

# **Goncealed Geiling** Systems



*M27R Top Cross Rail* Can be rolled to create curved ceilings.



*M39 Locking Key* Primary coupling with unique thumb push tab providing ease of installation.



*IM534 Spring Hanger* Used for suspension of concealed ceiling systems



**M520 Side Mount Spring Hanger** TCR suspension clip ideal for use in confined areas.



*MBF Betafix Clip* For adjustment when fixing furring channel



*IM534 Spring Hanger* With fixing holes for preliminary suspension of bulkheads and floating ceilings.



# **Concealed Ceiling Systems**

The Studco Concealed Ceiling System is engineered to provide designers and installers with a flexible and secure system for a building board flush finish. Components are manufactured from galvanised steel, designed for safe handling, and easily clipped together to form gridwork where building boards can be simply fixed. Components such as battens, furring channels and top cross rail allows for a range of loading options and ceiling spans. Furring channel track reduces the need for suspended fixing at each end of the ceiling. For curved ceilings, top cross rail can be easily curved in either direction to various radii. Studco Concealed Ceiling Systems can be used for non-fire-rated or fire-rated applications and have been designed to meet the relevant Australian standards.

### Components

### **Top Cross Rail**



### Furring Channel, Wall Track and Batten

#### Table 2

24mm

38mm

| PART No | DESCRIPTION                          |
|---------|--------------------------------------|
| M29     | 28mm Furring Channel                 |
| M308    | 16mm Furring Channel                 |
| M40     | 28mm Furring Channel Perimeter Track |
| M42     | 16mm Furring Channel Perimeter Track |
| M301    | 16mm Ceiling Batten                  |
| M303    | 24mm Cyclonic Ceiling Batten         |



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M303



### **Concealed Ceiling Systems - Components**

#### **Section Joiners**

### Table 3

| PART No | DESCRIPTION              |              |      |              |
|---------|--------------------------|--------------|------|--------------|
| M38     | M29 Joiner               | $\checkmark$ |      | $\checkmark$ |
| M272    | M27/M25 Top Cross Joiner | M38          | M272 | M140         |
| M140    | M301 Batten Joiner       |              |      |              |

#### **Primary Couplings**

#### Table 4

| PART No | DESCRIPTION                     |
|---------|---------------------------------|
| M39     | M29/M308 to M27/M28 Locking Key |



1

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#### **Direct Fix Clips**

#### bla 5

| Table 5 | 1                                 |                              | Â      |
|---------|-----------------------------------|------------------------------|--------|
| PART No | DESCRIPTION                       |                              |        |
| M13     | M301 Direct Fix Short             |                              |        |
| M16     | M301 Direct Fix Long              |                              |        |
| M80     | M301 Direct Fix Wall Clip         |                              |        |
| M26     | M29/M308 Direct Fix Short         | 146mm                        | R R    |
| M94     | M29/M308 Direct Fix Long          |                              | M80    |
| M81     | M29/M308 Direct Fix Angle Bracket |                              |        |
| M237    | M29/M308 Wall Clip                | 72mm                         |        |
| M239    | M29/M308 Wall Clip Threaded M6    |                              | 45mm   |
|         |                                   | турици у Царияния<br>M13 M16 | 40mm   |
| 176mm   | Bamm J J                          |                              |        |
|         | <sup>с</sup> м94 M26              | M237                         | ✓ M239 |

#### **Direct Fix Clips - Sound Rated**

See page 28

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# **Concealed Ceiling Systems - Components**



### **Primary Suspension Clips**

| Table / |                                |
|---------|--------------------------------|
| PART No | DESCRIPTION                    |
| M534    | M27/M28 Spring Hanger          |
| M520    | M27 Side Mount Spring Hanger   |
| M66     | M27/M28 Direct Fix             |
| M24     | M27/M28 Direct Fix Right Angle |





#### **Suspension Rod**

| Table 8 | l                                 |     | Î   | 9   |         | Î    |   |
|---------|-----------------------------------|-----|-----|-----|---------|------|---|
| PART No | DESCRIPTION                       |     |     | TN6 |         |      |   |
| M21     | 5mm Galvanized Rod                | -   |     |     | $F_{a}$ |      |   |
| M49     | 6mm Threaded Rod                  |     |     |     |         |      |   |
| TN6     | 6mm Zinc Nuts                     |     |     |     |         |      |   |
| MR5     | M21 Rod Joiner                    | U   |     |     |         |      |   |
| M21T    | 5.2mm Galvanized Rod w/M6 Thread  |     |     |     |         |      |   |
| M21H    | 5mm Galvanized Rod Hooked one end | M21 | M49 |     | MR5     | M21T | Μ |

