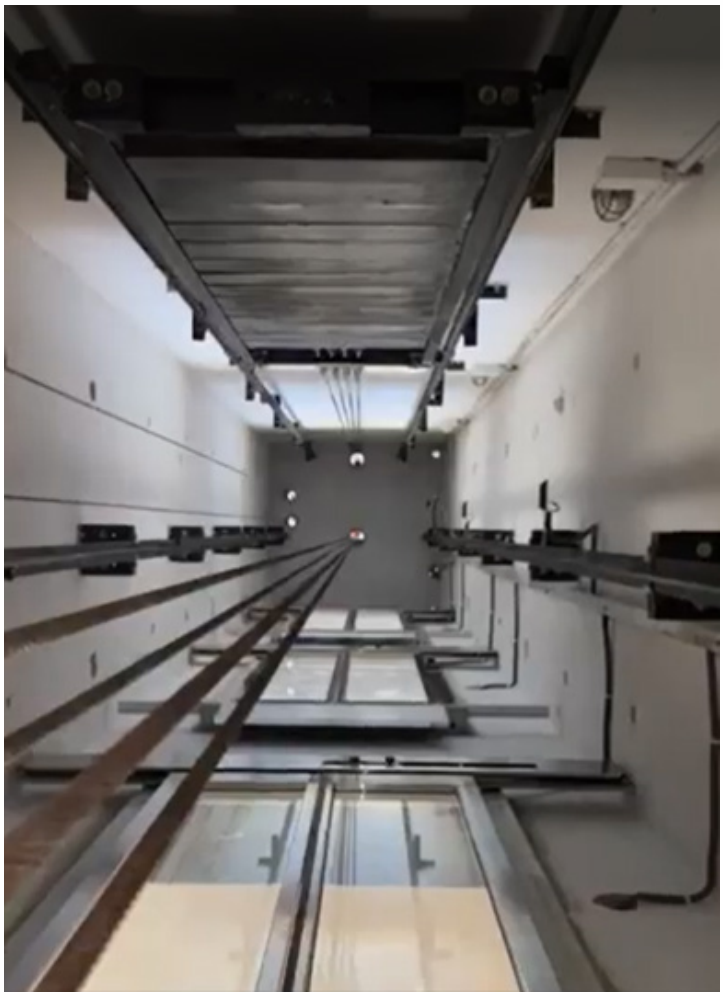
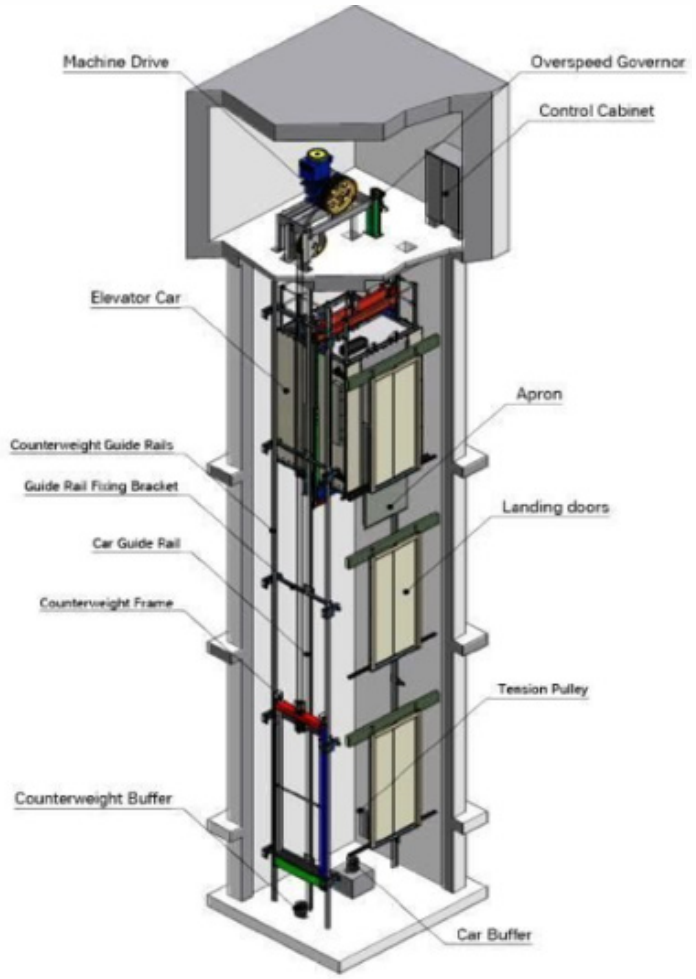
incite fire

