



Installation of fire dampers in walls and floors

It is imperative to note that all fire dampers must be installed as per the manufacturers fire tested methods to comply with CE. Where this is not possible, then the design team must agree an engineered alternative.

In the absence of an Irish or a European standard dealing with installation, Safeguard Systems has compiled this installation guide to deal with metal blade (UK type) and principally insulated blade (European type) dampers. Please also view our damper guide which is available on our website.

- Metal blade fire dampers generally provide E classification
- Metal blade motorised fire dampers (commonly known as smoke/fire dampers in Ireland) generally provide ES classification
- Insulated blade fire and motorised fire dampers generally provide EIS classification

In Ireland, we are familiar with the metal blade dampers and lean on HVAC DW145 as a UK guide to good practice for the installation of fire and smoke dampers. In this guide it states that the damper should be fixed to the structure and supported independently of the connecting ductwork i.e. if the ductwork were to be removed from both sides of the damper it would continue to be an integral member of the barrier it protects.

We also lean on HVAC DW144 for UK sheet metal ductwork specifications. In this document it states that if the ductwork connection to a damper's spigot or sleeve is either a flanged breakaway joint, secured with plastic (or similar) fixings, or a flexible joint then the connecting ductwork must be supported adjacent to this joint.

Actionair dampers (metal blade) are tied to the structure in some way, dependant on the type of damper installed; therefore we shall concentrate on Rf-t dampers (insulated blade).

Rf-t dampers and all other European insulated blade type dampers are fire tested using the same standard as Actionair dampers but are typically not tied to the structure so that if a lateral force were applied to the damper and attached ductwork potentially it could push/pull the damper out of the barrier it protects. Therefore we shall lean on the Austrian standard H 6031 in the absence of any other suitable guidance.

Installation in partition/stud walls using flexible breakaway joints (see figs 1 & 2)

Rf-t dampers may be installed in non-load bearing walls (e.g. partition/stud) provided the wall is a metal-stud with 2 plates on each side and the total fire resistance of the wall is the equivalent to metal studs Gypsum plasterboard type A or F depending on time classification required. Flexible breakaway joints should be used so that in the event of a fire the fire damper and soft fire stop remain in the barrier they protect. Flexible breakaway joints must be made of combustible material to ensure complete separation from the fire damper and connecting ductwork in the event of a fire.

Test results obtained in non-load bearing walls may be applied to load bearing constructions of a thickness equal to or greater than that of the element used in the test, provided that the classified fire resistance of the load bearing construction is greater than or equal to the one used in the test. The soft fire stop shall be the same as those used in the manufacturers' fire test. Flexible breakaway joint minimum 1% of the ductwork length, but at least 80mm.

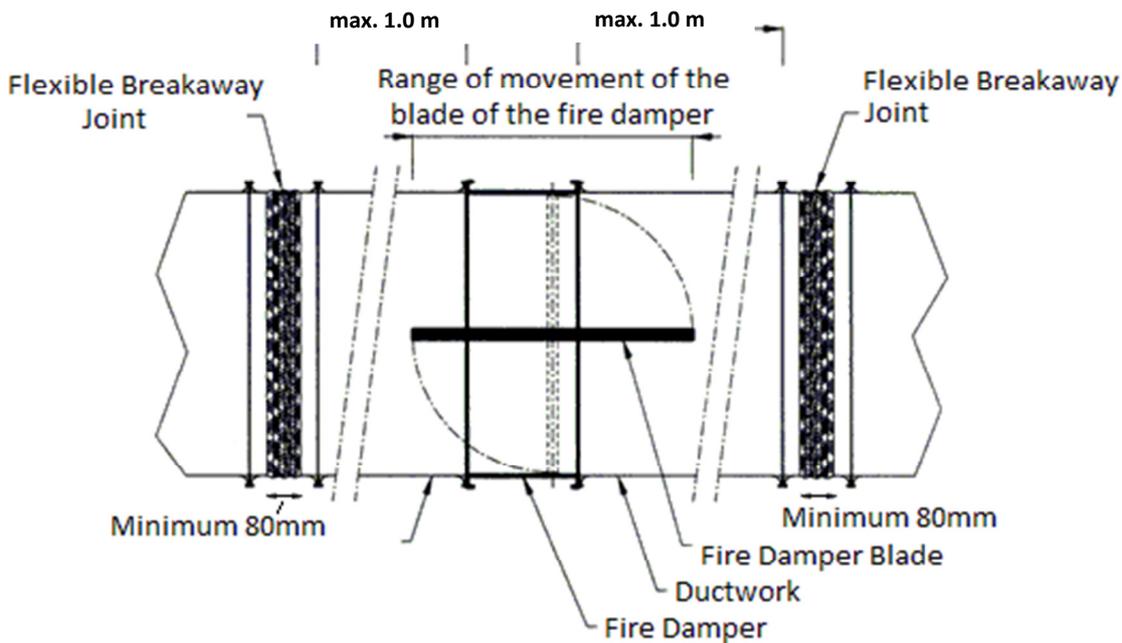


Fig. 1 — Example of an arrangement with flexible breakaway joints

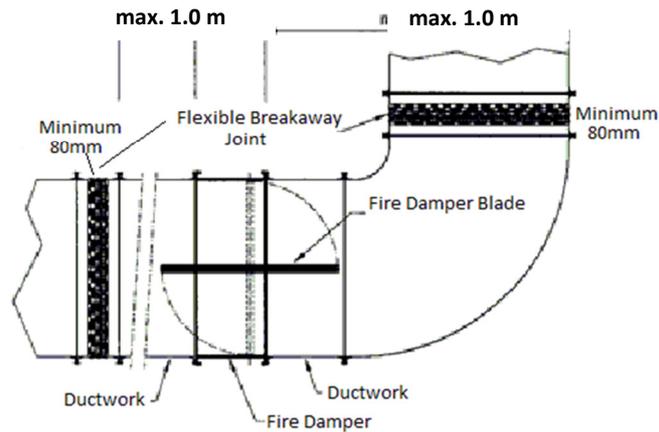


Fig. 2 — Example of an arrangement with flexible breakaway joints and connecting bend

