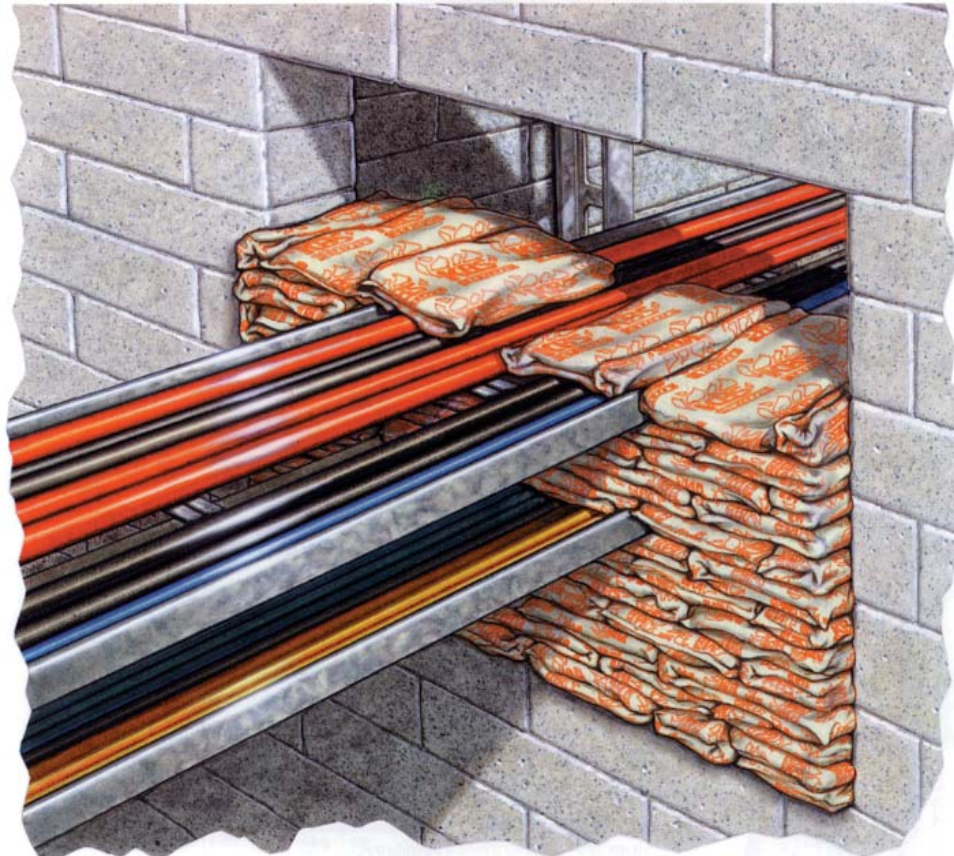
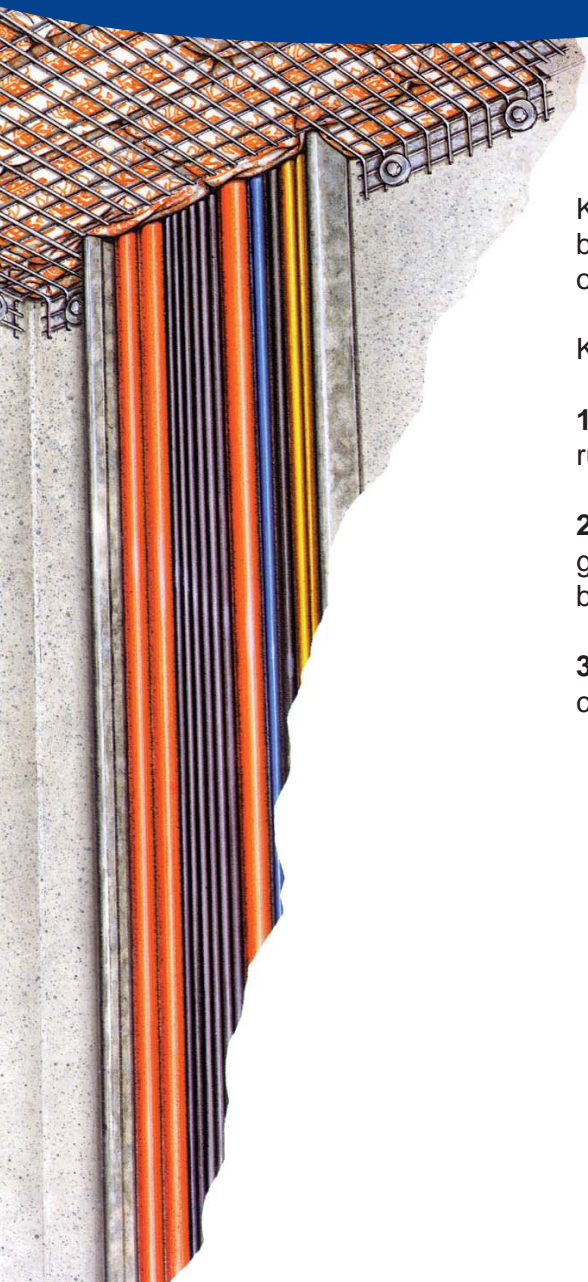


