



## 3.10 Portal Frame Construction Details

Fire rated steel frame partition walls can be used to divide portal frame construction into separate fire compartments.

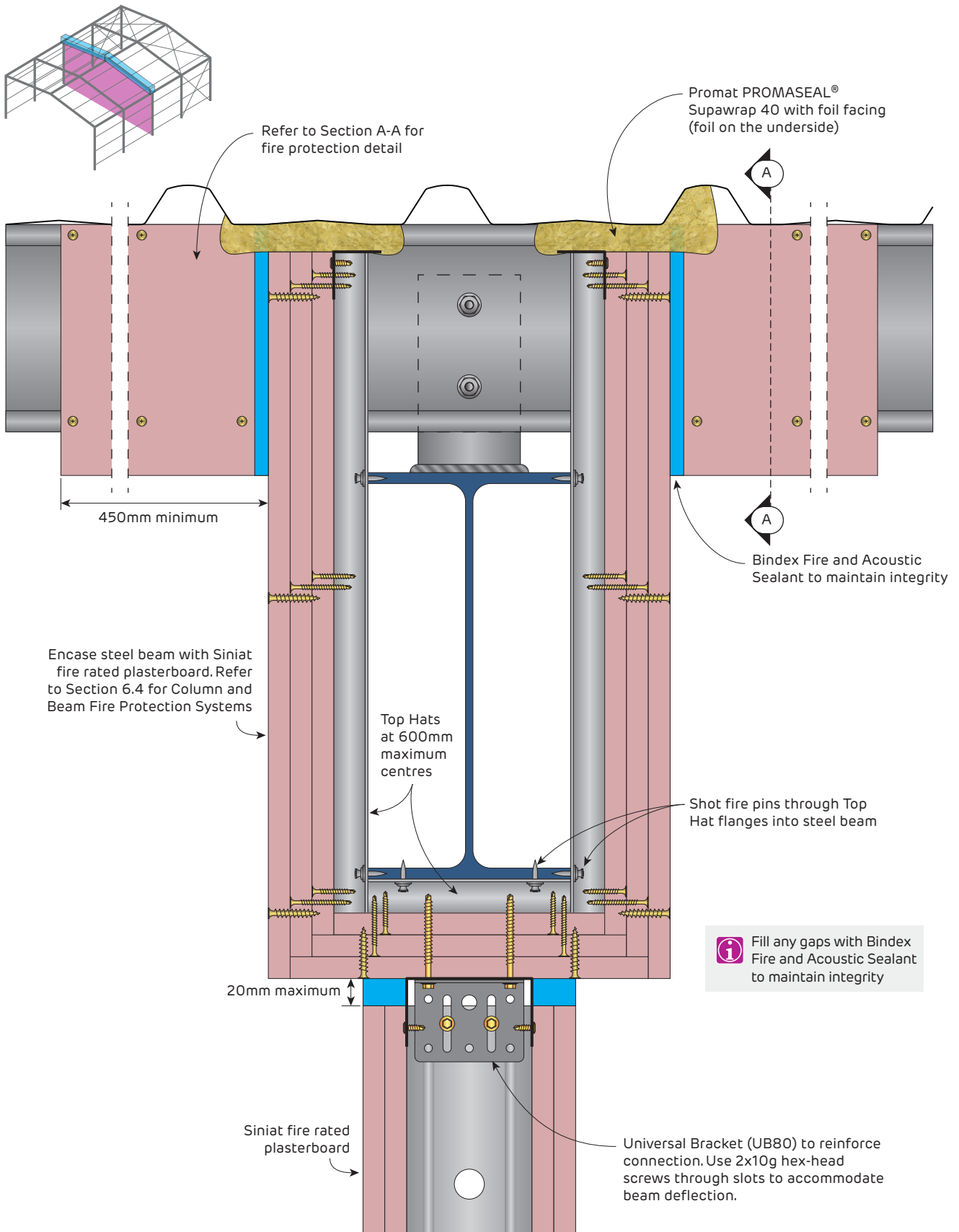
Under normal conditions these walls are non-load bearing but may bear the load of structural elements above the wall in the event of fire. As such a wall with a Structural Adequacy component to the Fire Resistance Level (FRL) should be used and additional structural columns may be required to support the intended loads under fire conditions. The NCC requires all structures to have Structural Reliability (Refer to BCA BP1.1(a)(iii)) whereby local damage such as a fire in one part of the building does not compromise the structural stability of the rest of the building. This indicates that a review of the buildings structural stability in the event of a fire must be completed.

As portal frames are complex structures, advice from fire engineers is recommended to assist with cost effective solutions for issues such as the transmission of heat through structural members crossing fire walls. In this case, a performance based solution is usually implemented.

This section contains details around structural steel beams and columns, as well as purlins and girts. Refer to Section 3.1 for Steel Framed Partitions Walls and Section 6.4 for Fire Encasement systems for protection of structural members.

