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Ensuring correct installation of fire and smoke dampers can be critical

2 years ago

Gavin Richards is Fire Damper Director for Indepth Services, one of the UK's leading providers of specialist fire safety services.

Indepth Services was acquired by Premier Technical Services Group Ltd (PTSG) in January 2023, becoming crucial in the Group's provision of Fire Solutions (PTSG Fire Solutions Ltd is the largest and fastest growing of PTSG's five independent business divisions).

Mr Richards first used Linkedin to raise his concerns over the use of Tek Screws in ductwork and damper installations. Here, he summarises his concerns, the feedback he received from colleagues and peers and the suggested actions to maximise safety in buildings.

Fire damper installation and the impact on safety

Fire and smoke dampers are an essential element of any fire containment system. When temperatures exceed a certain level, fire dampers close automatically to prevent fire from spreading. Smoke dampers respond to the detection of smoke and close automatically to stop smoke spreading. While they are not visible like sprinklers, they are just as important.

Regarding the use of Tek Screws in ductwork and damper installations, I referred back to BESA (Building Engineering Services Association) for further guidance. I know that some working in the passive fire services sector feel that Tek Screws shouldn't be used, the reason being that if a fire breaks out, the falling ductwork could pull the damper with it – causing a breach in the fire compartment. A traditional rivet has a lower melting point and some people I've spoken to feel it is less likely to disrupt the functioning of the breakaway joint.

I asked my Linkedin connections if they know whether controlled fire tests have been carried out to test Tek screws used in this scenario. I have summarised their insights below:

- The BSE published this test report from 2005 involving the use of rivets and breakaway joints, which is an interesting read: https://files.bregroup.com/bre-co-uk-file-library-copy/filelibrary/pdf/rpts/partb/ducts_and__dampers.pdf
- It was stated that damper manufacturers require the breakaway joint to reduce the pressure on the damper during a fire.
- Another connection confirmed my thoughts that the damper manufacturer doesn't test with ductwork attached for various reasons.
- Someone else came forward with an interesting view regarding the need for ductwork to stay in position.
- I was also made aware that HSE guidance on this issue has been released. I also found HSE guidance from 2005 for the need to inspect dampers (although this is under the HSE off-shore heading).

Everyone is generally agreed that:

✔ Manufacturers' installation instructions should always be followed.
✔ Tek Screws are not the only issue with damper installs. Our teams regularly encounter incorrectly positioned dampers, the wrong type of damper installed, incorrectly supported dampers, dampers installed in the wrong orientation and issues with fire barrier to name a few.
✔ There's no guarantee that all Tek Screws can be removed.
✔ It can be extremely expensive to remove all screws especially if compartment walls need to be damaged or services relocated.
✔ There's a need for better inspection and sign-off at the point of install.
✔ Improved system design would alleviate many testing and inspection issues.
✔ Both vent cleaners and damper testing engineers would like to see no Tec Screws used from an HSE view point.

Finally, as BESA Group was the last organisation to highlight the issue, I have asked for their guidance on what to do when: a) a manufacturer states the screw doesn't impede the damper operation b) another says they can be used and c) if not all Tec Screws cannot be removed, what is their recommendation as in my view there are multiple options.

I look forward to updating you with their response.

Safety in your premises

If you're responsible for fire damper compliance in your premises, let's talk. Call me on 020 8661 7888.