#### **Adjustable Clips**

#### Table 9

| PART No | DESCRIPTION                         |
|---------|-------------------------------------|
| MBF     | M29/M308 Adjustable Direct Fix      |
| MBFS    | M29/M308 Adjustable Direct Fix Long |
| M239BA  | M29/M308 Direct Fix with Tru Bolt   |

and the second s

MBF



M239BA

**MBFS** 



# **Installation Guide - Direct Fix Ceilings**

**Concealed Ceiling Systems** 

The Studco Concealed Ceiling System has a range of options for direct fixing of battens and furring channels in ceiling applications (as shown in Fig 1). The maximum ceiling drop should not exceed 180mm. A greater drop than 180mm requires the Studco Suspended Ceiling System. Direct Fixing clips must be fixed along the furring channel or batten sections in accordance with the relevant maximum ceiling span tables. A minimum of two fasteners must be used per clip. Also there must be a minimum clearance of 2mm to the underside of the joist (as shown in Fig 1). The Furring Channel or Batten sections should be spaced in accordance with the building board manufacturer's recommendations. It is not recommended to screw or nail fix battens or furring channels directly to a joist supporting a trafficable floor due to deflection of the joist occurring and possible subsequent interaction with the ceiling batten.

#### Fig. 1 Typical Direct Fix Ceiling Application







M29/M308 Furring Channel

M29/M308 Furring Channel

M27 Top Cross Rail

### **Installation Guide - Direct Fix Ceilings and Walls**

The Studco furring channels and battens together with the range of direct fixing clips are the most effective way of battening out of irregular walls in preparation for the fixing of the building boards. A combination of direct fix and adjustable clips may be used. (See *Fig. 1).* Adjustable clips can offset irregular surfaces up to 50mm (as shown in *Fig. 2*). Anchors should be selected in accordance with the manufacturers recommendations. Anchors should be spaced in accordance with *Table 12.* 











MBF with M29 28mm Furring Channel

#### Table 10

| MAXIMUM POSITION              |                           |   |  |  |  |  |  |  |
|-------------------------------|---------------------------|---|--|--|--|--|--|--|
| ADJUSTABLE<br>Direct fix clip | FURRING CHANNEL           | MEASUREMENT<br>rear of clip to face<br>of furring channel |  |  |  |  |  |  |
| MBFS                          | M29 28mm Furring Channel  | 70mm  |  |  |  |  |  |  |
| MBFS                          | M308 16mm Furring Channel | 58mm  |  |  |  |  |  |  |
| MBF                           | M29 28mm Furring Channel  | 48mm  |  |  |  |  |  |  |
| MBF                           | M308 16mm Furring Channel | 36mm  |  |  |  |  |  |  |



#### Table 12

| MAXIMUM ANCHOR SPACING             |                |  |  |  |  |  |  |
|------------------------------------|----------------|--|--|--|--|--|--|
| FURRING CHANNEL                    | ANCHOR SPACING |  |  |  |  |  |  |
| M333 13mm Recessed Furring Channel | 900mm          |  |  |  |  |  |  |
| M29 28mm Furring Channel           | 1200mm         |  |  |  |  |  |  |
| M308 16mm Furring Channel          | 900mm          |  |  |  |  |  |  |

**Note:** The above spacings may not be suitable for high traffic areas or external applications.



MBFS with M29 28mm Furring Channel

#### Table 11

#### MINIMUM POSITION MEASUREMENT ADJUSTABLE FURRING CHANNEL rear of clip to face **DIRECT FIX CLIP** of furring channel MBF M308 16mm Furring Channel 19mm MBF M29 28mm Furring Channel 31mm **MBFS** M308 16mm Furring Channel 40mm MBFS M29 28mm Furring Channel 52mm

11

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# **Installation Guide - Suspended Ceilings**



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12

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13

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### **Installation Guide - Curved & Raked Ceilings**



#### Table 14

| FURRING CHANNEL CENTRES - CURVED CEILINGS |              |               |                |             |             |               |        |  |  |  |
|---|--------------|---------------|----------------|-------------|-------------|---------------|--------|--|--|--|
|   |              |               | CEILING RADIU  | JS          |             |               |        |  |  |  |
| PLASTERBUARD                              | 900mm-1000mm | 1000mm-1500mm | 1500mm-2000mm  | 2000-2500mm | 2500-3000mm | 3000mm-4000mm | 4000mm |  |  |  |
| THICKNESS                                 |              | MAXIN         | NUM FURRING CH | ANNEL CENTR | ES          |               |        |  |  |  |
| 6.5mm                                     | 150mm        | 200mm         | 250mm          | 300mm       | 350mm       | 450mm         | 550mm  |  |  |  |
| 10mm                                      | 150mm        | 200mm         | 250mm          | 300mm       | 350mm       | 400mm         | 500mm  |  |  |  |
| 13mm                                      |              | 150mm         | 200mm          | 250mm       | 300mm       | 400mm         | 500mm  |  |  |  |
| 16mm                                      |              |               |                |             |             | 250mm         | 350mm  |  |  |  |



