

MAINTENANCE REPORT

GRENFELL TOWER SMOKE VENT SYSTEM





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SECTION 1.

INTRODUCTION

Grenfell Tower is a 20 story block of flats with approximately 6 flats per floor. The central lobby on each floor is fitted with two outlet smoke dampers at high level and inlet fresh air makeup dampers at low level on the opposite wall.

The damper were installed in or around 1974 and are spring operated multi bladed damper which we assume are fire rated. The dampers are held closed against the spring by use of a solenoid which is fired locally by the fire alarm system on each floor. When the smoke detector in the lobby is activated the fire alarm system sends 24 volts to the solenoid which releases the damper. When released the dampers have to be manually closed.

To manually close the damper a tool is located on-site adjacent to the fire alarm panel which resets the outlet damper. The inlet or fresh air dampers can only be reset by removing the fascia grille and reset with a reset tool which we are in the process of manufacturing.

The system is also provided with a set of extract and pressurisation fans in the roof plant room which can be operated at the fire panel by using an override switch. This is generally operated by the fire service if required.

We have been asked to provide quarterly maintenance on the system. As part of our maintenance procedures we require that on the first visit we fully operate and test the entire system. This was carried out and recommendations are detailed in this report.



SECTION 2.

SCHEDULE OF INSTALLED EQUIPMENT

| Description | Qty |
|-----------------------------------------|-----|
| Master Control Panel | 1 |
| Battery Backup Panel and Batteries | 1 |
| Exhaust Fans | 2 |
| Pressurisation Fans | 2 |
| Fireman's Override switch smoke extract | 1 |
| Pressurisation Fan override switch | 1 |
| Smoke outlet dampers | 40 |
| Fresh Air Inlet Dampers | 40 |
| Fan Control Dampers | 5 |
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SECTION 3.

TEST RESULTS

On the first visit we carried out a full operation of the smoke vent system and checked all wiring, fixings, terminals etc to ensure that the system was in full working order.

We tested the fan on normal power and for 30 minutes on battery power and checked that the relevant motorised dampers operated to enable extract and pressurisation to occur.

This part of the test was satisfactory.

On our first visit we found that all fresh air inlet dampers were in the open position and had been for some years (possibly over 5 years according to the caretakers on site). Due to this, most of them were seized open or so contaminated that they were impossible to close and reset. We informed yourselves and we were contacted to sort this problem out which we did.

On our visit to carry out full testing of the inlet and outlet dampers following the refurbishment work we found the following :-

| | |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Level 20 | All outlet dampers were working correctly One inlet damper operated so we adjusted the second and re-tested and all dampers working correctly |
| Level 19 | All dampers working correctly |
| Level 18 | All Damper working correctly |
| Level 17 | All Dampers working correctly following adjustments. |
| Level 16 | One Inlet damper required further adjustment and all working correctly |
| Level 15 | All dampers working correctly |
| Level 14 | All dampers working correctly |
| Level 13 | All dampers working correctly |
| Level 12 | All dampers working correctly |
| Level 11 | All dampers working correctly |
| Level 10 | All dampers working correctly |
| Level 9 | All dampers working correctly |
| Level 8 | All dampers working correctly |
| Level 7 | All dampers working correctly |
| Level 6 | All dampers working correctly. Some fire damage to outlet dampers. Fixed and retested and working correctly. |

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- Level 5 One damper required further adjustment. All dampers working correctly.
- Level 4 All dampers working correctly
- Level 3 All dampers working correctly
- Level 2 All dampers working correctly
- Level 1 All dampers working correctly following inlet damper further adjustment.



SECTION 4.

COMMENTS & RECOMMENDATIONS

We found that the inlet dampers could not be reset with our new reset tool because the leverage required to reset was so great that to achieve this the fascia grilles had to be removed.

The solution to this is to replace the spring actuators with electrically operated linear actuators which will allow the dampers to motor open in a fire and them motor closed when the system is reset.

Due to the spring force on the inlet dampers the actuators are not reliable and may not operate on every activation.

The outlet damper have very little force and are reliable.

Apart for the above, and its age, the system is generally in good operational order and is capable of being maintained for the next 5 years **apart from the inlet dampers.**



SECTION 5.

QUOTATION FOR ADDITIONAL WORKS

To change the actuation on 40 x Inlet dampers so that they will automatically open and close without manual intervention, The work required is as follows:-

Each damper requires removing, the internal activation spring removing and then re-fitting. The solenoid actuator is to be removed and a reverse polarity actuator installed to operate the damper blades.

The existing wiring can then be used and a small panel installed next to the existing fire relay panel on each floor. (this may be able to fit into the existing box. This will require a 240 volt supply on each floor (to be provided by others)

To carry out this recommended work the costs are as follows:-

| | | | |
|----|---|------------------|--------------|
| 40 | x | Linier Actuators | £297.00 each |
| 20 | x | Control Panels | £440.00 each |
| 1 | x | Labour | £5,500.00 |
| 1 | x | Commissioning | £1,100.00 |

Total project cost **£27,280.00**

These works will then allow the inlet dampers which have caused an ongoing issue will then automatically open and close which signal.

These works will take approximately 10 days to complete from start to finish and works will commence two weeks from receipt of the official order.