

# Rondo KEY-LOCK™



## Concealed Suspended Ceiling Systems

### INCORPORATING:

- Plasterboard/Fibre Cement Flush Ceiling Systems
- Residential Ceiling Batten Systems
- Timber Lock Demountable Ceiling Systems
- Masonry Wall Batten Systems

CURVED FURRING CHANNEL – DIRECT FIXING



Direct fix

226, 394

Minimum radius 1200mm concave or convex

# DESIGN CONSIDERATIONS

## GENERAL INFORMATION

The Rondo Key-Lock Building Board Ceiling Suspension System is a versatile system which gives the designer/architect many options in design for a flush building board ceiling finish. The Rondo engineered system enables the mixing of primary rails, furring channels and battens, thus allowing for a range of spans and suspension point spacings. A range of sound isolation mounts has been designed for the system and can be found in the separate 'Rondo Sound Isolation Assemblies for Walls and Ceilings' brochure.

The Rondo Key-Lock Building Board Ceiling Suspension System can be used in both fire rated and non-fire rated situations, and has been designed to meet both Australian and New Zealand standards.

All ceilings must be designed in accordance with the requirements of AS/NZS 2785-2000.

As part of this design process, seismic compliance to AS1170.4 (NZS 4203 for New Zealand) is required. Seismic design is quite complex and cannot be undertaken without explicit knowledge of the ceiling grid system and seismic design parameters.

Australia has predominantly low level seismic activity in the more populated regions and it is not uncommon for the seismic requirements to be minimal, however please contact your engineer or Rondo's Technical Service Department to check compliance of your ceiling system with AS1170.4.

NOTE: Internal ceiling installations should only commence when site conditions detailed in AS/NZS 2785 4.2 and Appendix D2 have been completed.

## SAFETY FEATURES

- Rolled edges on the primary rail and furring channel sections make them safer to handle.
- Specially designed locking and suspension clips simplify the assembly of components.
- Components are packaged to meet the Occupational Health and Safety (O.H.A.S.) requirements for ease of handling and transportation.
- Suspension clip load tests exceed the requirements of AS/NZS 2785 Section 3.
- All sections are manufactured from galvanised steel with a minimum coating of Z275 and surpass a 72 hour salt spray test.

## TIME-SAVING FEATURES

- The name Key-Lock represents a group of components that are engineered to work as a system. All locking and suspension clips snap onto sections easily, without mechanical tools being required.
- Mid-span joiners for both primary rail and furring channel sections eliminates waste, and speeds up erection time.
- Suspension clips are designed for direct fixing to the side of timber or steel purlins and trusses and are tested for both threaded and plain suspension rod systems.
- Some of the wall angle trims can be curved to match curved walls or bulkheads and radiused around columns.
- Better and more consistent levels of finish can be achieved with the user-friendly levelling controls.
- Computer-controlled manufacturing and quality assurance systems enable Rondo to consistently provide a quality product to specifications.
- Rondo supplies the primary rails and Furring Channel in various stock lengths, giving the contractor the option of choosing a product that is suitable for each unique project. Custom lengths are also available, further enhancing these benefits.
- A range of furring channels, battens and primary rails allows for variable spanning and spacing options. This gives the contractor the freedom to put together the most cost effective package for each individual area.
- The option of a furring channel track reduces fixing points by giving support to either end of the grid.
- Rondo can custom radius primary rails and furring channels down to a minimum radius of 1200mm for vaulted ceilings.

## STORAGE & HANDLING

Rondo Key-Lock ceiling grid components come in convenient stock-pack and sub-pack quantities for ease of handling and storage. Rondo Key-Lock ceiling grid components should be handled with care and stored in a dry, protected area away from airborne contaminants such as overspray from brick cleaning processes. This instruction applies to all products whether designed for internal or external use.

## INSTALLATION

Installation should not commence until the building is weathertight (Refer AS/NZS 2785-2000 4.2).

### Cover Photograph:

Pedare College Auditorium, Golden Grove, SA.

### Architect:

Phillips/Pilkington Architects Pty Ltd, Kensington, SA.

### Ceiling Contractor:

Laser Linings Pty Ltd, Enfield, SA.

### Awards to Laser Linings:

FWCIANZ (Federation of Walls & Ceiling Industries, Australia & NZ); RAIA Award of Excellence; Building Excellence Award 2000, Master Builders Association.

FWCIANZ



## STANDARDS

Rondo Key-Lock Concealed Suspended Ceiling Systems are manufactured to meet and recognise the following Australian and New Zealand standards:

- **AS/NZS 1170:2002**  
Structural design Actions  
Part 0: General Principles;  
Part 1: Permanent, imposed and other actions;  
Part 2: Wind actions;  
Part 3: Snow loads;  
Part 4: Earthquake loads.
- **AS/NZS 1397:2002**  
Steel Sheet and Strip
- **AS 2331.3.1:2001**  
Neutral Salt Spray Test
- **AS/NZS 2589.1:1997**  
Gypsum Linings in Residential and Light Commercial Construction
- **AS/NZS 2785:2000**  
Suspended Ceilings – Design and Installation
- **AS 3623:1993**  
Domestic Metal Framing
- **AS 4055:1992**  
Wind Loads for Houses
- **AS/NZS 4600:1996**  
Cold Formed Steel Structures
- **NZS 4203:1992**  
New Zealand Loading Code

## COMPLIANCE WITH NEW ZEALAND BUILDING CODE

Rondo Key-Lock Concealed Suspended Ceiling Systems, when installed in full compliance with the Rondo Key-Lock technical brochure, will meet the requirements for:

- B1 Structure
- B2 Durability for 15 years, and
- F2 Hazardous Building Materials



Rondo Building Services Pty Ltd Quality Management System has been certified as complying with ISO9001 by Lloyd's Register Quality Assurance (LRQA).

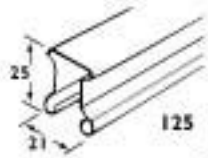
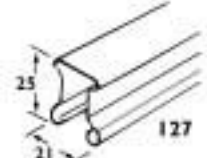

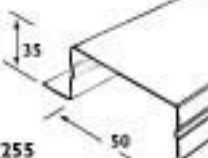
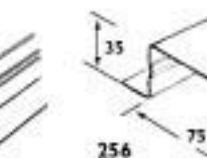

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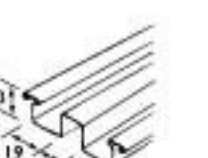


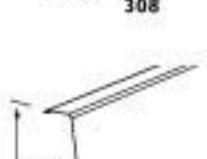

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# RONDO KEY-LOCK™ COMPONENTS

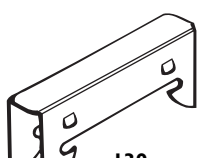
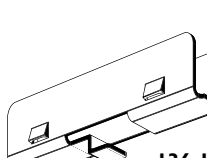
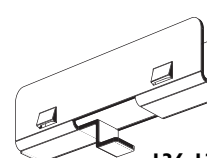
## PRIMARY SECTIONS

| DESCRIPTION     | PART NO |  |
|-----------------|---------|--|
| Top Cross Rails |         |  |
| 25 x 21 x .55*  | 125     |   |
| 25 x 21 x .75*  | 127     |   |
| 38 x 21 x .75*  | 128     |  |
| 35 x 50 x 1.15  | 255     |   |
| 35 x 75 x 1.15  | 256     |   |
| 15 x 50 x 1.15  | 257     |  |





## SECONDARY SECTIONS

| DESCRIPTION       | PART NO |  |
|-------------------|---------|--|
| Furring Channels: |         |  |
| 28mm*             | 129     |    |
| 16mm*             | 308     |    |
| Recessed          | 333     |   |
| Ceiling Battens:  |         |  |
| 16mm              | 301     |  |
| 35mm Gib-Rondo®   | 310     |   |
| Cyclonic Batten   |         |  |
| 24mm              | 303     |   |
| Stitching Batten  | B005    |  |

## PRIMARY TO SECONDARY SECTION JOINERS

| DESCRIPTION                                | PART NO |   |
|--|---------|---|
| TCR 125/127/128 to furring channel         | 139     |    |
| TCR 125/127/128 to timber panel 10mm thick | 136-10  |   |
| TCR 125/127/128 to timber panel 13mm thick | 136-13  |  |

## SECTION JOINERS

| DESCRIPTION             | PART NO |   |
|-------------------------|---------|---|
| Furring Channel 129/308 | 138     |    |
| TCR 125/127/128         | 272     |    |
| Ceiling Batten 301      | 315     |   |
| Ceiling Batten 310      | 312     |  |