Lift Shaft ASD Application Note - Pressurised



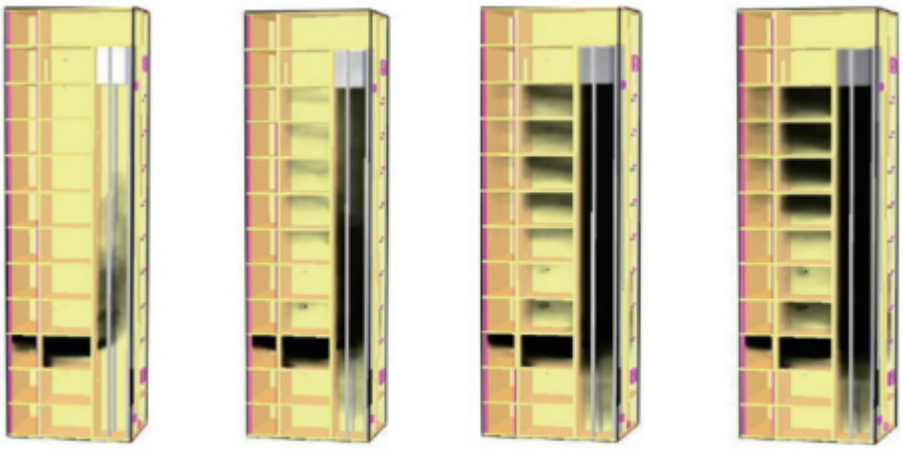


APPLICATION

Lift shafts and Elevators although offering great benefits in ferrying people to different floors on a building do also present a real risk from a Fire Engineering perspective. Having a common shaft with access to multiple floors within a building provides a path for not only flames but also toxic smoke within a building.

The hollow column of an elevator shaft can become filled with smoke, acting like a chimney. Even if fire is isolated to one floor, smoke can travel further up the building – causing damage and endangering occupants with smoke inhalation.

This application note will look at how to apply Securiton Aspirated smoke detection systems to offer reliable smoke detection with ease of maintenance.



CHALLENGES

Servicing of smoke detectors in lift shafts is very difficult and requires elevators to be taken off line while work is being carried out causing great disruption to the normal everyday flow within a building.

Elevator company will also be required on site to accommodate the isolation of elevator while work is being carried out adding to the cost of maintenance.

Smoke testing is part of the maintenance requirement however there may also be the need to replace faulty detectors within shaft requiring special access and work permits in many cases.

WHY ASPIRATED SMOKE DETECTION?

