

# I.F.S. CABLE PASSTHROUGH SYSTEM CPT

## Introduction

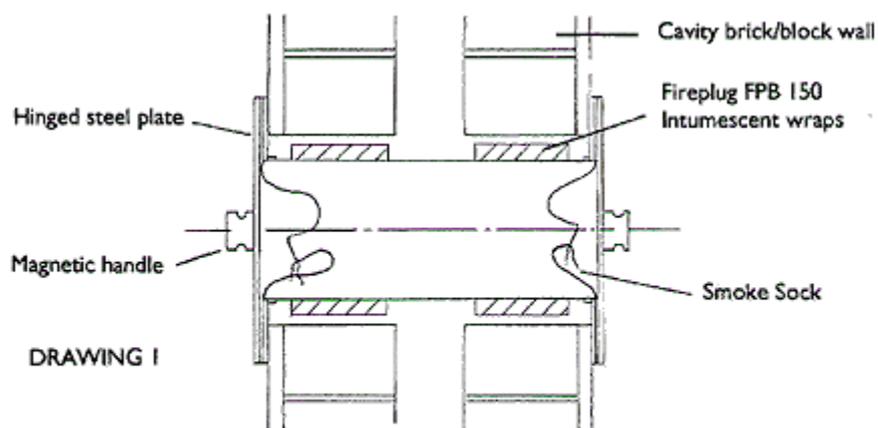
The above title describes a specialised and intricate fire protection problem. Today as more complex buildings are being built to a higher specification the Fireplug Cable Passthrough System (CPT) has been individually designed and then tailored to suit particular aspects of the changing demands of today's specifiers.

The CPT is a unit that can be used to allow a service that can be described as temporary, such as a T.V. camera cable, to pass through a wall/floor yet still maintain the integrity of the wall/floor as designated. What is meant by integrity is that in a fire situation, you maintain stability and insulation along with acceptable smoke stopping. These points are also collated into designing a practical and sensibly operated system.

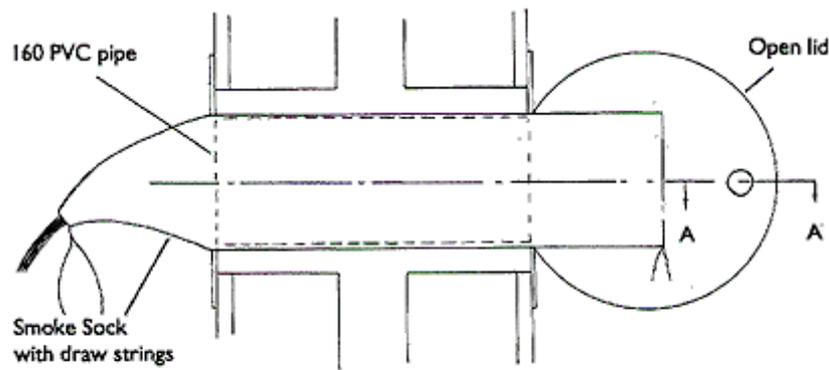
An example of the type of building that lends itself to require a CPT system is one that the general public frequent regularly, such as sports stadia, concert halls, theatres, exhibition halls. Anywhere that people congregate and where the media, like T.V. camera crews for example, need to access right into the construction, trailing recording cable, lighting cable etc. along with them. We trust the days have gone when a fire door is propped open by an extinguisher (the alternative cable passthrough system!). The following information is intended to prompt ideas and ways of solving problems when you may not have been aware there was any.

## Wall Passthrough

The most simple CPTs can be seen on drawings 1, 2 and 3 and consist of two hinged steel plates either side of the wall connected by a PVC pipe 160mm in diameter. Surrounding the pipe is a fire retardant canvas smoke sock with draw string end to pull tight around any services passing through. Surrounding the smoke sock and PVC pipe and placed within the wall is a Fireplug FPB intumescent pipe closer. In a fire situation, the smoke sock stops the passage of cold smoke and toxic fumes, and under the effect of heat, the intumescent pipe closer expands, crushes the pipe and seals the hole through the wall.