14

**Concealed Ceiling Systems** 



# **Installation Guide - External Suspended Ceilings**

Installation of the Studco Concealed Ceiling System has been engineered for use in external applications; however consideration should be given to wind pressure. For details of extra bracing requirements see *Fig.1* downstrut detail. The downstrut gives support under the extra upward wind load. See *Table 15* for the maximum spacing for the M28 38mm Top Cross Rail and also the maximum spacing for the downstrut support along the M28 38mm Top Cross Rail, for the wind pressures indicated. The ultimate limit state needs to be determined in accordance with AS/NZ 1170.2



#### Table 15

| ULTIMATE LIMIT STATE FOR M28 TOP CROSS RAIL |                      |                               |  |  |  |  |  |  |
|---|----------------------|-------------------------------|--|--|--|--|--|--|
| Support Conf                                | Ultimate Limit State |                               |  |  |  |  |  |  |
| M28 Top Cross Rail Spacing                  | Down Strut Spacing   | Maximum Uplift Pressure (kPa) |  |  |  |  |  |  |
| 1200mm                                      | 1200mm               | 0.98                          |  |  |  |  |  |  |
| 900mm                                       | 1200mm               | 1.31                          |  |  |  |  |  |  |
| 900mm                                       | 900mm                | 2.33                          |  |  |  |  |  |  |
| 900mm                                       | 600mm                | 5.24                          |  |  |  |  |  |  |
| 600mm                                       | 600mm                | 7.86                          |  |  |  |  |  |  |

#### Notes:

- 1. Serviceability Limit State Deflection Ratio L/250.
- 2. M29 Furring Channel to be installed at 600mm centres for TCR Span of 1200mm and 450mm centres if TCR Span is 900mm or less.
- 3. Fastener connections to be in accordance with fastener manufacturers specifications.



# **Installation Guide - Expansion Joints**



EJ06 Expansion Joint 6mm



PEJ93 PVC Expansion Joint with Zip Strip



PE127 PVC Hideaway Expansion Joint with Zip Strip



EJ10 Expansion Joint 10mm

Expansion joints are required in walls and/or ceilings in order to accommodate movements in the building structure due to shrinkage, settlement, wind or seismic forces. Building board manufacturers recommend that expansion joints are required in unbroken walls and ceilings at no greater than 12 metre centres. The metal stopping bead on the Studco EJ06 and the EJ10 expansion joints are connected with a close cell neoprene sponge infill providing movement in all directions. These expansion joints also provide excellent acoustic isolation. Contact Studco Technical Services for more information.





16

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# **Section Properties and Dimensions**

#### Table 16

| CONCEALED CEILING SECTIONS PROPERTIES AND DIMENSIONS |           |                         |          |          |   |   |                        |                        |          |          |  |                      |
|--|-----------|-------------------------|----------|----------|---|---|------------------------|------------------------|----------|----------|--|----------------------|
| Section  | BMT<br>mm | Area<br>mm <sup>2</sup> | Yc<br>mm | Yo<br>mm | lxx<br>mm <sup>4</sup> x10 <sup>3</sup> | lyy<br>mm <sup>4</sup> x10 <sup>3</sup> | Zxx<br>mm <sup>3</sup> | Zyy<br>mm <sup>3</sup> | rx<br>mm | ry<br>mm | lw<br>mm <sup>6</sup> x10 <sup>6</sup> | J<br>mm <sup>3</sup> |
|  |           |                         |          |          |   |   |                        |                        |          |          |  |                      |
| M29  | 0.5       | 60.73                   | 13.45    | 24.28    | 7.19                                    | 17.74                                   | 494                    | 710                    | 10.88    | 17.09    | 1.59                                   | 5.06                 |
| M308   | 0.5       | 49.45                   | 7.28     | 12.93    | 2.02                                    | 13.89                                   | 231                    | 556                    | 6.39     | 16.76    | 0.42                                   | 4.12                 |
|  |           |                         |          |          |   |   |                        |                        | ·        |          |  |                      |
| M25  | 0.55      | 50.37                   | 11.73    | 21.61    | 4.14                                    | 2.78                                    | 303                    | 265                    | 9.06     | 7.43     | 0.24                                   | 5.08                 |
| M27  | 0.75      | 68.69                   | 11.73    | 21.90    | 5.64                                    | 3.80                                    | 413                    | 362                    | 9.06     | 7.43     | 0.33                                   | 12.88                |
| M28  | 0.75      | 87.74                   | 17.95    | 36.41    | 15.84                                   | 4.48                                    | 786                    | 426                    | 13.44    | 7.14     | 0.74                                   | 16.45                |
|  |           |                         |          |          |   |   |                        |                        |          |          |  |                      |
| M303   | 0.42      | 45.92                   | 11.07    | 21.93    | 4.34                                    | 19.93                                   | 336                    | 585                    | 9.72     | 20.83    | 0.59                                   | 2.70                 |
| M301   | 0.45      | 34.20                   | 5.85     | 15.38    | 0.96                                    | 6.28                                    | 94.76                  | 358                    | 5.30     | 13.55    | 0.333                                  | 2.31                 |

#### Notes:

1. The above tables show the gross section properties. Designs using these tables need to be checked in accordance with AS/NZS4600.