Securiton Aspirated Smoke Detection

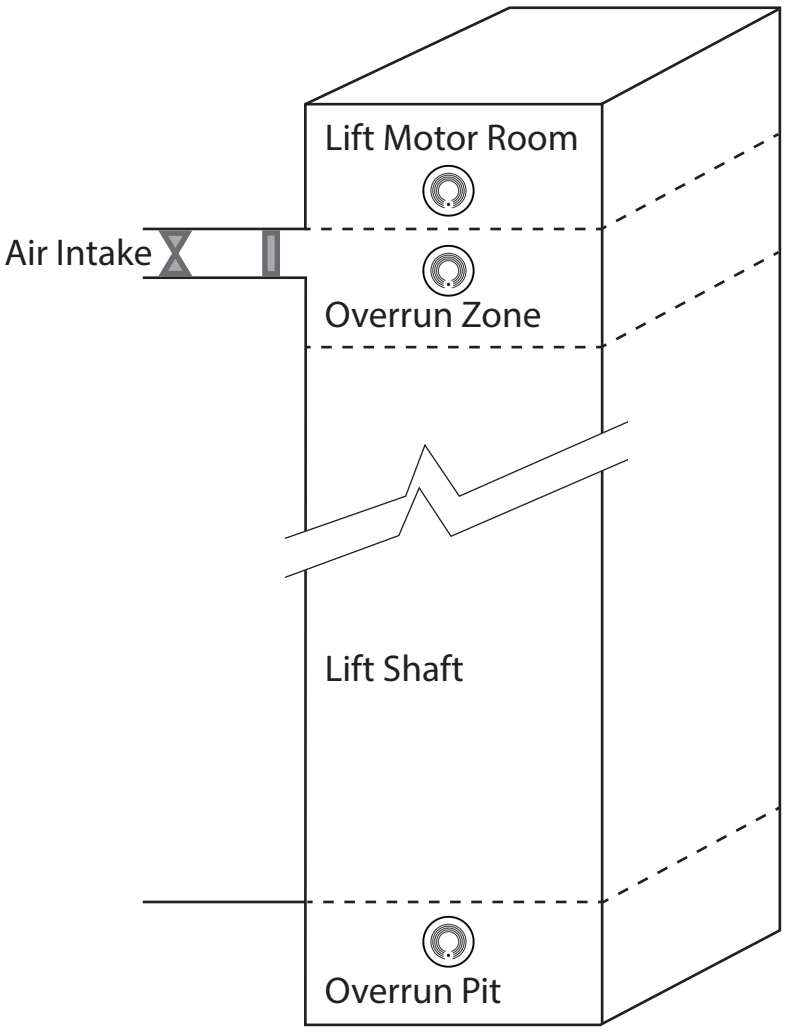
- Securiton Detectors can be mounted outside the lift shaft allowing easy access for maintenance and testing requirements.
- If holes become contaminated over time with dust, ASD pipe can be backflushed with compressed air or vacuumed as part of the maintenance program.
- Pipe work is run inside lift shaft and ideally extended back outside shaft where a remote test point can be used for annual testing requirements.
- Cost effective and reliable solution for lift shaft protection.
- Flexible sensitive settings and airflow settings allowing for trouble free operation.
- Simple out of box configuration, no PC required

SEC-ASD-531	AS 7240.20		
	Class A	Class B	Class C
Max. overall length of the sampling pipe tube network	75 m	75 m	75 m
Max. length from ASD to farthest sampling hole	40 m	40 m	40 m
Max. number of sampling holes	6	8	12

AS1670.1 Standards Requirement

Lift shaft Pressurisation system

- Smoke detector at top of shaft
- Smoke detector at bottom of shaft
- Smoke detector in lift motor room
- Each detector shall indicate as an individual zone of FDCIE