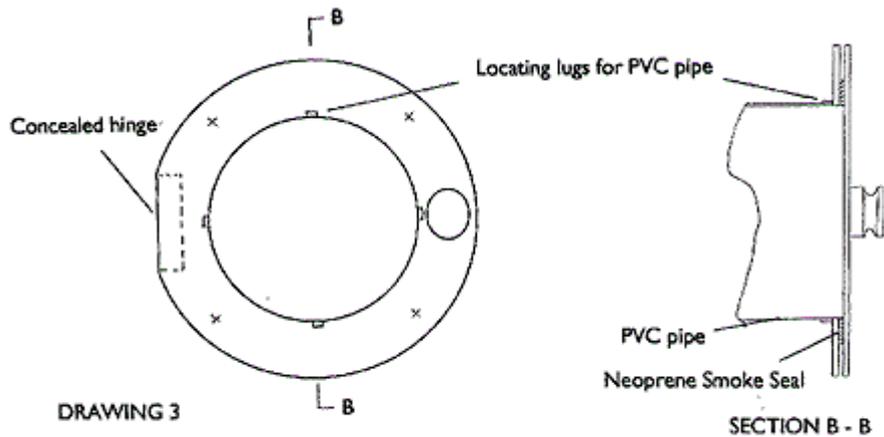
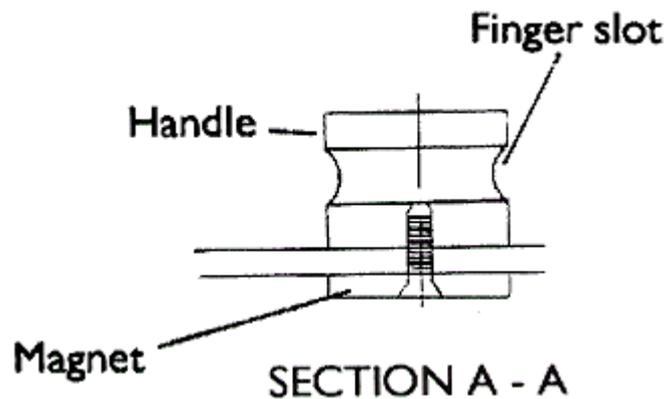
Cable Passthrough System when not in use



IFS Cable Passthrough System in use. One side shown for clarity

DRAWING 2

CPTFRW & CPTW DETAIL



DRAWING 3

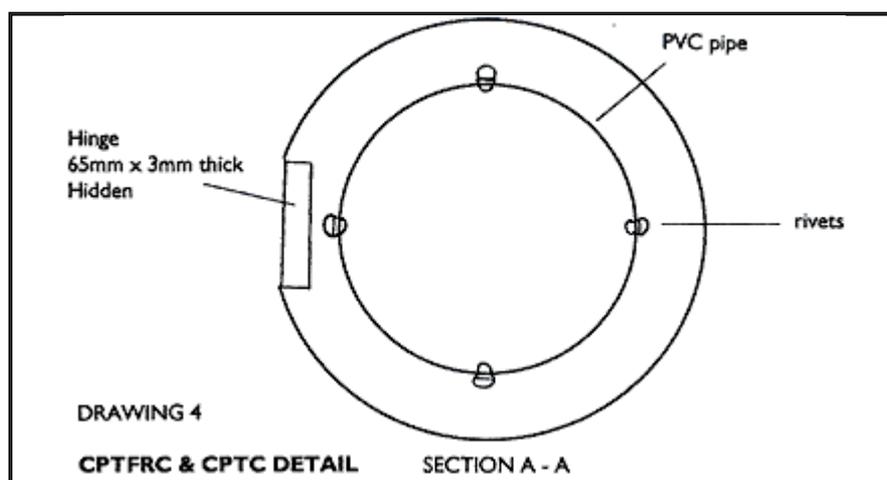
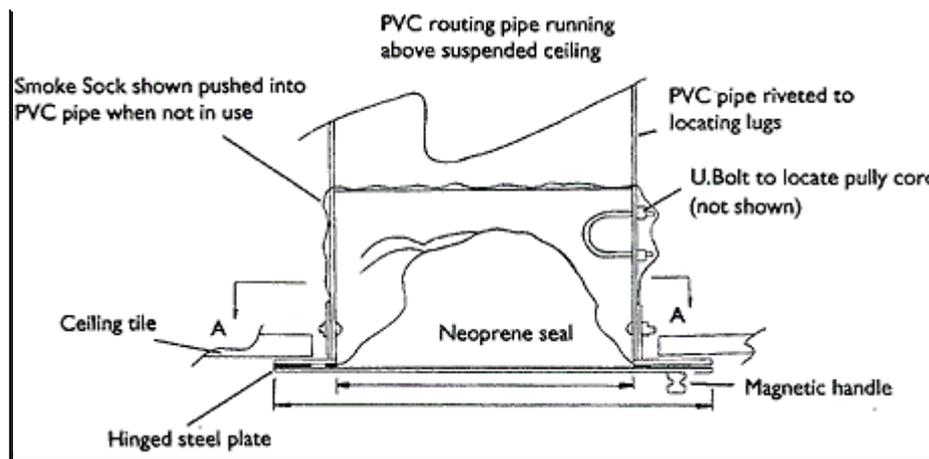
SECTION B - B

TYPICAL HINGEPLATE DETAIL FOR WALLS AND CEILINGS

Drawings 1 & 2 show a fire rated wall passthrough (ref. CPTFRW).  
 A non-fire rated wall passthrough (ref. CPTW) would not require the intumescent wrap or smoke sock.