2. Properties may vary because of manufacturing tolerances, total material used will not vary.

3. All section capacity calculated based on effective section at yield.















# Span Tables - M25 Top Cross Rail



M25 25mm Top Cross Rail 0.55 BMT

#### Table 17

| MAXIMUM CEILING LOAD-M25 TOP CROSS RAIL SPAN: 900mm |                         |                                      |       |       |  |
|---|-------------------------|--------------------------------------|-------|-------|--|
| FURRING CHANNEL                                     | M29                     |                                      | M3    | 08    |  |
| Furring Channel Spacing                             | 450mm 600mm 450mm 600mm |                                      |       |       |  |
| Top Cross Rail Spacing                              | I                       | Maximum Ceiling Weight – kg per sqm. |       |       |  |
| 900mm   | 50.00                   | 49.00                                | 36.00 | 29.50 |  |
| 1200mm  | 34.50                   | 33.50                                | 15.50 | 11.00 |  |
| 1500mm  | 21.50                   | 15.00                                | 7.00  | 5.00  |  |
| 1800mm  | 9.50                    | 6.50                                 | N/A   | N/A   |  |

#### Table 18

| MAXIMUM CEILING LOAD-M25 TOP CROSS RAIL SPAN: 1200mm |       |                                      |       |       |  |
|--|-------|--------------------------------------|-------|-------|--|
| FURRING CHANNEL                                      | M29   |                                      | M3    | 08    |  |
| Furring Channel Spacing                              | 450mm | 600mm                                | 450mm | 600mm |  |
| Top Cross Rail Spacing                               | I     | Maximum Ceiling Weight – kg per sqm. |       |       |  |
| 900mm  | 20.00 | 19.50                                | 19.50 | 18.50 |  |
| 1200mm   | 13.50 | 13.00                                | 12.50 | 11.00 |  |
| 1500mm   | 11.00 | 10.50                                | 7.00  | 4.50  |  |
| 1800mm   | 9.00  | 6.00                                 | N/A   | N/A   |  |

#### Table 19

| MAXIMUM CEILING LOAD-M25 TOP CROSS RAIL SPAN: 1500mm |       |                                      |       |       |  |
|--|-------|--------------------------------------|-------|-------|--|
| FURRING CHANNEL                                      | M29   |                                      | M3    | 08    |  |
| Furring Channel Spacing                              | 450mm | 600mm                                | 450mm | 600mm |  |
| <b>Top Cross Rail Spacing</b>                        | I     | Maximum Ceiling Weight – kg per sqm. |       |       |  |
| 900mm  | 9.50  | 9.50                                 | 9.00  | 9.00  |  |
| 1200mm   | 6.00  | 6.00                                 | 5.50  | 5.50  |  |
| 1500mm   | 4.00  | 4.00                                 | 4.00  | 4.00  |  |
| 1800mm   | N/A   | N/A                                  | N/A   | N/A   |  |

#### Notes:

1. Span tables are based on the effective section properties as per AS/NZS 4600.

2. Tables 17-25 are for Internal applications with a maximum design pressure of 0.25 kPa as per BCA 2009.

# Span Tables - M27 Top Cross Rail



M27 25mm Top Cross Rail 0.75 BMT

#### Table 23

| MAXIMUM CEILING LOAD-M27 TOP CROSS RAIL SPAN: 900mm |       |                    |                     |       |
|---|-------|--------------------|---------------------|-------|
| FURRING CHANNEL                                     | M29   |                    | М3                  | 08    |
| Furring Channel Spacing                             | 450mm | 600mm              | 450mm               | 600mm |
| <b>Top Cross Rail Spacing</b>                       | I     | Maximum Ceiling We | eight – kg per sqm. |       |
| 900mm   | 67.00 | 66.00              | 41.00               | 30.50 |
| 1200mm  | 47.00 | 36.00              | 15.50               | 11.00 |
| 1500mm  | 22.00 | 16.00              | 6.50                | 4.50  |
| 1800mm  | 10.00 | 6.50               | N/A                 | N/A   |

#### Table 24

| MAXIMUM CEILING LOAD-M27 TOP CROSS RAIL SPAN: 1200mm |                                      |       |       |       |
|--|--------------------------------------|-------|-------|-------|
| FURRING CHANNEL                                      | M29                                  |       | M3    | 08    |
| Furring Channel Spacing                              | 450mm                                | 600mm | 450mm | 600mm |
| Top Cross Rail Spacing                               | Maximum Ceiling Weight – kg per sqm. |       |       |       |
| 900mm  | 28.00                                | 28.00 | 26.00 | 25.50 |
| 1200mm   | 19.50                                | 19.50 | 14.50 | 11.50 |
| 1500mm   | 15.50                                | 15.00 | 6.50  | 4.50  |
| 1800mm   | 10.00                                | 6.00  | N/A   | N/A   |