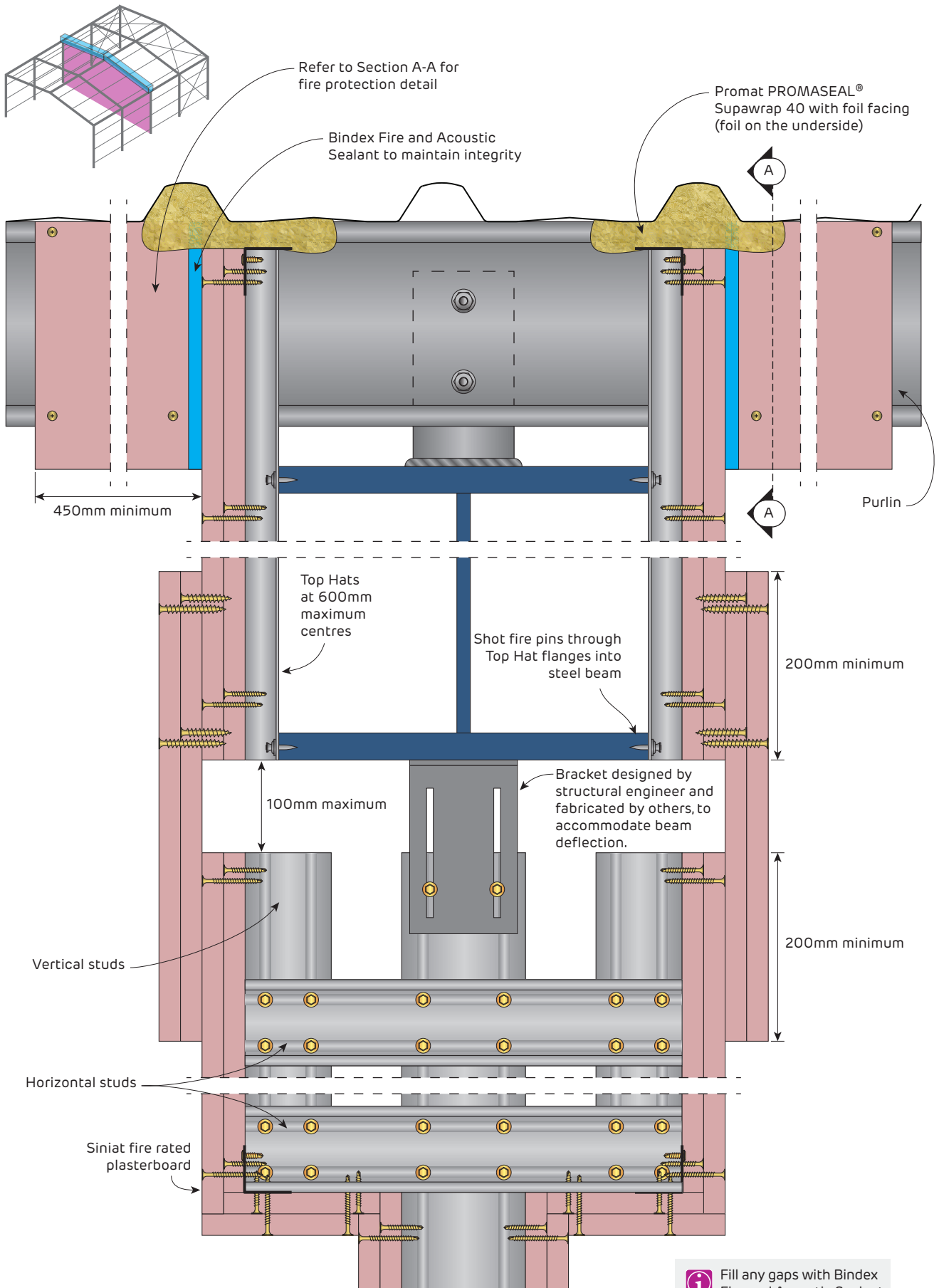


**Fire Rated**  
**Wall Partition Around Steel Beam to Roof Lining**



**FIGURE 1 Wall Head Detail**  
Up to FRL 120/120/120  
Section

**Fire Rated**  
**Wall Partition Around Steel Beam to Roof Lining - Higher Deflection Allowance**



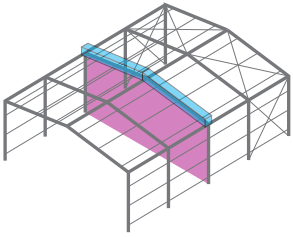
**i** Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