### Ceiling Passthrough

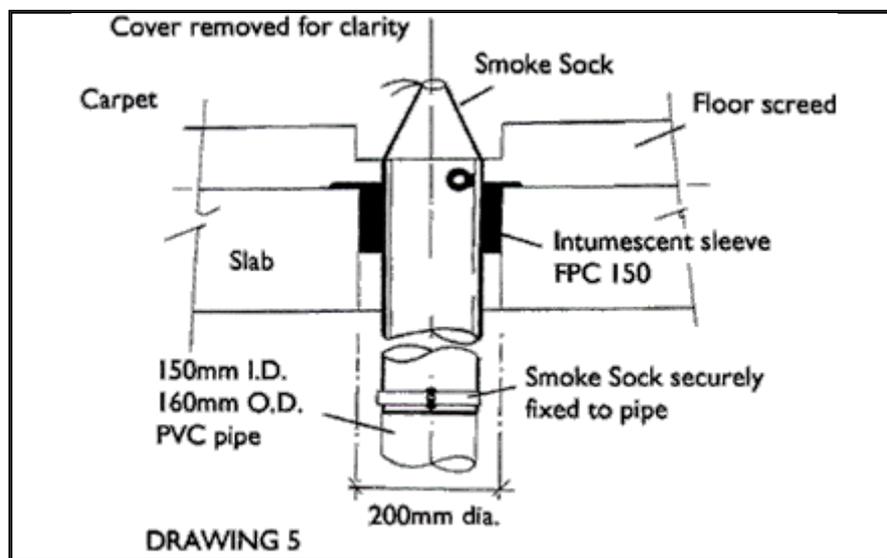


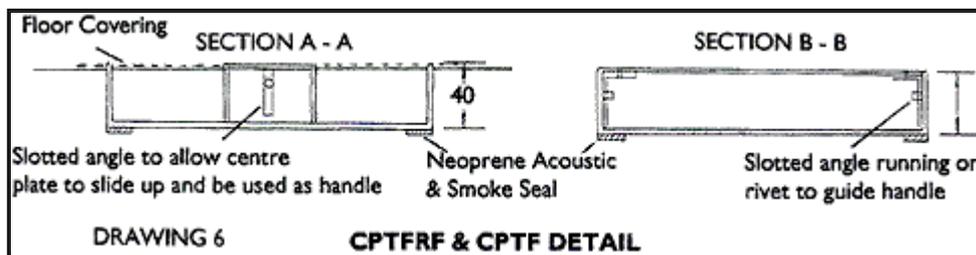
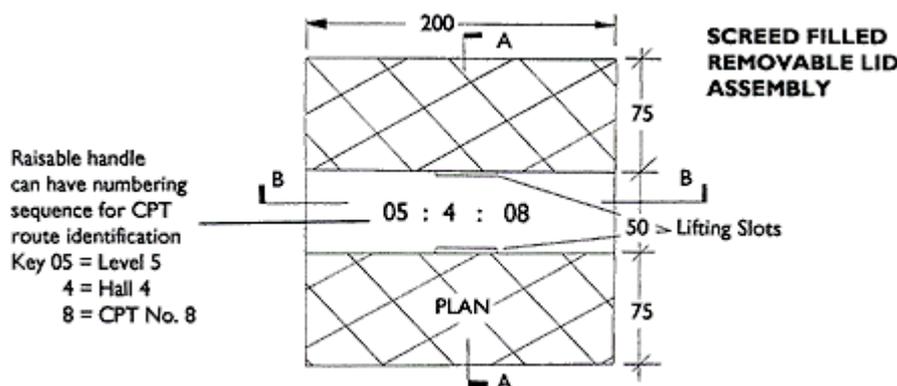
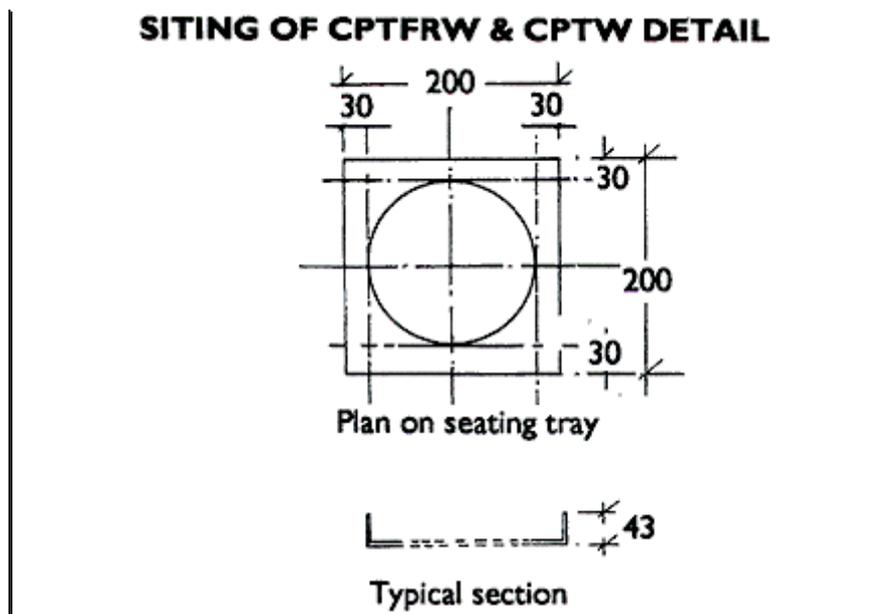