#### Table 25

| MAXIMUM CEILING LOAD-M27 TOP CROSS RAIL SPAN: 1500mm |                                      |       |       |       |
|--|--------------------------------------|-------|-------|-------|
| FURRING CHANNEL                                      | Μ                                    | 29    | M3    | 808   |
| Furring Channel Spacing                              | 450mm                                | 600mm | 450mm | 600mm |
| Top Cross Rail Spacing                               | Maximum Ceiling Weight – kg per sqm. |       |       |       |
| 900mm  | 13.00                                | 13.00 | 12.50 | 12.00 |
| 1200mm   | 9.50                                 | 9.00  | 9.00  | 9.00  |
| 1500mm   | 6.50                                 | 6.50  | 6.00  | 5.00  |
| 1800mm   | 5.50                                 | 5.50  | N/A   | N/A   |

#### Notes:

1. Span tables are based on the effective section properties as per AS/NZS 4600.

2. Tables 17-25 are for Internal applications with a maximum design pressure of 0.25 kPa as per BCA 2009.



# Span Tables - M28 Top Cross Rail



M28 38mm Top Cross Rail 0.75 BMT

#### Table 20

| MAXIMUM CEILING LOAD-M28 TOP CROSS RAIL SPAN: 1200mm |                         |                                      |              |       |    |
|--|-------------------------|--------------------------------------|--------------|-------|----|
| FURRING CHANNEL                                      | M29                     |                                      | IEL M29 M308 |       | 08 |
| Furring Channel Spacing                              | 450mm 600mm 450mm 600mm |                                      |              |       |    |
| <b>Top Cross Rail Spacing</b>                        | I                       | Maximum Ceiling Weight – kg per sqm. |              |       |    |
| 900mm  | 55.00                   | 51.00                                | 41.00        | 31.00 |    |
| 1200mm   | 39.00                   | 37.50                                | 16.50        | 12.50 |    |
| 1500mm   | 23.00                   | 16.50                                | 7.50         | 5.00  |    |
| 1800mm   | 11.50                   | 7.00                                 | N/A          | N/A   |    |

#### Table 21

| MAXIMUM CEILING LOAD-M28 TOP CROSS RAIL SPAN: 1500mm |       |                    |                         |       |    |
|--|-------|--------------------|-------------------------|-------|----|
| FURRING CHANNEL                                      | M29   |                    | URRING CHANNEL M29 M308 |       | 08 |
| Furring Channel Spacing                              | 450mm | 600mm              | 450mm                   | 600mm |    |
| <b>Top Cross Rail Spacing</b>                        | I     | Maximum Ceiling We | eight – kg per sqm.     |       |    |
| 900mm  | 25.00 | 23.00              | 23.00                   | 22.00 |    |
| 1200mm   | 18.00 | 17.00              | 15.50                   | 12.00 |    |
| 1500mm   | 15.00 | 16.00              | 7.50                    | 5.00  |    |
| 1800mm   | 10.50 | 7.00               | N/A                     | N/A   |    |

#### Table 22

| MAXIMUM CEILING LOAD-M28 TOP CROSS RAIL SPAN: 1800mm |       |                                      |       |       |  |
|--|-------|--------------------------------------|-------|-------|--|
| FURRING CHANNEL                                      | M29   |                                      | М3    | 808   |  |
| Furring Channel Spacing                              | 450mm | 600mm                                | 450mm | 600mm |  |
| Top Cross Rail Spacing                               |       | Maximum Ceiling Weight – kg per sqm. |       |       |  |
| 900mm  | 15.00 | 13.00                                | 12.00 | 11.00 |  |
| 1200mm   | 10.00 | 9.00                                 | 8.00  | 7.00  |  |
| 1500mm   | 8.00  | 7.00                                 | 6.00  | 5.00  |  |
| 1800mm   | 5.00  | 4.00                                 | N/A   | N/A   |  |

#### Notes:

1. Span tables are based on the effective section properties as per AS/NZS 4600.

2. Tables 17-25 are for Internal applications with a maximum design pressure of 0.25 kPa as per BCA 2009.



# Span Tables - M29 Furring Channel - Direct Fix



M29 28mm Furring Channel

#### Table 26

| MAXIMUM SPANS -         | WIND LOADS N1/ | /N2- M29 28mm | FURRING CHANNE  | L DIRECT FIX |
|-------------------------|----------------|---------------|-----------------|--------------|
| FURRING CHANNEL SPACING | 450mm          | 600mm         | 450mm           | 600mm        |
| PLASTERBOARD LINING     | SINGLE SPAN    |               | CONTINUOUS SPAN |              |
| 1 layer 10mm            | 1270mm         | 1170mm        | 1730mm          | 1605mm       |
| 1 layer 13mm            | 1230mm         | 1140mm        | 1690mm          | 1560mm       |
| 1 layer 16mm            | 1200mm         | 1120mm        | 1650mm          | 1525mm       |
| 2 layers 10mm           | 1170mm         | 1070mm        | 1605mm          | 1475mm       |
| 2 layers 13mm           | 1150mm         | 1060mm        | 1580mm          | 1450mm       |
| 2 layers 16mm           | 1100mm         | 1020mm        | 1525mm          | 1400mm       |

