SUMMARY
Operable wall shall be series 100F/41/SX2 supplied by Lotus Folding Walls & Doors Pty Ltd, TEL: [03] 9771 8255 FAX: [03] 9771 8260 and shall consist of top supported, manually operated panels that can be linked together to form a sound resistant closure.

1. PANELS
Panels shall be 100 series with Fineline panel junctions.
Panels shall be constructed of a sandwich of board and/or steel separated by acoustic insulation to achieve the specified sound rating. Panel faces shall be contained within a perimeter frame with interlocking stiles. Panel faces shall be replaceable in the field.

2. ACOUSTICS
The manufacturer shall guarantee that the operable walls are like constructions to those tested to AS 1191-2002 by a NATA approved independent Australian acoustic laboratory to achieve Rw 41.

3. STACKING
When the operable wall is opened, panels shall be parked in a side stack configuration. Suspension will be one or two point according to the requirement of the stacking system and panels type.

4. FINISHES
In frames, panels will seal acoustically to the track by sweep seals.
At the bottom, panels will seal acoustically to the floor by retractable seals.

6.1 Panel surfaces shall be finished in Innova Flexiclad Aegean Glacier Vinyl.
6.2 Panel faces shall be anodised, Matt Natural.
6.3 Head track shall be powdercoated, Dulux Pearl White Gloss 1144G.

7. ACCESSORIES
The operable wall system shall incorporate the following accessory features:
7.1 Inset boards shall be set from 900mm to 2100mm above floor level. Board type shall be whiteboard.
Specification shall be magnetic.
Boards to be inset on the following panels, counting from stacking end:
All panels
Fit chalk pen pockets in the following panels, counting from stacking end:
All panels
7.2 Aluminium kick plates fitted on both sides of all panels up to a height of 150mm above floor level and anodised to match 6.2 above.

8. CUSTOMER CARE
8.1 The supplier is required to provide a handover to the end user.
8.2 The supplier will provide a 1 year warranty against manufacturing and installation defects.

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SAMPLE SPECIFICATION

 pepple thrive creating spaces where people thrive
This brochure is designed so you can make the most of our quality acoustic operable wall systems to deliver maximum value to your clients. 

Whether you are deciding on acoustics, stacking layouts, or finishes, each section of this brochure details your options with the ‘real world’ benefits explained.

We are proud to be ‘Australian made and owned’ and have been the supplier of choice for the Perth Convention and Exhibition Centre (PCEC) and the Melbourne Exhibition and Convention Centre (MECC), two of the largest installations of operable walls in Australia. We are also proud of the quality of service we give from design consultation to final site installation and handover.

Lotus has partnered with global leaders in BIM (Revit) content UNIFI to develop a high quality Revit content library for our Operable Wall range. Specifying moveable walls within the Revit environment has never been easier or more efficient. The Lotus collection of Revit families allows designers to generate a wide range of documentation deliverables at various product stages by incorporating multiple Revit content assets. See Lotus website for details.

We invite you to use this brochure as a specification tool. Using the back cover flap as a guide, just follow the brochure from front to back.

Please contact our state sales offices if you require further assistance. We would love to help you.

**WARRANTY**

Lotus QA system submits every panel to an Inspection and Test Plan. Track and trolley systems give lifetime performance. Lotus offer a 1 year warranty on all walls installed by Lotus staff (or authorised representatives) or an additional warranty of 5 years is available for purchase.

**MADE TO LAST**

Most Lotus walls have Medium Density Fibreboard (MDF) faces which are stronger than plasterboard alone. The frame can be screwed into the board, which results in an immensely strong panel.

**MOVING EASILY**

Customers are not always strong people, so Lotus provides a tool to make moving panels easier. Footbolts also have handles and don’t rely on nail breaking finger holes. Moving single panels around an omni-directional tracking system is made easier by using programmed diverters wherever possible.

**CUSTOMER HANDOVER**

Once the project is completed and the tenants have moved in, Lotus’ policy is to call back, demonstrate the use of the wall and leave printed instructions. A quality post-check is done and the architect/builder receives a handover copy.

