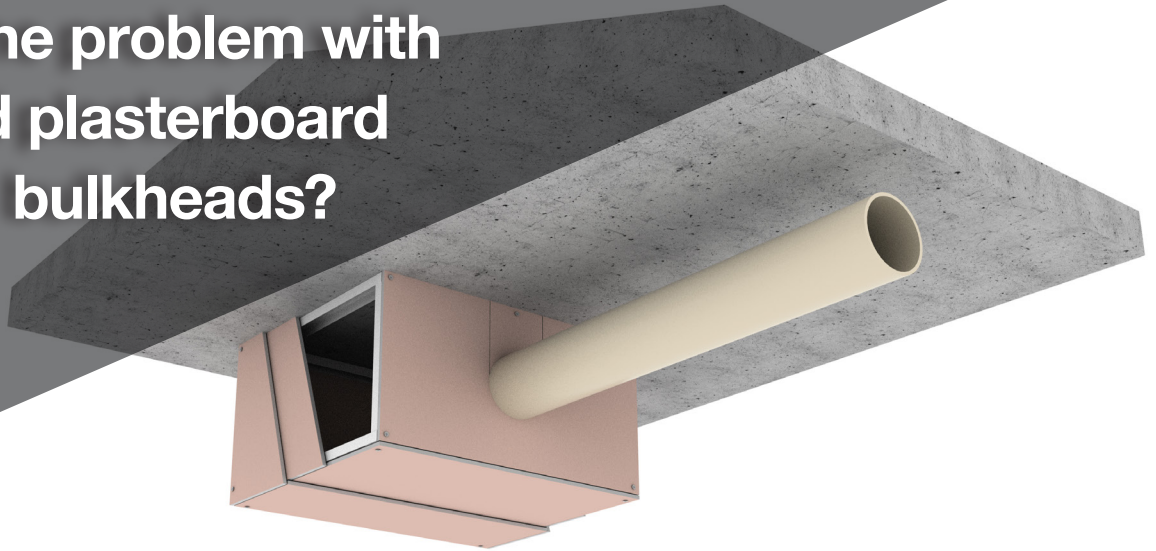




What's the problem with fire rated plasterboard boxes or bulkheads?

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Fire rated plasterboard boxes and/or bulkheads are often specified to accommodate service penetrations below concrete slabs. However, design and construction methods are not well understood. Risky assumptions, and a poorly designed and constructed box or bulkhead, can lead to premature failure. It is important to get the detailing and installation right.

Winstone Wallboards recommends 'universal' lining systems such as GBUW and GBUC specifications for wall and ceiling applications respectively. These linings must be applied to a structurally adequate box or bulkhead frame. 'Universal' lining systems are designed to limit cavity temperature rise to approx. 300 degree C, to protect timber framing from char and light gauge steel from substantial strength loss. Specifications GBUW 15

to 180, and GBUC 15 to 120 ensure the specified FRR of a well-constructed box or bulkhead can be achieved. Figures 1 and 2 show the principles of constructing a fire rated box or bulkhead based on 'universal' specifications and GIB Fyrelite® linings. Specific box or bulkhead framing layout can vary on-site depending on required dimensions.

