

FERMACELL Trade Tip

Partition walls for cinemas.

Partition walls for cinemas –
with FERMACELL dry-lining systems.

The strength of steel framing with the flexibility of dry lining.

Multi-screen cinemas, often known as multiplexes, are usually constructed from a basic steel-framed shell, which is then fitted out internally with partitions and dry lining to the exterior walls. This system also produces a building with multi-functional potential, which can readily be converted and adapted to other uses at a later date.

A demanding performance specification.

These lightweight, non-load-bearing internal walls need to meet the very demanding acoustic insulation requirements which are obviously dictated by this type of application, as well as satisfying the appropriate fire safety regulations. In a cinema auditorium such walls may also reach considerable heights. This imposes additional mechanical stresses on the construction and demands a very high degree of structural stability.

The solution:

FERMACELL dry-lining systems.

With these exacting requirements in mind, the FERMACELL programme of partition walls and dry-lining systems includes thin-section lightweight constructions that are fire rated up to F 120. Depending on system configuration, site conditions and the design and construction of the building shell, FERMACELL walls of 200 mm thickness can achieve sound insulation ratings (measured on-site) of up to 70 dB in the frequency range 100–3200 Hz and 53 dB in the 63 Hz octave band frequency. Laboratory measurements yielded sound insulation ratings of up to 74 dB.

In addition to these features, the wall constructions will have the other benefits of FERMACELL – structural stability, impact and abrasion resistance, moisture resistance and the ability to accept wall mounted fittings as standard.



Cinema auditoria are steeply raked to provide a good view of the screen from every seat. This inevitably means very high walls.



Despite their small cross-section, FERMACELL partition walls meet all structural safety requirements even at heights of nearly 10 m.

Partition walls for cinemas.

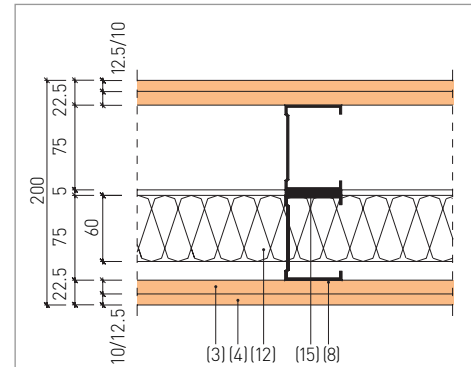
Partition walls for cinemas – with FERMACELL dry-lining systems.

Fast and simple installation makes these systems highly cost-effective.

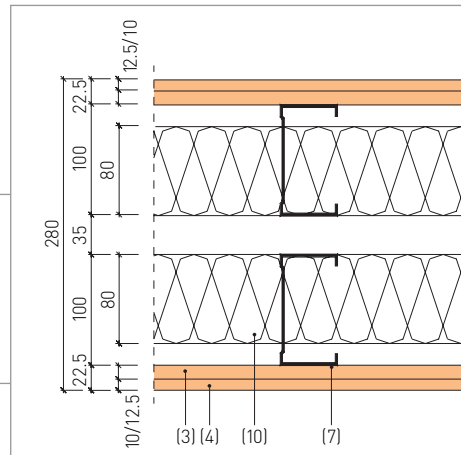
The studwork and wall linings are formed using standardised system components and then boarded using different layers of FERMACELL according to the intended performance of the finished construction. Because only the first layer of board needs to be screwed to the metal studwork, these FERMACELL systems are quick and easy to erect. Subsequent layers of board are fixed directly to the previous layer on both sides of the partition, irrespective of the position of the studs, using screws or steel staples. The

lower layer or layers of boards are simply butted together dry, while the joints in the final or outermost layer are either glued with FERMACELL Jointstik or taped and jointed if tapered edge boards are used.

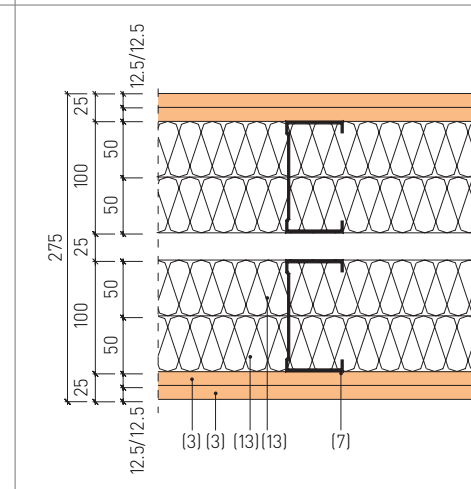
This time-saving and cost-effective technique for fastening and jointing multiple layers of FERMACELL building boards is standard practice for all types of construction. The same technique can be used to construct high-performance walls of exceptional height that meet the most demanding standards of fire resistance and sound insulation.



Laboratory sound insulation rating (R_w) = 66 dB
Fire resistance rating = F 90-A
For walls up to 6 m in height



Laboratory sound insulation rating (R_w) = 71 dB
Fire resistance rating = F 90-A
For walls up to 4 m in height



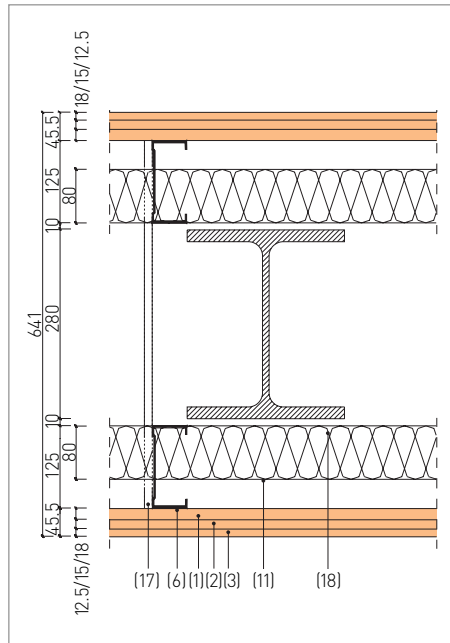
Laboratory sound insulation rating (R_w) = 74 dB
Fire resistance rating = F 90-A
For walls up to 4 m in height

Partition walls for cinemas.

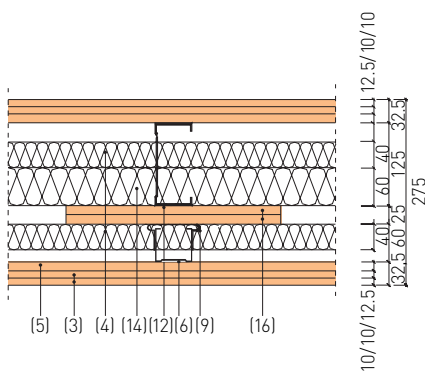
Partition walls for cinemas – with FERMACELL dry-lining systems.

Key to diagrams.

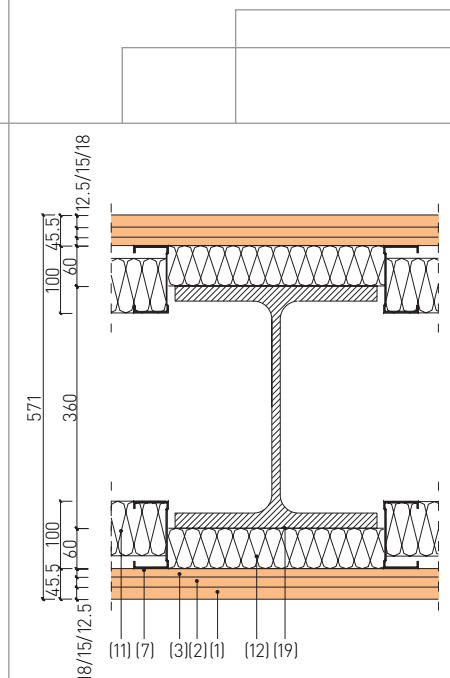
- (1) 18 mm FERMACELL board
- (2) 15 mm FERMACELL board
- (3) 12.5 mm FERMACELL board
- (4) 10 mm FERMACELL board
- (5) Cut strips of 12.5 mm FERMACELL board
- (6) Metal stud, 125 x 0.6 mm
- (7) Metal stud, 100 x 0.6 mm
- (8) Metal stud, 75 x 0.6 mm
- (9) Metal stud, 50 x 0.6 mm
- (10) Mineral wool 80 mm/ 100 kg/m³
- (11) Mineral wool 80 mm/ 50 kg/m³
- (12) Mineral wool 60 mm/ 40 kg/m³
- (13) Mineral wool 50 mm/ 30 kg/m³
- (14) Mineral wool 40 mm/ 40 kg/m³
- (15) Double-sided adhesive tape
- (16) Spring clips
- (17) Strips of FERMACELL board positioned at 1/3 of wall height
- (18) Steel column HE-B/IPB 280
- (19) Steel column HE-B/IPB 360



Sound insulation rating (R'_w) = 65 dB (measured on-site)
Fire resistance rating (both faces) = F 90-A for walls up to 9.6 m in height



Sound insulation rating (R'_w) = 68 dB (measured on-site)
Rated difference in sound levels (D'_w) = 78 dB
Fire resistance rating = F 90-A for walls up to 10 m in height



Sound insulation rating (R'_w) = 71 dB (measured on-site)
Sound damping in the 63 Hz octave band frequency: R'_w = 53 dB (lined on one side)
Fire resistance rating (both faces) = F 90-A for walls up to 5 m in height

Other benefits.

As well as meeting the demanding performance specification outlined above, FERMACELL has additional benefits in the construction of partition walls and dry lining for cinema interiors. Because of their impact resistance and high mechanical strength, large wall-mounted fittings such as display cabinets, display boards and signs, projection screens and sound absorbing panels can be attached directly to the FERMACELL boards without the need for hanging rails or noggins/dwangs. FERMACELL's enhanced abrasion resistance is particularly suited to high traffic areas such as cinema foyers and corridors, and the inherent moisture of the board often allows the dry lining to be commenced before the building envelope is complete.

Finally, FERMACELL's FST finishing system means that non skilled trades may be employed to finish the board to plaster smoothness.

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FERMACELL dry partition walls separating different cinema auditoria in the same building have to meet a demanding performance specification. But fast installation and simple fixing of the boards makes this a highly cost-effective solution.

The information contained in this technical datasheet represents only a small part of Xella's vast experience of tailoring systems to a client's precise acoustic requirements. For further information, please contact Xella and we will arrange for a technical expert to come and discuss your requirements.

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