#### Table 27

| MAXIMUM SPANS -         | WIND LOADS N3/ | C1 - M29 28mm | FURRING CHANNE                          | EL DIRECT FIX |          |
|-------------------------|----------------|---------------|---|---------------|----------|
| FURRING CHANNEL SPACING | 450mm          | 600mm         | 450mm                                   | 600mm         |          |
| PLASTERBOARD LINING     | SINGLE SPAN    |               | PLASTERBOARD LINING SINGLE SPAN CONTINU |               | )US SPAN |
| 1 layer 10mm            | 1140mm         | 1060mm        | 1570mm                                  | 1450mm        |          |
| 1 layer 13mm            | 1115mm         | 1040mm        | 1540mm                                  | 1420mm        |          |
| 1 layer 16mm            | 1100mm         | 1020mm        | 1515mm                                  | 1400mm        |          |
| 2 layers 10mm           | 1075mm         | 995mm         | 1475mm                                  | 1365mm        |          |
| 2 layers 13mm           | 1060mm         | 980mm         | 1460mm                                  | 1350mm        |          |
| 2 layers 16mm           | 1030mm         | 960mm         | 1415mm                                  | 1320mm        |          |

#### Table 28

| MAXIMUM SPANS -         | WIND LOADS N4/ | /C2 - M29 28mm | FURRING CHANNE  | EL DIRECT FIX |
|-------------------------|----------------|----------------|-----------------|---------------|
| FURRING CHANNEL SPACING | 450mm          | 600mm          | 450mm           | 600mm         |
| PLASTERBOARD LINING     | SINGLE SPAN    |                | CONTINUOUS SPAN |               |
| 1 layer 10mm            | 850mm          | 775mm          | 1200mm          | 1050mm        |
| 1 layer 13mm            | 860mm          | 785mm          | 1210mm          | 1060mm        |
| 1 layer 16mm            | 870mm          | 790mm          | 1218mm          | 1070mm        |
| 2 layers 10mm           | 880mm          | 805mm          | 1235mm          | 1075mm        |
| 2 layers 13mm           | 890mm          | 810mm          | 1240mm          | 1090mm        |
| 2 layers 16mm           | 900mm          | 815mm          | 1255mm          | 1105mm        |

#### Table 29

| MAXIMUM SPANS -         | WIND LOADS N5/ | /C3 - M29 28mm | FURRING CHANNI | EL DIRECT FIX |
|-------------------------|----------------|----------------|----------------|---------------|
| FURRING CHANNEL SPACING | 450mm          | 600mm          | 450mm          | 600mm         |
| PLASTERBOARD LINING     | SINGL          | e span         | CONTINUC       | DUS SPAN      |
| 1 layer 10mm            | 725mm          | 650mm          | 925mm          | 800mm         |
| 1 layer 13mm            | 735mm          | 660mm          | 935mm          | 810mm         |
| 1 layer 16mm            | 745mm          | 670mm          | 945mm          | 820mm         |
| 2 layers 10mm           | 760mm          | 685mm          | 960mm          | 835mm         |
| 2 layers 13mm           | 765mm          | 690mm          | 965mm          | 840mm         |
| 2 layers 16mm           | 778mm          | 700mm          | 980mm          | 870mm         |

#### Notes:

- 1. Span tables are based on the effective section properties as per AS/NZS 4600.
- 2. Strength and serviceability criteria compliant.
- 3. Serviceability deflection limit L/300.
- 4. Tables 26-39 for external/internal applications and relative to wind class as per AS 1170.1, 1170.2 and AS/NZS 4600.
- 5. Wind classification as per AS 4055.



# Span Tables - M308 Furring Channel - Direct Fix



M209

M308 16mm Furring Channel

#### Table 30

| MAXIMUM SPANS - WIND LOADS N1/N2- M308 16mm FURRING CHANNEL DIRECT FIX |             |       |          |         |
|--|-------------|-------|----------|---------|
| FURRING CHANNEL SPACING  | 450mm       | 600mm | 450mm    | 600mm   |
| PLASTERBOARD LINING  | SINGLE SPAN |       | CONTINUC | US SPAN |
| 1 layer 10mm   | 1040mm      | 950mm | 1380mm   | 1260mm  |
| 1 layer 13mm   | 1010mm      | 930mm | 1350mm   | 1240mm  |
| 1 layer 16mm   | 960mm       | 905mm | 1320mm   | 1200mm  |
| 2 layers 10mm  | 910mm       | 850mm | 1150mm   | 1015mm  |
| 2 layers 13mm  | 900mm       | 840mm | 1160mm   | 1010mm  |
| 2 layers 16mm  | 850mm       | 760mm | 1100mm   | 1005mm  |