A ceiling passthrough (ref. CPTC) is designed to allow access through a suspended ceiling. Due to the thickness of the tile\* it may not be possible to fire protect at this point, however a smoke sock can be fitted to stop cold smoke (see drawing 4).

\*Ceiling types may vary, please contact us for advice.

### Floor Passthrough





A Floor Cable Passthrough, ref. CPTFRF (fire rated) and CPTF (non fire rated) use exactly the same principle as the wall and ceiling CPTs. The main difference here though is that at floor level, a rectangular access is used, this makes blending in with the floor finishes neater e.g. tiles, carpet etc.

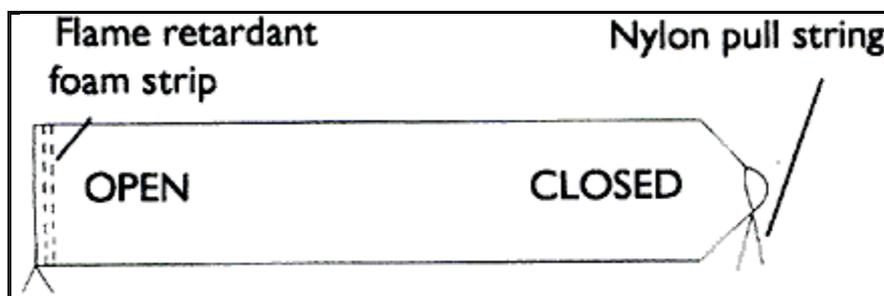
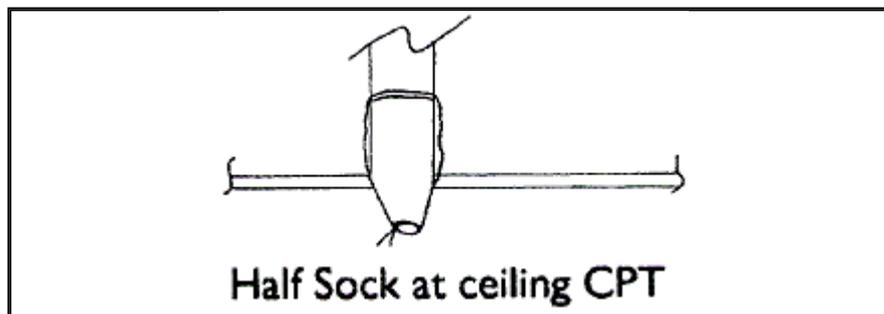
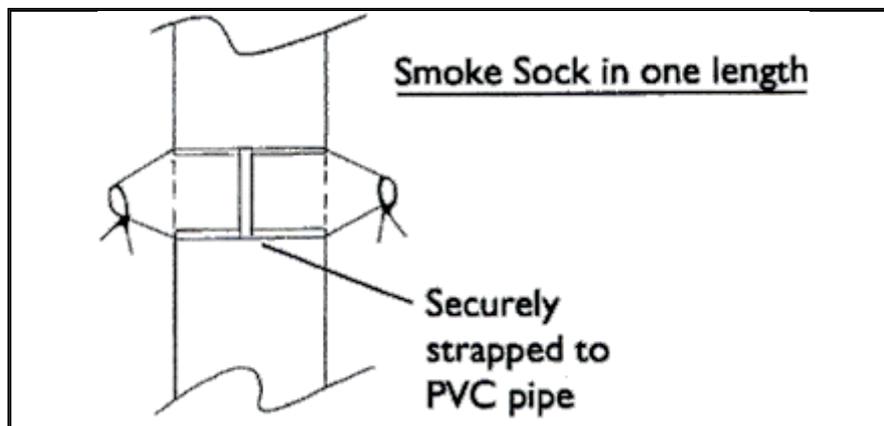
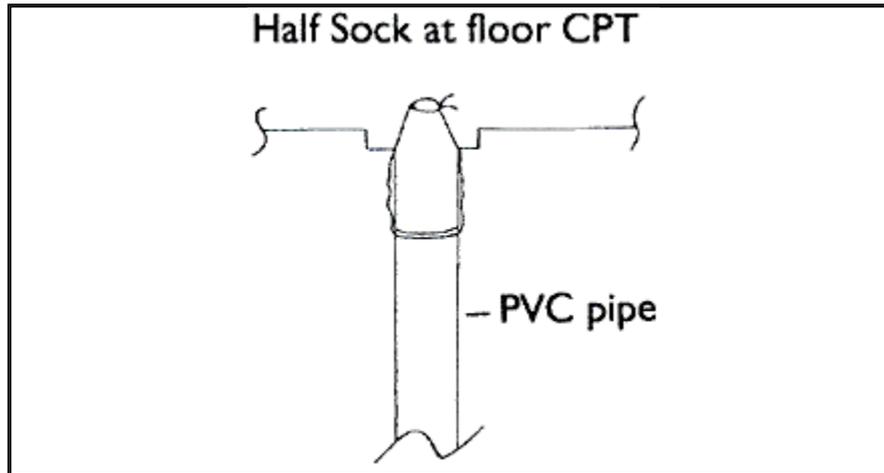
### Smoke Sock