**FIGURE 2 Wall Head Detail**  
Up to FRL 120/120/120 - Section



## Fire Rated

### Wall Partition Around Steel Beam to Roof Lining

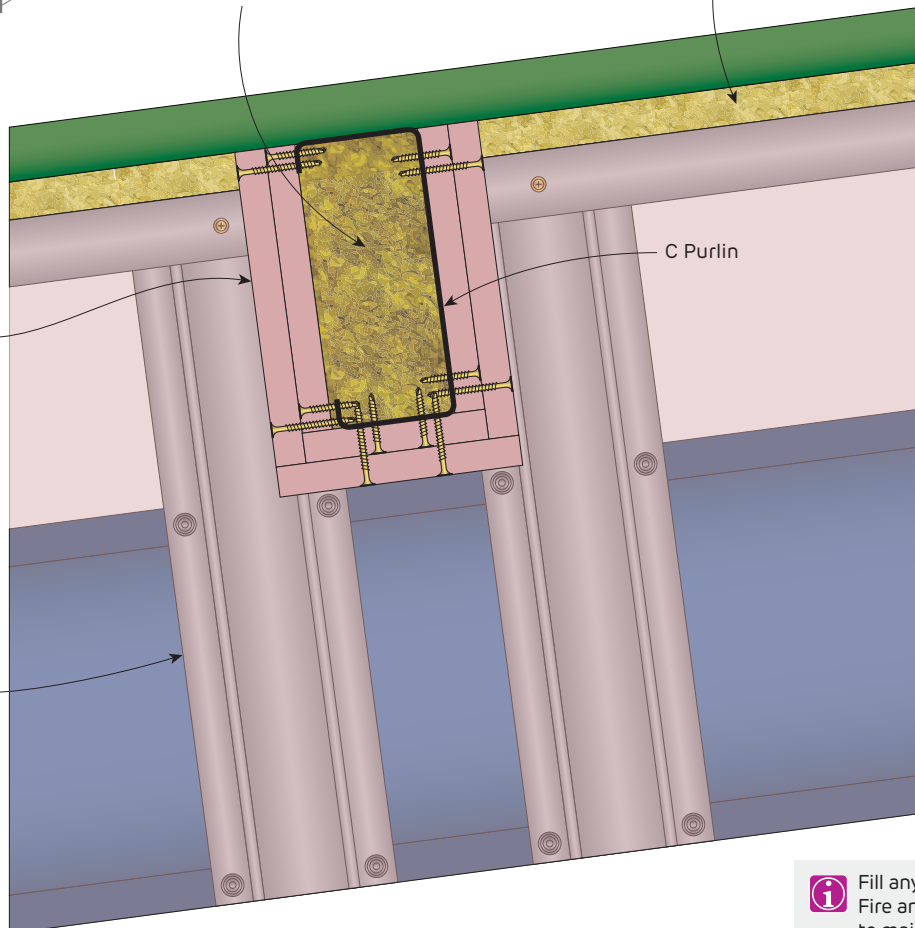


Using Bindex Fire and Acoustic Sealant, adhere fire rated plasterboard inside C-purlin along the entire length of the encasement. Alternatively, pack with Promat PROMASEAL® Supawrap 40 or Fire Stop Party Wall Batts (as shown) along encasement length.

Promat PROMASEAL® Supawrap 40 with foil facing (foil on the underside)

Encase purlin with Siniat fire rated plasterboard (Refer to Section 6.4) or Promat PROMASEAL® Supawrap 40 to maintain FRL

Top hat fixed to steel beam with shot fired pins



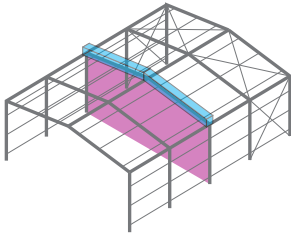
**i** Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity

#### SECTION A-A Wall Head Detail for C Purlin

Up to FRL 120/120/120  
Section



### Fire Rated Wall Partition Around Steel Beam to Roof Lining



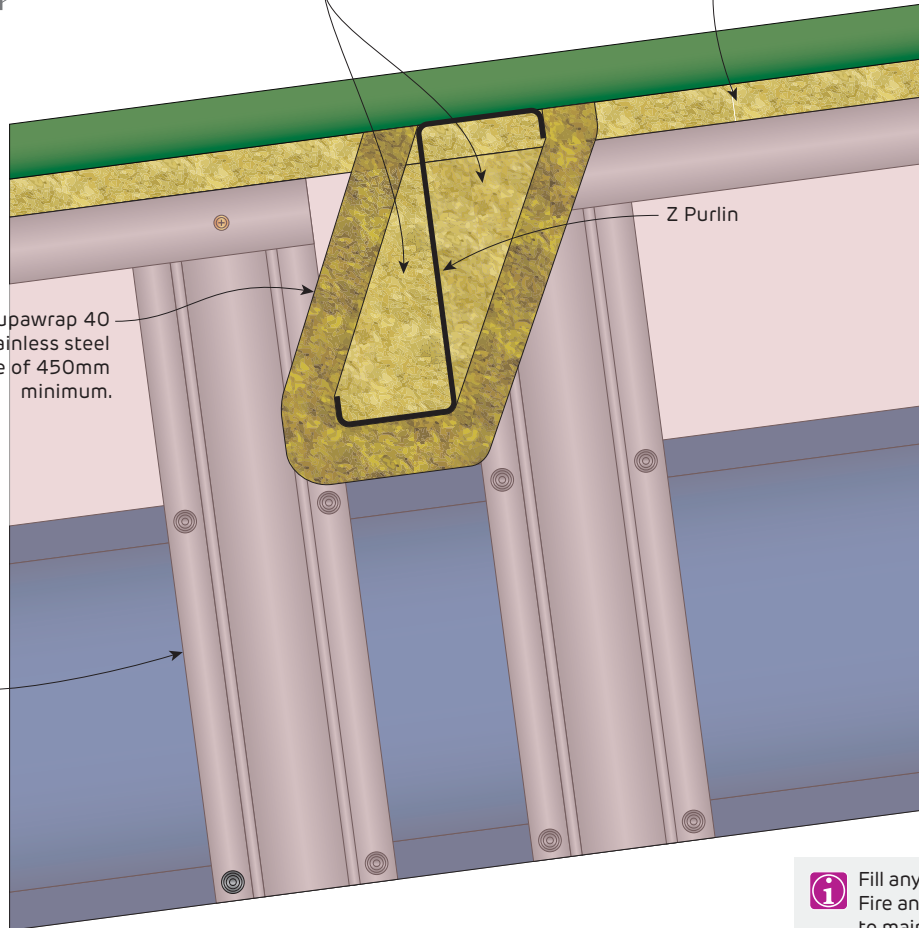
Pack with Promat PROMASEAL®  
Supawrap 40 or Fire Stop Party Wall  
Batts along encasement length.

Promat PROMASEAL®  
Supawrap 40 with foil facing  
(foil on the underside)

Promat PROMASEAL® Supawrap 40  
with Promat 4.6mm stainless steel  
cable ties for a distance of 450mm  
minimum.