#### Table 31

| MAXIMUM SPANS - WIND LOADS N3/C1 - M308 16mm FURRING CHANNEL DIRECT FIX |             |       |          |          |  |
|---|-------------|-------|----------|----------|--|
| FURRING CHANNEL SPACING   | 450mm       | 600mm | 450mm    | 600mm    |  |
| PLASTERBOARD LINING   | SINGLE SPAN |       | CONTINUC | )US SPAN |  |
| 1 layer 10mm  | 910mm       | 830mm | 1250mm   | 1140mm   |  |
| 1 layer 13mm  | 900mm       | 820mm | 1220mm   | 1120mm   |  |
| 1 layer 16mm  | 890mm       | 800mm | 1205mm   | 1100mm   |  |
| 2 layers 10mm   | 850mm       | 760mm | 1150mm   | 1110mm   |  |
| 2 layers 13mm   | 840mm       | 750mm | 1110mm   | 1050mm   |  |
| 2 layers 16mm   | 820mm       | 740mm | 1100mm   | 1015mm   |  |

#### Table 32

| MAXIMUM SPANS - WIND LOADS N4/C2 - M308 16mm FURRING CHANNEL DIRECT FIX |             |       |          |          |  |
|---|-------------|-------|----------|----------|--|
| FURRING CHANNEL SPACING   | 450mm       | 600mm | 450mm    | 600mm    |  |
| PLASTERBOARD LINING   | SINGLE SPAN |       | CONTINUC | )US SPAN |  |
| 1 layer 10mm  | 740mm       | 640mm | 990mm    | 890mm    |  |
| 1 layer 13mm  | 750mm       | 650mm | 1000mm   | 900mm    |  |
| 1 layer 16mm  | 760mm       | 660mm | 1010mm   | 910mm    |  |
| 2 layers 10mm   | 770mm       | 670mm | 1020mm   | 920mm    |  |
| 2 layers 13mm   | 780mm       | 680mm | 1030mm   | 930mm    |  |
| 2 layers 16mm   | 800mm       | 700mm | 1050mm   | 945mm    |  |

#### Table 33

| MAXIMUM SPANS - WIND LOADS N5/C3 - M308 16mm FURRING CHANNEL DIRECT FIX |             |       |          |          |  |
|---|-------------|-------|----------|----------|--|
| FURRING CHANNEL SPACING   | 450mm       | 600mm | 450mm    | 600mm    |  |
| PLASTERBOARD LINING   | SINGLE SPAN |       | CONTINUC | )US SPAN |  |
| 1 layer 10mm  | 640mm       | 590mm | 840mm    | 790mm    |  |
| 1 layer 13mm  | 650mm       | 610mm | 850mm    | 800mm    |  |
| 1 layer 16mm  | 660mm       | 620mm | 860mm    | 810mm    |  |
| 2 layers 10mm   | 670mm       | 630mm | 870mm    | 820mm    |  |
| 2 layers 13mm   | 680mm       | 640mm | 880mm    | 830mm    |  |
| 2 layers 16mm   | 705mm       | 650mm | 900mm    | 850mm    |  |

#### Notes:

- 1. Span tables are based on the effective section properties as per AS/NZS 4600.
- 2. Strength and serviceability criteria compliant.
- 3. Serviceability deflection limit L/300.

5. Wind classification as per AS 4055.

4. Tables 26-39 for external/internal applications and relative to wind class as per AS 1170.1, 1170.2 and AS/NZS 4600.



### Span Tables - M301 Batten - Direct Fix



M301 16mm Ceiling Batten

#### Table 34

| MAXIMUM SPANS - WIND LOADS N1/N2 - M301 16mm CEILING BATTEN DIRECT FIX |             |       |                 |        |  |
|--|-------------|-------|-----------------|--------|--|
| BATTEN SPACING   | 450mm       | 600mm | 450mm           | 600mm  |  |
| PLASTERBOARD LINING  | SINGLE SPAN |       | CONTINUOUS SPAN |        |  |
| 1 layer 10mm   | 970mm       | 920mm | 1200mm          | 1200mm |  |
| 1 layer 13mm   | 970mm       | 920mm | 1200mm          | 1200mm |  |

#### Table 35

| MAXIMUM SPANS - WIND LOADS N3/C1 - M301 16mm CEILING BATTEN DIRECT FIX |             |       |          |          |  |
|--|-------------|-------|----------|----------|--|
| BATTEN SPACING   | 450mm       | 600mm | 450mm    | 600mm    |  |
| PLASTERBOARD LINING  | SINGLE SPAN |       | CONTINUC | )US SPAN |  |
| 1 layer 10mm   | 910mm       | 820mm | 1200mm   | 1120mm   |  |
| 1 layer 13mm   | 910mm       | 820mm | 1200mm   | 1110mm   |  |

#### Notes:

- 1. Span tables are based on the effective section properties as per AS/NZS 4600.
- 2. Strength and serviceability criteria compliant.
- 3. Serviceability deflection limit L/300.
- 4. Tables 26-39 for external/internal applications and relative to wind class as per AS 1170.1, 1170.2 and AS/NZS 4600.
- 5. Wind classification as per AS 4055.