The CPT system is designed to protect against fire, heat and smoke. In a fire situation the Fireplug FPB Intumescent Bandage will expand and seal the opening against fire and toxic gases. It is with cold smoke that the smoke sock comes into use.

When the mouth of the sock is closed down, using the pull string, the fire retardant foam closes around the cables slowing the passage of smoke.

Smoke socks can be supplied with pull string at each end for short CPTs, or effectively in

two halves, one for each end of a long run.



The smoke Sock is made using a tough fire retardant fabric with a fire retardant foam strip stitched around each opening. The foam acts as a further smoke seal when closed around the cables.

## Performance

The accountable factors of the Cable Passthrough System have undergone the relevant testing at FULMER YARSLEY to British Standard BS476, part 22, test No. J85007/1, on 4th January 1990. Four CPTs were tested in the open position, the test was terminated after 128 minutes.

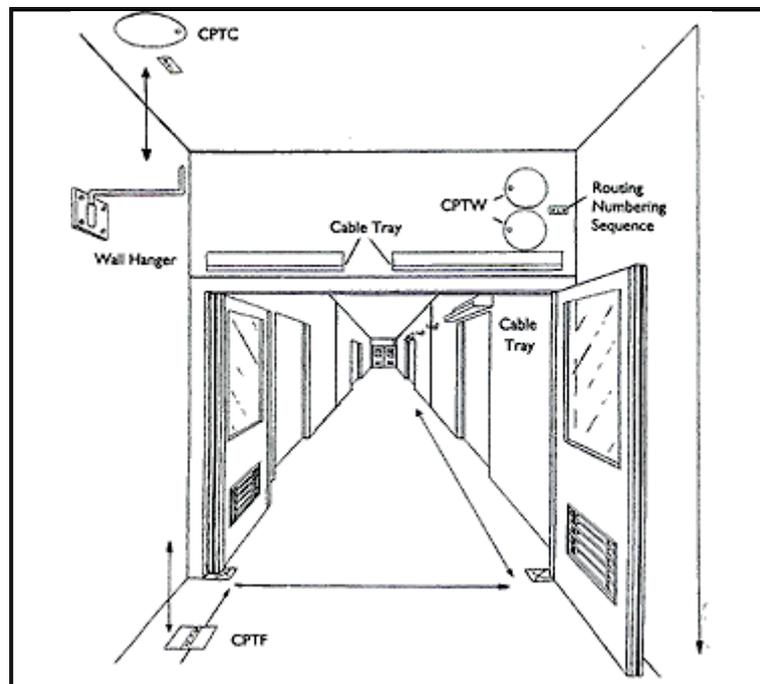
Fireplug FPB Intumescent Fire Bandages have been tested by TRADA to British Standards BS476, part 20, test No. IT360, on 14th May 1993. Two hour insulation and integrity was achieved.

The Smoke Sock principle as yet does not have a test criteria. However prior to being used on the ICC Birmingham, both Birmingham City Building Control and Fire Brigade expressed their satisfaction that the acceptable level of smoke emission was attained.

The Cable Passthrough System, is covered by Patent, No. - 2 234 640 A.

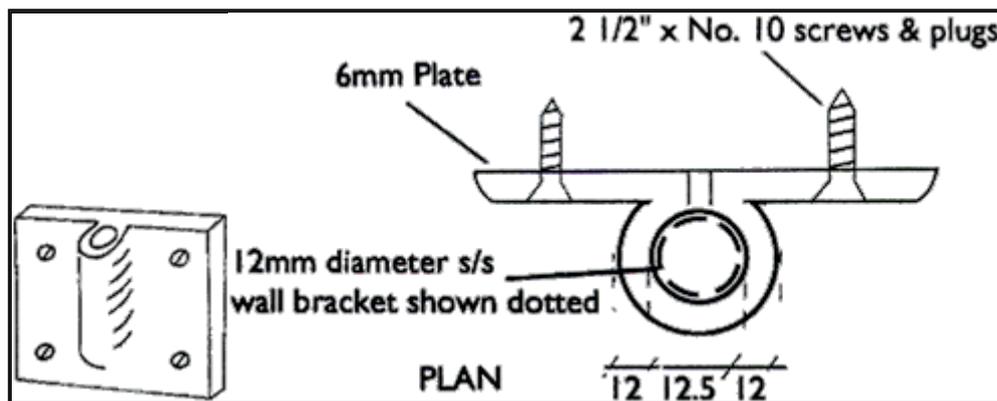
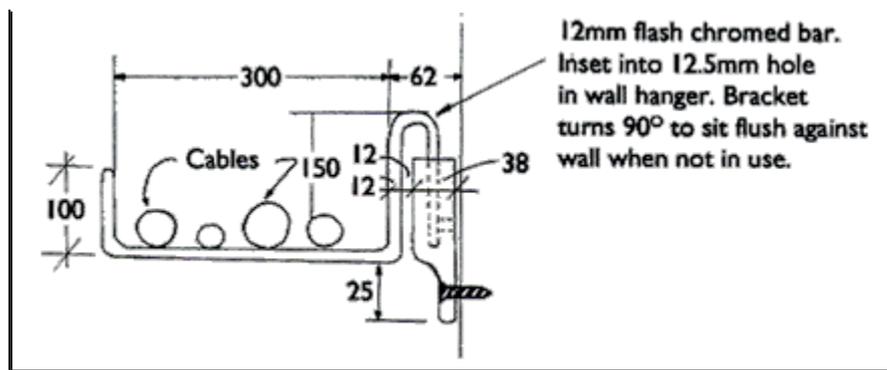
## Routing Accessories

The IFS Cable Passthrough System takes care of breaching compartment walls and floors. However there will be occasions when access is required to take place within the building requiring several CPTs to be used by the same cable. In order to make this feasible there is designed a range of accessories that makes the routing of the CPT system efficient and safe.



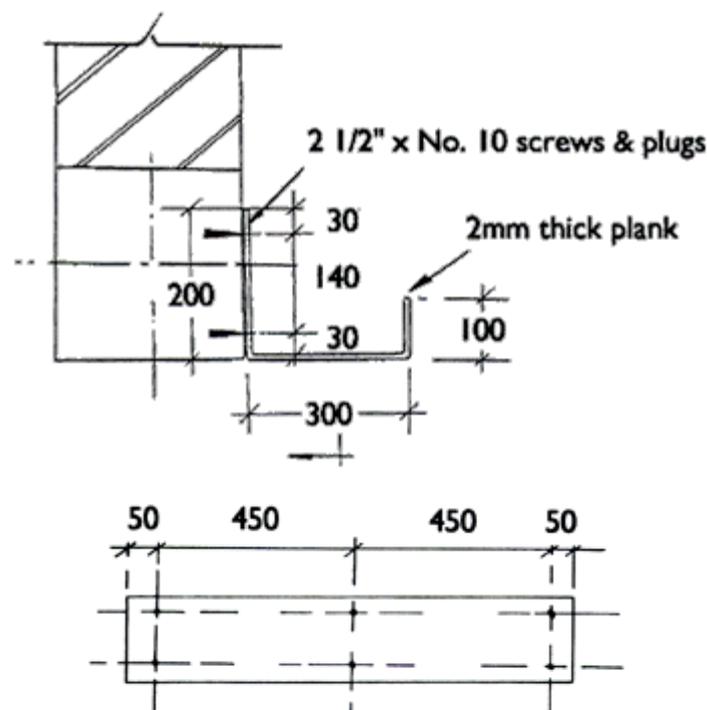
## Wall Hanger





The hangers are fitted along the corridors etc. to keep cables and the like, safely out of the way.

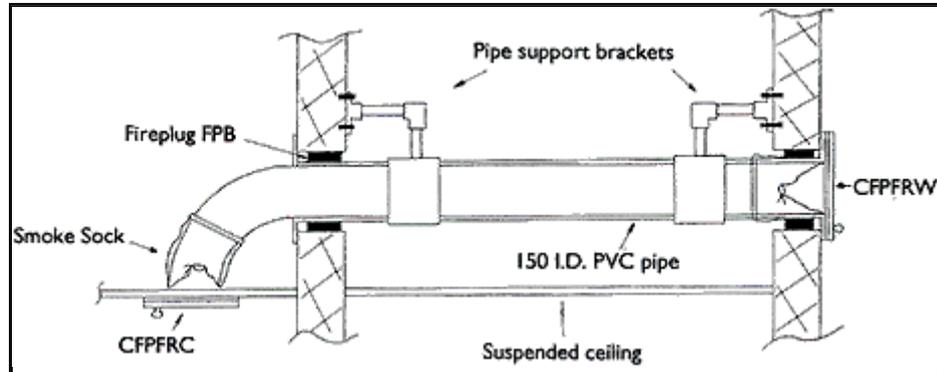
### Cable Tray



The trays keep the cables above the doors stopping them from sagging and causing a hazard.