Installation in block/concrete wall or load bearing ceiling/floor (see fig 3)

Fire dampers may be installed in load bearing constructions using mortar to a standard sand / cement mix ratio of 4:1. Alternative fire resisting refractory mortars may also be used providing they have been tested in accordance with EN1366-3:2009 for the required period of fire resistance.

In the event that the ductwork is mounted rigidly to walls and ceilings so that none of the forces exerted on the damper affects its function, then no expansion compensation measures are required.

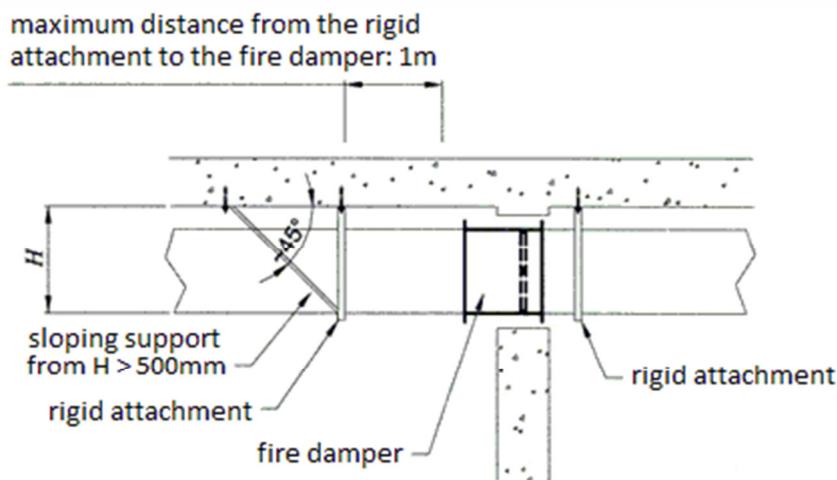


Fig. 3 — Example of a rigid ceiling attachment with a wall penetration

Installation of fire dampers outside walls (see figs 4 & 5)

A fire damper may be installed so that the blade is set in the closed position outside of the wall if fire tested accordingly, the ductwork and/or coating inbetween must have a fire resistance rating at least equal to the wall. If additional mounting elements (tie rods/supports) are necessary for the ductwork section located inbetween the damper and the wall/floor:-

- They must either be protected with a fire resistance rating the same as the wall/floor or
- The mounting elements must be steel and placed at least every 1.5m

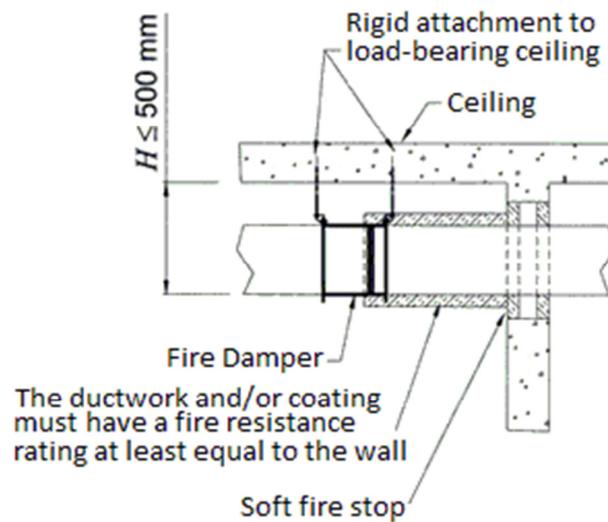


Figure 4 - Example of the installation of a fire damper outside the wall opening suspension depth < 500 mm

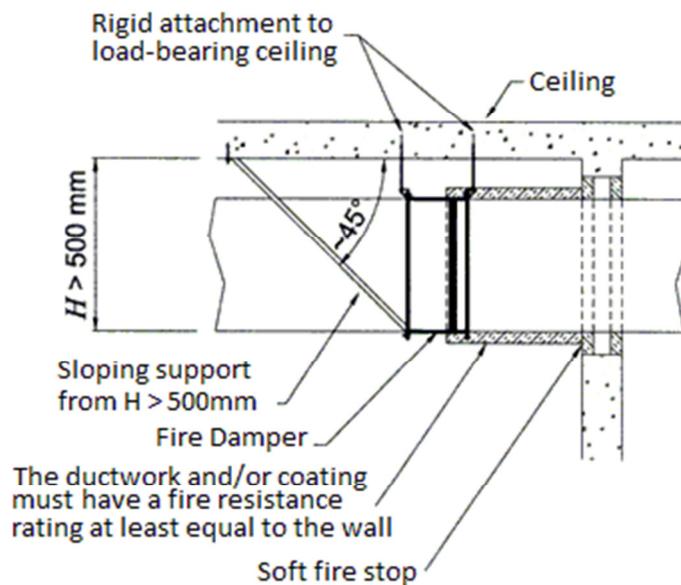


Figure 5 - Example of the installation of a fire damper outside the wall opening suspension depth > 500 mm