\* Radiused sections available on request

## PERIMETER TRIMS

| DESCRIPTION                  | PART NO |  |
|------------------------------|---------|--|
| Shadowline Stopping Angle:   |         |  |
| 10 x 10                      | P50     |  |
| 6 x 10                       | P60     |  |
| Wall Angle/<br>Bulkhead Trim | DUO 5   |  |
| Shadowline Wall Angle:       |         |  |
| – Steel                      | DUO 6   |  |
| – Aluminium                  | DUO 7   |  |
| Wall Angle (Aluminium)*      | 187     |  |
| Furring channel Track        |         |  |
| – suit 129                   | 140     |  |
| – suit 308                   | 142     |  |
| Batten Track                 |         |  |
| – suit 310                   | 340     |  |

## BULKHEAD COMPONENTS

| DESCRIPTION                         | PART NO |  |
|-------------------------------------|---------|--|
| Lipped Wall Angle/<br>Bulkhead Trim | DUO 5   |  |
| Support Clip                        | 717     |  |
| Internal Corner Angle               | 711     |  |
| External Corner Angle               | 710     |  |
| Joiner                              |         |  |
| – DUO 5 Bulkhead Trim               | 709     |  |
| Angle Bracket                       | 188     |  |
| L Bracket                           | 545     |  |
| Bulkhead Trim                       |         |  |
| – Aluminium                         | 321     |  |

## DIRECT FIXING CLIPS

| DESCRIPTION                          | PART NO  |  |
|--------------------------------------|----------|--|
| TCR 127/128 – 80mm                   | 166      |  |
| Furring channel                      |          |  |
| – 75mm                               | 226      |  |
| – 175mm                              | 394      |  |
| Furring Channel<br>Anchor Clip       | 237      |  |
| 301 Ceiling Batten                   |          |  |
| – 92mm                               | 304      |  |
| – 150mm                              | 305      |  |
| – 90°                                | 307      |  |
| 310 Ceiling Batten                   | 311      |  |
| Adjustable Wall/Ceiling<br>FC Clip   | BETA-FIX |  |
| Adjustable Wall/Ceiling<br>FC Anchor | STSC     |  |

\* Radiused sections available on request

# RONDO KEY-LOCK™ COMPONENTS

(CONTINUED)

## SUSPENSION ROD BRACKETS

| DESCRIPTION                       | PART NO |  |  |  |  |
|-----------------------------------|---------|--|--|--|--|
| Suspension Rod Bracket 80mm       | 274     |  |  |  |  |
| Suspension Rod Angle Bracket 55mm | 247     |  |  |  |  |
| Adjustable Suspension Hangers:    |         |  |  |  |  |
| – Purlins 110mm                   | 534     |  |  |  |  |
| – Concrete 80mm                   | 547     |  |  |  |  |

## ADJUSTABLE SUSPENSION CLIPS

| DESCRIPTION                         | PART NO |  |  |  |  |  |  |  |  |
|-------------------------------------|---------|--|--|--|--|--|--|--|--|
| TCR Clip                            |         |  |  |  |  |  |  |  |  |
| – thread adjusted 60mm              | 124     |  |  |  |  |  |  |  |  |
| TCR Clip and Rod Joiner 100mm       | 2534    |  |  |  |  |  |  |  |  |
| Suspension Rod Joiner               | 254     |  |  |  |  |  |  |  |  |
| FC Anchor Clip with M6 nut          | 239     |  |  |  |  |  |  |  |  |
| Assembly                            |         |  |  |  |  |  |  |  |  |
| – PS56–148–239                      | 150     |  |  |  |  |  |  |  |  |
| – PS56–148–124N                     | 151     |  |  |  |  |  |  |  |  |
| – Throughbolt–239                   | A239    |  |  |  |  |  |  |  |  |
| – Throughbolt–124N                  | A124    |  |  |  |  |  |  |  |  |
| TCR Thread Adjusted (inc. nut) 60mm | 124N    |  |  |  |  |  |  |  |  |

## SUSPENSION ROD/ ACCESSORIES

| DESCRIPTION            | PART NO |  |  |  |  |  |
|------------------------|---------|--|--|--|--|--|
| 5mm Soft Galv. Rod     |         |  |  |  |  |  |
| – Plain                | 121     |  |  |  |  |  |
| 5.2mm Soft Galv. Rod   |         |  |  |  |  |  |
| – 6mm thread one end   | 122     |  |  |  |  |  |
| – 6mm thread both ends | 123     |  |  |  |  |  |
| Rawl Pipe Spike M6     | PS56    |  |  |  |  |  |
| Rawl Throughbolt M685  | SBAO    |  |  |  |  |  |
| M6 Nut                 | 826     |  |  |  |  |  |

## FIRE TESTED SYSTEMS

These are systems developed and tested by the various building board manufacturers using individual Rondo metal components to give fire rating levels from 30/30/30 up to 120/120/120. Refer to the building board manufacturers technical literature for product identifications for correct use and applications.

# INSTALLATION DETAILS

## SUSPENDED CEILINGS: NON-FIRE RATED

### NOTE

The work shall comply with the requirements of the standards listed previously, and undertaken by qualified trades persons.

### STEP ONE

Fix Furring Channel Track along both walls and at 90° to the direction of the furring channel.

### STEP TWO

Cut suspension rod to length. Attach direct fixing clip (534 or 547) to one end and TCR clip 2534 to other end. Fix assembly to one side of truss, purlin or concrete with appropriate fixings and at required centres (see *span tables, page 25-26*) when using Furring Channel Track. If Furring Channel Track is not being used, the first and last Top Cross Rail should be no more than 200mm from the end of each run of Furring Channel. (Refer Figures 1 & 2).

### STEP THREE

Adjust all hangers to correct drop using string line or laser.

### STEP FOUR

Attach Top Cross Rails to suspension clips. Join primary rails end to end using Joiner 272. Also using Joiner 272 on each end of the of the top cross rail run, tap joiner up against the walls to stabilise the system. (Refer Figures 3 and 4.)

NOTE: For fire rated systems, leave a 20mm gap at the end of each Top Cross Rail.

