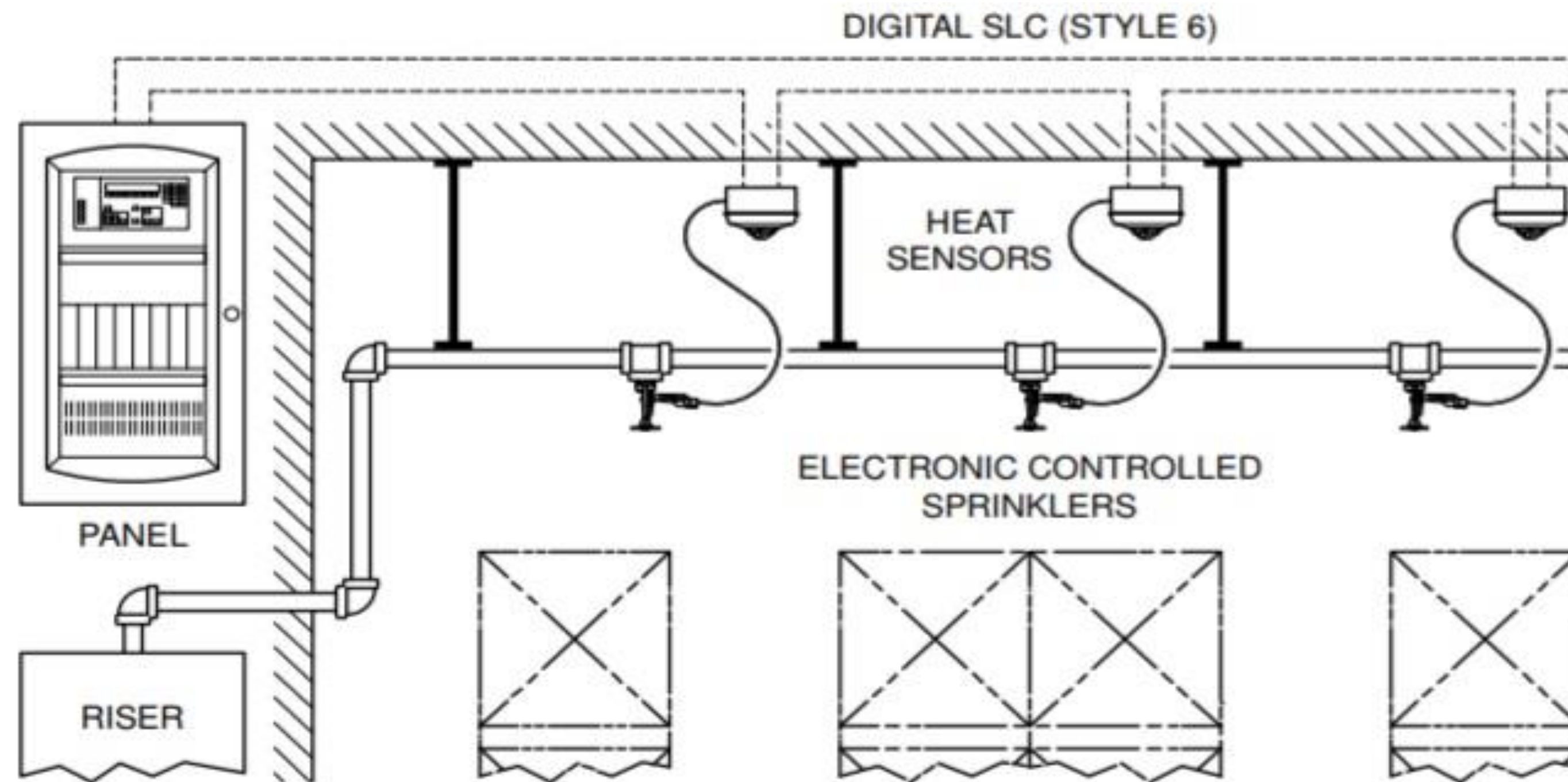


RETROFITTABLE



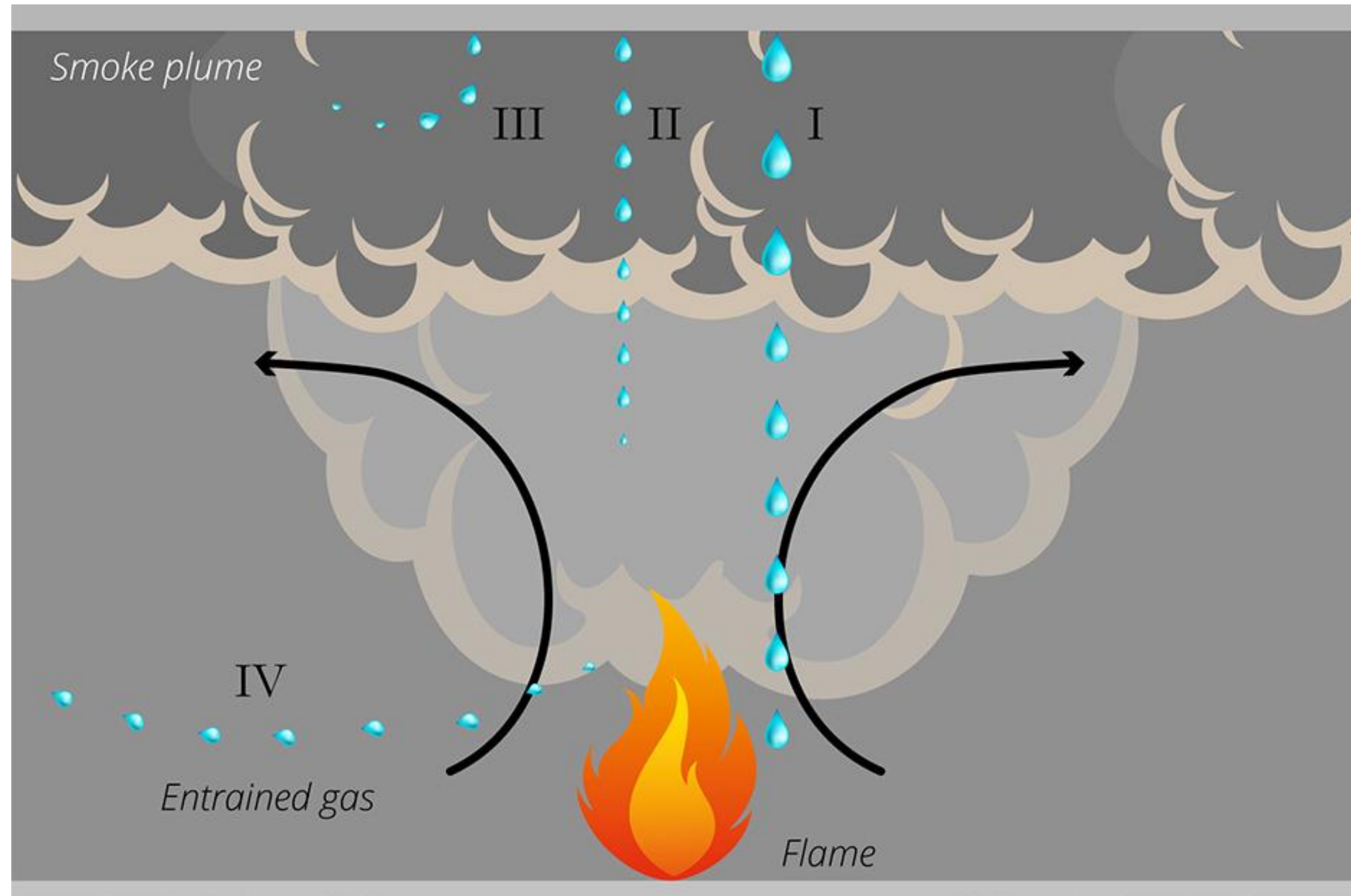
WATER DAMAGE

MODERNISATION OF FIRE SPRINKLERS



ELECTRONIC CONTROLLED SPRINKLERS

ARCHIMEDES PRINCIPLE OF BUOYANCY



FIRE SPRINKLER & INSURANCE CONVERGE

SPRINKLERS 0-10%
despite of the water damage



IOT SMOKE ALARM 0-5%
connected to Wi-Fi to report status



a smarter modern fire sprinkler ~30%?