KBS SEALBAGS



RECOMMENDED INSTALLATION METHODS



KBS Sealbags are ideal where there are frequent changes in cables or where cabling is not yet complete. The sealbags, which are essentially fire protective pillows of different sizes are easy to install and remove.

KBS Sealbags have a 3-stage reaction process:

- 1** At about 130°C the filling materials start to “glue together”. This prevents the filler running out if the bags are damaged during the fire.
- 2** At about 280°C the filling material starts to expand closing up all the remaining gaps between single bags and gaps which have appeared as cable material is burned off.
- 3** At about 700°C the bags harden to a solid block of incombustible material, mechanically resistant to fire fighters hose streams.



Required equipment for the installation of KBS Sealbags

- KBS Sealbags - 720 Gram
- KBS Sealbags - 400 Gram
- KBS Sealbags - 250 Gram

For Installation in walls

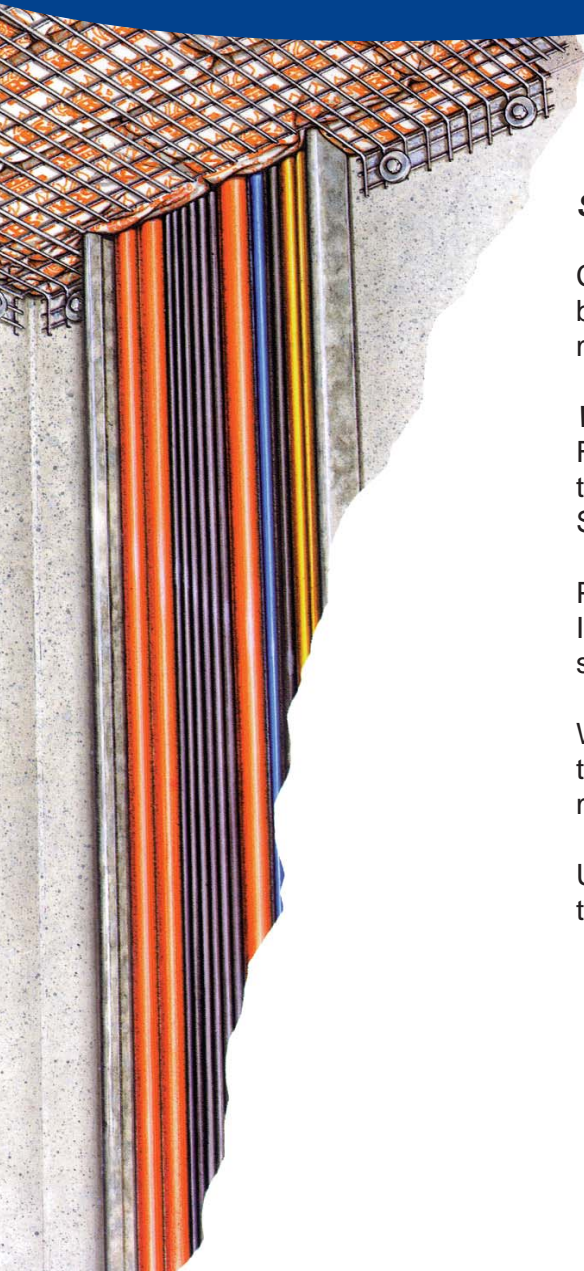
- 2 metal sheets 180 X 450 X 0.75mm
- 2 metal sheets 90 X 450 X 0.75mm
- 1 smooth wooden stick about 25mm diameter and 600mm long

