

5. Sliding ceiling junction

Question:

How can I perform a sliding ceiling junction without decisively weakening the transmission loss of the partition wall? Which mounting errors can be made?

Answer:

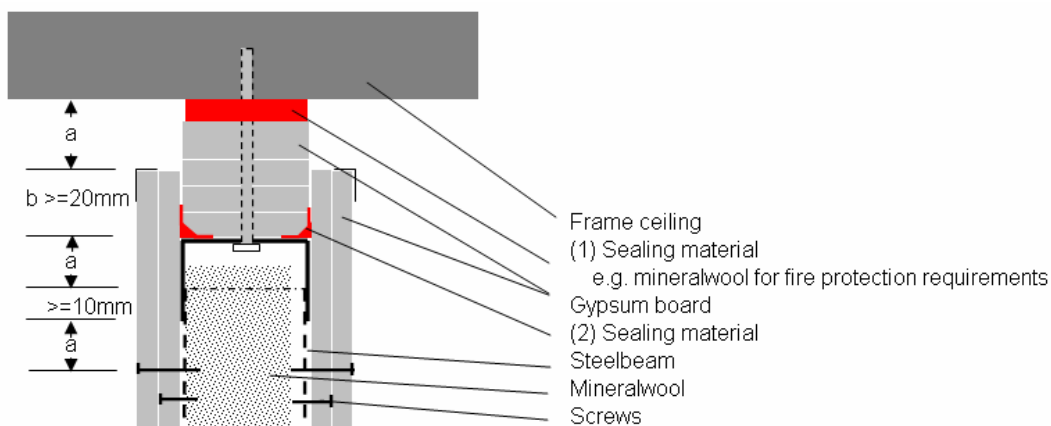
Unsupported ceilings with large spans bend under load. To prevent damage of the rigid light weight wall board and leaks in the ceiling- and floor-connections, a floating ceiling junction shall be executed. Dependent upon the actual requirements (fire- and noise-protection demands) maximum free path lengths and appropriate sealing materials are prescribed.

Dependent upon the sound insulation of the undisturbed partition wall, the sound insulation of the system is reduced even with an optimally executed ceiling junction by roughly 1 – 3 dB. The better the insulation of the partition wall, the higher the reduction.

Faulty execution of the junction, e.g. :

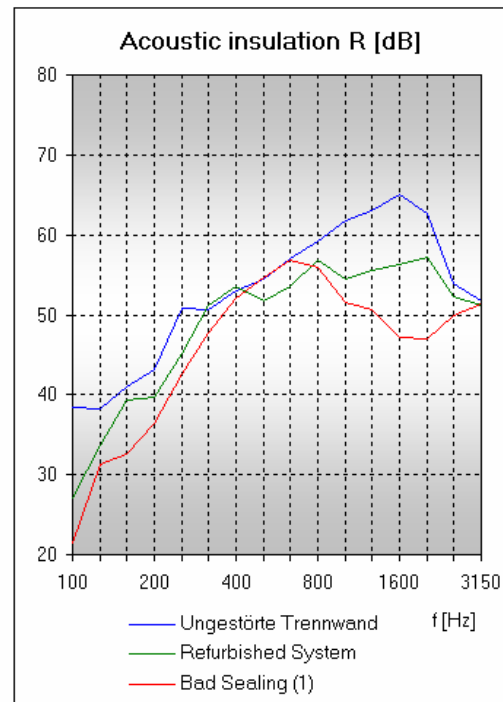
- through undercutting the free path length (= limiting the sliding range) resulting in damages
 - too short an overlap of the interior gypsum-board (measure b) resulting in an unsatisfactory sealing effect
 - insufficient execution respectively missing sealing in the ceiling junction (1) in the area of the sliding connection (2) and laterally at the longitudinal walls
- can additionally reduce the sound insulation considerably.

The example below shows the typical high frequency drop of the sound insulation of the system through faulty sealings (1)



Example: Dividing wall system of post and beam construction CW 75 mm, doubly covered on either side with fire protection gypsum-boards and 60 mm insulation layer + sliding ceiling junction.

f [Hz]	Undisturbed dividing wall	Refurbish. System	Bad Sealing (1)
100	38,5	27,2	21,4
125	38,2	33,7	31,3
160	41	39,3	32,6
200	43,2	39,8	36,5
250	50,8	45,1	42,7
315	50,6	51,3	47,7
400	53	53,5	52,1
500	54,4	51,7	54,7
630	57,1	53,5	56,9
800	59,2	56,8	56,0
1000	61,8	54,5	51,5
1250	63,1	55,6	50,6
1600	65,1	56,4	47,1
2000	62,6	57,2	46,9
2500	54	52,2	50,0
3150	51,7	51,2	51,3
Rw	56	53	48



Example: Sound insulation of undisturbed dividing wall, of a system with leaks, and of the system after repair.