WESSEX INTUMESCENT SUPPLIES LTD
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Fire, Draught, Weather & Acoustic Seals
Conservatory Roof Glazing Systems

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General Notes Regarding Fire & Smoke Containment Doors.

Fire ratings for fire doors are given in minutes & prefixed by the letters 'FD'.

The most commonly specified integrity levels are;
FD30 – 30 minutes / FD60 – 60 minutes / FD90 – 90 minutes / FD120 –120 minutes

If fire & smoke is required the fire rating requirement contains the letter 'S' ie: FD30s / FD60s / FD90s / FD120s

Fire door installations are one of the most vital elements in any building. Their correct specification, installation & regular maintenance are determined by both the Building Regulations & various British Standards. Providing third party certified doors are used they will be deemed to satisfy the Building Regulations. Companies or individuals involved in projects using fire doors should not compromise these regulations.

A fire door installation must primarily perform satisfactorily as a 'door' – providing the required level of security & operational effectiveness. The 'FD' classification for all fire door installations is not determined by the door leaves alone. The complete fire door assembly, including its frame, fire seals, hinges, glazing & ironmongery must perform to the British Standard requirement for fire doors.

In most circumstances, retention of cold smoke is also required. Continuous smoke seals prevent the leakage of smoke. In order to meet the requirement of BS 5588 (to limit smoke leakage to less than 3 cubic metres per metre of door perimeter) it is essential that the smoke seals are not interrupted by hardware. Furthermore, if the threshold gap is greater than 3mm then it must be fitted with a smoke seal. Cold smoke & toxic fumes can be fatal at temperatures well below the temperature required to activate fire seals. Cold smoke & toxic fumes can cause serious building damage in areas far from the seat of the fire. Tested & approved perimeter smoke seals that fit to the frame stops are available to provide continuous smoke seals.

Perimeter gaps should not exceed 3mm. The current requirement for perimeter gaps on new fire door sets (including the threshold) is 3mm. Where perimeter gaps are larger than 3mm (on older doors for instance or when a new fire door is to be installed within an old out of square frame) it is difficult to offer exact information as only opinion can be offered.

The best quality fire seals contain intumescent material. Intumescent fire seals begin to react at approximately 100 degrees centigrade. Under normal conditions the intumescent will expand by up to 8 to 10 times its original size. The expansion is limited by the perimeter gap. It is sufficient to state that the smaller the perimeter gaps the higher the expansion pressure. This being so, a 6-7mm perimeter gap should not cause difficulty in the event of fire, but it will take longer for the intumescent material to expand sufficiently to fill the gap. Gaps of more than 6-7mm will cause a significant problem. Fire seals are tested with 3mm perimeter gaps.

Mortised smoke seals are also tested at the same 3mm tolerance. Smoke seals fitted to gaps larger than 3-4mm may not perform fully & may allow cold smoke leakage. Smoke seal manufacturers do supply seals with piles longer than 3mm but they are not tested. However, fire officers & building control officers (generally) will accept these larger smoke seals on older doors because they will still offer protection that can save lives. This being the case it is still imperative that the smoke seals make good contact & that no daylight is visible. If this is not possible using mortised smoke seals then tested & approved perimeter smoke seals that fit to the frame stops are available to provide continuous smoke seals.

Glazed apertures in fire doors & adjacent side & over lights must include glass appropriate to the fire resistance required. To prevent smoke leakage an approved glazing gasket or glass retention system or bedding material must be used & the glazing beads must be correctly fitted.

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General Notes Regarding Fire & Smoke Containment Doors – cont'd

Maintenance.

Fire doors are engineered products that provide life and property saving functions in the event of fire. It is important that they are regularly inspected and maintained to permit them to perform at their best on the one and only occasion when they are called upon so to do.

Doorsets fitted with hold open devices or swing free type closer should be closed daily, particularly overnight when there is likely to be low building occupancy. For busy 24/7 buildings (e.g. hospitals) fire doors should be closed at least weekly. All fire doors should close effectively from any angle of opening using only the door closer.

There are a number of reasons why doors may fail to close:-

- Check that there are no foreign bodies or other objects obstructing the door.
- Check that the door is correctly aligned within the frame & has adequate working clearance.
- Check that the fire & smoke seals are correctly fitted and are undamaged.
- Check the latch, if fitted to ensure correct operation and that it is suitably lubricated.
- Only as a last resort should the closing device be adjusted, but this must be carried out carefully to ensure that the doors can be opened without undue force.

Fire & smoke containment seals should be checked regularly, at intervals not greater than 6 months, and damaged or missing seals replaced. To maintain the design performance potential, replacement seals should be of the same brand, size and type as the original. Where smoke seals require replacement, ensure that they are fitted in one continuous length. If replaced 'piece-meal' they could potentially leak at the joint. Also ensure that the smoke seals make good contact & that no daylight is visible.

Mechanical items such as hinges, locks, latches & door closing devices will wear over time. Maintenance provisions should comply with the hardware suppliers' recommendations. Locks and latches may require occasional light lubrication. Some hinges use self lubricating bearings that will not need additional lubrication. Door closing devices should be checked for oil leakage & safe closing/latching speeds should be set.

Where it is necessary to replace worn hardware on a fire door, the essential items listed above should be replaced with products to the same specification as the original where possible. If this is not possible then hinges, latches, locks, flush bolts, door closing devices and other items of load bearing or securing hardware should be of the same type and size as the original items and should have been proven for use in timber fire rated doorsets of the required performance. Hardware that has been successfully tested in metal doorsets may not be suitable for use with timber doorsets.

Redundant hardware should be carefully removed. Intumescent gaskets may have been used under hinge blades; lock/latch for end plates and strike plates, with some closer fittings and in flush bolt recesses. These gaskets should be replaced if possible with gaskets of the same material. Otherwise they should be retained and reused with the new fittings if they are undamaged. Intumescent gaskets or mastics used for these applications are usually the low pressure type.

Glazed apertures – all cracked or broken glass must be replaced immediately using the approved glass, glazing gasket or retention system or bedding material as per the fire door manufacturer's instructions.

Mandatory signs – replace missing or damaged signs.