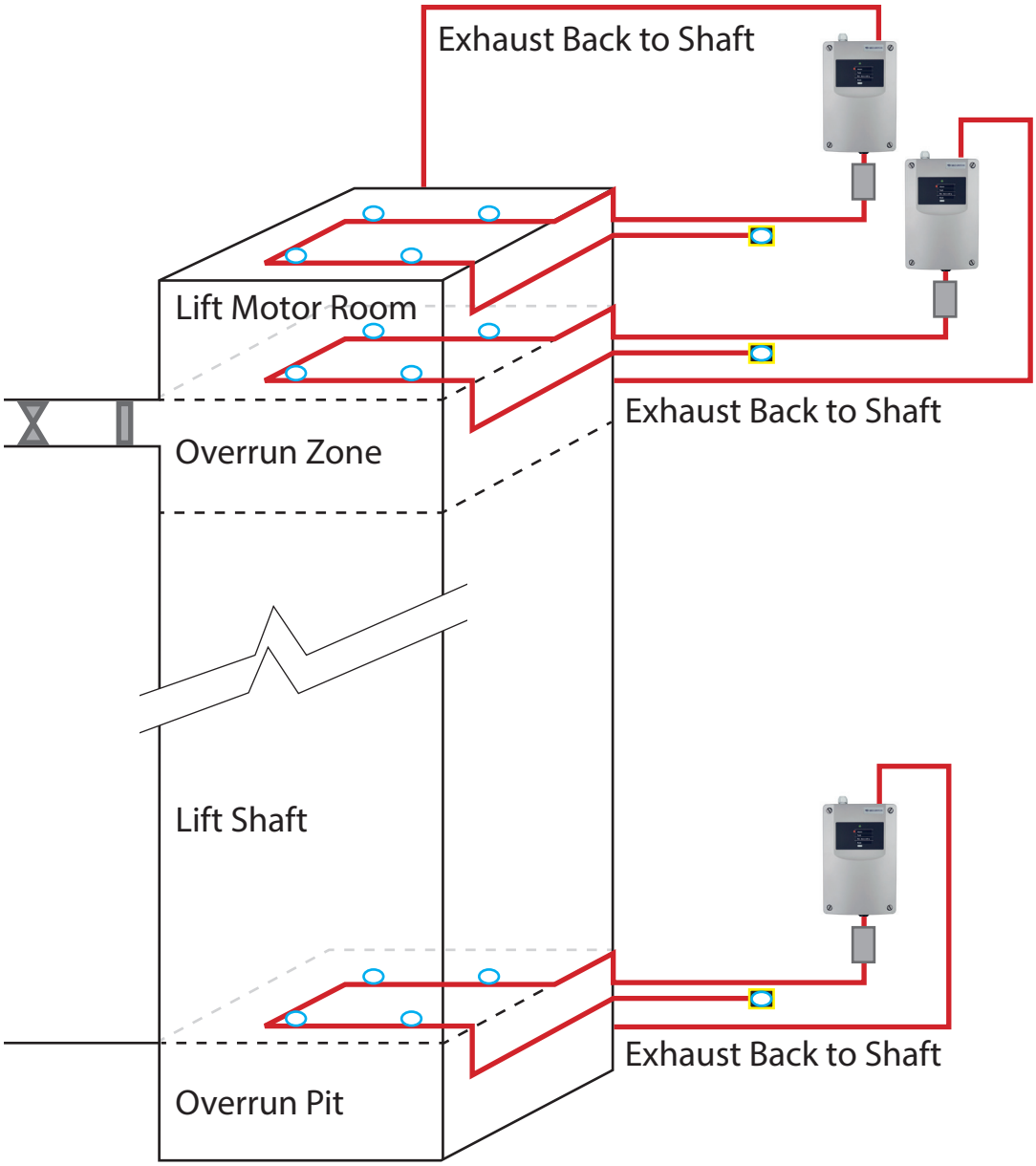


Smoke detector

Motorised damper (normally closed)