#### WIND CLASSIFICATIONS

- N1/N2 COVERS GENERAL SUBURBAN HOUSING
- N3/C1 COVERS EXPOSED OPEN TERRAIN OR ON TOP OF RIDGES SUBURBAN AREA IN CYCLONIC AREAS
- N4/C2 VERY EXPOSED OVERLOOKING THE COASTLINE OPEN TERRAIN IN CYCLONIC AREAS
- N5/C3 MAINLY RELATES TO VERY EXPOSED CYCLONIC CONDITIONS INCLUDING FAR NORTH QUEENSLAND AND PORT HEDLAND



### Span Tables - M303 Batten - Direct Fix



M303 24mm Cyclonic Ceiling Batten

#### Table 36

| MAXIMUM SPANS - WIND LOADS N1/N2- M303 24mm CYCLONIC CEILING BATTEN DIRECT FIX |             |       |          |          |  |
|--|-------------|-------|----------|----------|--|
| BATTEN SPACING   | 450mm       | 600mm | 450mm    | 600mm    |  |
| PLASTERBOARD LINING  | SINGLE SPAN |       | CONTINUC | )US SPAN |  |
| 1 layer 10mm   | 970mm       | 890mm | 1350mm   | 1250mm   |  |
| 1 layer 13mm   | 940mm       | 870mm | 1290mm   | 1200mm   |  |
| 1 layer 16mm   | 920mm       | 850mm | 1260mm   | 1160mm   |  |
| 2 layers 13mm  | 880mm       | 810mm | 1200mm   | 1110mm   |  |
| 2 layers 16mm  | 860mm       | 780mm | 1160mm   | 1070mm   |  |

#### Table 37

| MAXIMUM SPANS - WIN | ID LOADS N3/C1 - | M303 24mm CY | CLONIC CEILING BA                  | TTEN DIRECT FIX |          |            |  |
|---------------------|------------------|--------------|------------------------------------|-----------------|----------|------------|--|
| BATTEN SPACING      | 450mm            | 600mm        | 450mm                              | 600mm           |          |            |  |
| PLASTERBOARD LINING | SINGLE SPAN      |              | ASTERBOARD LINING SINGLE SPAN CONT |                 | CONTINUC | NUOUS SPAN |  |
| 1 layer 10mm        | 870mm            | 810mm        | 1200mm                             | 1110mm          |          |            |  |
| 1 layer 13mm        | 860mm            | 800mm        | 1180mm                             | 1090mm          |          |            |  |
| 1 layer 16mm        | 850mm            | 780mm        | 1150mm                             | 1070mm          |          |            |  |
| 2 layers 13mm       | 820mm            | 750mm        | 1120mm                             | 1030mm          |          |            |  |
| 2 layers 16mm       | 800mm            | 740mm        | 1090mm                             | 1000mm          |          |            |  |

#### Table 38

| MAXIMUM SPANS - WIN | ID LOADS N4/C2 - | M303 24mm CY | CLONIC CEILING BA | TTEN DIRECT FIX |
|---------------------|------------------|--------------|-------------------|-----------------|
| BATTEN SPACING      | 450mm            | 600mm        | 450mm             | 600mm           |
| PLASTERBOARD LINING | SINGL            | E SPAN       | CONTINUC          | )US SPAN        |
| 1 layer 10mm        | 680mm            | 620mm        | 1030mm            | 800mm           |
| 1 layer 13mm        | 690mm            | 630mm        | 1040mm            | 810mm           |
| 1 layer 16mm        | 700mm            | 640mm        | 1050mm            | 820mm           |
| 2 layers 13mm       | 720mm            | 660mm        | 1075mm            | 840mm           |
| 2 layers 16mm       | 730mm            | 670mm        | 1085mm            | 850mm           |

#### Table 39

| MAXIMUM SPANS - WIN | ND LOADS N5/C3 - | M303 24mm CY | CLONIC CEILING BA | TTEN DIRECT FIX |
|---------------------|------------------|--------------|-------------------|-----------------|
| BATTEN SPACING      | 450mm            | 600mm        | 450mm             | 600mm           |
| PLASTERBOARD LINING | SINGLE SPAN      |              | CONTINUC          | )US SPAN        |
| 1 layer 10mm        | 600mm            | 520mm        | 750mm             | 630mm           |
| 1 layer 13mm        | 610mm            | 530mm        | 760mm             | 640mm           |
| 1 layer 16mm        | 620mm            | 540mm        | 770mm             | 650mm           |
| 2 layers 13mm       | 640mm            | 560mm        | 790mm             | 670mm           |
| 2 layers 16mm       | 650mm            | 570mm        | 800mm             | 680mm           |

#### Notes:

1. Span tables are based on the effective section properties as per AS/NZS 4600.

2. Strength and serviceability criteria compliant.

- Serviceability deflection limit L/300.
  Tables 26-39 for external/internal applications and relative to wind (
- 4. Tables 26-39 for external/internal applications and relative to wind class as per AS 1170.1, 1170.2 and AS/NZS 4600.
  - 5. Wind classification as per AS 4055.



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#### NOTES:

