PROMATECT® 100 Passive Fire Protection
Building & Construction Solutions
Partitions
<table>
<thead>
<tr>
<th>Steel stud partition type</th>
<th>Fire resistance performance</th>
<th>STC</th>
<th>R_w</th>
<th>Board layer and thickness</th>
<th>Typical system weight</th>
<th>Total partition thickness</th>
<th>Test/Approval no.</th>
<th>Page no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROMATECT® 100 (double sided)</td>
<td>-/90/60</td>
<td>Up to 50dB</td>
<td>Up to 50dB</td>
<td>1 x 15mm (each side)</td>
<td>* From 27kg/m²</td>
<td>From 94mm</td>
<td>WFRA 41096 and WFRA 45883 to the requirements of BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005</td>
<td>80</td>
</tr>
<tr>
<td>PROMATECT® 100 (double sided)</td>
<td>-/120/120</td>
<td>Up to 48dB</td>
<td>Up to 50dB</td>
<td>1 x 20mm (each side)</td>
<td>* From 35kg/m²</td>
<td>From 104mm</td>
<td>WFRA 41088 and WFRA 45883 to the requirements of BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005</td>
<td>81</td>
</tr>
<tr>
<td>PROMATECT® 100 (double sided)</td>
<td>-/240/240</td>
<td>Up to 55dB</td>
<td>Up to 59dB</td>
<td>2 x 20mm (each side)</td>
<td>* From 70kg/m²</td>
<td>From 164mm</td>
<td>FSRG 2014-054 to the requirements of AS 1530: Part 4: 2005</td>
<td>87</td>
</tr>
<tr>
<td>PROMATECT® 100 (double sided)</td>
<td>-/120/120</td>
<td>Up to 57dB</td>
<td>Up to 60dB</td>
<td>1 x 20mm (each side)</td>
<td>* From 36kg/m²</td>
<td>From 178mm</td>
<td>WFRA 41088 to the requirements of BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005</td>
<td>95</td>
</tr>
<tr>
<td>PROMATECT® 100</td>
<td>-/120/120</td>
<td>Up to 35dB</td>
<td>Up to 39dB</td>
<td>1 x 20mm (each side)</td>
<td>* From 37kg/m²</td>
<td>From 130mm</td>
<td>BRE CC 232158A and BRE CC 232158B to the requirements of BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005</td>
<td>99</td>
</tr>
<tr>
<td>PROMATECT® 100 solid/frameless internal partition</td>
<td>-/120/120</td>
<td>Up to 36dB</td>
<td>Up to 36dB</td>
<td>2 x 20mm</td>
<td>* From 34kg/m²</td>
<td>40mm</td>
<td>BRE CC 232158A and BRE CC 232158B to the requirements of BS 476: Part 22: 1987 and/or AS 1530: Part 4: 2005</td>
<td>103</td>
</tr>
</tbody>
</table>

* For partitions up to 3000mm. Stud sizes may increase for partitions above 3000mm of height. Please consult Promat.
**Introduction**

Partitions are used to separate buildings, enclose compartments and contain fire by providing a barrier to the passage of fire from one side or the other, or both. In doing so, they are able to satisfy each of the relevant fire resistant criteria (integrity, insulation and, if the wall is loadbearing, load bearing capacity) from either side for the prescribed period.

The application of partition and external wall systems using Promat boards covers both non loadbearing and loadbearing in commercial, industrial, institutional, residential and high rise constructions, or in the restoration of existing buildings. Promat’s internal partition systems require less material to achieve similar fire resistant level when compared to industry average wallboard partition systems. The single layer board application leads to simplified construction methods over other equivalents and in turn to increased productivity and reduced overall installation cost.

These partition and external wall systems have been developed by Promat International (Asia Pacific) Ltd to satisfy standard requirements for intended applications. Such considerations include:

**Time & cost effectiveness**

Single layer application reduces installation cost and time compared to traditional wallboard constructions.

**Slim walls**

Partitions can be as thin as 35mm.

**Lightweight**

Lighter loads on structures compared to industry average wallboard partition systems for equivalent fire resistance.

**Thermal resistance**

Excellent thermal resistance performance. Impact resistant PROMATECT®-H partition systems have been tested for resistance to impact, stiffness and robustness in accordance with the criteria of BS 5234: Part 2.

**Acoustic performance**


**Fire resistance performance**

Promat partitions and external wall systems have been extensively tested and assessed in accordance with BS 476: Parts 21 and 22 and AS 1530: Part 4 to satisfy the integrity, insulation and where applicable loadbearing capacity (structural adequacy) criteria.

**General design considerations for partitions**

Following are some of the factors to take into account when determining correct specifications that ensure a partition provides required design performance under both fire and ambient conditions.

**Studwork design**

The design of studwork should be adequate for the height of the partition. The studwork details given in the following specifications are suitable up to the maximum heights stated. For greater heights the dimension of the framing members could change depending upon factors such as movement and deflection, and local approvals. Larger or more frequent frame sections will often improve fire and structural performance.

The studwork shall be appropriately designed for the applied loads, e.g. wind load, and where applicable structural load in the case of load bearing systems. The framing for the partition systems must be securely fixed back to a substrate that has an equal or greater fire performance than the designed partition. All fixings must be non combustible and must be those listed in the approval documents. The design shall be in accordance with the relevant British, Australian and/or International Standards.

**Non loadbearing partitions**

Non loadbearing partitions and external wall systems using Promat boards can be generally categorised as framing systems consisting of steel or timber studs and solid partitions. For steel stud systems, selection of suitable stud size shall be in accordance with the maximum partition height given in the stud selection tables. The partition systems in the following pages, where stated, are designed for lateral loads of up to 0.25kPa using the composite action of the frame and boarding.
Loadbearing partitions

Loadbearing capacity of featured partition systems in this handbook are calculated in accordance with BS 5950-8: 2003 and AS 4600: 1996 for load cases defined by AS 1170: 2002. The maximum load bearing capacity is given in kN for a given partition height taking into account the reduction in steel strength at elevated temperature.

Studs are located at 600mm maximum centres with noggings. Loads considered in this manual are for axial compression only. Wind and other loads have not been taken into consideration. For further information on these loads, please consult Promat.

Deflection

Where differential movement is expected between the floor or beam above the construction and/or the floor below, it is generally advisable to incorporate a deflection head track to ensure undue stress is not placed upon the partition. This also allows for the sagging and deflection of a floor or structural beam will be subjected to under fire conditions. Even concrete floors will suffer considerable deflection under fire if exposed for any extended duration.

Some form of movement joint is also required to allow for the expansion of the studs under fire conditions. A partition will also bow at its centre. As the wall bows, it naturally becomes shorter. For this reason alone, use should be made of a top track with long side legs. This will allow the stud to bow and as a result drop down, without the studs dropping out of the head track.

Movement joint

Movement stress from dimensional changes due to varying temperature or moisture conditions can cause cracking and other symptoms of distress in partitions. Other external forces such as impact or vibration can directly affect the structural movement of partitions. This movement can be controlled through a variety of design techniques such as introducing perimeter relief and slip connections to reduce the transfer of stress from the structure to other building sub elements and/or through the use of expansion joints, control joints and construction joints.

In a partition, expansion joints are needed when the partition abuts a rigid mass. A vertical movement joint should be located at maximum 10000mm centres in long runs of partition. However, introducing a control joint into a fire resistant partition creates an opening for flame and temperature transmission. Such openings must also be treated with approved fire stopping systems.

Please refer to page 71 for further details on movement joints.

Caulking & service penetrations

To maintain fire and where applicable acoustic performance of the partition system, gaps at the perimeter must be appropriately filled with suitable caulking material. PROMASEAL®-A Acrylic Sealant or other tested fire and acoustic resistant material of equivalent or better performance must be used. Care needs to be taken in detailing a suitable fire stopping system around any penetration of the partition by services to ensure that the fire-stopping material remains in situ, and fire and smoke do not penetrate the partition.

Allowance should be made for thermal movement of the services in both ambient and fire conditions to ensure loads are not applied to the partition. Some examples of service penetrations include electrical cables, conduits or wires, switches and power outlets, plastic and metal pipes, air conditioning and ventilation ductwork. Further guidance on the penetration seals of these elements can be obtained on the PENETRATION SEALS section this handbook.

Fire doors & glazing

Tested or assessed door and/or glazed assemblies should always be used. All and any doors or glazed elements with a fire resistant wall should be shown, by fully compliant testing to the appropriate standard, to be capable of providing at least an equal fire performance to the wall itself. This means fire doors should be tested in lightweight partition systems, not just in masonry. In most cases additional framework will be required to prevent loads being applied to the partition. Careful detailing is needed around the perimeter of any door or glazed assembly. Further guidance on the detailing at fire doors and glazing is available on page 72.

Partition junction

Care must be taken to ensure that partition corner junctions and intersections are stable for both fire and ambient conditions. Framing at these locations must be mechanically fastened together. Further information on the detailing these junctions can be found on page 67.

Board fixing

Promat boards can be installed horizontally or vertically. For steel stud partition system, joints in the boards must be staggered between either side of the framing with all the joints located at a framing member. The boards may be fixed to the studs using No.8 bugle head self-drilling and self-tapping screws of a length appropriate for the board thickness. Needle point screws are generally used to fix boards to light gauge steel frames up to 0.8mm. Drill point screws are generally appropriate for heavy gauge steel frames from 0.8mm to 2.0mm.

When a timber frame is used, Promat boards are fixed to the framework using screws or nails of a length appropriate for the board thickness and the required fire resistance performance at nominal 300mm centres and minimum 12mm from the board edge. Minimum edge distance to fasteners and the maximum spacing between screws or nails must be maintained.

Internal and external corners may be set using a perforated metal corner bead fixed to the board linings at not more than 500mm centres.
Steel frame components

Components selection

Construction of Promat fire resistant steel stud partitions can be achieved using Rondo stud and track components. Other steel components of equivalent performance can of course be used but it is the responsibility of the manufacturer of the component to substantiate equivalent performance with the recommended component.

Deflection head & bottom tracks

The main function of the ceiling and floor tracks is to hold the studs in position until the board is fitted. They provide a friction fit for the studs and also act as a slip joint to allow for any movement in the structure.

The track sections come in two basic profiles. A standard track has a nominal 32mm flange whilst the deflection head track has a nominal 50mm flange. However, head tracks with wider flange are available but they have to be specially designed for instances where clearance for expansion at the head track exceeds 20mm.

No clearance for expansion is applicable at the head track for a loadbearing partition. Track sections should be fixed at maximum 600mm intervals to the supporting structure. Fixings should be located not more than 100mm from either end of the track section.

Vertical studs

The recommended Rondo studs come in 0.50mm, 0.55mm, 0.75mm and 1.15mm. The 0.50mm to 0.75mm studs have standard 25mm bell-mouthed service holes for electrical cabling. For the 1.15mm stud, round holes are punched at designated centres along the stud.

Spliced extensions are possible in situations where the overall height of the partition is more than the stud length. The 0.50mm to 0.75mm studs may be boxed and the 1.15mm studs may be spliced back to back.

For greater rigidity at fire resistant glazing and door openings, and also at locations where extra load carrying capacity is required, studs of 0.50mm to 0.75mm may be boxed and studs of 1.15mm may be fixed back to back. See guide below on spliced studs and stiffening framing.
Fixing of spliced vertical studs for partition heights up to 7000mm

1. 0.50/0.55/0.75mm studs

<table>
<thead>
<tr>
<th>Splice location in wall</th>
<th>Minimum required fasteners on both sides of studs over the splice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 10%</td>
<td>2 pieces</td>
</tr>
<tr>
<td>10% to 25%</td>
<td>3 pieces</td>
</tr>
</tbody>
</table>

2. 1.15mm studs

<table>
<thead>
<tr>
<th>Splice location in wall</th>
<th>Minimum required fasteners on both sides of studs over the splice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 10%</td>
<td>3 pieces</td>
</tr>
<tr>
<td>10% to 25%</td>
<td>5 pieces</td>
</tr>
</tbody>
</table>

NOTE: The splice location percentage refers to the height of the partition. For example, taking a partition 10000mm high, a 10% splice location would be located within 1,000mm of the top or bottom of the wall. A 25% splice location would be within 2000-5000mm of the top or bottom of a 10000mm high wall.

- Splices should be alternate subsequently at top and bottom of wall
- Do not splice studs between 25% and 75% of wall height
- Splicing of studs is recommended for non loadbearing partitions only
- Where splicing is not possible due to the height, use fully boxed sections

Nogging track

Noggings are necessary to provide bracing to the partition studs and preventing the studs from twisting when fitting the lining boards. The noggings are to be screwed, riveted or crimped to both flanges of the studs. Continuous nogging tracks 0.55mm and 0.75mm are available from Rondo. This nogging track can be fitted to the stud framing in one length. Alternatively, individual noggings may be cut from the track. Noggings of 0.75mm can be used with 1.15mm studs.

TOP TRACK FIXING

Track to be structurally designed in accordance with BS 5950 or AS 4600, for the given opening dimensions.

BOTTOM TRACK FIXING

Track to be fastened to substrate floor and ceiling with M6 anchor bolts 40mm long at maximum 600mm centres. Studs can be installed vertically at 600-610mm centres depending on the board size used.
Horizontal track using steel studs

- Studs to be cut to a short length and screwed in between each of the vertical studs.
- Cut the base of the track leaving two short studs either side. Insert the noggings between the vertical steel studs and fix through the studs into the vertical studs on either side, using only steel rivets or screws.
- All horizontal joints of the boards are to be fixed to the noggings.

Horizontal track using steel channels

- Steel channel cut to length and screw fixed to the both sides of the vertical studs.
- All horizontal joints of the boards are fixed to the nogging.

Horizontal joints with board strips

- Cover fillets minimum 75mm wide cut from main lining boards. Fix board to board using stitching screws of a length appropriate to the board thickness, at maximum nominal 200mm centres.
- All horizontal joints of the boards to be covered and fixed by board strips.
Timber Frame Components

**Timber frame**

Timber has very good performance in fire. It does burn but at a relatively slow and to a predictable depth known as the charring rate. This is one major advantage of using timber over steel because the fire resistance of timber elements of construction may be calculated based on a predictable charring rate.

Timber also has a very low thermal conductivity value and hence does not heat uniformly. Therefore, timber material a few millimetres inside the burning zone is just warm. The formation of a self insulating char provides some resistance to further heat penetration.

Unlike materials with a high thermal conductivity such as steel, there are less problems associated with expansion or loss of strength due to increases in temperature over the whole section in timber. This means that in some instances timber retains its structural integrity better than steel.

There are many different types of timbers and they all char at varying rates. Higher density timbers char generally (but not always) more slowly than those of lower density. Denser hardwoods used for structural purposes, such as jarrah, teak, keruing and greenheart, char at a rate of approximately 15mm in 30 minutes. Lower density (<650kg/m³) softwood timbers such as Western red cedar have an estimated charring rate of 25mm in 30 minutes.

Tables are available which can provide a definitive charring rate for a specific timber species, and can be based on the use of heartwood or sapwood of the given species.
**Studs & cross noggings**

The frame used in timber stud partitions generally consists of 90mm deep x 45mm wide softwood timber. The fire performance of the partition system accounts for the loss of the timber section due to charring effect without compromising the fire performance of the partition.

Where the boards are to be installed with their long edges vertical, the studs are located at maximum 600mm or 610mm centres (depending on the board width) with cross noggings at 1200mm or 1220mm centres. Where the boards are to be installed with their long edges horizontal, the studs are located at 600mm or 610mm centres with cross noggings at 1200mm or 1220mm centres.

The cross noggings may be fixed to the studs using nails or woodscrews of at least 100mm long. See fixing methods at left. Either method can be adopted to fix the cross noggings.

**Top & floor plates**

The top and floor plates are to be of the same material and dimensions as the studs. They are to be secured to the surrounding structure with minimum 100mm long M6 masonry anchors at nominal 600mm centres with the drilled depth into the concrete structure of at least 40mm. Polyamide nylon anchor sleeves may be allowed for use with timber framing.

The vertical studs are fixed to the top and floor plates using either nails or woodscrews of at least 100mm long in the manner shown in the left picture.

**Loadbearing partition**

Where a partition is loadbearing, the required size of the stud shall be calculated by a suitably qualified structural engineer. Care should be taken to ensure that the loadbearing partition has been designed to resist all applied loads and in accordance with BS 5268: Part 4, AS 1720: Part 1 or AS 1684. Generally, the fire performance and the load carrying capacity will improve by increasing the cross-sectional dimensions of the timber elements and/or decreasing the stud spacing.
Acoustics in building

Sound is a form of energy generated by a source, transmitted through a medium and collected by a receiver. It can be pleasant to be heard, such as music and speeches etc, while some, such as scratching a glass surface with a sharp object, are irritating. This offensive sound is commonly termed noise. The acoustic design of buildings can be divided into two basic requirements, noise control and room acoustics.

Noise control relates to the quantity of sound with an objective to ensure the sound level does not adversely affect the comfort of building occupants. This involves control of sound produced in a room, such as telephones ringing, as well as limiting the noise entering from other rooms or outside the building. A common solution targeting this problem is the introduction of sound absorption systems.

Room acoustics relate to the quality of sound with an objective to enhance the quality of desired sound within a room. This involves factors such as speech intelligibility and perception of musical clarity. The most widely applied solution employed by building designers is the use of a sound insulating system.

A point worth noting is that although both noise control and room acoustics have independent objectives, they are however inter-related in practice. As this section of technical handbook covers partition and ceiling systems, the following concentrates only on issues related to sound insulation which involves transmission loss (TL) of airborne sound.

Sound transmission & classification

The sound transmission loss of a building element, such as a partition, is a measure of how much sound is reduced as it passes through the barrier, expressed in dB or decibels, the unit used to quantify sound. The generally accepted term for the single number ratings for sound transmission loss is the Sound Transmission Class or STC (ASTM E413-87). This is determined by comparing the TL value to the reference curve in ASTM E413-87. Generally the higher the STC value, the better the performance of the system. The following table provides a rough idea of what various STC levels mean in terms of privacy afforded.

<table>
<thead>
<tr>
<th>STC</th>
<th>Privacy afforded</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Normal speech easily understood</td>
</tr>
<tr>
<td>30</td>
<td>Normal speech audible, but unintelligible</td>
</tr>
<tr>
<td>35</td>
<td>Loud speech understood</td>
</tr>
<tr>
<td>40</td>
<td>Loud speech audible, but unintelligible</td>
</tr>
<tr>
<td>45</td>
<td>Loud speech barely audible</td>
</tr>
<tr>
<td>50</td>
<td>Shouting barely audible</td>
</tr>
<tr>
<td>55</td>
<td>Shouting not audible</td>
</tr>
</tbody>
</table>


Another widely accepted equivalent term is the Weighted Sound Reduction Index or Rw (ISO 717: Part 1: 1996 or BS 5821: Part 1: 1984). It is determined in a similar manner but instead of TL values, an equivalent Sound Reduction Index (R or Rw), is used.

Note should be taken that results obtained in STC and Rw may have a ±3dB deviation from one another.

Most building structures are not built like laboratories and it is very common that the sound insulation rating measured in ideal test conditions will not be achieved in a building. In order to meet the desired level of performance, building designers should therefore carefully consider the compatibility of the selected system with the supporting structure. Note that field performance is typically lower than laboratory performance by approximately 10%.

General design considerations

With modern design concepts and technology in building construction, acoustic performance within buildings has become an important element for consideration by building designers. There are many factors involved in establishing an ideal noise level for any particular building space, some of which are as follows:

Continued on opposite page
• To avoid fatigue induced by noise;
• To prevent distraction or disturbance;
• To maintain a good communication and listening environment.

Heavy walls such as concrete have good transmission loss. However, there are some drawbacks which limit their performance. Mass law dictates that a wall will increase its transmission loss by only 5dB for every doubling of mass. Therefore, a single 100mm thick concrete wall of 2300kg/m³ density might have an STC 45 rating whereas a 200mm thick concrete wall would only achieve STC 50 for a doubling in mass.

For most owners and builders, a wall of this size and weight is not desirable. Cost may more than double and the decibel-per-dollar achieved is clearly not acceptable. This limitation can be easily overcome by using a lightweight system, i.e. the partition system, where it is more practical to utilise principals such as air cavity, resilient mountings, sound absorbing core materials or a combination of these principals without the large increase in mass required for solid walls.

Following are some common practices that are effective for noise control and room acoustics.

1. Double studding & air cavity

With typical dry wall partitions, sound striking at the wall surface is transmitted through the first surface material into the wall cavity. It then strikes the opposite wall surface, causing it to vibrate and transmit the sound into the air of the adjoining room. This is termed airborne sound. When the sound strikes the wall at the stud, sound is transmitted direct through the stud and is termed structure borne sound.

The principal of double studding basically means separation of two panels of a drywall partition into a double-leaf wall, integrated with appropriate air spacing (cavity) between the leaves. The introduction of an air-space provides some form of separation or discontinuity between the two wall faces in a double-leaves wall.

As an example, a double stud partition creating an air cavity eliminates direct mechanical connection between the surfaces. The sound transmission is reduced by breaking the sound path. In addition, the air cavity provides vibration isolation between the two sides. Sound in one room striking the one side of the wall causes it to vibrate but because of the mechanical separation and the cushioning effect of the cavity, the vibration of the other side is greatly reduced.

2. Sound absorbing core material

Sound absorption is the effectiveness of a material at preventing the reflection of sound. Generally, the more sound absorption, the fewer echoes will exist. The sound absorbing core used in the Promat partition designs can be mineral or rock wool, glass wool or polyester, depending upon fire resistance requirements.

This core will further improve the sound isolation performance of the wall by absorbing sound energy in the cavity before the sound can set the opposite wall surface in motion. They will also provide some damping of the vibrating wall surface.

3. Treatment to flanking paths

When working with acoustic systems, it is critical that strict attention be paid to construction and detailing. The acoustic integrity of a system can be influenced by the combination of elements that make up the system. Single leaf and uninsulated systems are particularly dependent on high quality of installation. For example, if there is a gap of 5mm wide around the perimeter of an STC 45 rated wall of 3m x 3m, the actual performance would degrade to about STC 30.

Therefore, to make acoustically rated partitions effective, they must be airtight. Any path for air also means there is a path for sound. In order to achieve the designed STC rating closely, the following factors must also be taken into account:

• Sound paths, e.g. windows, doors, floors and ceilings;
• Penetrations through walls, even above ceilings or below floorings, must be sealed;
• Stagger the joints between multiple layers of wall boards or ceiling linings;
• Do not install electrical points back to back on either side of a wall;
• Openings for return air in ceiling plenum systems must be strictly controlled.

4. Wall & floor intersections

A good acoustic partition is only as good as its joint or intersection at wall and floor, like a chain and its weakest link. If this joint or intersection is not treated properly, the acoustic value may be lost. Many joint defects from flanking paths allow sound to travel via air gaps through the structure.

Acoustic sealants are the simplest means to provide a permanent air tight seal. They are made from materials that are permanently elastic which will allow floor or wall materials to move, as they are prone to do because of expansion and contraction or outside forces such as structural movement. A permanent airtight seal is the most effective way to maintain the acoustic integrity of the wall. Regardless of which system is employed, all openings, cracks and material joints should be made air tight with a permanently elastic acoustical sealant.
System selection guide

As sound insulation requirements may vary from country to country, the table below suggests acoustic values for some typical partition installations, unless otherwise specified by the architects. Please consult Promat for more information.

Some sources of sound leakage

1. Air leaks through gaps or cracks
2. Doors
3. Lightweight panels above doors
4. Electrical outlets and service pipes
5. Partition performance
6. Sound transmission via suspended ceilings or partitions
7. Common floor heating duct
8. Common ventilation system without sound absorbents treatment
9. Lightweight mullion or partition closer
10. Appliance

<table>
<thead>
<tr>
<th>STC rating</th>
<th>Minimum</th>
<th>Average</th>
<th>Luxury</th>
<th>Applications for separating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45dB</td>
<td>50dB</td>
<td>55dB</td>
<td>Bedroom to bedroom</td>
</tr>
<tr>
<td></td>
<td>50dB</td>
<td>55dB</td>
<td>60dB</td>
<td>Bedroom to living room</td>
</tr>
<tr>
<td></td>
<td>50dB</td>
<td>55dB</td>
<td>60dB</td>
<td>Bedroom to lobby</td>
</tr>
<tr>
<td></td>
<td>45dB</td>
<td>50dB</td>
<td>55dB</td>
<td>Office to office</td>
</tr>
<tr>
<td></td>
<td>40dB</td>
<td>45dB</td>
<td>50dB</td>
<td>Office to general area</td>
</tr>
<tr>
<td></td>
<td>45dB</td>
<td>50dB</td>
<td>55dB</td>
<td>Office to conference room</td>
</tr>
<tr>
<td></td>
<td>45dB</td>
<td>50dB</td>
<td>55dB</td>
<td>Office to washroom</td>
</tr>
<tr>
<td></td>
<td>40dB</td>
<td>45dB</td>
<td>50dB</td>
<td>Conference room to general area</td>
</tr>
<tr>
<td></td>
<td>40dB</td>
<td>45dB</td>
<td>50dB</td>
<td>Conference room to conference room</td>
</tr>
<tr>
<td></td>
<td>45dB</td>
<td>-</td>
<td>-</td>
<td>Classroom to classroom</td>
</tr>
<tr>
<td></td>
<td>55dB</td>
<td>-</td>
<td>-</td>
<td>Classroom to shop</td>
</tr>
<tr>
<td></td>
<td>45dB</td>
<td>-</td>
<td>-</td>
<td>Classroom to recreation area</td>
</tr>
<tr>
<td></td>
<td>60dB</td>
<td>-</td>
<td>-</td>
<td>Classroom to music room</td>
</tr>
</tbody>
</table>
1. PROMATECT® 100 board
2. Steel stud at 600mm centres
3. Floor track
4. 40mm long M6 expansion bolts at 500mm centres
5. Set corner with tape and jointing compound
6. Boxed stud at wall intersection
7. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance
1. **PROMATECT® 100 board**
2. Steel stud at 600mm centres
3a. Top track with leg length minimum 35mm to act as deflection head to accommodate vertical movement
3b. Extruded aluminium track for 64, 76 or 92mm studs
4. Concealed ceiling framing
5. Fix top track to channel at maximum 600mm centres to ceiling framing
6. No. 6 drywall screws at nominal 200mm centres
7. Clearance minimum 8mm (for 3000mm high partition) to allow for expansion under fire conditions
8. Tape or cornice finishing based on requirement for aesthetic appearance
9. Apply sealant, e.g. PROMASEAL®-A Acrylic Sealant, above track and fix wall track to ceiling framing
10a. Finishing bead to protect board edge from damage due to construction of ceiling and fixing of accessories such as lighting, etc
10b. (Optional) Allow minimum 8mm clearance to accommodate adjustment. Fixing should start at minimum 100mm from corner edge to prevent unnecessary breakage

**NOTE:** Additional 100mm wide cover fillets/strips are required behind horizontal joints in boards to maintain surface flatness as well as integrity of the partition system.

**NOTE:** This method of construction is not recommended for studs adjacent to windows or doors or studs carrying loads > 0.25kPa.
1. PROMATEC® 100 board
2. Steel stud at 600mm centres
3. Top track with minimum leg length 35mm is fixed in place by anchor bolts. Depth of track dependant upon performance requirement and partition height
4. Anchor bolts with minimum 40mm penetration to concrete substrate at maximum 500mm centres
5. No. 6 drywall screws at nominal 200mm centres
6. PROMASEA®-A Acrylic Sealant to fill gap and act as an isolator to limit sound transmission in acoustical wall construction
7. Corner finishing, e.g. tape, cornice, angle etc. dependant upon requirement of aesthetic appearance

8. Minimum 6 - 8mm clearance at wall head to allow vertical expansion of steel studs
9. Allow maximum 5mm clearance between board edge and concrete soffit to accommodate structural movement, if any gap is to be sealed with PROMASEA®-A Acrylic Sealant
10. PROMASEA®-A Acrylic Sealant to fill gap and act as an isolator to limit sound transmission in acoustical wall construction
11. Corner finishing, e.g. tape, cornice, angle etc. dependant upon requirement of aesthetic appearance

12. PROMATEC® 100 board
13. Steel stud at 600mm centres
14. Anchor bolts with minimum 40mm penetration into concrete substrate at maximum 500mm centres. For acoustic wall installation if concrete surface is uneven, apply a bead of PROMASEA®-A Acrylic Sealant between the top track and concrete substrate to seal possible gaps
15. Fixing start 100mm from corner edge to avoid possible breakage under structural movement. NOTE: Should be taken that screw fixing does not fix through the track
16. Allow maximum 20mm gap to accommodate vertical movement of structure. Gap is to be filled with flexible sealant such as PROMASEA®-A Acrylic Sealant in order to optimize integrity of partition
17. Edge finishing (optional) based upon performance requirement to protect edge from damage
18. (Optional) Corner finishing, e.g. cornice based upon aesthetic requirement
1. PROMATECT® 100 board
2. Use of anchor bolts at maximum 500mm centres to secure continuous angles to concrete soffit
3. No. 6 drywall screws at nominal 200mm centres length dependent upon board thickness
4. Minimum 12mm thick PROMATECT® 100 board runs over wall continuously and fixed to soffit. Joints should be backed by strips of 100mm wide PROMATECT® 100 board of similar thickness
5. Finishing head to protect board edge from damage due to ceiling construction and fixing of accessories such as lighting etc

1. Exposed grid framing system. NOTE: Due to large number of joints in ceiling construction, not recommended where high performance acoustic rating required
2. Ceiling panel screw fixed to wall track to secure in position
3. Minimum 50mm thick glass wool or equivalent sound absorbing material held in place with track or angle, should be continuous to minimize sound leakage
4. Bead of PROMASEAL®-A Acrylic Sealant isolator between top track and ceiling panel to reduce conduction of sound frequencies
5. Tape or cornice finishing based upon requirement of aesthetic appearance

1. PROMATECT® 100 board
2. Steel stud at 600mm centres
3. Top track with minimum 35mm leg length fixed to concrete soffit using anchor bolts with minimum 40mm penetration to concrete substrate maximum spacing 500mm centres
4. Fixing point is minimum 100mm from corner edge of board to avoid unnecessary damage due to structure movement. Use No. 6 drywall screws
5. Set corner with tape and set or cornice finish

1. Ceiling framing, suspended from concrete soffit
2. Perimeter angle fixed to steel studs of partition wall to receive ceiling panels
3. Finishing bead to protect board edge from damage and for aesthetic appearance
4. Anchor bolts fixed to concrete substrate at maximum 500mm centres. For acoustic wall installation if concrete surface is uneven, apply a bead of PROMASEAL®-A Acrylic Sealant between the top track and concrete substrate to seal possible gap
**GENERAL INSTALLATION DETAILS**

**BASE DETAILS & MOVEMENT JOINTS**

**Single layer system**

1. PROMATECT® 100 board
2. Bottom track
3. 40mm long M6 expansion anchors at 500mm centres

**Double layer system**

4. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve stated fire and/or acoustic performance
5. Continuous bead of PROMASEAL®-A Acrylic Sealant for acoustic integrity

**Steek stud frame**

6. PROMATECT® 100 board
7. Steel studs at maximum 600mm centres
8. Fixing point is minimum 100mm from corner edge of board to avoid unnecessary damage due to structural movement. Use No. 6 drywall screws
9. PROMASEAL®-A Acrylic Sealant
10. Backing rod
11. RONDO P35 or equivalent control joint profile
12. Finish surface as per external angles
13. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance
14. Perforated locating wing

**Steel stud frame for masonry wall**

15-20mm gap

**RONDO P35 or equivalent control joint profile**

10mm

Minimum 12mm

100 to 150mm
1. Boxed studs either side of openings, the studs need to be fixed rigidly top and bottom
2. Horizontal noggings
3. Stud track
4. Expansion bolt at 600mm centres
5. No.8 wafer head screws 16mm long or 3mm steel pop rivets

Installation of door jamb details (with timber reinforcement)
1. PROMATECT® 100 board
2. Timber architrave
3. Timber door jamb
4. Timber studs as reinforcement
5. Steel stud
6. Steel stud boxed
7. Screw fixing (nominal 300mm centres)
8. Screw fixing (nominal 500mm centres)
9. Screw fixing (nominal 200mm centres)
10. Edge metal profile

Installation of door jamb details (with boxed steel stud)
Planned and unplanned loads

PROMATECT® 100 drywalls facilitate easy fixing of most type of loads or fixtures which can be attached either pre or post installation of the PROMATECT® 100 drywall system. The basic concept is that the support or special fixers/fasteners to be used will also employ the support of the framework of the drywall system. A wide range of propriety expanding fasteners are readily available to fix any load onto a PROMATECT® 100 wall or partition system. Use fasteners in accordance with to the manufacturer’s recommendations.

Details for planned and unplanned loads on PROMATECT® 100 drywalls.

Unplanned load

Coarse thread drywall stitching screw

Hook

Board fixing anchoring eg. Fischer PD

PROMATECT® 100 board

Typical fixing detail for hangers on wall (up to maximum 5kg)

Planned load

Typical toggle hook/hanger for cavity fixing

Fixing of hangers to wall (up to maximum 25kg)

PROMATECT® 100 board

Positioning fixtures and accessories

Most types of wall hangings such as wash basins, kitchen cabinets and shelving etc can easily be installed to PROMATECT® 100 walls or partition systems.

Typical technical details include the following:

- Planned loads up to 25kg (e.g. cabinets and wash basins) can be easily added by fixing horizontal noggins made of timber members at the desired location and securing to the steel stud frame.
- Unplanned loads up to 5kg (e.g. hanging picture frames, for example) can be added by inserting the screw or cavity fixture inclined downward at the appropriate angle, as shown above.
- For planned loads up to 25kg, horizontal noggins can be fixed to the surface of the board via two additional studs and fixing the load to the strengthening horizontal noggin.
- Fittings and fixtures such as lights and switches are easily fixed to PROMATECT® 100 drywalls. Please refer to page 79 for the recommendations.
- The fitting of toilet fixtures within PROMATECT® 100 wall or partition systems are fully outlined in the recommendations on page 74.
1. PROMATECT® 100 board with thickness dependant upon performance requirement
2a. Steel studs, spaced at maximum 600mm centres. Studs size dependant upon performance requirement and partition height
2b. Top and bottom tracks fixed to concrete substrate using anchor bolts at maximum 500mm centres. For top track, use track with minimum 35mm leg length to accommodate vertical movement of structure
3. PROMASEAL®-A Acrylic Sealant is used to fill gap and seal joints whenever necessary to maintain integrity of wall system
4. Decorative lining onto PROMATECT® 100 board
   NOTE: Installation procedures of decorative lining should be strictly in accordance with the recommendation of manufacturer/supplier
5. Insitu internal membrane applied to face of wall lining to prevent moisture related problems
6. Mortar bed prepared according to manufacturer specification to receive floor finishing e.g. tiles, etc
7. Approved flashing when required by building regulation to prevent water egress
8. Reinforcement material, e.g. timber plate, etc. of minimum 9mm thick to support loading
9a. Waste pipe made of PVC, uPVC etc. protected by PROMASEAL® FC or FCS retrofit collar to maintain compartmentation during fire conditions. For option of collars please consult Promat
9b. Plastic pipe, e.g. uPVC or PVC connection to main waste pipe protected with PROMASEAL® FCW wall collar for fire resistance application
10. No. 6 drywall screws fixed at maximum 200mm centres length depends upon board thickness used
1. PROMATECT® 100 board with thickness dependant upon performance requirement
2. Decorative lining, e.g. ceramic or stone tiles
3. Use adhesive to install decorative lining. Type of adhesive and application should strictly follow manufacturers recommendations
4. Use of flashing tape to prevent water ingress
5. Bath tub specified by architect or designer. Installation to be carried out according to manufacturer specification
6. Supporting batten fixed to wall framing using appropriate screw fixing to secure bath tub in position
7. Bottom track
8. PROMASEAL®-A Acrylic Sealant
9. Maximum 6mm gap is allow to accommodate fixing of bath tub. Any gap thereafter should be properly sealed with appropriate flexible sealant
10. Anchor bolts bolts at maximum 500mm centres

NOTE: Water tightness is responsibility of other parties
1. PROMATECT® 100 board with thickness dependant upon performance requirement
2. Decorative lining, e.g. ceramic or stone tiles
3a. Timber reinforcement
3b. Timber block fixed between steel studs acting as reinforcement to support loading from basin fixture
4a. Typical shower head (with/without handle) as specified by architect or designer
4b. Knob to control water inlet. This is specified by architect or designer
4c. Basin as specified by architect or designer
5. Water waste pipe, e.g. uPVC, etc. connecting to main sewage system
6. For fire protection application; PROMASEAL® FCW wall collar can be used to prevent fire spread through opening or gap. In cases where waste pipe penetrates floor slab, PROMASEAL® FC or FCS retrofit collar system may be used instead. For other option please consult Promat
7. PromaSnap® floor waste collar
8. Bottom track
9. Anchor bolt to concrete substrate
10. PROMASEAL®-A Acrylic Sealant
Typical framing details for water tap support and penetrations

1. PROMATECT® or PROMINA® board with thickness dependant upon performance requirement
2. Timber supporting battern
3. Steel stud
4. PROMASEAL® A Sealant for copper and steel pipes. Use PROMASEAL® Intumescent pipe collars for plastic pipes greater than 25mm in diameter
5. uPVC or PVC or copper or steel pipework
6. Ceramic tiles
**GENERAL INSTALLATION DETAILS**

**PENETRATION SEALS AND ACCESS HATCHES**

1. **PROMASEAL® Bulkhead Sealer coating** (or **PROMASEAL®-A Acrylic Sealant**), with minimum 100mm length of coating on the penetrating elements measured from the openings
2. One layer of mineral wool 50mm thick x 120kg/m² for up to -/120/90 fire resistance or two layers of **PROMASEAL® Bulkhead batten** 50mm thick x minimum 120kg/m² for up to -/120/120 fire resistance
3. **PROMASEAL® Wrap**
4. **PROMASEAL® Retrofit Collar** (square base) fixed through the batt with a threaded rod
5. Non combustible plastic pipes with appropriate support within 300mm from both sides of the Bulkhead barrier
6. Electrical cables supported with cable tray or steel trunking within 300mm from both sides of the Bulkhead barrier
7. Fire resistant concrete or masonry walls
   **PROMASEAL®-A Acrylic Sealant** (not shown above) should be liberally applied to all joints and contact points between the Bulkhead barrier and items 1 or 2 AND between the barrier and the floor

1. **PROMASTOP® UniCollar®**
2. Suitable fixing, i.e. laminating screws for lightweight partitions OR steel bolt anchors for masonry/concrete floors
3. Various building services, e.g. electrical cables, plastic (uPVC or PEX)pipes and/or insulated copper pipes
4. Fire resistance lightweight partitions
5. All gaps between collars and services filled with **PROMASEAL® Grafitex**

1. One or two layers of **PROMATECT® 100 boards**, maximum size 700mm x 700mm
2. **PROMATECT® 100 board** 50mm thick, fixed to concrete/masonry wall using anchor bolts or 75mm x self-tapping Tek screws steel/timber framed lightweight partition at nominal 200mm centres
3. **PROMATECT® 100 board** 9mm thick
4. Hinges
5. General building services, e.g. electrical cables, metal pipes etc
6. Fire resistant concrete/masonry wall or steel/timber framed lightweight partition
**GENERAL INSTALLATION DETAILS**

**OTHER DETAILS**

1. PROMATECT® 100 board with thickness dependant upon performance requirement
2. Insulation material enhances thermal insulation of building
3. Steel studs at maximum 610mm centres. Stud size dependant upon performance requirement and partition height
4. Fire resistance switchbox based upon performance. Please consult Promat
5. PROMASEAL® Switchbox intumescent infill
6. PROMASEAL®-A Acrylic Sealant is used to seal gap to maintain integrity of partition system
7. PROMASEAL® Expansion Joint Strip

**NOTE:** Weather tight sealing and structural design under the responsibility of other parties. Please consult Promat

**NOTE:** For fire resistant walls, steel electrical switch boxes should be employed to avoid degrading fire performance of the wall system.

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**Curtain wall detail**

**Power outlet/light switch installation**
1. One layer of PROMATECT® 100 board 15mm thick at both sides of steel studs.

2. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes).

3. 25mm long self-tapping screws at maximum 300mm centres.

4. 40mm long M6 masonry anchors at nominal 500mm centres.

5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance.

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.

### Acoustic Table

<table>
<thead>
<tr>
<th>Stud depth</th>
<th>Cavity infill</th>
<th>64mm</th>
<th>76mm</th>
<th>92mm</th>
<th>150mm</th>
<th># STC / $R_w$ ($C_w$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Nil</td>
<td></td>
<td>41/40dB (-10)</td>
<td>42/41dB (-10)</td>
<td>42/42dB (-10)</td>
<td>42/44dB (-7)</td>
<td></td>
</tr>
<tr>
<td>b) Bradford R2.0 Soundscreen 50mm x 32kg/m²</td>
<td>46/46dB (-12)</td>
<td>48/47dB (-11)</td>
<td>49/48dB (-11)</td>
<td>50/50dB (-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Bradford R2.0 Soundscreen 75mm x 32kg/m²</td>
<td>46/46dB (-12)</td>
<td>48/47dB (-11)</td>
<td>49/48dB (-10)</td>
<td>50/50dB (-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) R1.8 Pink Wall Batts 60mm x 9kg/m²</td>
<td>45/45dB (-12)</td>
<td>47/46dB (-11)</td>
<td>49/47dB (-11)</td>
<td>50/49dB (-8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Above values are predicted figures. # Margin of error is generally within ±3dB.
One layer of PROMATECT® 100 board 20mm thick at both sides of steel studs

Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)

45mm long self-tapping screws at maximum 300mm centres

40mm long M6 masonry anchors at nominal 500mm centres

Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.

### Acoustic Table

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<th>150mm</th>
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<tr>
<td>Cavity infill</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Nil</td>
<td>42/43dB (-11)</td>
<td>42/43dB (-9)</td>
<td>42/44dB (-9)</td>
<td>42/46dB (-7)</td>
</tr>
<tr>
<td>b) Bradford R2.0 Soundscreen 50mm x 32kg/m³</td>
<td>48/48dB (-10)</td>
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<td>48/49dB (-8)</td>
<td>48/51dB (-7)</td>
</tr>
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<td>49/49dB (-10)</td>
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<td>49/50dB (-9)</td>
<td>49/51dB (-7)</td>
</tr>
<tr>
<td>d) R1.8 Pink Wall Batts 60mm x 9kg/m³</td>
<td>48/47dB (-11)</td>
<td>48/48dB (-10)</td>
<td>48/49dB (-9)</td>
<td>48/51dB (-8)</td>
</tr>
</tbody>
</table>

**STC, R_w**

See acoustic table below

**Standard**


**Predicted assessment**

Marshall Day
18th October 2006

**Construction**

<table>
<thead>
<tr>
<th>Maximum height*</th>
<th>7800mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum length</td>
<td>Unlimited</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Partition thickness</th>
<th>From 104mm</th>
</tr>
</thead>
</table>

**Partition mass* | From 35kg/m² |

* Details for walls above 7800mm high are available on request

**NOTE: Above values are predicted figures. # Margin of error is generally within ±3dB**
Vertical sheeting (Below 3000mm) / Non loadbearing and loadbearing

1. One layer of PROMATECT® 100 board 20mm thick at both sides of steel studs
2. Cavity infill if required to improve acoustic or thermal insulation
3. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)
4. 45mm long self-tapping screws at maximum 300mm centres
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
1 One layer of PROMATECT® 100 board 20mm thick at both sides of steel studs
2 Cavity infill if required to improve acoustic or thermal insulation
3 Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)
4 45mm long self-tapping screws at maximum 300mm centres
5 Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
**Horizontal sheeting with nogging joint / Non loadbearing and loadbearing**

1. One layer of PROMATECT® 100 board 20mm thick at both sides of steel studs
2. Cavity infill if required to improve acoustic or thermal insulation
3. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes), refer to table below for the distance between stud
4. 45mm long self-tapping screws at maximum 300mm centres
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
1. One layer of PROMATECT® 100 board 20mm thick at both sides of steel studs
2. Cavity infill if required to improve acoustic or thermal insulation
3. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)
4. 45mm long self-tapping screws at maximum 300mm centres
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance
6. 20mm thick PROMATECT® 100 cover strips at horizontal board joint

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
One layer of PROMATECT® 100 board 20mm thick at both sides of steel studs
2 Cavity infill if required to improve acoustic or thermal insulation
3 Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)
4 45mm long self-tapping screws at maximum 300mm centres
5 Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance
6 Fixing channel 100mm x 10mm x 0.9mm thick

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
1. Two layer of PROMATECT® 100 board 20mm thick on both sides of steel studs

2. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)

3. 32mm long self-tapping screws at maximum 300mm centres
   50mm long self-tapping screws at maximum 200mm centres to fixed second layer to frame
   40mm long stitching screws at maximum 200mm centres to fixed second layer to first layer

4. 40mm long M10 masonry anchors at nominal 500mm centres

5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.

### Acoustic Table

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<tbody>
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<tr>
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<td>55/58dB (-6)</td>
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NOTE: Above values are predicted figures. # Margin of error is generally within ±3dB
1. Two layer of PROMATECT® 100 board 20mm thick on both sides of steel studs
2. Cavity infill if required to improve acoustic or thermal insulation
3. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)
4. 32mm long self-tapping screws at maximum 300mm centres
   50mm long self-tapping screws at maximum 200mm centres to fixed second layer to frame
   40mm long stitching screws at maximum 200mm centres to fixed second layer to first layer
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
1. Two layer of PROMATECT® 100 board 20mm thick on both sides of steel studs
2. Cavity infill if required to improve acoustic or thermal insulation
3. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)
4. 32mm long self-tapping screws at maximum 300mm centres
   50mm long self-tapping screws at maximum 200mm centres to fixed second layer to frame
   40mm long stitching screws at maximum 200mm centres to fixed second layer to first layer
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
Horizontal sheeting with nogging joint / Non loadbearing and loadbearing

1. Two layer of PROMATECT® 100 board 20mm thick on both sides of steel studs
2. Cavity infill if required to improve acoustic or thermal insulation
3. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes), refer to table below for the distance between stud
4. 32mm long self-tapping screws at maximum 300mm centres
   50mm long self-tapping screws at maximum 200mm centres to fixed second layer to frame
   40mm long stitching screws at maximum 200mm centres to fixed second layer to first layer
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
Horizontal sheeting with strip joint / Non loadbearing and loadbearing

1. Two layer of PROMATECT® 100 board 20mm thick on both sides of steel studs
2. Cavity infill if required to improve acoustic or thermal insulation
3. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)
4. 32mm long self-tapping screws at maximum 300mm centres
   50mm long self-tapping screws at maximum 200mm centres to fixed second layer to frame
   40mm long stitching screws at maximum 200mm centres to fixed second layer to first layer
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance
6. 20mm thick PROMATECT® 100 cover strips at horizontal board joint

See page 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
1. Two layer of PROMATECT® 100 board 20mm thick on both sides of steel studs
2. Cavity infill if required to improve acoustic or thermal insulation
3. Galvanised steel studs, measurements in accordance with Studs Tables on page 94 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)
4. 32mm long self-tapping screws at maximum 300mm centres
   50mm long self-tapping screws at maximum 200mm centres to fixed second layer to frame
   40mm long stitching screws at maximum 200mm centres to fixed second layer to first layer
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance
6. Fixing channel 100mm x 10mm x 0.9mm thick

See pages 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
The following are standard Architectural Specifications for single steel stud partition systems using PROMATECT® 100. The designer must determine the suitability of the design to the application and requirements before undertaking or constructing any works relating to the specifications and where in doubt should obtain the advice of a suitably qualified engineer.

**Fire attack from either side / non loadbearing**

Up to 240 minute fire resistance, integrity and insulation in accordance with the criteria of BS 476: Part 22: 1987 and AS 1530: Part 4: 2005[1]. Lateral load of up to 0.25kPa.

**Acoustic performance**

The partition system shall have a Weighted Sound Reduction Index up to $R_w 50$.

**Supporting structure**

Care should be taken that any structural element that the partition system is supported from, e.g. steel stud or perimeter steel channel, has fire resistance equal to or greater than 120 minutes.

**Lining boards**

One or two[2] layer on either side of 15mm or 20mm[3] thick PROMATECT® 100 PromaX® mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1200mm x 2500mm x 20mm thick.

**Fixing**

Galvanised steel frame made of ceiling and floor tracks will be secured to the floor, ceiling and walls with 40mm long M6 masonry anchors at 500mm centres. Vertical steel studs are then friction fitted into the tracks at 600mm centres for boards to be installed with long edge vertically and at 625mm centres for boards to be installed with long edge horizontally. Adequate clearance for vertical expansion will be allowed at the ceiling/top track. No clearance is necessary at the bottom track. See table below for steel size and clearance at top track for given partition height.

Horizontal noggins, cut out of the steel track material will be friction fitted between the steel studs to coincide with horizontal joints between boards.

Continued on next page
Studs table
Partitions lined with 20mm thick PROMATECT® 100 using studs at 600mm centres, 0.25kPa, minimum two rows of nogging at 1200mm centres.

<table>
<thead>
<tr>
<th>Maximum partition height</th>
<th>Stud depth</th>
<th>Maximum stud thickness</th>
<th>Maximum partition thickness</th>
<th>Top track</th>
<th>Clearance at top track</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000mm</td>
<td>64mm</td>
<td>0.5mm</td>
<td>104mm</td>
<td>64 x 50 x 0.75mm</td>
<td>20mm</td>
</tr>
<tr>
<td>3600mm</td>
<td>64mm</td>
<td>0.75mm</td>
<td>104mm</td>
<td>Special Design*</td>
<td>24mm</td>
</tr>
<tr>
<td>4000mm</td>
<td>64mm</td>
<td>1.15mm</td>
<td>104mm</td>
<td>Special Design*</td>
<td>29mm</td>
</tr>
<tr>
<td>3500mm</td>
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<td>4850mm</td>
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<td>116mm</td>
<td>Special Design*</td>
<td>33mm</td>
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<td>92mm</td>
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<td>Special Design*</td>
<td>25mm</td>
</tr>
<tr>
<td>4700mm</td>
<td>92mm</td>
<td>0.75mm</td>
<td>132mm</td>
<td>Special Design*</td>
<td>32mm</td>
</tr>
<tr>
<td>5600mm</td>
<td>92mm</td>
<td>1.15mm</td>
<td>132mm</td>
<td>Special Design*</td>
<td>38mm</td>
</tr>
<tr>
<td>5867mm</td>
<td>150mm</td>
<td>0.75mm</td>
<td>190mm</td>
<td>Special Design*</td>
<td>39mm</td>
</tr>
<tr>
<td>7800mm</td>
<td>150mm</td>
<td>1.15mm</td>
<td>190mm</td>
<td>Special Design*</td>
<td>50mm</td>
</tr>
</tbody>
</table>

*Top tracks are designed or tested in accordance with AS 4600: 1996 for a clearance between stud and top track as shown above. Please consult Promat for further details. 20mm thick PROMATECT® 100 boards will be screw-fixed to the frame with 35mm x No.8 self-tapping screws at maximum 300mm centres.

Tests & standards
Along with all material tests the complete system along with the framing is tested in accordance with the criteria of BS 476: Part 476: 1987 and/or AS 1530: Part 4: 2005\(^{(1)}\). The partition system should meet the requirements specified in BCA 2006 Specification Clause 1.8 for static, dynamic and indentation load tests as specified under Clauses 3.1, 3.2 and 3.4.

Jointing
Plain butt joints between machined edges of boards.\(^{(4)}\)
Joints filled in preparation for painting.\(^{(5)}\)
Joints filled and taped in preparation for decoration.\(^{(6)}\)

Follow-on trades
Surface of boards to be prepared for painting/plastering/tiling\(^{(5)}\) in accordance with manufacturer’s recommendations.

NOTES:
- \(^{(1)}\), \(^{(2)}\), \(^{(3)}\), \(^{(4)}\), \(^{(5)}\), \(^{(6)}\) delete as appropriate.
- All perimeter gaps caulked with PROMASEAL®-A Acrylic Sealant.
One layer of PROMATECT® 100 board 20mm thick at both sides of steel studs

Galvanised steel studs, measurements in accordance with Studs Table on page 98 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)

45mm long No.8 self-tapping screws at maximum 300mm centres

40mm long M6 masonry anchors at nominal 500mm centres

Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

A minimum 10mm air space to be left between the frames to ensure best acoustic performance

### Acoustic Table

<table>
<thead>
<tr>
<th>Cavity infill</th>
<th>64mm</th>
<th>76mm</th>
<th>92mm</th>
<th>150mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># STC / Rₚ (Cₚ)</td>
<td># STC / Rₚ (Cₚ)</td>
<td># STC / Rₚ (Cₚ)</td>
<td># STC / Rₚ (Cₚ)</td>
</tr>
<tr>
<td>a) Nil</td>
<td>40/44dB (-6)</td>
<td>41/45dB (-6)</td>
<td>43/46dB (-6)</td>
<td>47/49dB (-7)</td>
</tr>
<tr>
<td>b) Glasswool partition batts 50mm x 32kg/m²</td>
<td>58/59dB (-8)</td>
<td>58/60dB (-7)</td>
<td>58/60dB (-6)</td>
<td>58/61dB (-5)</td>
</tr>
<tr>
<td>c) Glasswool partition batts 75mm x 32kg/m²</td>
<td>59/59dB (-7)</td>
<td>59/60dB (-7)</td>
<td>59/61dB (-7)</td>
<td>59/62dB (-6)</td>
</tr>
<tr>
<td>d) ASB3 / TSB3 Polyester batts 60mm x 8kg/m²</td>
<td>56/57dB (-6)</td>
<td>56/58dB (-6)</td>
<td>56/59dB (-6)</td>
<td>56/59dB (-5)</td>
</tr>
<tr>
<td>e) Soundscreen™ R1.6 Batts 60mm</td>
<td>57/58dB (-7)</td>
<td>57/59dB (-7)</td>
<td>57/59dB (-6)</td>
<td>57/60dB (-5)</td>
</tr>
</tbody>
</table>

**NOTE:** Above values are predicted figures. # Margin of error is generally within ±3dB
1. One layer of PROMATECT® 100 board 20mm thick at both sides of steel studs
2. Cavity infill if required to improve acoustic or thermal insulation
3. Galvanised steel studs, measurements in accordance with Studs Table on page 98 (allow appropriate expansion at top horizontal track, no allowance at this track for loadbearing purposes)
4. 45mm long No.8 self-tapping screws at maximum 300mm centres
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance
6. 20mm thick PROMATECT® 100 cover strips
7. A minimum 10mm air space to be left between the frames to ensure best acoustic performance

See pages 60 and 61 for bottom and top track fixings; pages 67 to 71 for details of wall head, wall base, wall junction and wall movement joints.
The following are standard Architectural Specifications for double steel stud partition systems using PROMATECT® 100. The designer must determine the suitability of the design to the application and requirements before undertaking or constructing any works relating to the specifications and where in doubt should obtain the advice of a suitably qualified engineer.

**Fire attack from either side / non loadbearing**

Up to 120 minute fire resistance, integrity and insulation in accordance with the criteria of BS 476: Part 476: 1987 and/or AS 1530: Part 4: 2005(1).

**Acoustic performance**

The partition system shall have a Weighted Sound Reduction Index up to $R_w 60$.

**Supporting structure**

Care should be taken that any structural element that the partition system is supported from, e.g. steel stud or perimeter steel channel, has a fire resistance equal to or greater than 120 minutes.

**Lining boards**

Single layer each side 20mm thick PROMATECT® PromaX® mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1200mm x 2500mm x 20mm thick.

**Fixing**

2 rows of galvanised steel framing made of ceiling and floor tracks will be secured to the floor, ceiling and walls with 40mm long M6 masonry anchors at 500mm centres. An air gap of 10mm minimum will be provided between the two rows of the galvanised steel frame. Vertical steel studs are then friction fitted into each of the two rows tracks at 600mm centres for boards to be installed vertically and at 625mm centres for boards to be installed horizontally. Adequate clearance for vertical expansion will be allowed at the ceiling/top track. No clearance is necessary at the bottom track. See table below for steel size and clearance at top track for given partition height.

Horizontal noggings, cut out of the steel track material will be friction fitted between the steel studs.
Studs table

Partitions lined with 20mm thick PROMATECT® 100 using studs at 600mm centres, 0.25kPa, minimum two rows of nogging.

<table>
<thead>
<tr>
<th>Maximum partition height</th>
<th>Stud depth</th>
<th>Maximum stud thickness</th>
<th>Maximum partition thickness</th>
<th>Top track</th>
<th>Clearance at top track</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000mm</td>
<td>64mm</td>
<td>0.5mm</td>
<td>104mm</td>
<td>64 x 50 x 0.75mm</td>
<td>20mm</td>
</tr>
<tr>
<td>3600mm</td>
<td>64mm</td>
<td>0.75mm</td>
<td>104mm</td>
<td>Special Design*</td>
<td>24mm</td>
</tr>
<tr>
<td>4000mm</td>
<td>64mm</td>
<td>1.15mm</td>
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<td>1.15mm</td>
<td>190mm</td>
<td>Special Design*</td>
<td>50mm</td>
</tr>
</tbody>
</table>

*Top tracks are designed or tested in accordance with AS 4600: 1996 for a clearance between stud and top track as shown above. Please consult Promat for further details.

20mm thick PROMATECT® 100 boards will be screw fixed to the frame with 35mm long No.8 self-tapping screws at maximum 300mm centres.

Tests & standards

Along with all material tests the complete system along with the framing is tested in accordance with the criteria of BS 476: Part 476: 1987 and/or AS 1530: Part 4: 2005(1).