## PVC Routing Pipe

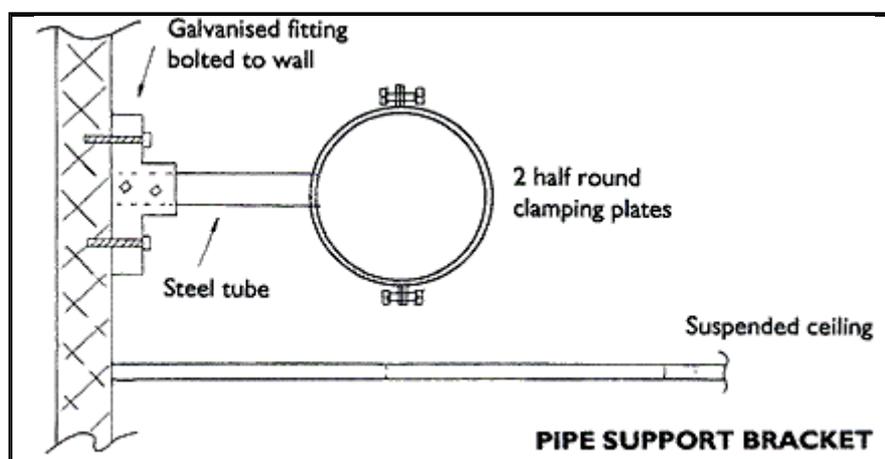
On occasions where the routing CPT has to be above ceilings or under floors etc., it is obviously impracticable to remove tiles or flooring every time access is required. The PVC ducting system in conjunction with the Cable Passthrough System takes care of these problems and lets you take the easy route.



Detail showing a pipe run routing through a suspended ceiling a two hour fire wall onto another two hour fire wall. Above the suspended ceiling are pipe support brackets made from tubular galvanised steel, connected by various threaded fittings.

## Pipe Support Bracket

The galvanised tube is welded to a half round metal plate (as under) and the bolts to another half round metal plate claming the PVC pipe inside.

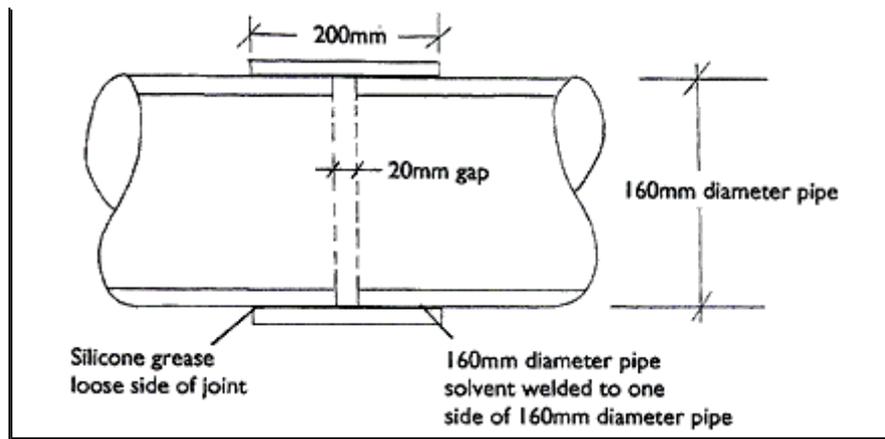


The pipe support brackets are extensively used where not in sight of the general public e.g. above suspended ceilings as shown, inside acoustic voids or generally back of house.