Pressurisation fan

DESIGN PROPOSAL

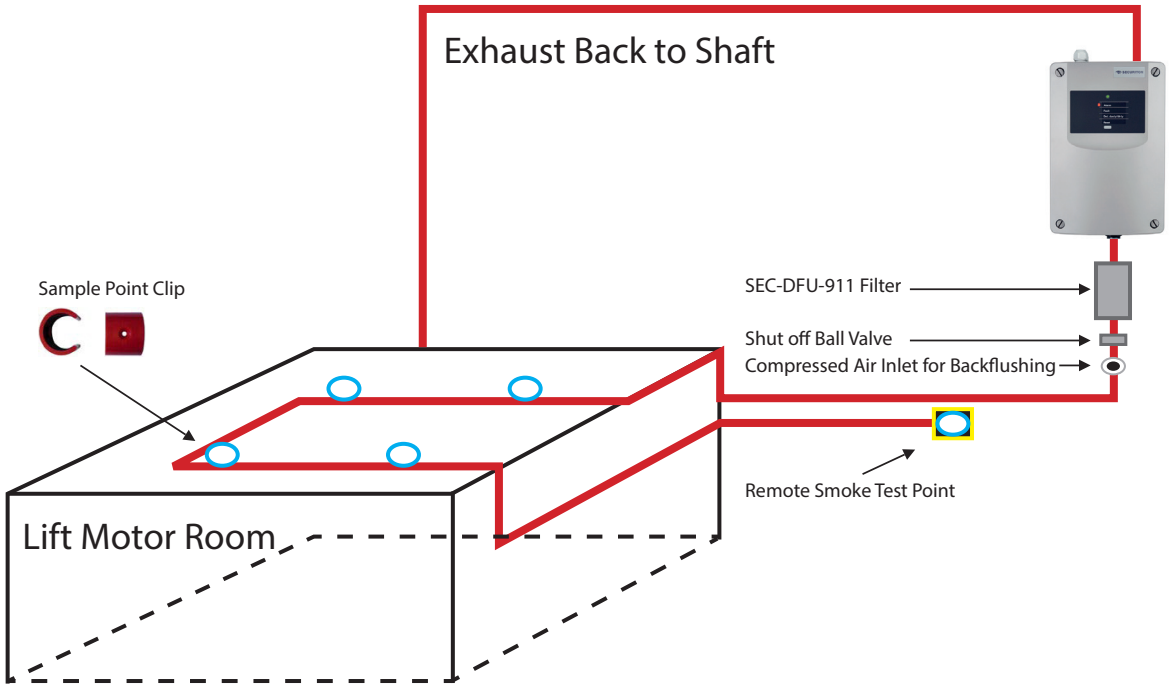


SEC-DFU-911 Filter

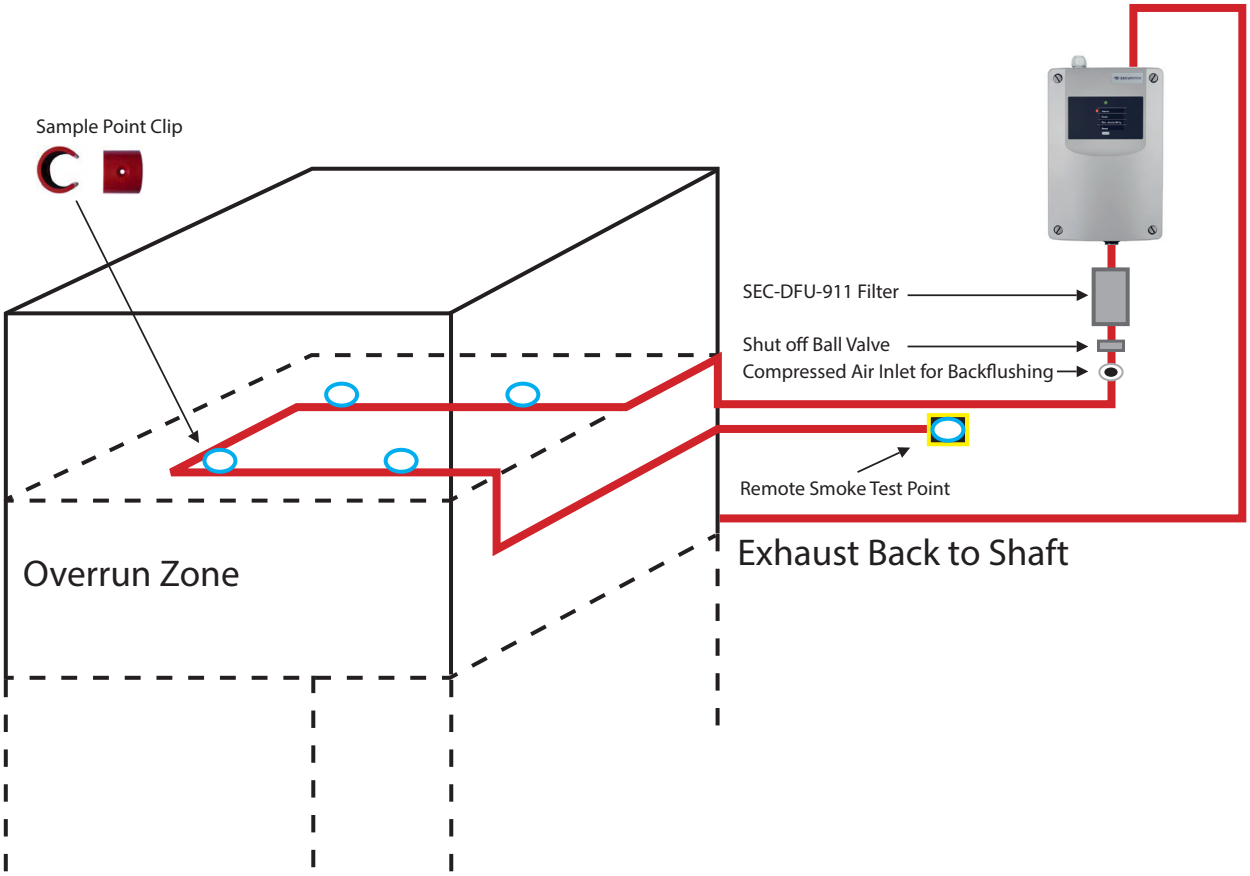
Sample Point Clip

Test Sampling Point

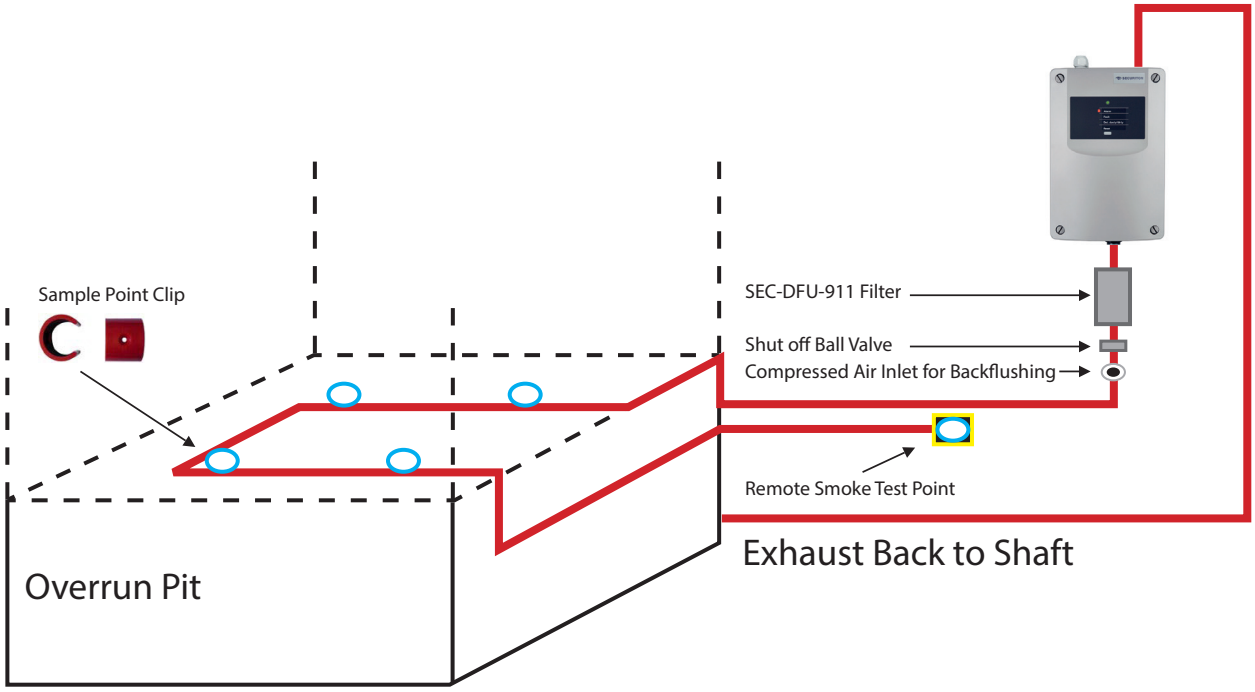
LIFT MOTOR ROOM



OVER RUN ZONE



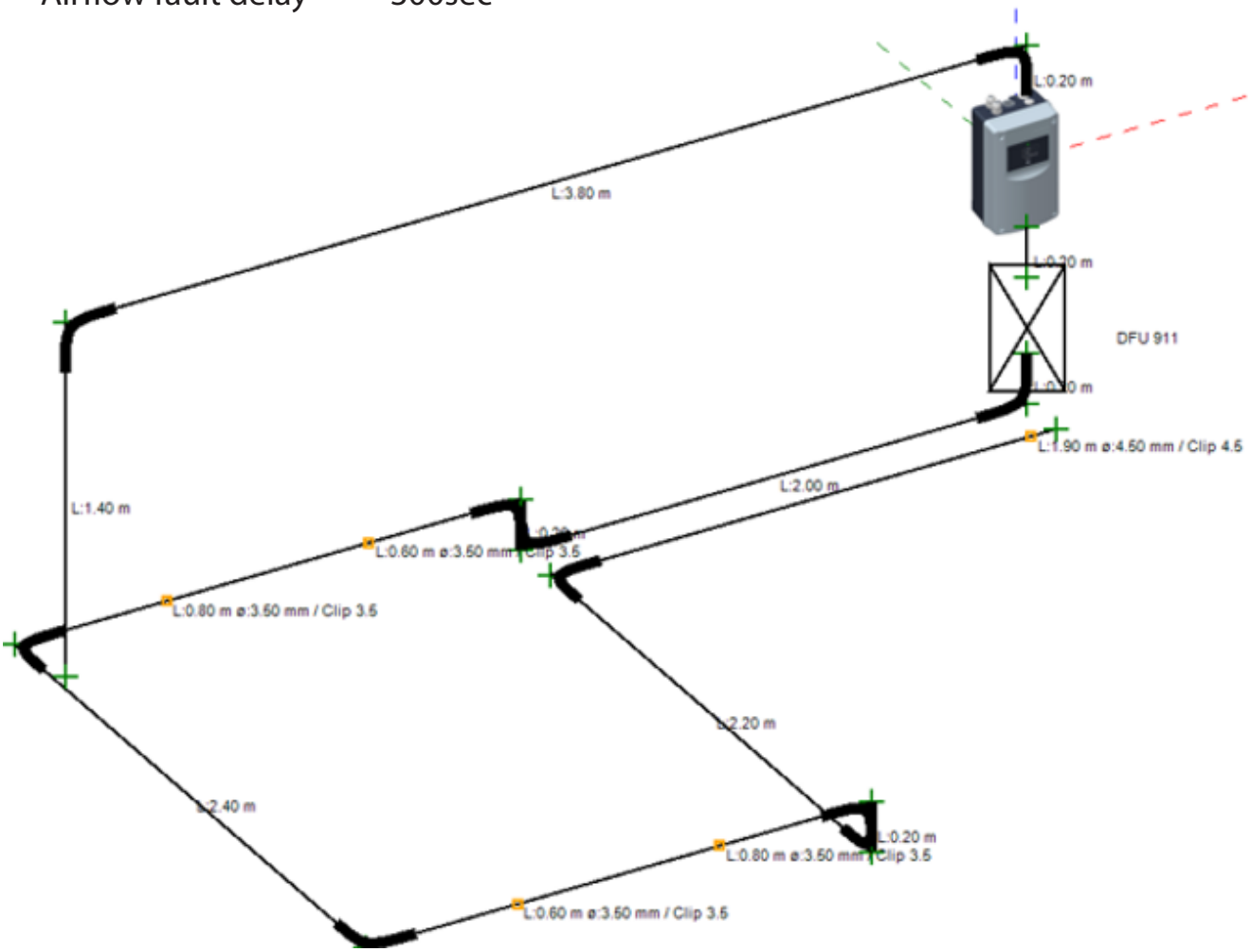
OVER RUN PIT


Sample Point Clip
SEC-DFU-911 Filter
Shut off Ball Valve
Compressed Air Inlet for Backflushing
Remote Smoke Test Point
Exhaust Back to Shaft
Overrun Pit

PIPE FLOW

ASD-531 Settings

- Sensitivity : Class C
- Sample holes : 4
- Airflow fault delay 300sec



BILL OF MATERIAL PER ZONE

Bill of Material		
Part Number	**Description**	**Qty**
SEC-ASD-531	Single Pipe ASD c/w smoke sensor	1
SEC-DFU-911	Air Filter	1
HFTS2-FDSG	HFT Pipe 4m Length (Additional for Pit over run return)	5
HFTSC25	HFT Coupling	5
HFTSSB25	HFT Small radius bend	10
SEC-CLIP-3.5-PA	Sample point clip	4
HFTFRCAP25	HFT End Cap	1
HFTC25FR	HFT Pipe Clip	20
HFT-DG35	HFT Glue Plunger	1
HFT-TTA-35-MN	HFT Nozzle	1
HFT-TTA-35	HFT Glue	1
SEC-MU-25-ABS	Manual Ball Valve	1
PS407-M2D	Power supply 2.5 amp 24Vdc	1
BATT 7	7 Amp / hour battery	2