For Installation in floors

- 1 smooth wooden stick about 25mm diameter and 600mm long
- Wire mesh 500 X 500 X 4mm
- Steel dowels with 8mm thread
- Large steel washers 2mm thick with a 30mm diameter
- Electric drill



Installation Equipment



Surface Preparation

Cables in the area of the penetration should be free of oil and dust. Oil and grease should be removed using dry rags -no solvent! A broom or vacuum cleaner can be used to remove heavy layers of dust.

Wall Installation

Flatten out the sealbags so as to distribute the material inside evenly. If the sealbags are to be installed in walls which are thicker than 240mm we recommend the use of a Calcium Silicate panel.

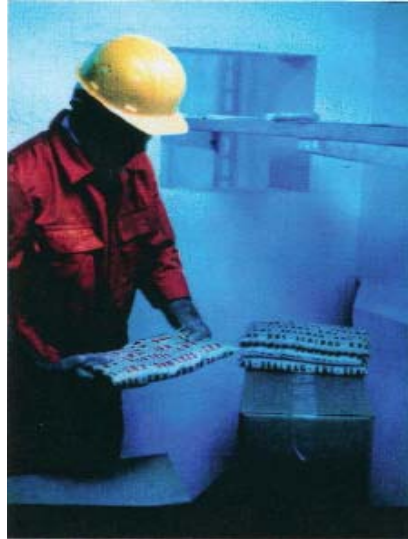
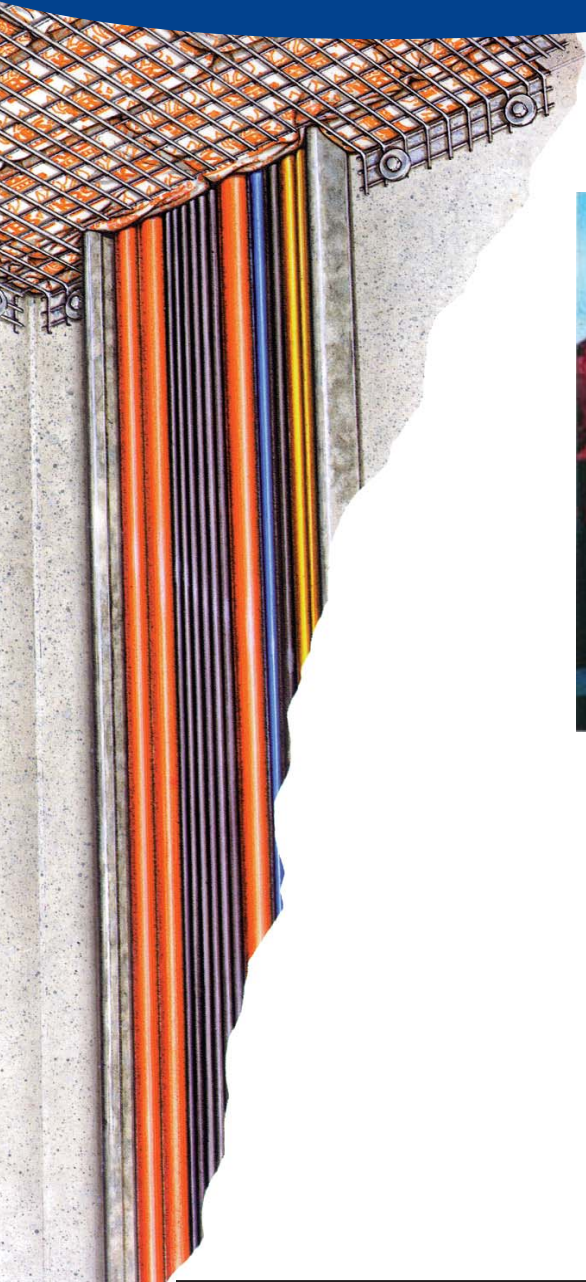
Place the sealbags into the opening by staggering the joints - like brickwall construction. In tight spaces use KBS Sealbag 400 which may be rolled lengthwise to be inserted into small openings.