## PVC Joint

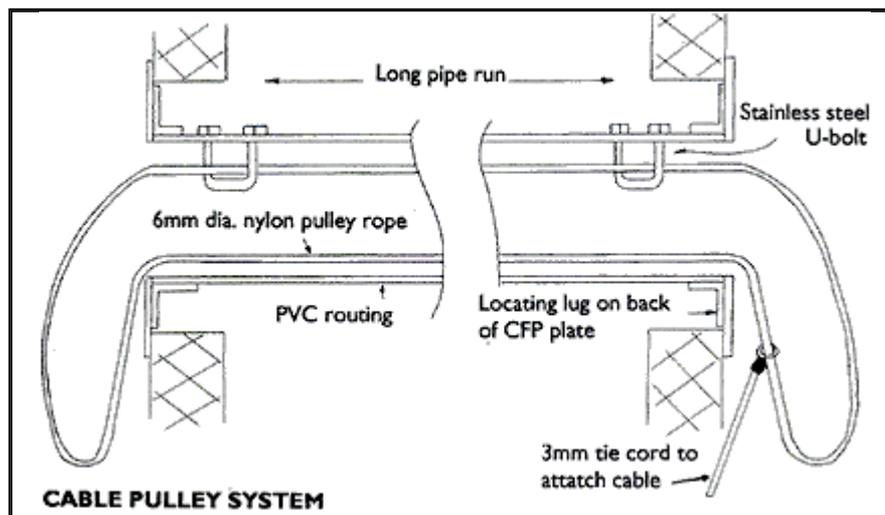
The PVC pipe is supplied with a range of bends and joints as standard. One important point is where movement or acoustic joints are crossed by the pipe. Shown under is a typical movement and acoustic joint.





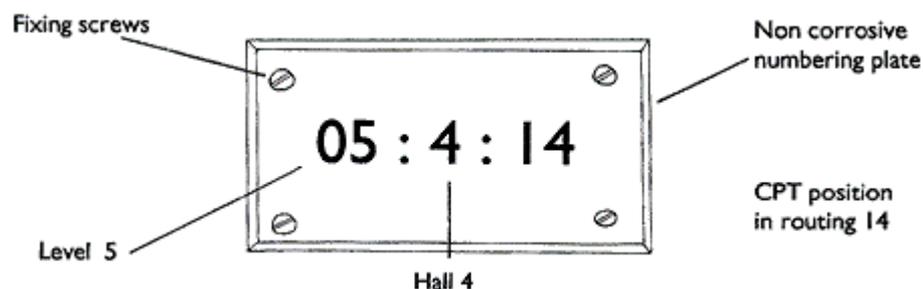
## Pulley System

Occasionally the PVC routing will be of such a length (ICC Birmingham in excess of 30m), that it is impossible to feed the cables through by hand. For this problem a pulley system can be installed while constructing the routing. The pulley system is invaluable when CPT route passes through floors to a level below and/or above ceilings or under raised floors. The diagram shows a typical pulley system.



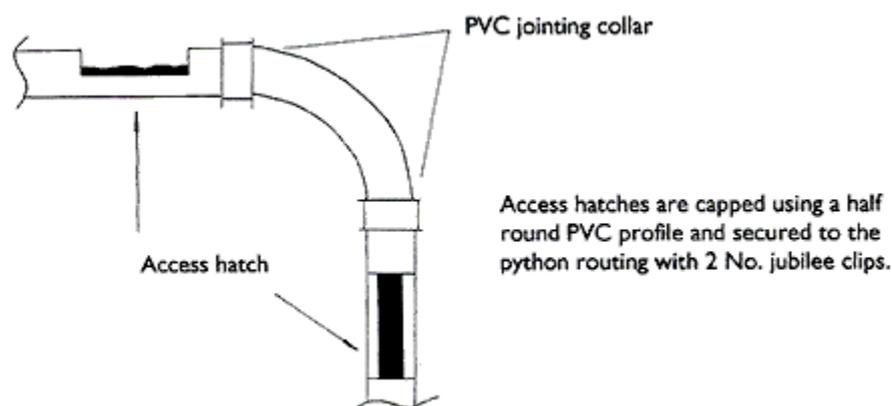
## Numbering Sequence

To enable routes to be planned by the user each CPT can be given an identification number - details of which can be determined after the CPT system is in use. A numbering sequence is useful when you can expect various T.V. crews or perhaps helpers of different nationalities need to use the CPT. Below is an example of a system installed at the International Convention Centre, Birmingham.



## Python Routing - BEER PYTHON

The PVC routing system lends itself perfectly to carry beer lines on the same principle as a temporary cable, only this time a beer line is more likely to be permanent. Depending on the size of beer python a PVC routing can be designed to accept more than one. The minimum and maximum radius of the python is taken into account with access hatches built at strategic intervals, as at every bend for example. The python being more rigid than an ordinary cable is pushed along the routing from each access hatch. Below are diagrams of some examples.



The system can be protected against fire and smoke in the same way as the Cable Passthrough System e.g. Fireplug FPB Bandages, Smoke Socks, etc.

## Beer Python Routing

Where beer pythons enter a building at ground level and there are higher floor levels with bar facilities, there could be a need for a bank of python passthroughs rising through the building. The number of pythons would decrease as each level is reached. By clicking on the red link above you will see a sketch of an actual beer python run found at the ICC in Birmingham. At each floor level a steel python passthrough was fitted. For each python there is a hinged steel lid which is closed when the python run is not in use.

The PVC python ducting allows easy access to the beer lines and also protects the lines from attack from vermin, which is a real risk considering the areas in the building where beer pythons can be located.

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