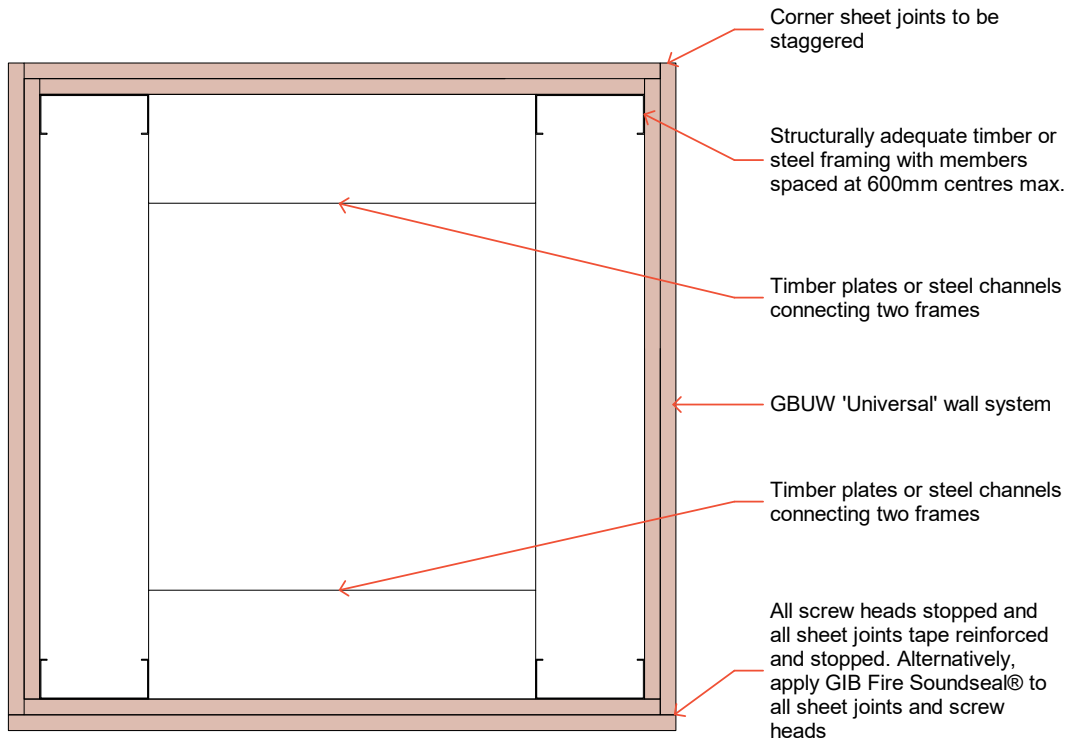


FIGURE 1: Fire rated box or bulkhead (plan view)

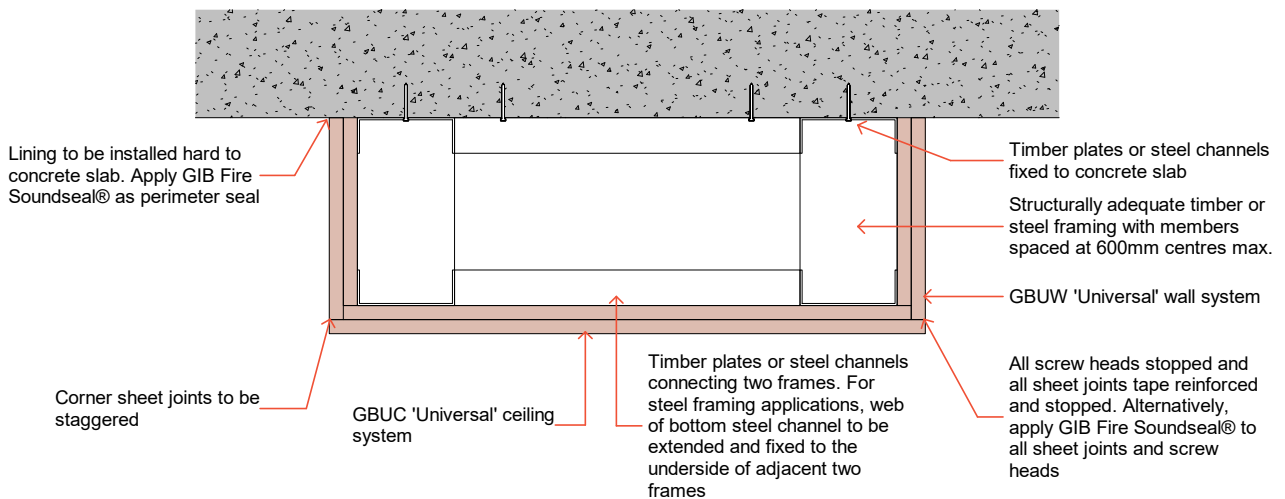


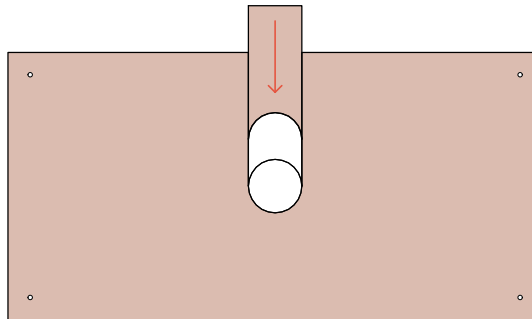
FIGURE 2: Fire rated box or bulkhead (section view)

It is important to ensure all sheet joints and edges are formed over the framing. The box or bulkhead framing must be structurally adequate to accept the weight of the linings under ambient conditions, and meet framing requirements outlined in the relevant 'universal' system specification. At the junction with the structural floor, the wall linings are installed hard against it with GIB Fire Soundseal® applied as perimeter seal.

Given how proprietary penetrations seals are commonly tested, the fire rated box or bulkhead is ideally constructed before building services are installed. However, services are often in place and linings need to be constructed around them. Figure 3 shows an installation method using plasterboard 'cut-outs'. Work with the proprietary supplier to ensure all their requirements are met, before installing and labelling the tested penetration seal. An example of the fire rated plasterboard box construction steps is shown in Figure 4.

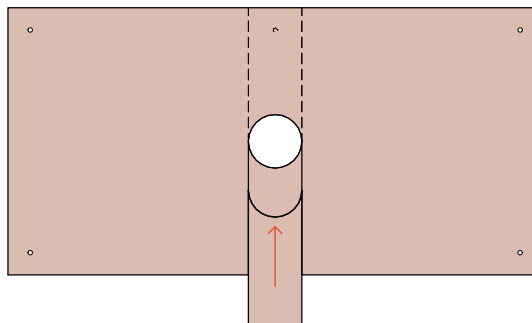
Step 1 - Inner or single layer

Inner or single layer fixed to framing as per GBUW wall system. Plasterboard 'cut-out' fixed to top timber plate or steel channel once fitted around building service



Step 2 - Outer layer

Outer layer fixed to framing as per GBUW wall system. Plasterboard 'cut-out' fixed to bottom timber plate or steel channel once fitted around building service



Step 3 - Penetration seal installation

A suitable penetration seal installed as per manufacturer's instructions

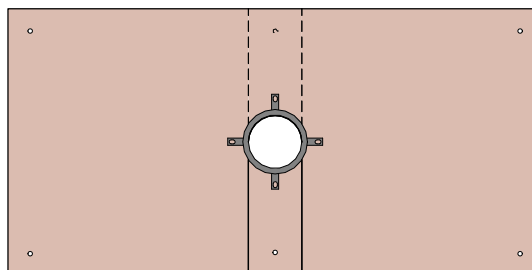


FIGURE 3: GBUW wall system installation around building services



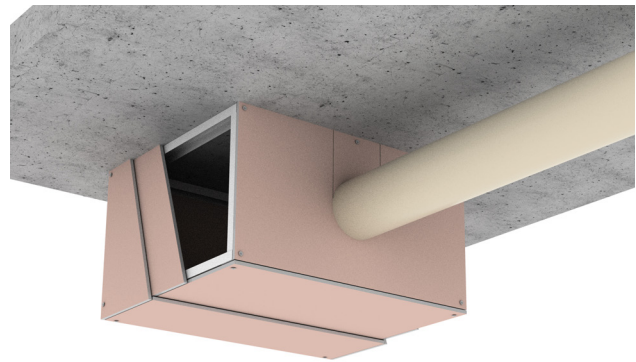
Step 1

Install the structurally adequate framing that can accept the weight of the linings under ambient conditions, and meets framing requirements outlined in the relevant 'universal' system specification.



Step 2

Install the relevant 'universal' lining systems. Ensure all sheet joints and edges are formed over the framing, and corner sheet joints are staggered. Refer to Figure 3 for 'universal' lining system installation around building services.



Step 3

Install the linings hard against the floor system and apply GIB Fire Soundseal® as perimeter seal. Install suitable penetration seals as per manufacturer's instructions. All screw heads to be stopped and all sheet joints to be tape reinforced and stopped in accordance with the publication entitled "GIB® Site Guide". Alternatively, apply GIB Fire Soundseal® to all sheet joints and screw heads.

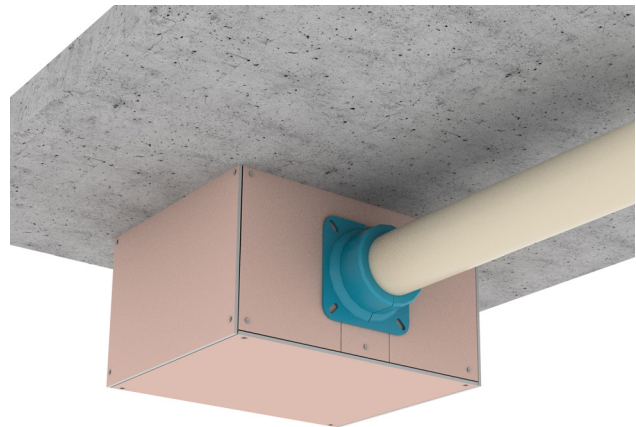


FIGURE 4: Example of the fire rated plasterboard box construction steps

Call the GIB® Helpline on 0800 100 442 for any assistance with the fire rated box or bulkhead.