**SERCVICING AND MAINTENANCE**

Attending to a service call-out matters to us as much as installing a new wall. Lotus has an excellent reputation for a quick response in such situations. A maintenance service is also available for larger, complex installations. Additionally, Lotus offer a 3 year Preventative Maintenance Agreement to protect your investment and ensure ongoing optimal performance of your Lotus wall system.

**RESEARCH AND DEVELOPMENT**

Lotus is continually updating and improving product features so details in this brochure may change over time.

**OUR COMMITMENT TO THE ENVIRONMENT**

At Lotus we are committed to minimising our greenhouse gas emissions, water usage, promoting effective waste management and considering the sustainability of the materials we use (for example recycled aluminium and FSC certified sustainable timber sources).
The Lotus Acoustic Operable Wall system comes in three models according to the sound rating required (80, 100 and 125 Series). There are three options for the perimeter frame.

**STANDARD**
Stiles wrap smoothly around panel edges. The look is neat and clean, as each stile is only 12mm wide. Board edges are totally protected even in the toughest environment.

**FINELINE**
An innovation giving you the best of both worlds. Panels are almost frameless with just 4mm of visible vertical trim. Panel corners remain protected.

**OVERLAY**
Beautiful looking panels with completely concealed perimeter frames. The eye flows across the wall without interruption. Ideal for prestige locations and where careful handling is more likely.

**PANEL THICKNESS**

<table>
<thead>
<tr>
<th>Series</th>
<th>Standard</th>
<th>Fineline</th>
<th>Overlay</th>
<th>Acoustic Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>80mm</td>
<td>—</td>
<td>—</td>
<td>Rₖ 37–45</td>
</tr>
<tr>
<td>100</td>
<td>100mm</td>
<td>100mm</td>
<td>112mm</td>
<td>Rₖ 41–53</td>
</tr>
<tr>
<td>125</td>
<td>125mm</td>
<td>N/A</td>
<td>N/A</td>
<td>Rₖ 52–55</td>
</tr>
</tbody>
</table>

Consult Lotus for Rₖ 55+

**PANEL SPECIFICATION CODES**

<table>
<thead>
<tr>
<th>Standard</th>
<th>80S</th>
<th>100S</th>
<th>125S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fineline</td>
<td>–</td>
<td>100F</td>
<td>–</td>
</tr>
<tr>
<td>Overlay</td>
<td>–</td>
<td>100V</td>
<td>–</td>
</tr>
</tbody>
</table>
The key to acoustics is determining what your needs are. A sound rating should be chosen to suit the surrounding structure, the sizes of the partitioned areas and use of space.

**KEY POINTS**

- Aim for a sound-rating in balance with the acoustics of the surrounding structure.
- Even with a perfectly installed wall, sound will still seep through areas such as ceilings, carpets and airconditioning ducts due to deficiency in the building.
- Control peripheral leakage around the operable wall. For example, baffling above the ceiling will do a lot to improve the overall performance of the installation.
- Similar activities require less sound isolation than a quiet activity next to a noisy one. Amplified sound is more difficult to suppress. General background noise helps reduce distraction.
- Avoid specifying far higher ratings than needed. High Rw ratings add cost. See ‘Laboratory vs Real Life’.
- Don’t get hung up over one or two decibels (dB). Some manufacturers play a numbers game. The human ear can’t discern a 2dB difference, and even laboratory results can vary by 1dB depending on the conditions.
- Beware of American results. They can be 10% higher than tougher Australian testing. Also be aware the Rw is a more stringent measurement than simple speech frequency averages.
- Ensure test results are reasonably recent and are from reputable laboratories like the Royal Melbourne Institute of Technology (RMIT) or CSIRO. Laboratories with non-standard testing protocols do exist both in Australia and overseas.
- Thin light panels are unlikely to be as effective as thicker heavier panels. There is no magic to acoustic performance and weight is a key factor. Check the test reports to be certain.

**OUR TESTING**

The testing of our full systems (not just our panels) is carried out at CSIRO, one of Australia’s leading laboratories, to Australian Standard AS 1191-2002, which makes Lotus Walls BCA compliant.

In tests up to Rw 53 we use sweep seals at the top and bottom of the panels, demonstrating that retractable seals are not required for acoustic reasons for anything other than the highest rating. Lotus offer Rw 37 to Rw 55, which allows us to meet your acoustic requirements from budget to high performance and everything in between. Rw 55 is the highest result achieved for an operable wall in an Australian test.