Jointing

Plain butt joints between machined edges of boards. (2)
Joints filled in preparation for painting. (3)
Joints filled and taped in preparation for decoration. (4)

Follow-on trades

Surface of boards to be prepared for painting/plastering/tiling in accordance with manufacturer’s recommendations.

NOTES:
- (1), (2), (3), (4), (5) delete as appropriate.
- All perimeter gaps caulked with PROMASEAL®-A Acrylic Sealant.
One layer of PROMATECT® 100 board 20mm thick
2. Timber studs 90mm deep x 45mm wide at nominal 600mm or 625mm centres
3. 100mm long No.8 woodscrews at 250mm nominal centres or 100mm long nails at 150mm centres
4. M6 expanding anchors at 600mm maximum centres
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

For loadbearing partition, the required size of the stud should be calculated by a qualified structural engineer who must allow for the depth of the stud to be reduced by 50mm and width by 10mm through charring and the consequential reduction in loadbearing capability.

### Fire resistance

<table>
<thead>
<tr>
<th>FRL</th>
<th>BS 476: Part 22: 1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>AS 1530: Part 4: 2005</td>
</tr>
<tr>
<td>Approval</td>
<td>BRE CC 232158A</td>
</tr>
<tr>
<td></td>
<td>BRE CC 232158B</td>
</tr>
</tbody>
</table>

### Acoustic

| # STC | 35dB |
| # Rw  | 39dB |


| Predicted assessment                         | Marshall Day 18th October 2006 |

### Construction

| Maximum height                              | 3000mm |
| Maximum length                              | Unlimited |
| Partition thickness                         | From 130mm |
| Partition mass*                             | From 37kg/m² |

# Margin of error is generally within ±3dB

NOTE: Top and bottom tracks must be discontinuous at control joints
Vertical sheeting / Non loadbearing

1. One layer of PROMATECT® 100 board 20mm thick
2. Vertical studs at 600mm centres
3. Horizontal nogging at 1250mm centres
4. 100mm x No.8 woodscrews at 250mm nominal centres or 100mm long nails at 150mm centres
5. Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 63 for fixings of cross noggings and floor plate; page 99 for detail of wall movement joints.
Horizontal sheeting with nogging joint / loadbearing

- One layer of PROMATECT® 100 board 20mm thick
- Vertical studs at 600mm centres
- Horizontal nogging at 600mm centres
- 100mm long No.8 woodscrews at 250mm nominal centres
- Caulk all perimeter gaps with PROMASEAL®-A Acrylic Sealant to achieve the required fire resistance and/or acoustic performance

See page 63 for fixings of cross noggings and floor plate; page 99 for detail of wall movement joints.
The following are standard Architectural Specifications for timber stud partition systems using PROMATECT® 100. The designer must determine the suitability of the design to the application and requirements before undertaking or constructing any works relating to the specifications and where in doubt should obtain the advice of a suitably qualified engineer.

Fire attack from either side / non loadbearing & loadbearing

Up to 120 minute fire resistance, integrity and insulation in accordance with the criteria of BS 476: Part 22: 1987 and AS 1530: Part 4: 2014(1).

Acoustic performance

The partition system shall have a Weighted Sound Reduction Index up to $R_w 39$.

Supporting structure

Care should be taken that any structural element that the partition system is supported from, e.g. steel stud or perimeter steel channel, has a fire resistance equal to or greater than 120 minutes.

Lining boards

Single layer each side 20mm thick PROMATECT® 100 PromaX® mineral boards as manufactured by Promat International (Asia Pacific) Ltd. All joints to be coincident with steel framing. Standard board dimension 1200mm x 2500mm x 20mm thick.

Fixing

Softwood timber, 90mm deep x 45mm wide will be fixed to the perimeter of the opening where the partition system is to be installed using M6 expanding anchors at 600mm maximum centres.

Where the boards are to be installed with their long edges vertical, the studs are located at 600mm maximum centres with cross noggings at 1250mm centres. Where the boards are to be installed with their long edges horizontal, the studs are located at 625mm centres with cross noggings at 600mm centres.

The PROMATECT® 100 boards are fixed to the framework using 100mm long No.8 woodscrews at maximum 250mm centres or 100mm long nails at 150mm centres, a minimum of 12mm from the board edge.

Where there is a requirement for loadbearing, the required size of the timber stud will be calculated by a qualified structural engineer who should allow for the depth of the stud to be reduced by 50mm and the width by 10mm through charring.

Tests & standards

Along with all material tests the complete system along with the framing is tested in accordance with the criteria of BS 476: Part 22: 1987 and AS 1530: Part 4: 2014(1).

Jointing

Plain butt joints between machined edges of boards. (2)
Joints filled in preparation for painting. (3)
Joints filled and taped in preparation for decoration. (4)

Follow-on trades

Surface of boards to be prepared for painting/plastering/tiling(5) in accordance with manufacturer’s recommendations.

NOTES:
• (1), (2), (3), (4), (5) delete as appropriate.
• All perimeter gaps caulked with PROMASEAL®-A Acrylic Sealant.
PROMATECT® 100 board
2 Galvanised steel perimeter angle 50mm x 50mm x 1mm thick
3 40mm long M6 masonry anchors at nominal 500mm centres
4 32mm long No.8 self-tapping screws at nominal 300mm centres for first layer and 50mm long No.8 self-tapping screws at nominal 200mm centres for second layer
5 40mm long No.10 laminating stitching screws at 200mm centres

Once first layer of board is screwed to the perimeter angles, all subsequent layers are:
   a) fixed to the perimeter angle, and
   b) stitched to the proceeding layers of boards
Two layers of PROMATECT® 100 board, 20mm thick each stagger the joints by at least 300mm

2. Galvanised steel perimeter angle 50mm x 50mm x 1mm thick

3. 40mm long M6 masonry anchors at nominal 500mm centres

4. 32mm long No.8 self-tapping screws at nominal 300mm centres for first layer and 50mm long No.8 self-tapping screws at nominal 200mm centres for second layer

5. 40mm long No.10 laminating stitching screws at 200mm centres

Once first layer of board is screwed to the perimeter angles, all subsequent layers are:

a) fixed to the perimeter angle, and

b) stitched to the proceeding layers of boards

See page 103 for wall connection details
The following are standard Architectural Specifications for solid internal partition systems using PROMATECT® 100. The designer must determine the suitability of the design to the application and requirements before undertaking or constructing any works relating to the specifications and where in doubt should obtain the advice of a suitably qualified engineer.

**Fire attack from either side / non loadbearing**

Up to 120 minute fire resistance, integrity and insulation in accordance with the criteria of BS 476: Part 22: 1987 and AS 1530: Part 4: 2005(1).

**Acoustic performance**

The partition system shall have a Weighted Sound Reduction Index up to $R_w$ 36.

**Supporting structure**

Care should be taken that any structural element by which the partition system is supported, e.g. steel stud or perimeter steel channel, has a fire resistance equal to or greater than 120 minutes.

**Lining boards**

Two layers of 20mm thick PROMATECT® 100 PromaX® mineral boards as manufactured by Promat International (Asia Pacific) Ltd. Stagger joints by at least 300mm. Standard board dimension 1200mm x 2500mm x 20mm thick.

**Fixing**

Galvanised steel frame made of perimeter steel angle 50mm x 50mm x 1mm thick will be fastened to the wall/floor/ceiling with 40mm long M6 masonry anchors at nominal 500mm centres.

First layer of 20mm thick PROMATECT® 100 boards will be fixed to the perimeter angle using 32mm long No.8 self-drilling or self-tapping screws at 300mm centres. Second layer 20mm, fixed to the first layer using 40mm long No.10 laminating stitching screws at 300mm centres down the centre of each panel at each board joint. Use 50mm x No.8 self-tapping screws at 200mm centres to fix second layer to the perimeter angle.

**Tests & standards**

The complete system along with material and framing is tested in accordance with the criteria of BS 476: Part 22: 1987 and AS 1530: Part 4: 2005(1).

**Jointing**

Plain butt joints between machined edges of boards. (2)

Joints filled in preparation for painting. (3)

Joints filled and taped in preparation for decoration. (4)

**Follow-on trades**

Surface of boards to be prepared for painting/plastering/tiling(5) in accordance with manufacturer’s recommendations.

**NOTES:**

- (1) (2) (3) (4) (5) delete as appropriate.
- All perimeter gaps caulked with PROMASEAL®-A Acrylic Sealant.
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