



# FAQ - Frequently Asked Questions

## FESI- Acoustic Commission

### 2. Execution of a Facade-junction / Facade-joint

#### Question:

How shall a facade-joint be executed to ensure that the sound insulation of the entire wall is not deteriorating? What needs to be observed, when selecting and applying a façade-joint?

#### Answer:

A facade-junction (facade-joint) between wall and façade is needed, where the wall thickness is larger than the façade-beam. The façade-joint influences the resulting insulation of the partition wall because of firstly its normally lesser performance, secondly the area ratio compared to the partition wall, and thirdly the sealing of the joints to the base wall and the Façade-post.

Thus, the sound insulation of the complete partition wall and the facade-joint is determined by the direct sound transmission through wall and joint, their area ratio and the seams in the junction.

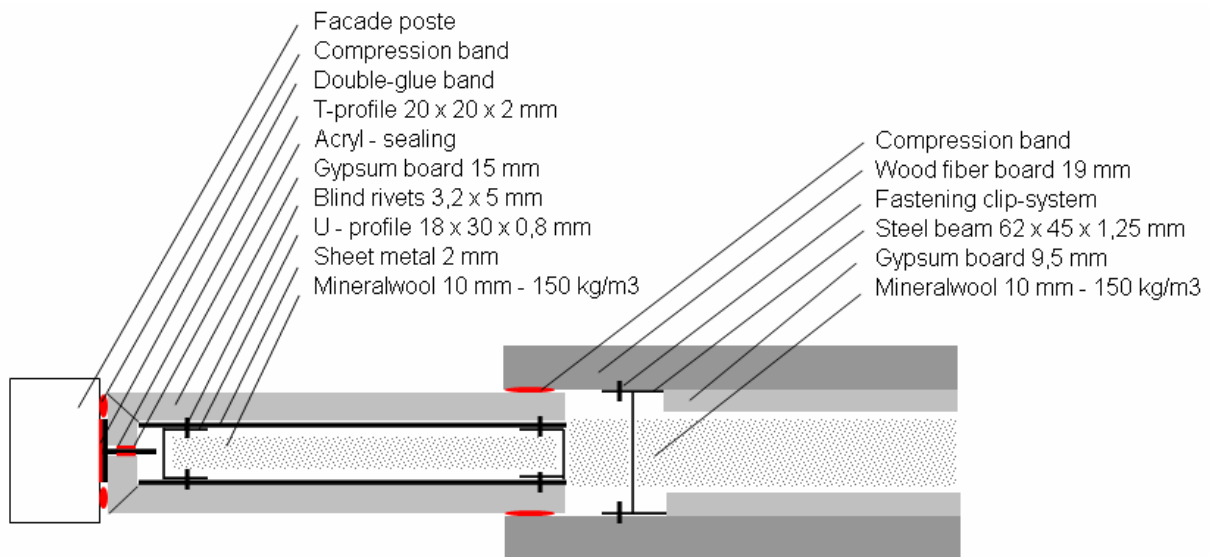
The resulting sound reduction is:

$$R_{\text{res}} = -10 \cdot \log_{10} \left( \frac{\sum_i 10^{(-R_i/10)} \cdot S_i}{\sum_i S_i} \right)$$

The sound insulation of the junction (double wall system) is a consequence of the area weight of the individual board and their open distance from each other. For a desired sound reduction of a thin junction a higher area weight is needed, than with a thicker joint. This can be achieved by additional application of steel sheet or lead foil.

Of great importance, especially for high sound reduction values, is the density and thereby the execution of the joint seams. To be able to accommodate movements of the façade, the sealing of joints is normally executed with a sliding junction. The sealing is achieved in both cases with mineral wool or partition wall plaster/ trowelling compound.

The drawing below shows a 100 mm partition wall with façade junction and sliding joint in the area of the transition junction to partition wall.

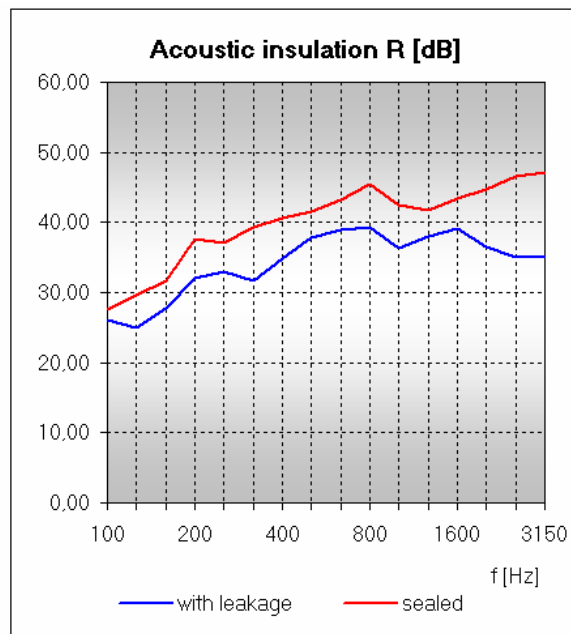


Measurements taken at the partition wall shown here of the sound reduction  $R'w$  demonstrate the influence of leaks, in this case in the area of the facade post.

f [Hz] with lea sealed

100	26,10	27,50
125	25,00	29,70
160	27,70	31,70
200	32,10	37,60
250	32,90	37,00
315	31,60	39,40
400	34,80	40,60
500	37,80	41,60
630	38,90	43,30
800	39,30	45,40
1000	36,30	42,50
1250	38,00	41,80
1600	39,20	43,50
2000	36,50	44,70
2500	35,10	46,60
3150	35,00	47,10

$R'w$  37 44



Where high acoustic reduction performance is required, a special attention must be paid to accidental leakages. The higher the performance of the wall, the more devastating are the negative influences of tiny acoustic by-passes (parasitic transmissions).