**Rw EXPLAINED**

The performance of an operable wall is measured in a laboratory and expressed by its Weighted Sound Reduction Index (Rw). The single Rw figure is a composite rating of sound reduction at frequencies from 100 Hertz (Hz) to 5000 Hz, when compared to an Australian Standard line.

Note that ‘Weighted Sound Reduction’ (Rw) was known as ‘Sound Transmission Class (STC). Numerical values are comparable. Please note that the unit of the Weighted Sound Reduction Index is decibel (dB).

**LABORATORY VS REAL LIFE**

Acousticians measure the performance of an operable wall in laboratories (Lab Rw). In real life even a perfectly installed wall is unlikely to perform as well due to deficiencies of the building. Buildings inevitably have peripheral leakage through airconditioning ducts, carpets, ceiling tiles etc. which can reduce the field performance by about 15%.

Be aware of this when specifying. In critical situations the surrounding walls, floor and ceiling should have an Rw rating of 6 to 10 decibel (dB) higher than the operable wall. Please contact Lotus if you need advice.

**ACOUSTIC PERFORMANCE - Rw**

<table>
<thead>
<tr>
<th>Series</th>
<th>Rw 37</th>
<th>Rw 41</th>
<th>Rw 43</th>
<th>Rw 44</th>
<th>Rw 45</th>
<th>Rw 46</th>
<th>Rw 47</th>
<th>Rw 49</th>
<th>Rw 51</th>
<th>Rw 53</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 Series</td>
<td>37</td>
<td>41</td>
<td>–</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 Series</td>
<td>41</td>
<td>43</td>
<td>44</td>
<td>45</td>
<td>46</td>
<td>47</td>
<td>49</td>
<td>–</td>
<td>51</td>
<td>53</td>
</tr>
<tr>
<td>125 Series</td>
<td>–</td>
<td>52</td>
<td>53</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Consult Lotus for Rw 55+.

**EFFECT**

<table>
<thead>
<tr>
<th>LAB Rw</th>
<th>TYPICAL USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal voices may be intelligible</td>
<td>38 – 44</td>
</tr>
<tr>
<td>Normal voices barely intelligible</td>
<td>41 – 45</td>
</tr>
<tr>
<td>Normal voices unintelligible</td>
<td>45 – 47</td>
</tr>
<tr>
<td>Raised voices barely unintelligible</td>
<td>47 – 49</td>
</tr>
<tr>
<td>Major function noise controlled</td>
<td>49 – 55</td>
</tr>
</tbody>
</table>

* Assumes peripheral leakage is minimised. It’s impractical for any manufacturer to test every combination of product type, configuration, layout, surface finish etc. Tests are done on benchmark constructions and supplemented by acousticians’ opinions as necessary.
**STACKING**

Stacking refers to where and how the panels stack to the side of the opening. There are several choices which will suit different wall types and applications. The three most common are summarised below.

<table>
<thead>
<tr>
<th>STACKING SPECIFICATION CODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre Stack C</td>
</tr>
<tr>
<td>Side Stack S</td>
</tr>
<tr>
<td>Remote Stack R</td>
</tr>
</tbody>
</table>

**CENTRE STACK**

A simple straight track. Each panel is suspended from a central trolley and typically hinged in pairs.

Pros: Economical, quick to set up. Beam work is straightforward.
Cons: Panels have to remain stacked on the main track.

**SIDE STACK**

Single panels are suspended from two carriers at the top corners of each panel. Panels stack with one carrier remaining on the main track and the other in the side track.

Pros: Single panels are easier to move. Flexibility to stack to the side of the track and to negotiate junctions.
Cons: Beam work is needed over the side track.

**REMOTE STACK**

Panels have omni-directional carriers to negotiate L or T junctions and panels are stacked completely away from the main track, sometimes in a cupboard or recess.

Pros: Panels can be stacked away from the main track, useful in complex layouts.
Cons: Extra tracking and beamwork required. Inexperienced users can get panels out of order on large installations.

**CLOSURES**

An operable wall needs a method of acoustically opening and closing the system. Interlocking panel edges mean that a gap needs to be created along the track to break and stack the panels. This can be achieved using the options below.