Where cables on ladder-type trays penetrate a wall the cables should be lifted within the tray and a single layer of sealbags (Sealbag 400) should be placed underneath. The remaining sealbags may now be inserted until the upper side of the opening is reached.

Use two pieces of flat sheet metal to sandwich the bags for insertion into the top layer of the opening. Remove the steel sheets after the insertion.



Extra support for wall under 240mm



Unpacking and patting down the Sealbags



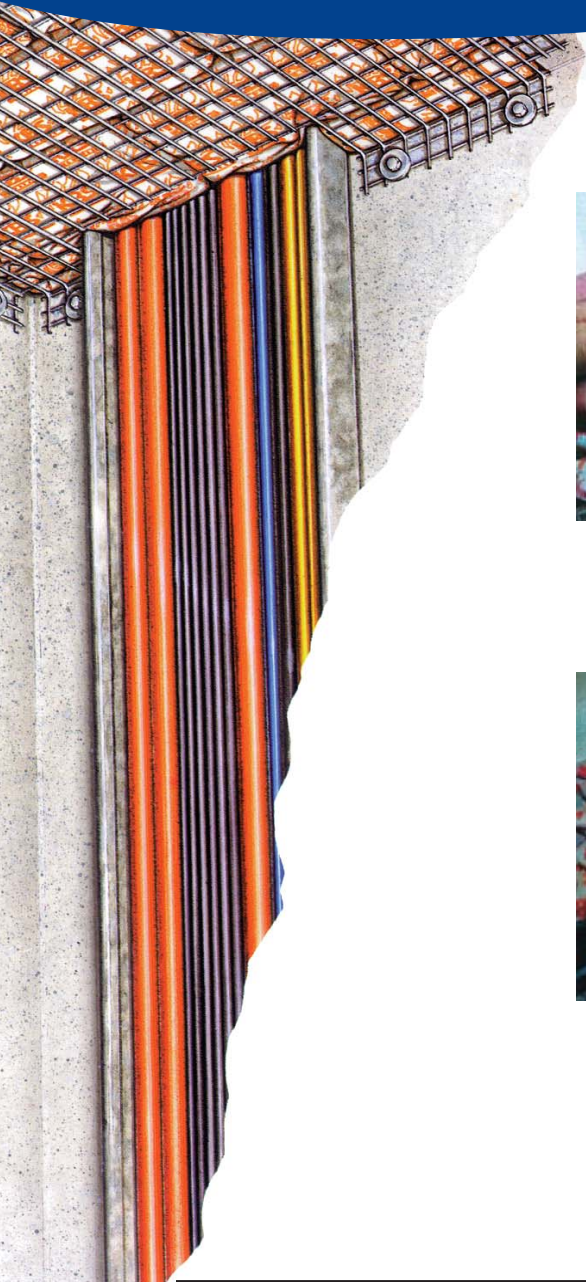
Tightly packed under the tray



Placing Sealbags over and under the cables



Finishing the application with steel plates



Sealbags being pressed down to seal the penetration before the last Sealbags are installed.



The use of 2 steel plates to finish off sealing the penetration



Once again the use of steel plates.



Completed penetration using KBS Sealbags



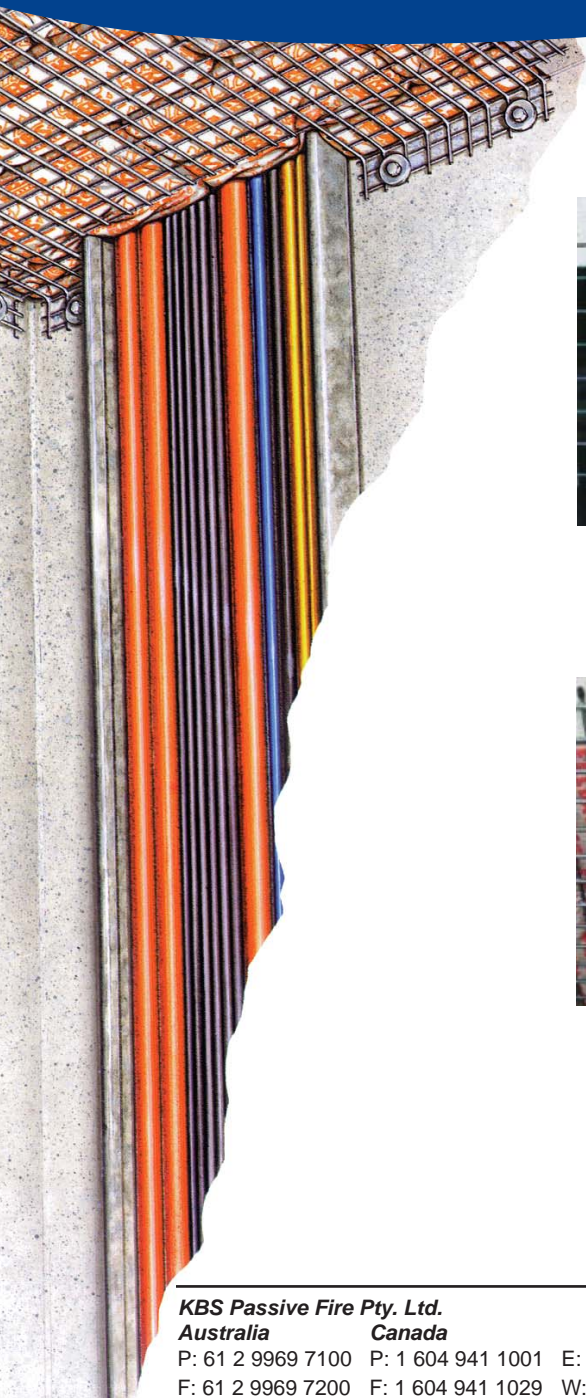
Floor and Ceiling Installation

Attach a wire screen to the underside of the opening. The wire gauge should be a minimum 4mm and the mesh size should be (approximately) 50mm X 50mm square and spot-welded.

The screen should be fastened to the underside of the ceiling using steel dowels with 8mm thread and large steel washers. Where the ceiling thickness is less than 300mm and a rating of 90 minutes is required, the wire screen should be bent to form a basket, so that a penetration seal of 340mm is provided.

After the wire screen has been installed, the Sealbags should be laid lengthwise and flat into the wire mesh, layer upon layer, with bags and joints staggered. The filling of tight spaces is achieved by rolling the bags lengthwise and inserting into the void. It is good policy to fit a second wire screen over the top of the sealbag seal to prevent accidental damage and theft of the bags.

NOTE: DO NOT WALK ON THE FLOOR PENETRATION SEAL!



KBS Sealbags over a wire mesh base



Open penetration with KBS Sealbags being placed.



Completed KBS Sealbag floor penetration

Completion

The installation is complete when:

- 1 It is no longer possible to look through between the Sealbag layers and the cable trays*
- 2 When the single bags can only be removed with great effort.*

The data contained in this document, particularly the recommendations for the application and use of KBS products are based on the manufacturer's knowledge and experience. Due to different materials and conditions of application, which are beyond our control, we recommend in any case to carry out sufficient tests in order to ensure that KBS products are suitable for the intended processes and applications. Therefore, any liability for such recommendations or any oral advice is expressly excluded unless we have acted wilfully or by gross negligence. It is always the responsibility of the Installer / purchaser to guarantee correct preparation, DFT (KBS Coatings) and thickness (KBS Penetration Seals) of all KBS Materials. KBS Passive Fire Pty. Ltd. is not responsible for installation or faulty installation. It is always the responsibility of the installer / purchaser to guarantee and certify the installation of materials.