Top hat fixed to  
steel beam with  
shot fired pins

Z Purlin



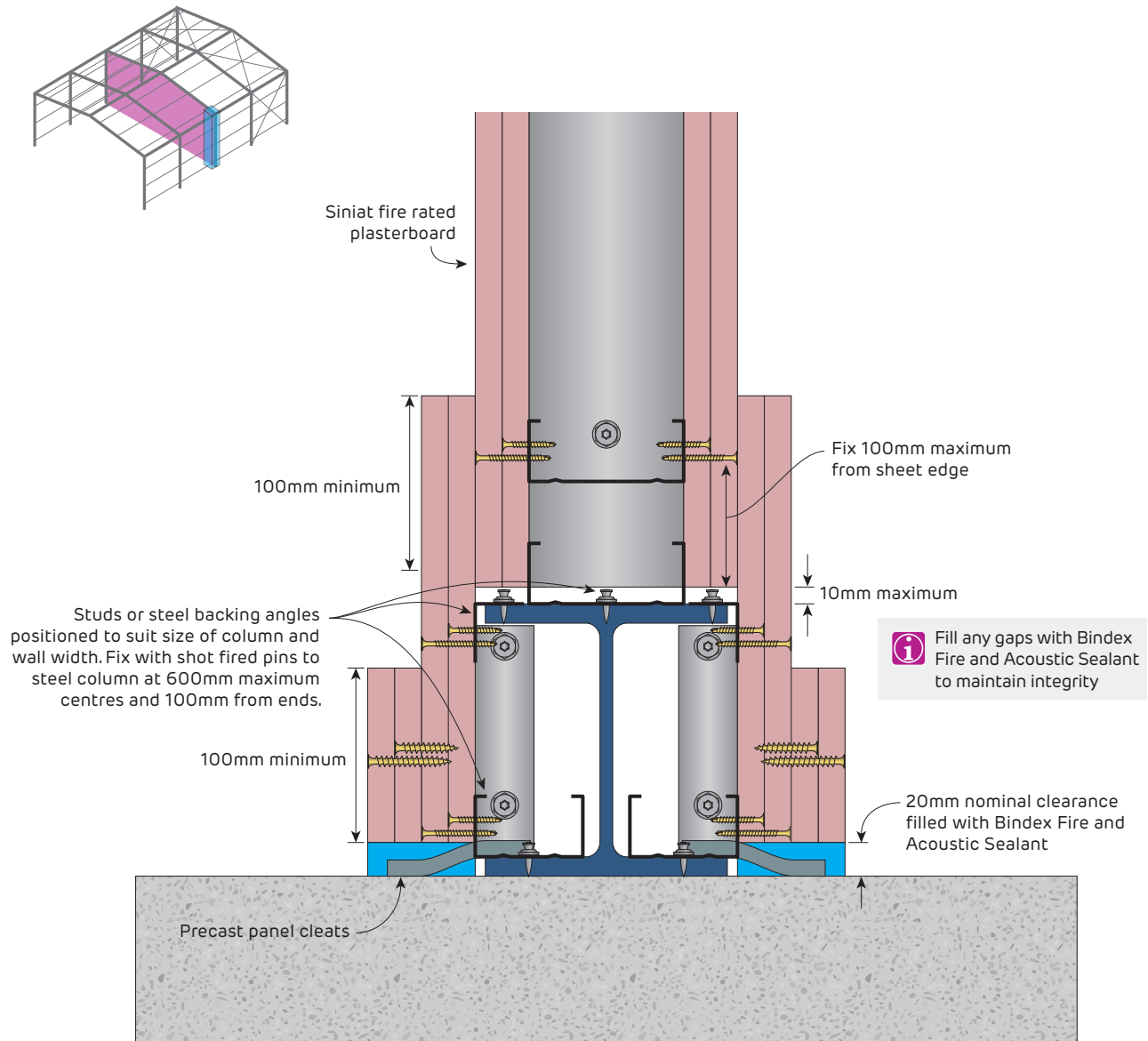
**i** Fill any gaps with Bindex  
Fire and Acoustic Sealant  
to maintain integrity

**SECTION A-A Wall Head Detail for Z Purlin**  
Up to FRL 120/120/120  
Section



## Fire Rated

## Wall Partition Around Steel Column to Precast Concrete

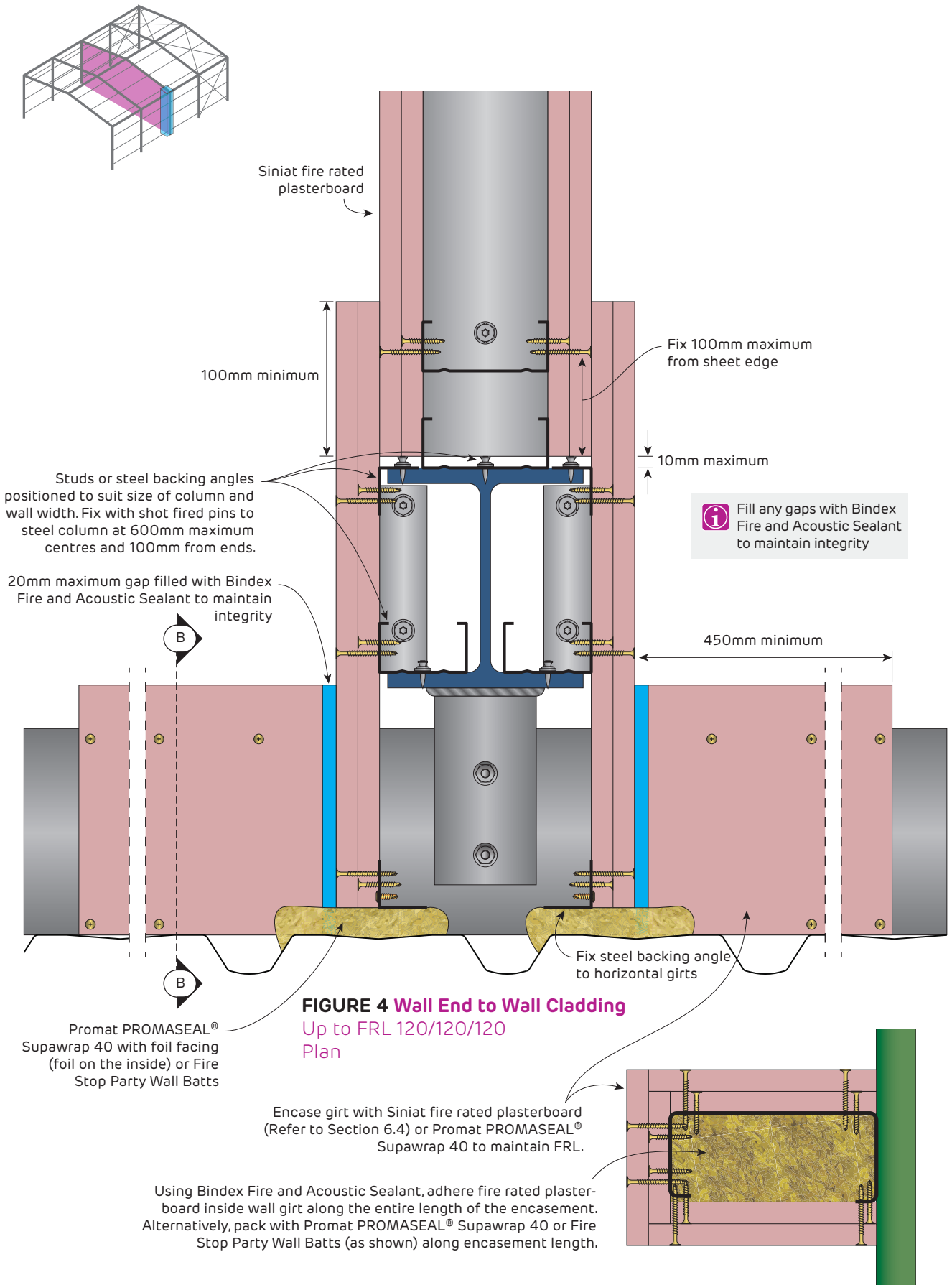


**FIGURE 3 Wall End to Precast Wall**

Up to FRL 120/120/120

Plan

**Fire Rated  
Wall Partition Around Steel Column to Wall Cladding**

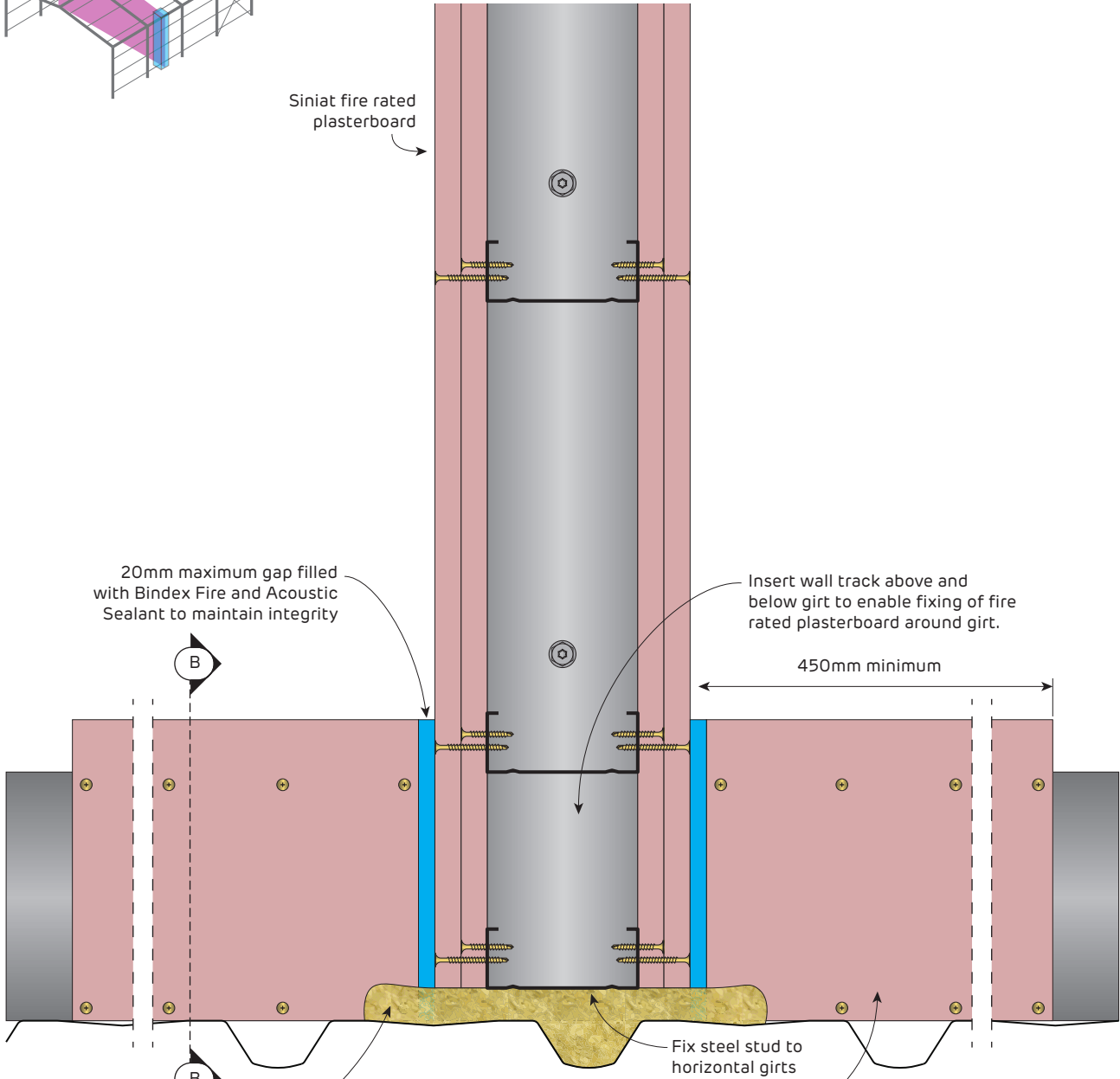
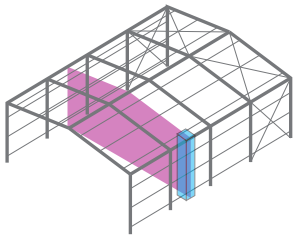


**FIGURE 4 Wall End to Wall Cladding**  
Up to FRL 120/120/120 Plan

**SECTION B-B Fire Protection of Wall Girt**  
Section



**Fire Rated  
Wall Partition to Wall Cladding**

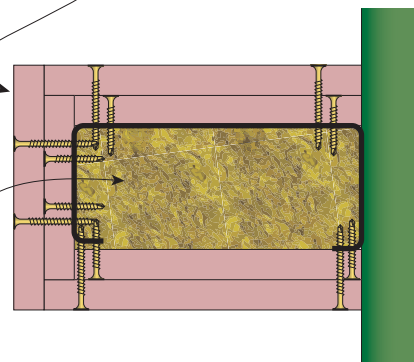


**FIGURE 5 Wall End to Wall Cladding**  
Up to FRL 120/120/120  
Plan

Promat PROMASEAL®  
Supawrap 40 with foil facing  
(foil on the inside) or Fire  
Stop Party Wall Batts

Encase girt with Siniat fire rated plasterboard  
(Refer to Section 6.4) or Promat PROMASEAL®  
Supawrap 40 to maintain FRL.

Using Bindex Fire and Acoustic Sealant, adhere fire rated plasterboard inside wall girt along the entire length of the encasement. Alternatively, pack with Promat PROMASEAL® Supawrap 40 or Fire Stop Party Wall Batts (as shown) along encasement length.

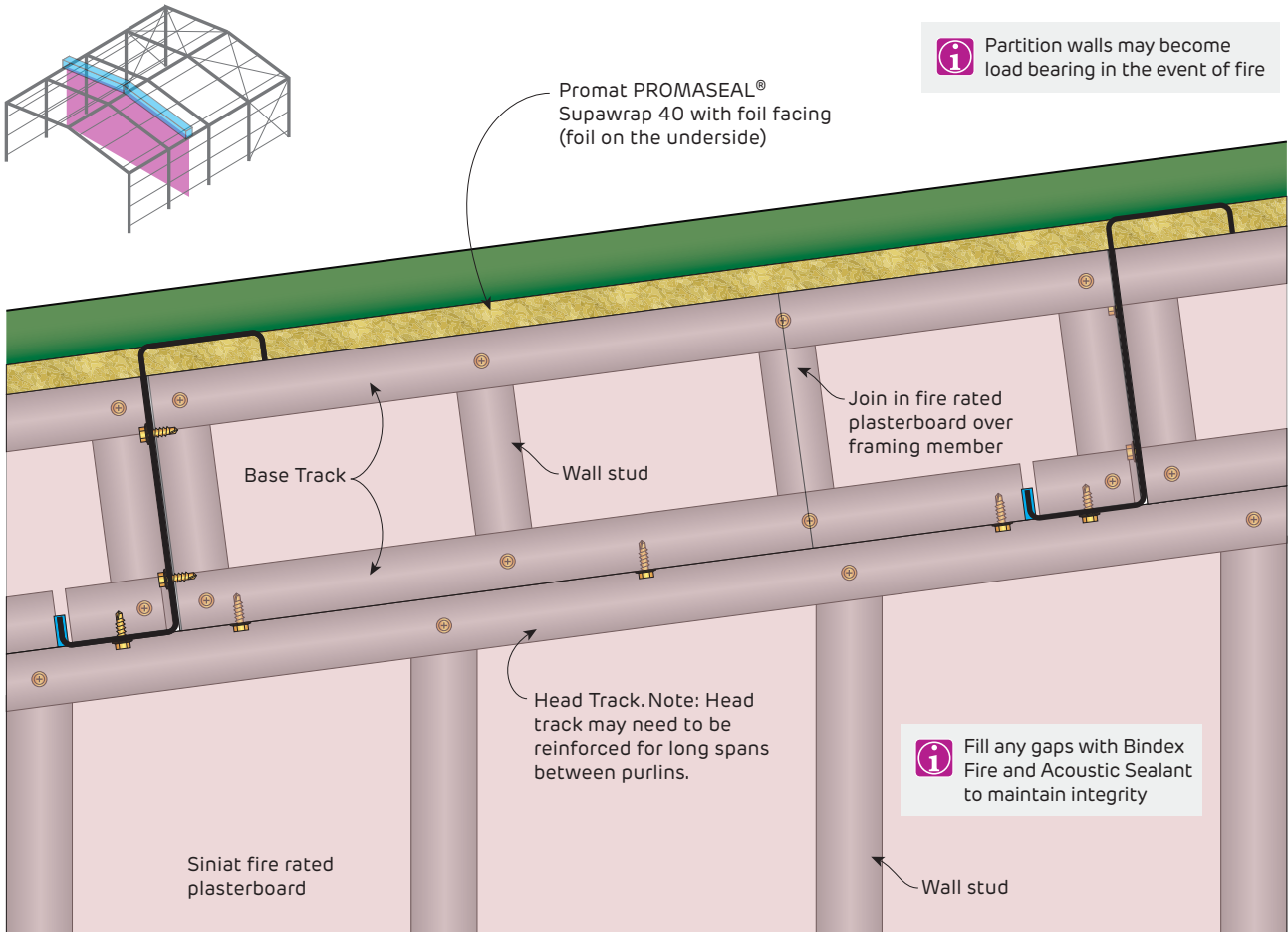


**SECTION B-B Fire Protection of Wall Girt**  
Section

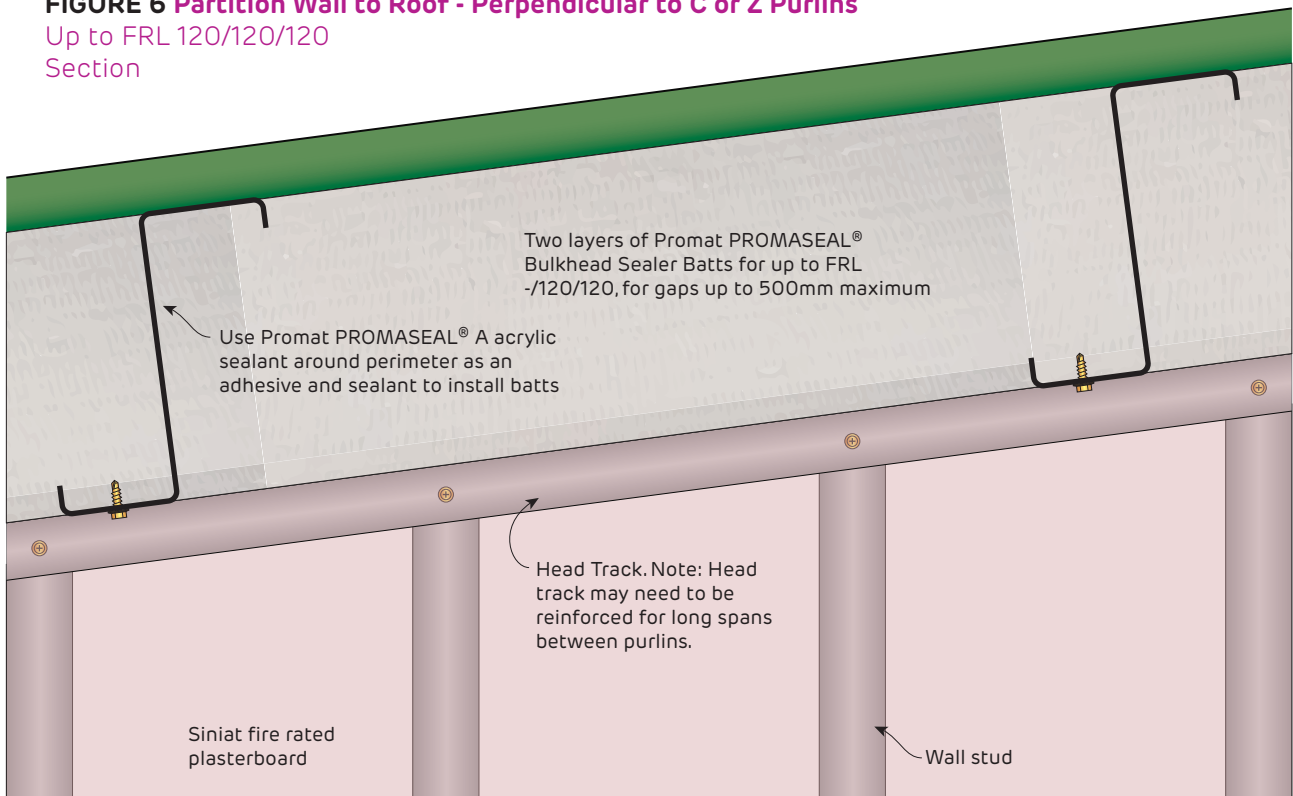
**i** Fill any gaps with Bindex Fire and Acoustic Sealant to maintain integrity



**Fire Rated**  
**Wall Head Details Around C or Z Purlins**



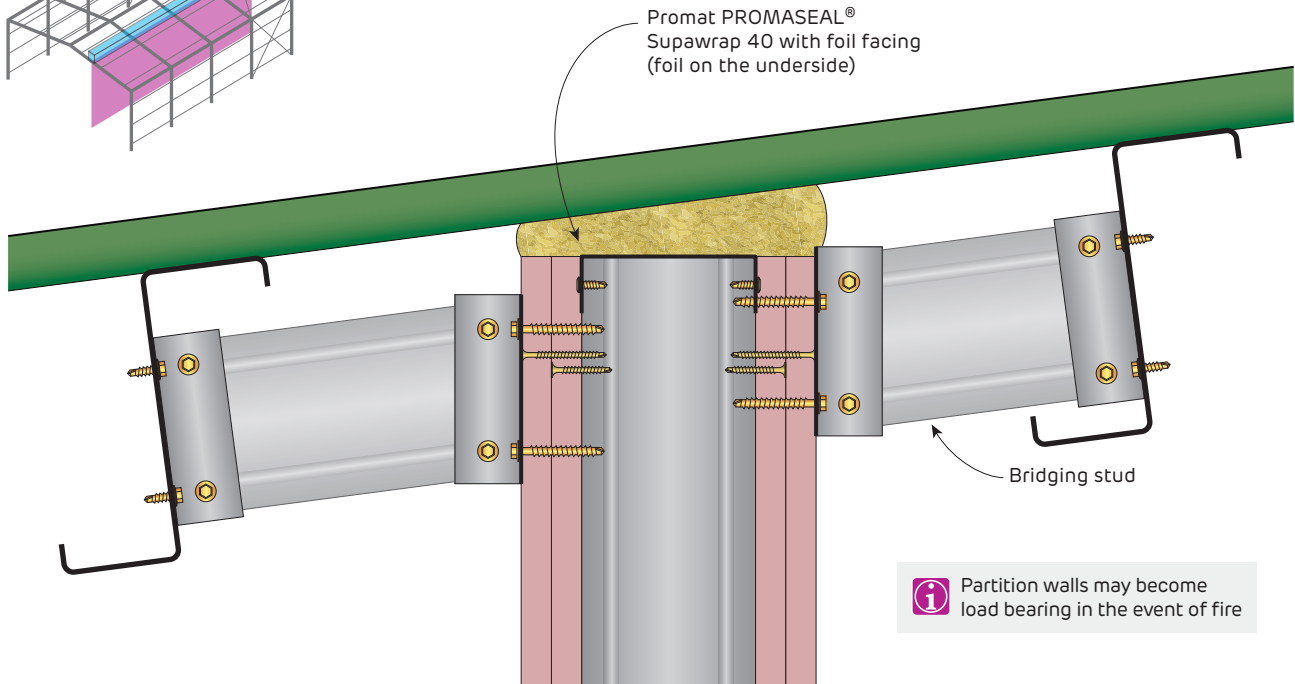
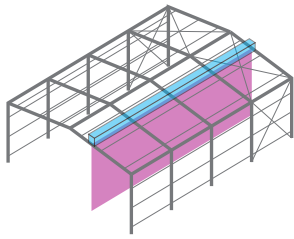
**FIGURE 6 Partition Wall to Roof - Perpendicular to C or Z Purlins**  
Up to FRL 120/120/120  
Section