<table>
<thead>
<tr>
<th>CLOSURES SPECIFICATION CODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanding Panel X</td>
</tr>
<tr>
<td>Door Full Height D</td>
</tr>
</tbody>
</table>

**EXPANDING PANEL**

This panel has an over-sleeve that can be expanded sideways to lock the wall in place. This is operated by a removable handle in the face of the panel. Usually located at the stacking end of the wall.

Pros: Physically and acoustically locks the wall into place.
Cons: Not useable for access.

**DOOR PANEL**

Suitable on standard height walls up to 3000mm. The last panel is a full height door hinged off the fixed jamb or the prior panel. Doors are normally located at one end of the wall. Typical width is 900mm.

Pros: Provides convenient access. Lowest cost closure option. Easy to operate.
Cons: For centre stacked walls, the door may protrude slightly to the side of the stack.

* Please consult with Lotus for DDA compliant door solutions.

* Side and remote tracking systems are available with curved junctions for ultra smooth running.
* We highly recommend taller panels be stacked at a 30° angle for ease of movement.
SEALS AND SOUND RATINGS

The testing carried out at CSIRO, one of Australia’s leading laboratories, to Australian Standard AS ISO 717.1-2004, has found that sweep seals do not compromise acoustic performance. All tests up to R,55 have been done using sweep seals at the top and bottom of the panels, demonstrating that it is not necessary to adopt retractable seals to achieve all but the highest sound rating required.

Lotus offer R,28 to R,55, which is the highest achieved for an operable wall in Australian tests. The main purpose of retractable seals is for ease of use with certain layouts, site conditions and panel weights. Be sure to consult Lotus for the best seal combination to meet your acoustic performance requirements and budget.

SWEEP SEALS FITTING THE JOB

Top seals are set at a fixed 30mm. Seals are 2 x triple fingers for excellent acoustics. If the floor level varies, Lotus levels each panel so its shape precisely matches its set up location. Sweep seals accommodate ±5mm floor level variation, often more, particularly if the floor slopes downwards towards the stacking end.

SWEEP SEALS

Sweep seals can be mounted on the bottom rails, top rails or both. Since these seals are fixed to the rail, there are no mechanics required to engage these seals. This seal type is the most economical among three available, providing a cost effective solution to your operable wall requirements.

MECHANICAL RETRACTABLE SEALS

Retractable seals are driven by a hand operated crank mechanism. As retractable seals have no friction between the seals and the floor or track, they offer a smooth and easy glide movement of the walls. Retractable bottom seals also offer the ability to cope with more out of level floors and overhead beam deflections. These seals can be offered in two configurations, 40mm or 75mm, vertical travel to close the gaps below and above the panels.

ELECTRIC RETRACTABLE SEALS (ERS)

Electric Retractable Seals offer the same functionality as retractable seals, however they are driven by an electrical motor and engaged with the simple push of a button. These seals are fast to secure as they do not require any manual operation to retract or extend the seals. Electric Retractable Seals are operated with extra low voltage and therefore pose no electrical hazards.

ELECTRIC EXPANDING CLOSURE PANELS

Electric Expanding Closure Panels offer a push button solution for minimal manual handling and of which decreases the likelihood of an injury. This feature also consumes a low level of power and generates little noise.

ACOUSTIC SPECIFICATION CODES

<table>
<thead>
<tr>
<th>Standard</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special application</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rx SS only</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Electric Retractable</td>
<td>7</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
FINISHES

1. Timber veneer with inset whiteboards
   (Design by Shape Australia)
2. Two pack satin
   (Design by Foster and Associates)
3. Vinyl and laminate
   (Design by Cox, Hames Sharley, Walter Brooke)
FINISHES

4. Whiteboard inset
   (Design by Hassell)
FINISHES

5. Eight metre whiteboard walls also used as a projector screen. Ballina Coast State High School (Design by EJE Architecture)

6. Whiteboard inset and vinyl finish (Design by WMK Architecture)

7. Maharam tech wall fabric (Design by Dalman Architects)

8. Perforated Panels (Design by Artillery Melbourne)
ACCESSORIES

1. Kick rail
2. Chair rail
3. Vertical inset windows
4. Pass door hung off a panel
5. Inset L pass door
6. Inset whiteboards
7. Full height whiteboard
8. Pinnable finish

Design by SPH Architecture and Design
These pages contain selected general information; please consult Lotus for help with specific projects. Several CAD drawings [PDF format] are available at lotusdoors.com.au.

20 Lotus Operable Walls

20.1 TRACK TO TIMBER

20.2 TRACK TO CONCRETE

20.3 TRACK TO STEEL

20.4 TOP RAIL SWEEP SEALS

20.5 BOTTOM RAIL SWEEP SEALS

20.6 BOTTOM RAIL RETRACTABLE SEALS

20.7 PANEL JUNCTIONS

20.8 JAMBS

20.9 EXPANDING PANEL

20.10 CENTRE STACK

80 Series
• Up to 2.6m high
• Limited finishes available.
Please contact Lotus Sales Team for finishes.

110 / 125 Series
• Up to 4.1m high
• Limited finishes available above 3m.
• Electric doors and windows available.

80 Series
Panel weight*

<table>
<thead>
<tr>
<th>Series</th>
<th>Standard</th>
<th>Fineline</th>
<th>Overlay</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>5000</td>
<td>5000</td>
<td>112mm</td>
</tr>
<tr>
<td>110</td>
<td>5000</td>
<td>5000</td>
<td>112mm</td>
</tr>
<tr>
<td>125</td>
<td>12500</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

*Nominal, 1200 max. [i.e. both levels + panel’s own cost]

WALL WEIGHTS

<table>
<thead>
<tr>
<th>Series</th>
<th>Rm</th>
<th>Av</th>
<th>A</th>
<th>B</th>
<th>2b</th>
<th>2w</th>
<th>3w</th>
<th>3n</th>
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</thead>
<tbody>
<tr>
<td>80</td>
<td>37</td>
<td>41</td>
<td>45</td>
<td>43</td>
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<td>45</td>
<td>47</td>
<td>49</td>
</tr>
<tr>
<td>110</td>
<td>51</td>
<td>53</td>
<td>53</td>
<td>51</td>
<td>53</td>
<td>51</td>
<td>53</td>
<td>51</td>
</tr>
<tr>
<td>125</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

The above weights are in panels up to 5.4m.

**Details shown apply to expander for walls up to Rw45.

STRUCTURAL SUPPORT

Ideal structural support will depend on the application and project specific details. The suggested bearings below are a guideline only and allow for the weight of the wall alone and up to 5.4m.

Panels must sit wall in position.

Track has to be offset to one side.

Floor levels should be ± 5mm. Greater tolerances can be often accommodated, particularly if the steps in generally downward towards the stacking end.

CUPBOARDS

Number of panels

<table>
<thead>
<tr>
<th>Number of panels</th>
<th>Opening width / 1200 and round up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1200 + 300 + 100 + 40 + 300 + 300</td>
</tr>
<tr>
<td>2</td>
<td>2400 + 300 + 100 + 40 + 300 + 300</td>
</tr>
<tr>
<td>3</td>
<td>3600 + 300 + 100 + 40 + 300 + 300</td>
</tr>
</tbody>
</table>

Panel thickness

<table>
<thead>
<tr>
<th>Panel thickness</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>100mm</td>
</tr>
</tbody>
</table>

Cupboard of the width only

Transfer leg stand off

T Typically 100–200mm depending on design.

*Nominal. 1200 max. [i.e. both levels + panel’s own cost]

STEP 1: PANELS

Specify a Standard, Fineline or Overlay system. See page 4.

STEP 2: ACOUSTICS

Specify the acoustic rating of each panel. See page 6 for more information.

STEP 3: STACKING

Specify how the panels should stack. See page 8 for more information.

STEP 4: CLOSURES

Specify the type of closure. See page 9 for more information.

STEP 5: SEALS

Choose Seal type 3 or 2. This will affect the acoustic rating of the panel. See page 10–11 for more information.

SAMPLE SPECIFICATION CODE

100F/41/SX2

This is only a sample and does not specify finish and accessories.

SPECIFICATION GUIDE

Use this step-by-step guide to specify your Lotus Operable Wall system.