FLAME ARMOUR FIRE SHUTTER STRUCTURAL RECOMMENDATIONS:

TEST RESULTS & CLASSIFICATION REPORTS:
Exposed face of masonry wall - WarringtonFire Testing & Certification Limited (WF No. 404452) achieving E240 integrity rating.
Exposed face of timber stud wall - WarringtonFire Testing & Certification Limited (WF No. 429933) achieving E90 integrity rating.

STRUCTURAL RECOMMENDATIONS:
The flame armour fire-resistant roller shutter has been tested to EN 1634-1 for both a masonry and timber stud applications. The supporting structure which the fire-resisting roller shutter is installed upon, must be a separate fire-resisting element itself. It must have an equal or greater fire integrity rating than the fire-resisting roller shutter. It must also be capable of supporting the fire shutter for the required duration of fire resistance without compromising the fire integrity of the fire-resisting roller shutter. The surface, finished floor level or cill onto which the fire-resistant roller shutter closes onto must be composed of non-combustible material and not compromise the integrity of the fire shutter. It is recommended that a critical temperature of 400°C and steel sections with an Hp/A value below $230m^{-1}$ are used in the designing of the fire-resistant steel support section (see below for more information).

Prior to installation, consideration must take into account for the given loads imposed by the various components of the fire-resisting roller shutter. Larger applications require heavier components with increased thickness to provide the desired integrity rating, such as endplates sizes, barrel type and angles. These components will impose a greater load on the supporting structure and must be considered during the initial enquiry, prior to manufacturing.

The structural opening must be capable of supporting the load imposed of the weight of the shutter assembly, in non-fire and fire conditions. It must be equal or greater than the fire resistance of the roller shutter. The Flame Armour fire shutters weight is clearly stated on the product drawing supplied by the manufacturer.

A fire shutter which is installed onto a steel supporting structure must have suitable fire-resistant properties. This could be achieved by re-enforcing the steel with fire-resistant protective elements or via intumescent steel paint, which has an integrity rating of equal or greater than the fire shutter itself.

Any structural opening which is comprised of a timber stud partition must be cladded with fire-resistant plasterboard which is equal or greater than the fire shutters integrity.

Supporting Structural Type: Masonry/Concrete or Steel
Acceptable for up to: E240 (four hour) Integrity rating
Fire resistance properties: Must be equal or greater than the fire-resistance rating of the roller shutter assembly.
Maximum dimensions for E60 Integrity rating: 10'000mm clear opening width x 7000mm clear opening height
Maximum dimensions for E120 Integrity rating: 10'000mm clear opening width x 6300mm clear opening height
Maximum dimensions for E240 Integrity rating: 8000mm clear opening width x 3600mm clear opening height

Supporting Structural Type: Timber stud partition
Acceptable for up to: E90 (90 minutes) Integrity rating
Fire resistance properties: Must be equal or greater than the fire-resistance rating of the roller shutter assembly.
Maximum dimensions for E60/E90 Integrity rating: 7000mm clear opening width x 7000mm clear opening height
Flame Armour Fire Shutters can not and have not been tested to be fitted to the following;

- **Insulated panel wall**
- **Metal partition stud wall**
- **Plastic lined wall**

GUIDANCE FROM THE MANUFACTURERS EXTENDED APPLICATION REPORT:

Extended Application Report Guidance (Section J.2) – Possible to change standard supporting structure to protected structural steel supporting construction if the following applies:

a) Structural steel section factor, A/V must be less than $230m^{-1}$. Section factor to be calculated assuming section is exposed to fire on all four sides. The section factor shall be calculated as described in EN 13381-4 and EN 13381-8. This rule applies to both the vertical and horizontal steel sections of the support frame.

b) Fire protection systems must have been shown by test to EN 13381 to maintain the steel temperature 400°C or less to retain strength and minimise the effects of expansion in the steel sections.

c) The fixing securing the door to the structural steel shall be in accordance with the appended tables and must be fabricated from the steel and designed not to reduce the fire performance of the steelwork fire protection system in ambient condition or in fire conditions.

FURTHER PRODUCT INFORMATION:

Tubular motor fire shutters – The control panel requires a normally open volt free signal going to close on fire.
Inline chain-driven fire Shutter – The Solenoid attached to the motor requires a 24volt direct currant signal with 0.5amps on activation.
Audio visual panel – The requirement for providing audio visual warning is referenced in BS EN 12604 and The Supply of Machinery

(Safety) Regulations 2008 (Annex 1 clause 1.2.2). The installer is liable and must justify the risk assessment if omitting to install an audio-visual control panel with the fire shutter.