**FIGURE 7 Partition Wall to Roof - Perpendicular to C or Z Purlins**  
Up to FRL 120/120/120  
Section

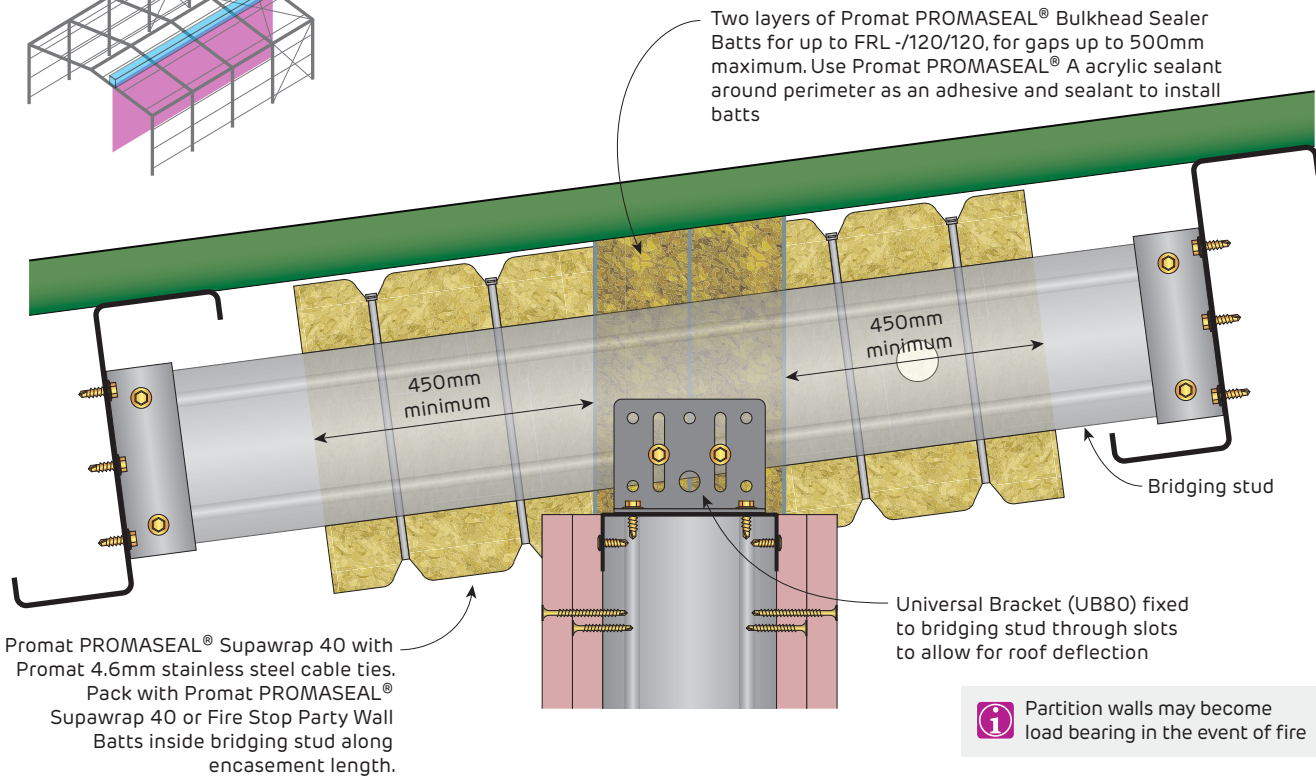
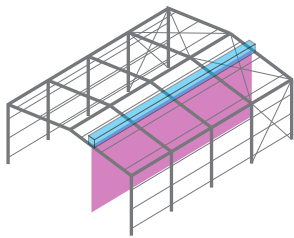


**Fire Rated**  
**Wall Head Details Around C or Z Purlins**



**FIGURE 8 Partition Wall to Roof - Parallel to Purlins**

Up to FRL 120/120/120  
Section



**FIGURE 9 Partition Wall to Roof - Parallel to Purlins**

Up to FRL 120/120/120  
Section