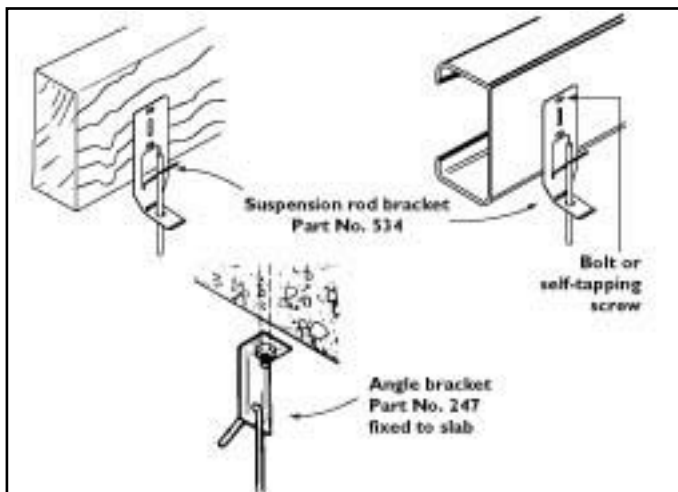


FIGURE 1: Suspension Rod Brackets

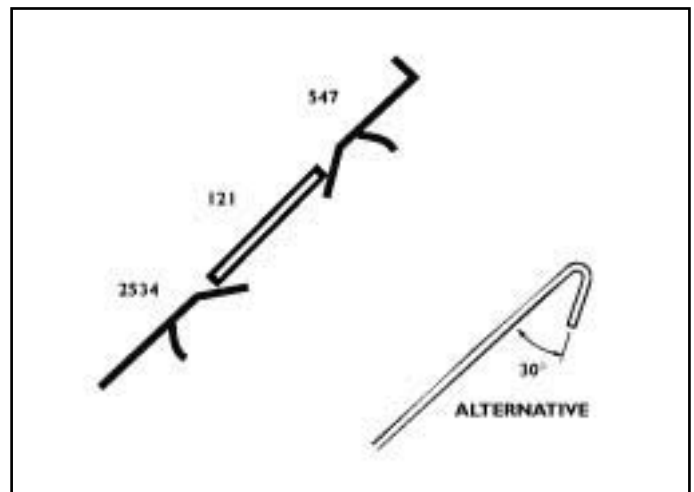


FIGURE 2: Suspension Rod Assembly

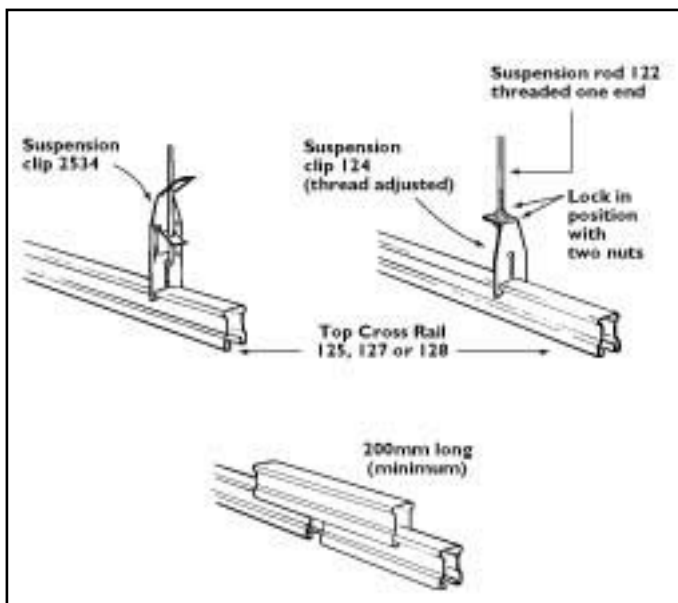


FIGURE 3: Top Cross Rail Attachment

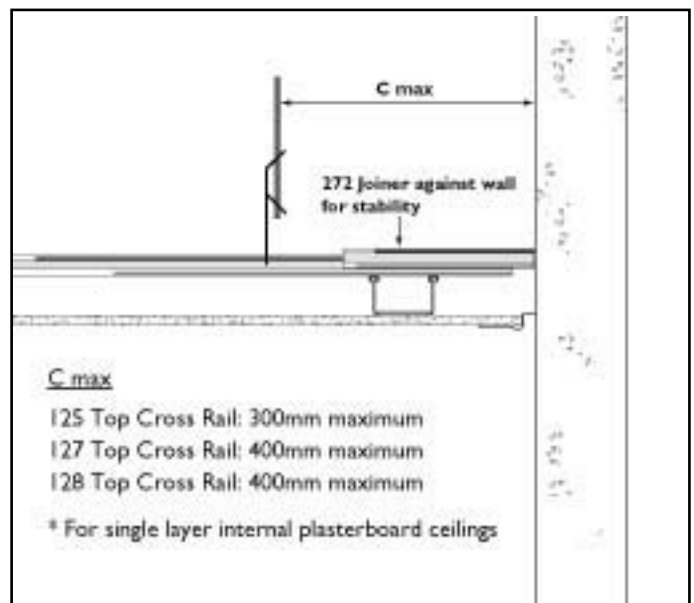


FIGURE 4: Stabilising the system

# INSTALLATION DETAILS

(CONTINUED)

## SUSPENDED CEILINGS: NON-FIRE RATED

### STEP FIVE

Using the 139 locking keys, connect both the Top Cross Rail and Furring Channel together. Space the Furring Channel at the building board manufacturers specifications. Join the Furring Channels end to end using 138 Joiners. Ensure that the ends of the Furring Channel are connected into the Furring Channel Track. (Refer Figure 5.)

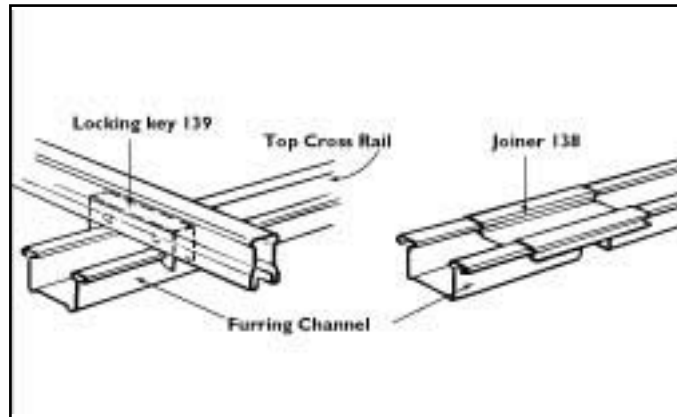


FIGURE 5: Connecting to Furring Channel

NOTE: For fire rated systems, leave a 20mm gap at the end of each Furring Channel and TCR. Joints in the furring channels and top cross rails should be staggered throughout the ceiling grid (refer to building board manufacturer for recommended spacing).

### STEP SIX

Install lining sheet as per the building board manufacturer's recommendations. Light fittings and air conditioning grills can also be installed. (Refer Figure 6.)

NOTE: For additional loads, consult the maximum load tables on pages 32–34.

### STEP SEVEN

Examples of perimeter finish details are shown in Figure 8.

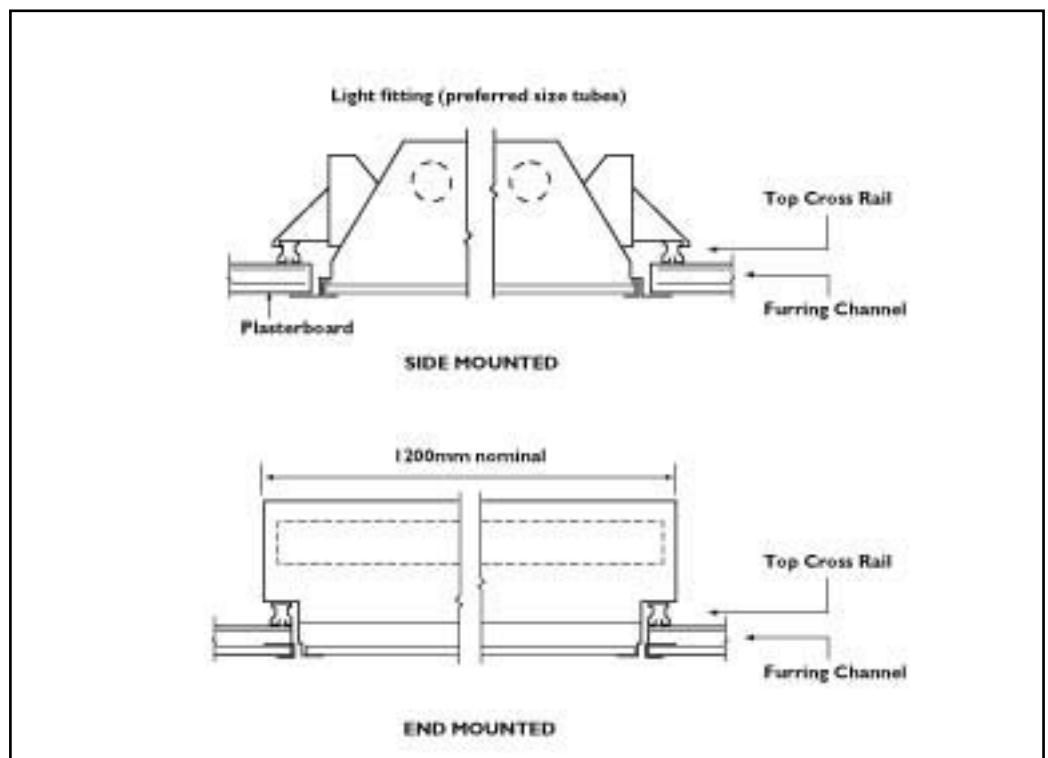


FIGURE 6: Light Fittings (nominal 1200x600mm)

Note: Additional suspension is required to carry light fittings or other ceiling attachments.

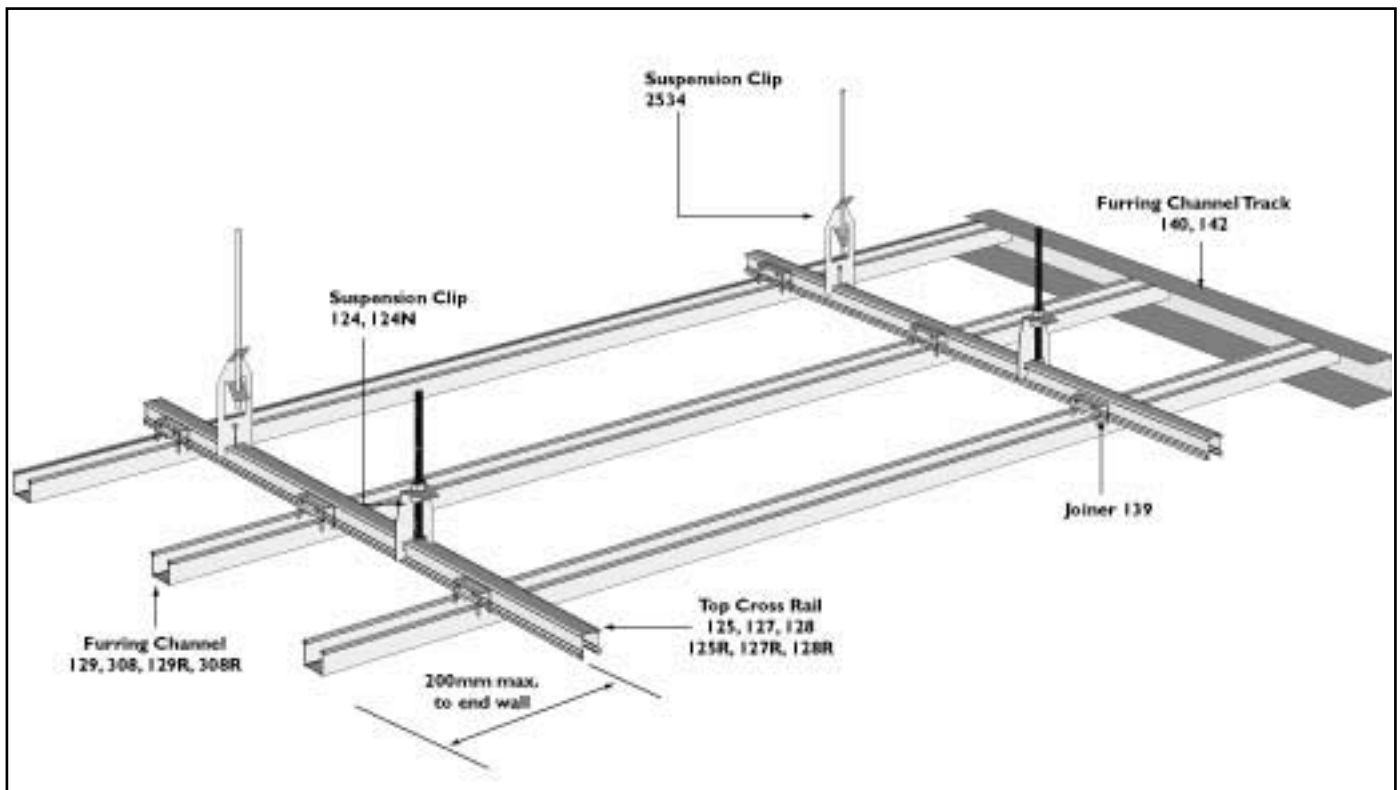


FIGURE 7: Key-Lock Suspended Ceiling

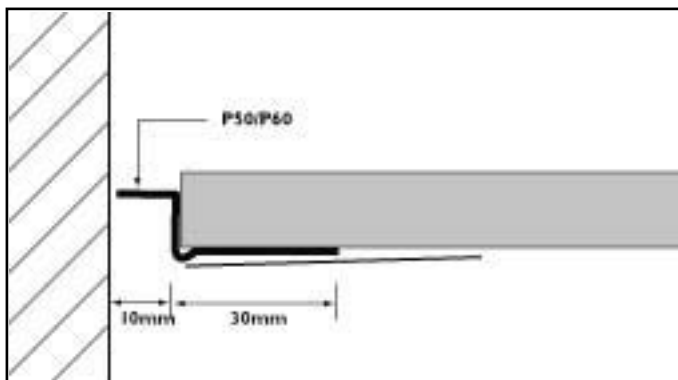


FIGURE 8: Perimeter Finish Detail

# INSTALLATION DETAILS

(CONTINUED)

## CONTROL JOINTS

Control joints incorporated in a building to permit movement in the structure must be carried through all areas lined with building board.

Rondo P35 control joint section should also be used when a building board surface abuts a dissimilar wall assembly. It is also recommended by the building board manufacturers that Rondo P35 control joints are installed when continuous ceiling lengths exceed 12m in any direction.

### NOTE:

For external applications, EP35 should be used.

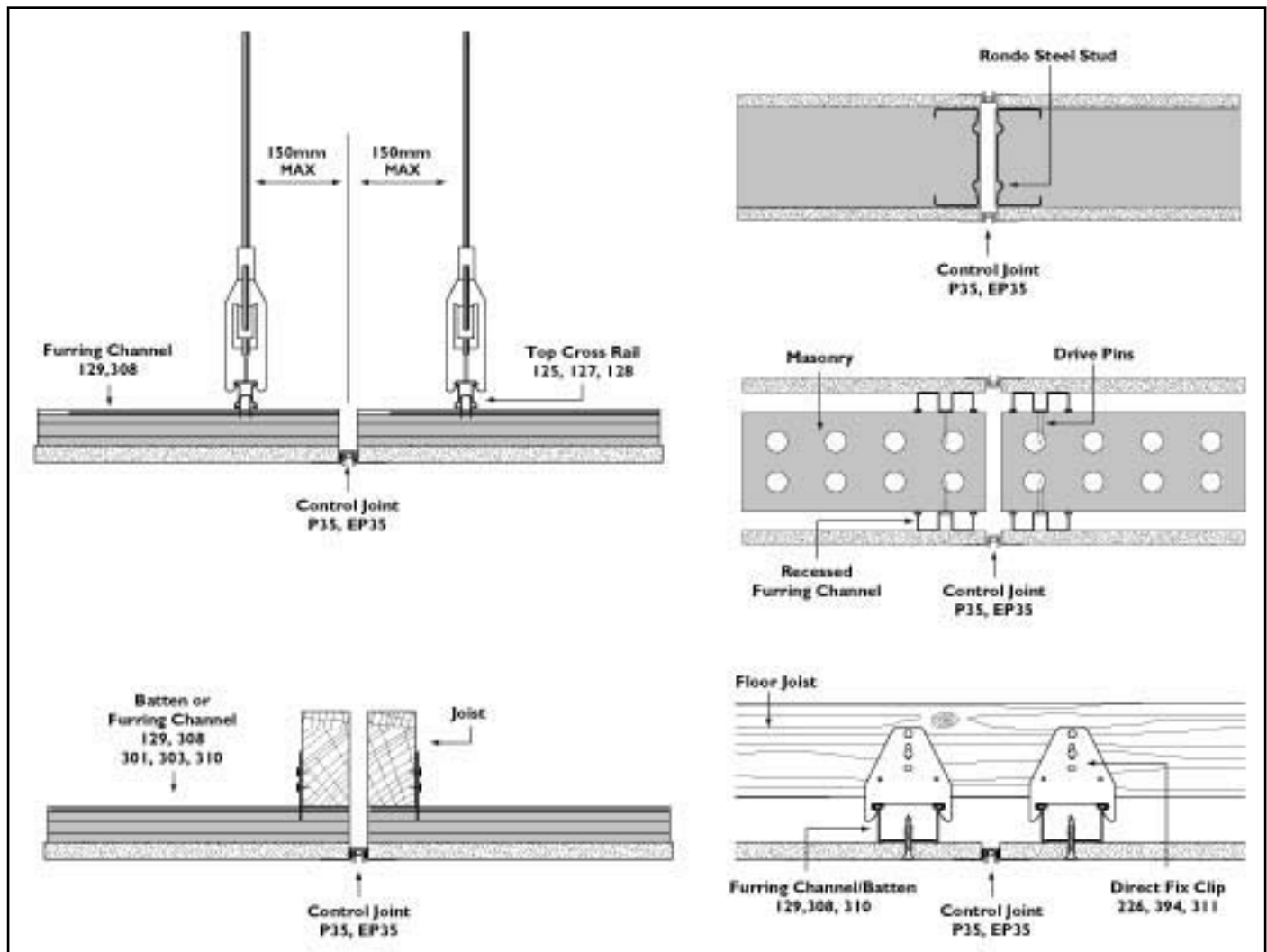
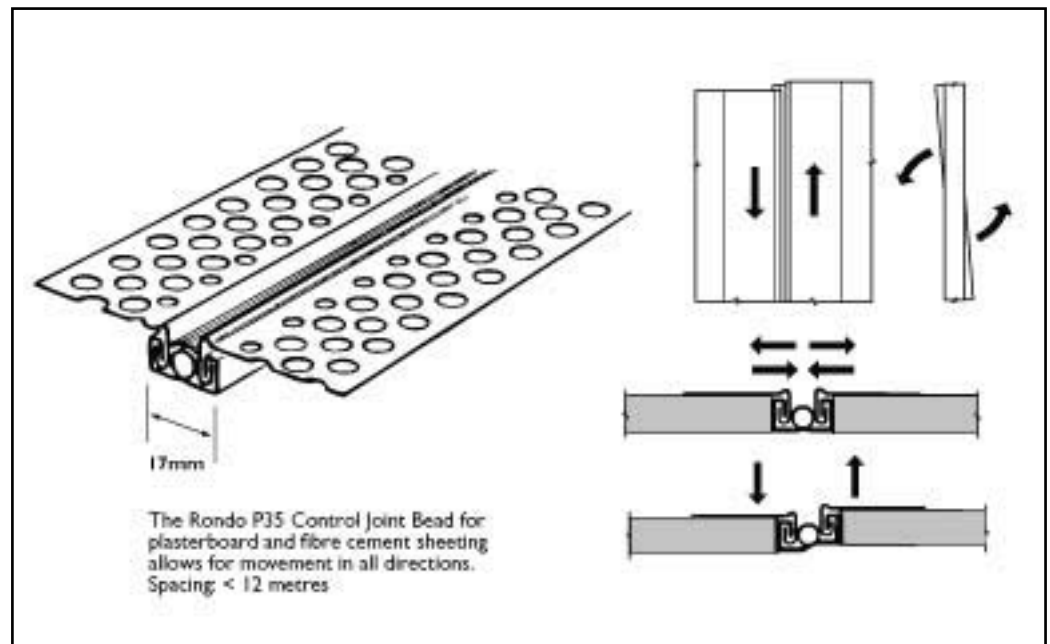


FIGURE 9: Control Joints

# EXTERNAL SUSPENDED CEILING SYSTEM

When installing the Rondo Key-Lock suspended ceiling system in external applications, consideration should be given to wind pressure which may occur. For Downstrut details, refer to Figure 10.

## WIND LOADING TABLE

The accompanying table shows the maximum spacing for part number 128 top cross rail and maximum suspension point spacing along the top cross rail for the wind pressures indicated. The limit state loading needs to be determined in accordance with AS/NZS 1170.2 and the load combinations specified in AS/NZS 2785.

The downstrut acts in compression under an upward wind load and therefore nominal fixings are required at either end.

NOTE: Check with the building board manufacturer for correct spacing of furring channels (part number 129).

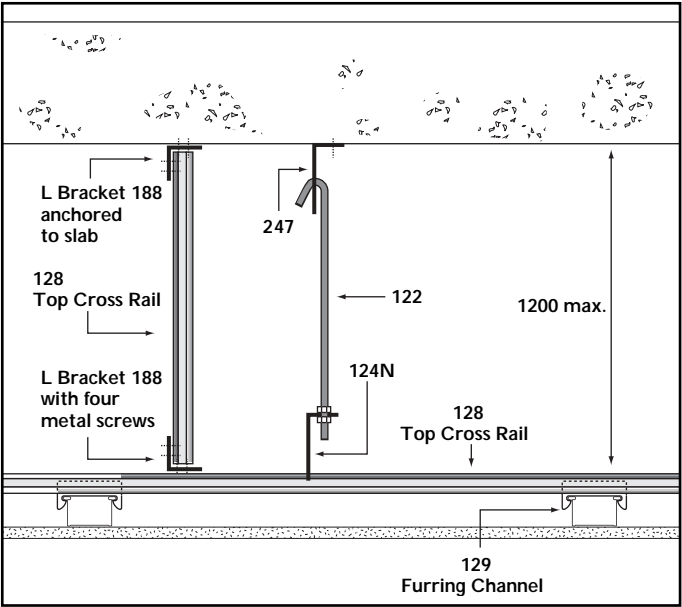


FIGURE 10: Downstrut Detail

| TABLE 1: Ultimate Load capacity for 128 Top Cross Rail |                          |                            |                                  |
|--|--------------------------|----------------------------|----------------------------------|
| SUPPORT CONFIGURATION                                  |                          | LIMIT STATES               |                                  |
| TCR SPACING (mm)                                       | TCR SUPPORT CENTRES (mm) | ULTIMATE LIMIT STATE (kPa) | SERVICEABILITY LIMIT STATE (kPa) |
| 1200   | 1200                     | 0.24                       | 0.24                             |
| 900  | 1200                     | 0.32                       | 0.32                             |
| 900  | 900                      | 0.79                       | 0.79                             |
| 900  | 600                      | 1.19                       | 1.19                             |
| 600  | 600                      | 2.60*                      | 2.60*                            |

- NOTES:
1. The above table gives the limit state load capacity for various ceiling configurations. The direction of loading may be upward or downward, provided the ceiling is installed with downstrutting as per Figure 10.
  2. Slab connections to be independently checked.
  3. Serviceability limit state deflection limited to L/250.
  4. Lining contribution has been ignored in analysis.
  5. Number 129 Furring Channels to be installed at 600 ctrs for TCR span=1200mm and 450 ctrs for TCR span=900mm or less.
  6. Limit state load combinations to be calculated in accordance with AS/NZS 1170.0 or AS/NZS 2785.
  7. \* Capacity controlled by connections.

# INSTALLATION DETAILS

## DIRECT FIXING OF FURRING CHANNEL BATTENS

Direct fixing of furring channels and battens to either concrete, steel or timber wall or ceiling structures can be done using one of the many direct fixing clips as shown in Figure 11.

The maximum drop for direct fixing should be limited to 200mm. Any drop greater than 200mm requires a full Rondo suspension system.

Direct fixing clips need to be fixed along the sections in accordance with the relevant maximum span tables.

Furring channels should be spaced in accordance with the building board manufacturers recommendations.

### IMPORTANT NOTE:

It is not recommended to screw or nail fix battens or furring channels directly to timber joist supporting a trafficable floor due to deflection of the joist occurring and possible subsequent interaction with the ceiling batten. Use only direct fixing clips as shown on page 5.

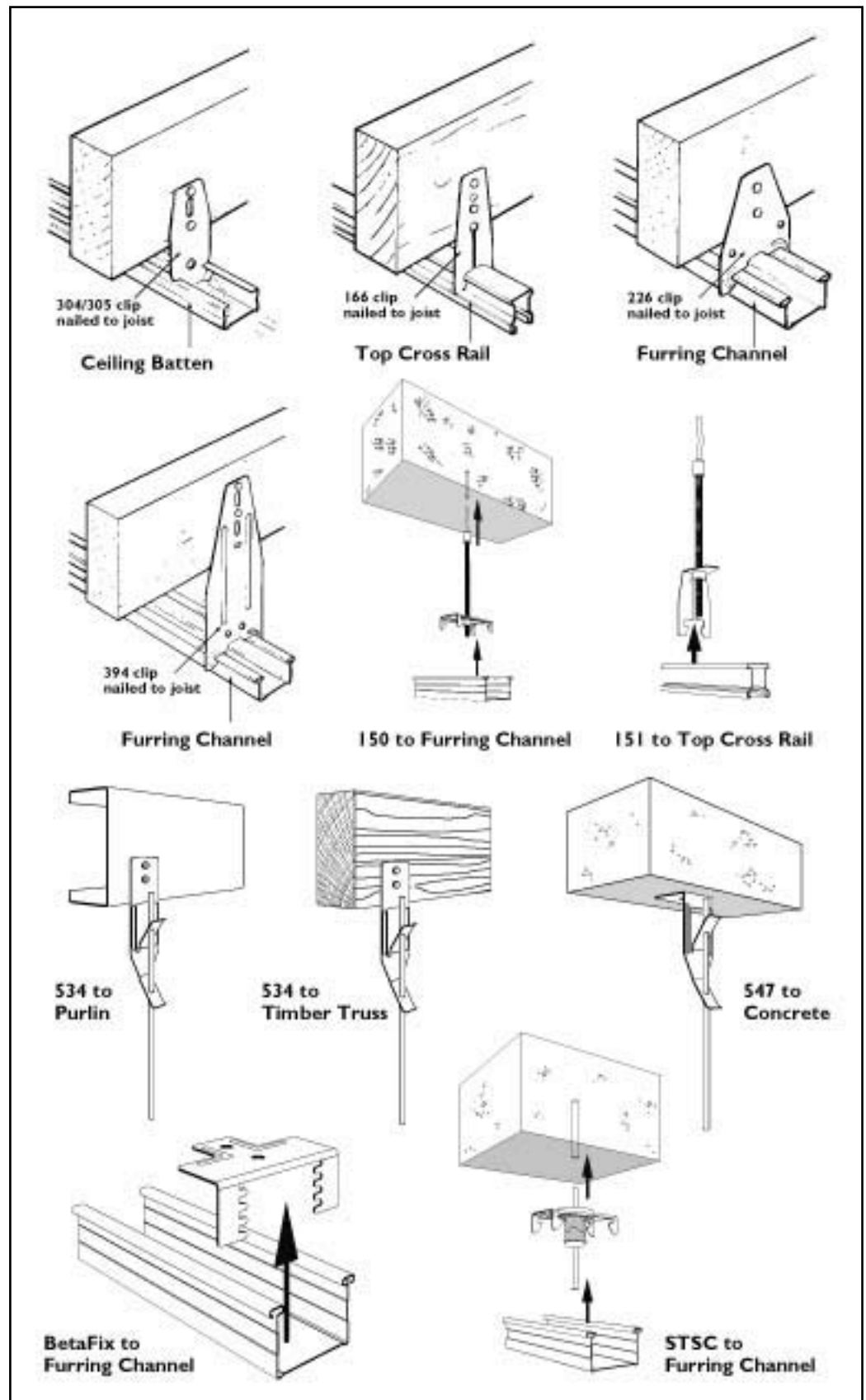


FIGURE 11: Direct Fixing Clips

## BULKHEAD INSTALLATION

The Rondo Square Line Bulkhead System allows easy, economical and true bulkhead corner finishes to be achieved by using concealed support clips and fixings.

### STEP ONE

Install the metal framework and fix the building board to the horizontal surface.

### STEP TWO

Attach Support Clips 717 to the framework, with the bottom leg hard up against the building board. A string line can be used to assist if required. (Refer Figure 12.)

### STEP THREE

Introduce the Bulkhead Trim DUO 5 to the support clips. (Refer Figure 13.)

### STEP FOUR

Join Bulkhead Trim end to end using Joiners 709 to give a flush finish. Join Bulkhead Trim at corners using Internal Corner Angles 711, and External Corner Angles 710. (Refer Figure 14.)

### STEP FIVE

Introduce the vertical building board as shown below, and screw fix to the framework. (Refer Figure 15.)

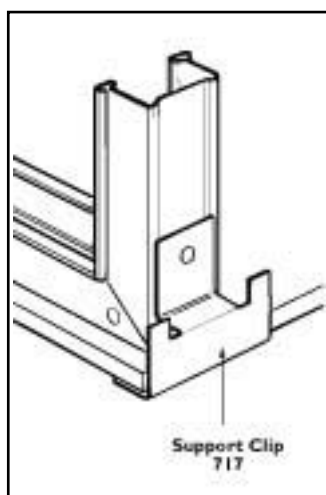


FIGURE 12: Support Clips

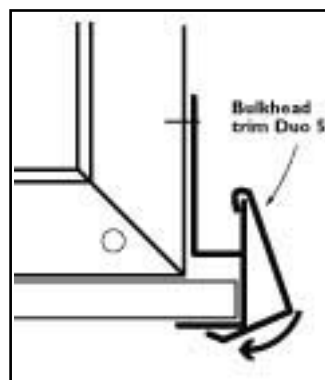


FIGURE 13: Bulkhead Trim

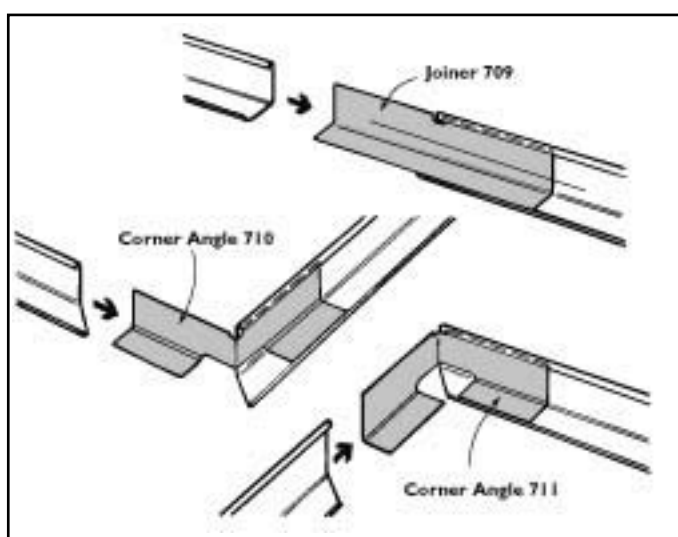


FIGURE 14: Bulkhead Details

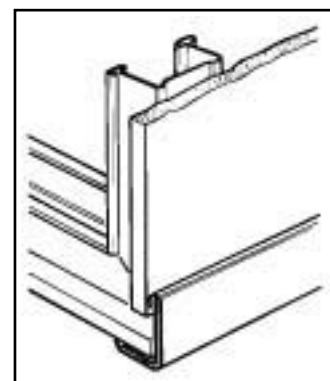


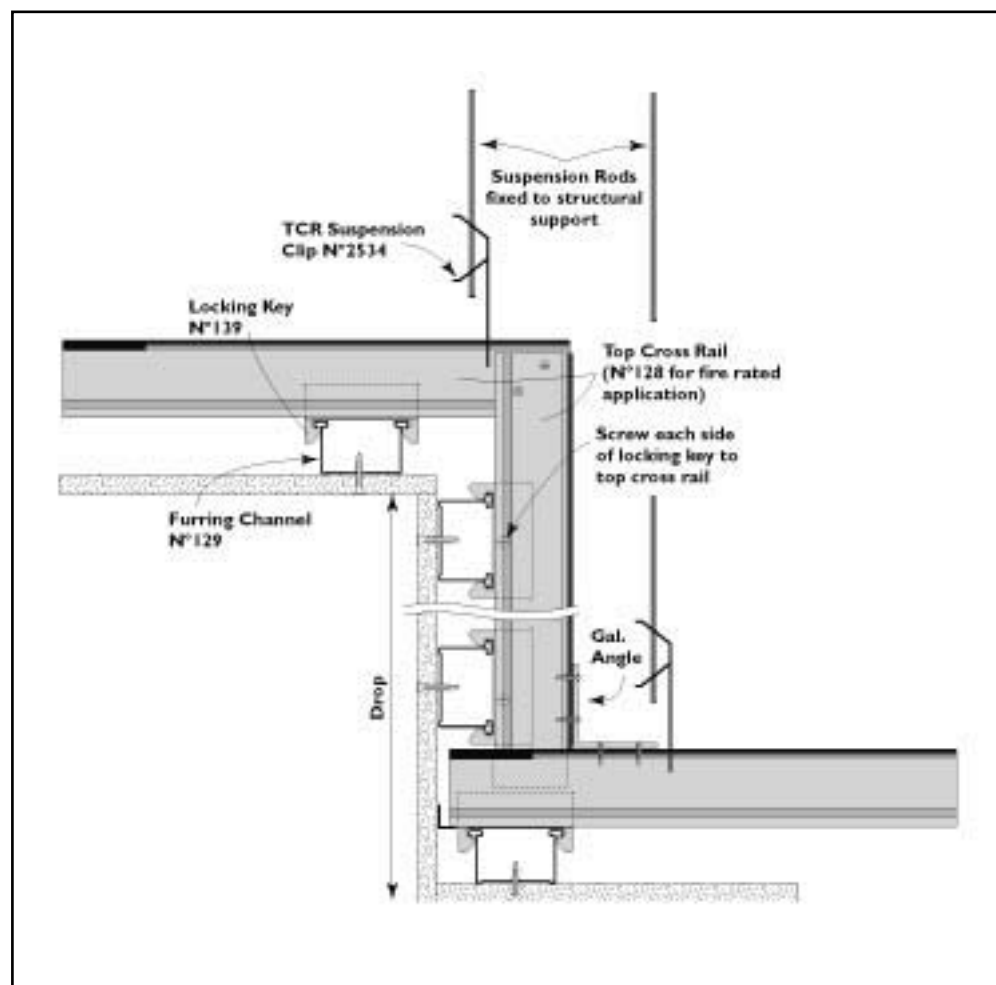
FIGURE 15: Vertical Members

# TYPICAL APPLICATION DETAILS

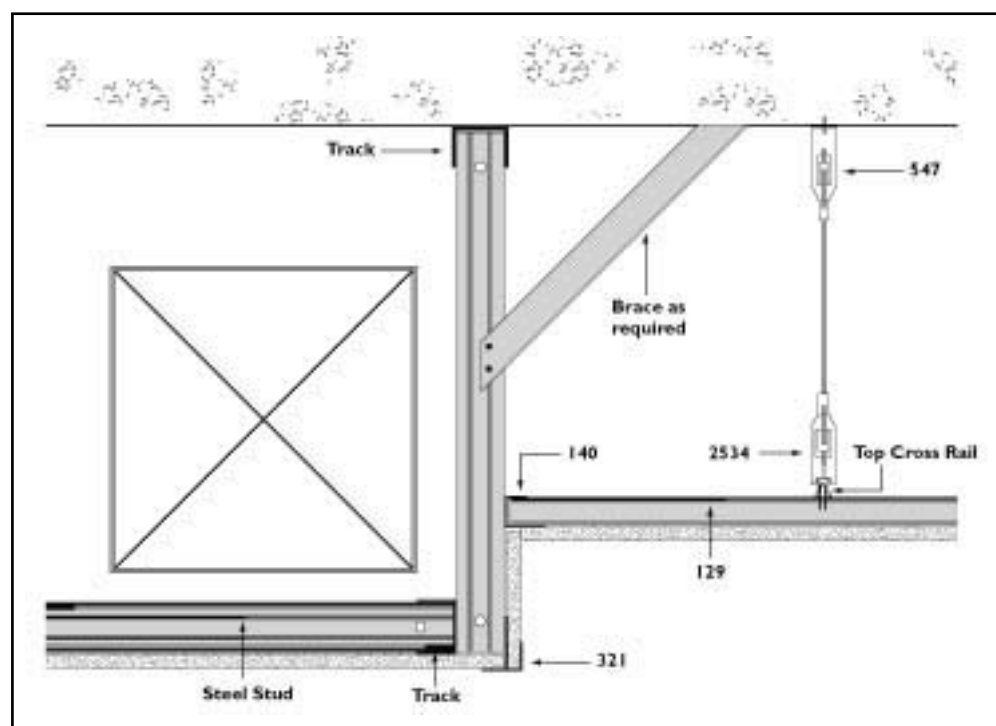
## BULKHEADS

The maximum drop of bulkheads is not to exceed 1200mm for suspended bulkheads.

SUSPENDED BULKHEAD 'A'



FRAMED BULKHEAD 'B'



CURVED CEILINGS

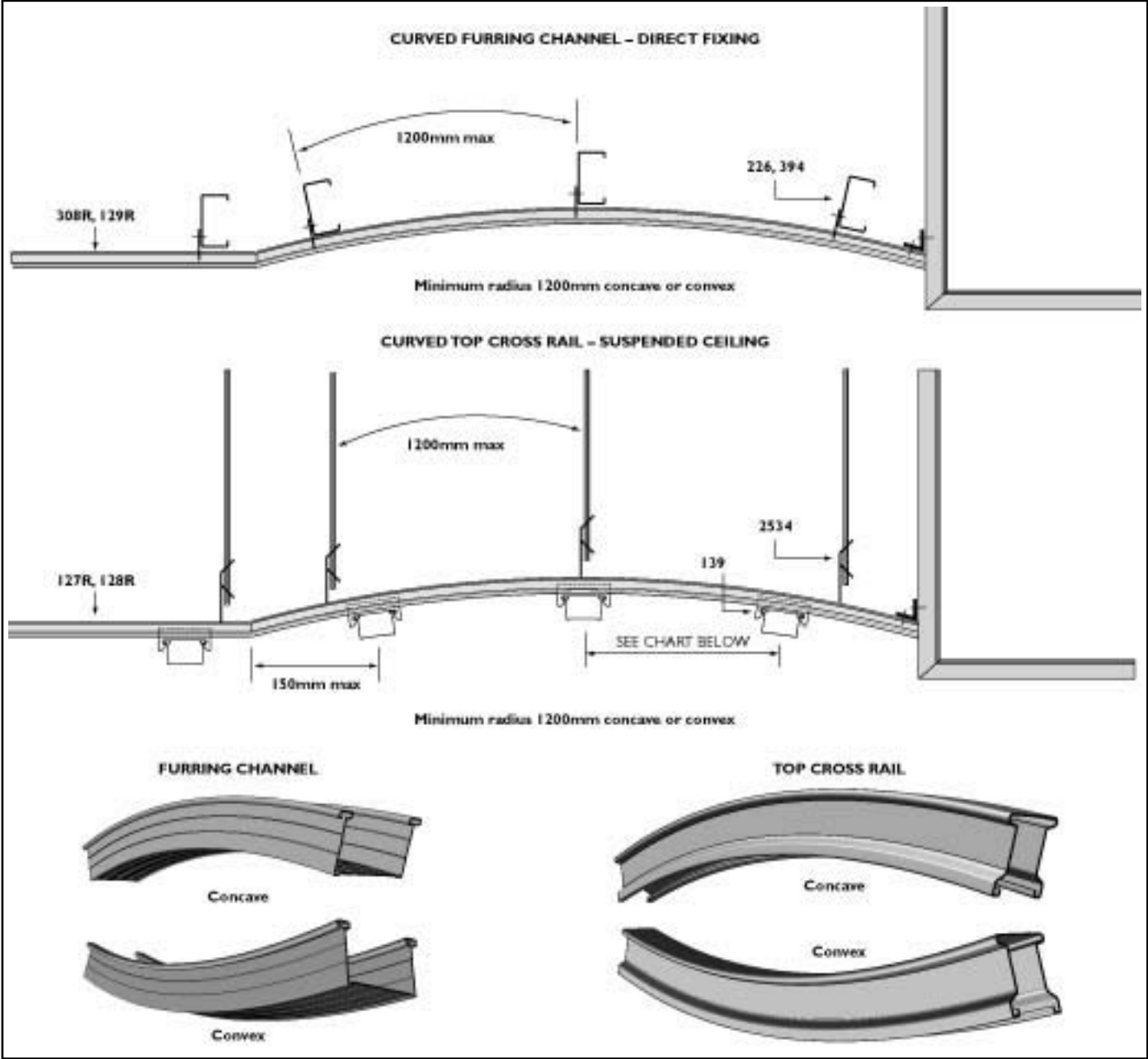


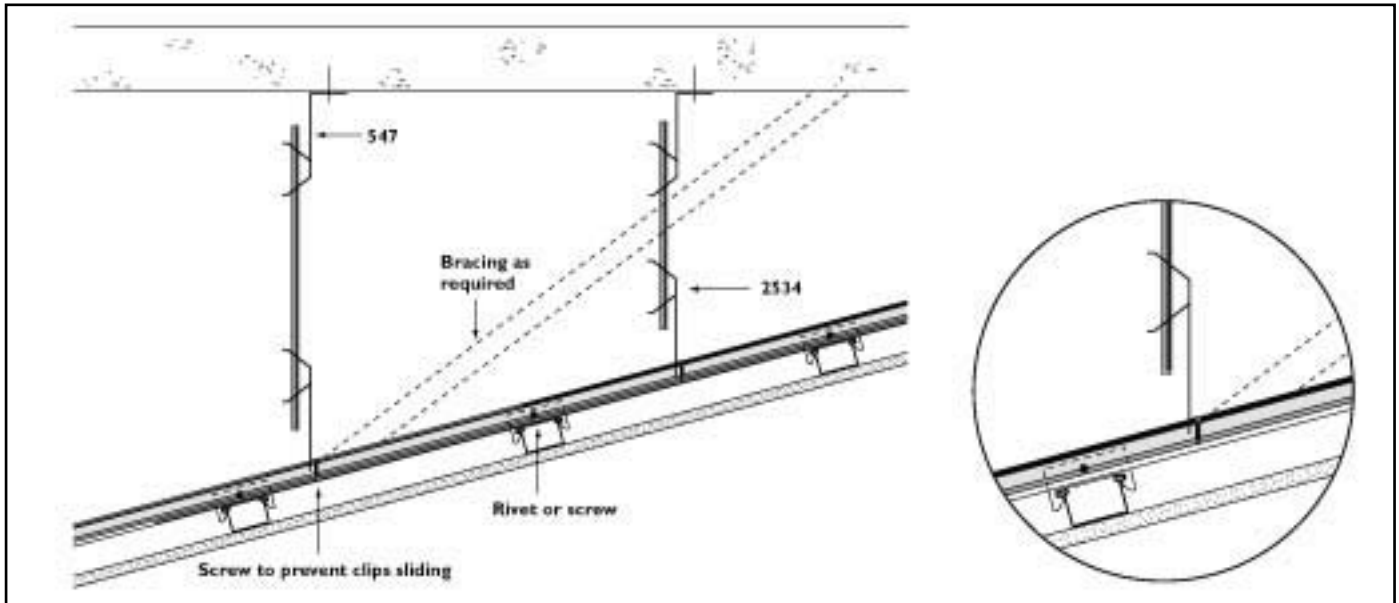
TABLE 2: Maximum Furring Channel Centres for Curved Ceilings

| PLASTERBOARD THICKNESS<br>mm | CEILING CURVE RADIUS mm            |           |           |           |           |           |        |
|------------------------------|------------------------------------|-----------|-----------|-----------|-----------|-----------|--------|
|                              | 900-1000                           | 1000-1500 | 1500-2000 | 2000-2500 | 2500-3000 | 3000-4000 | 4000 + |
|                              | MAXIMUM FURRING CHANNEL CENTRES mm |           |           |           |           |           |        |
| 6.5                          | 150                                | 200       | 250       | 300       | 350       | 450       | 550    |
| 10                           | 150                                | 200       | 250       | 300       | 350       | 400       | 500    |
| 13                           | -                                  | 150       | 200       | 250       | 300       | 400       | 500    |
| 16                           | -                                  | -         | -         | -         | -         | 250       | 350    |

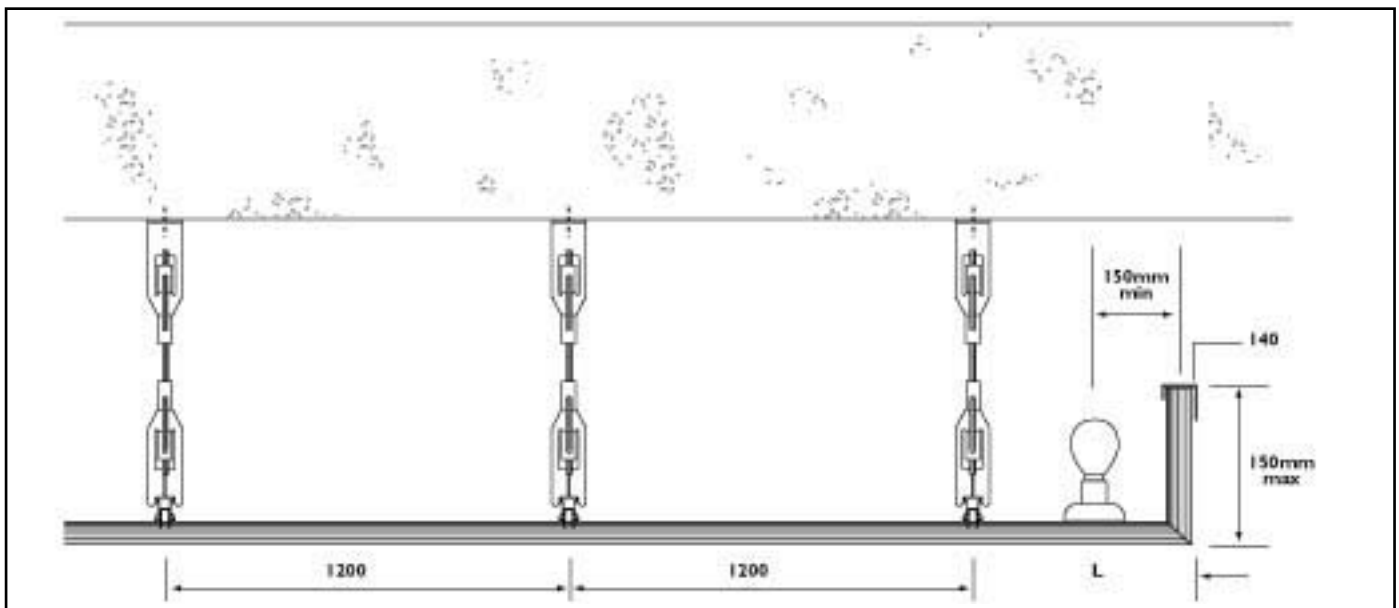
# TYPICAL APPLICATION DETAILS

(CONTINUED)

## FOR RAKING & CURVED CEILINGS



## FURRING CHANNEL - TOP CROSS RAIL: CANTILEVER DETAILS



**TABLE 3: Maximum Cantilever (L) for One Layer 10/13/16mm Plasterboard**

| MEMBER              | CENTRES<br>mm | L<br>mm    |
|---------------------|---------------|------------|
| 129 Furring Channel | 600<br>450    | 350<br>380 |
| 308 Furring Channel | 600<br>450    | 250<br>270 |
| 125 Top Cross Rail  | 1200<br>900   | 250<br>260 |
| 127 Top Cross Rail  | 1200<br>900   | 260<br>280 |
| 128 Top Cross Rail  | 1200<br>900   | 370<br>420 |

**NOTE:**

Maximum upstand to cantilever not to exceed 150mm  
Maximum weight of light fitting not to exceed 5kg/m  
Deflection limited to L/600  
Ceiling to be constructed in accordance with the Rondo Key-Lock installation manual  
Minimum backspan as shown – reducing the suspension hangers to 900 ctrs does not increase the cantilever

# METAL CEILING BATTENS

## DOMESTIC

With new Australian Standards for levels of finish being released, developers are more than ever using Rondo metal ceiling battens as standard procedure.

Metal ceiling batten systems not only allow the developer to meet the new Standard, but also cut back on the cost of call-back maintenance. Rondo have a range of metal ceiling batten systems which are suitable for truss spacings from 600mm to 1200mm and for use in cyclonic and high wind areas. Refer to maximum span and spacing tables for the various ceiling battens.

### IMPORTANT NOTE

Green timber should not come into contact with galvanised steel due to certain acidic substances in the timber which have a corrosive effect on the metallic coating. Some preservative treatments for wood can also have an adverse effect on metallic coated steel with which it is in contact. Timber treated with acidic preservatives of copper chromium arsenic (CCA) can be severely corrosive to the majority of metallic building components. Other timber treatments using Tanalith 'E' (Tanalised Ecowood) may cause pitting of the metal coating. If any of the above timber is likely to come into contact with metallic coatings, the steel should be painted for protection. The use of kiln-dried or appropriate dried timber is therefore recommended when metallic coated products are likely to be in contact.

### CEILING BATTENS AND DIAPHRAGMS

Ceiling battens that are clipped or suspended are not designed or tested to provide the necessary ceiling diaphragm action required by the code to enable wind forces to be transferred to bracing walls (refer AS 1684 7.3.3-1 Parts 2-3). Tests have been conducted on Rondo ceiling batten part number 303 by James Cook University to provide a satisfactory diaphragm system when direct fixed. Contact Rondo state offices for further information.

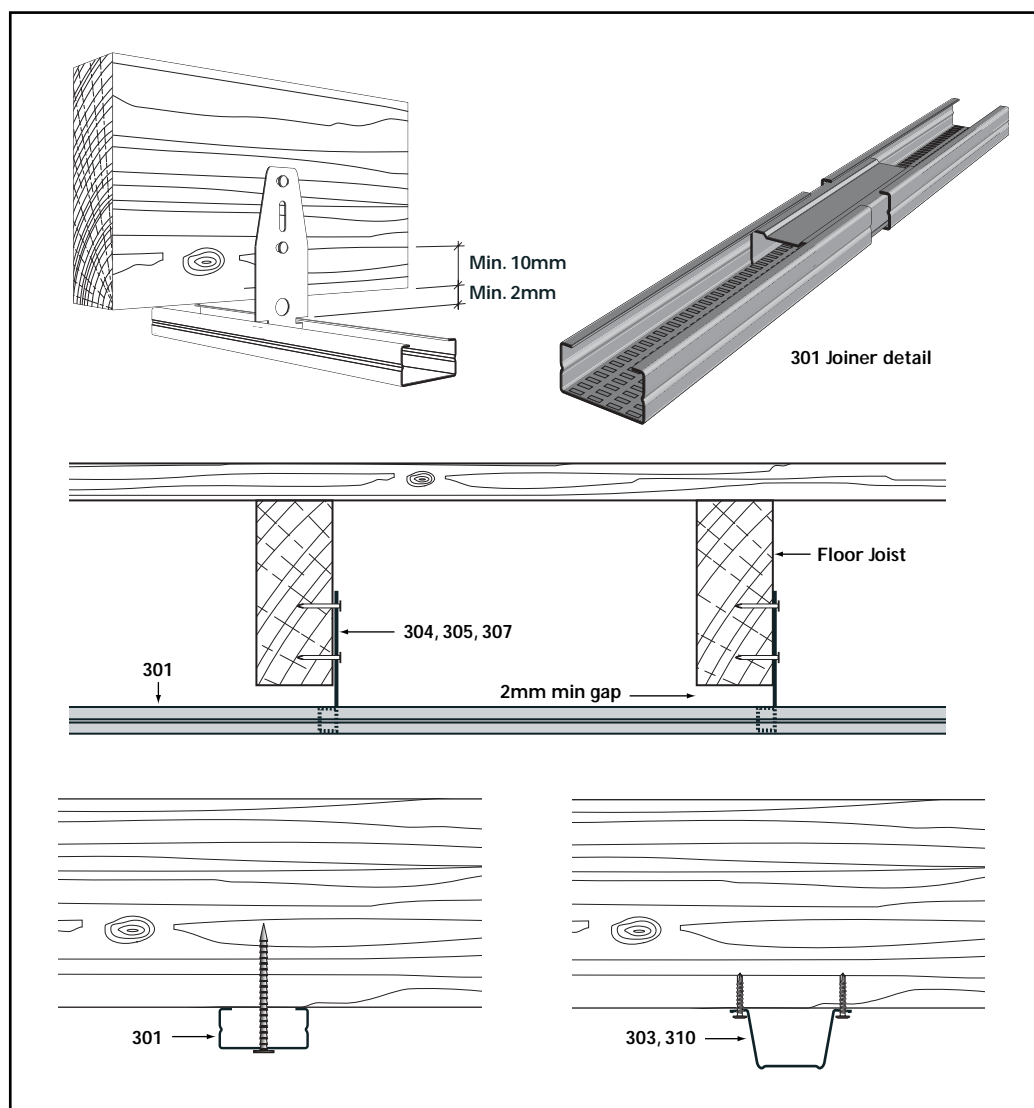


FIGURE 16: Metal Ceiling Battens

TABLE 4: Fastener Recommendations

| BATTEN PART NO. | NAIL LENGTH AND DIAMETER |       |                    |          |       |                    |
|-----------------|--------------------------|-------|--------------------|----------|-------|--------------------|
|                 | HARDWOOD                 |       |                    | SOFTWOOD |       |                    |
|                 | LENGTH                   | DIA   | TYPE               | LENGTH   | DIA   | TYPE               |
| 301             | 40mm                     | 2.8mm | Annular Ring Shank | 50mm     | 2.8mm | Annular Ring Shank |
| 303             | 30mm                     | 2.8mm | Annular Ring Shank | 40mm     | 2.8mm | Annular Ring Shank |
| 310             | 30mm                     | 2.8mm | Annular Ring Shank | 40mm     | 2.8mm | Annular Ring Shank |

| BATTEN PART NO. | SCREW LENGTH AND SIZE                  |   |                               |
|-----------------|--|---|-------------------------------|
|                 | STEEL                                  | HARDWOOD                                    | SOFTWOOD                      |
| 301             | Wafer Head<br>10 x 24 x 16 Drill Point | Wafer Head<br>10 x 35 Type 17               | Wafer Head<br>10 x 45 Type 17 |
| 303/310         | Wafer Head<br>10 x 24 x 16 Drill Point | Pan Head<br>8 x 25 Type 17<br>10 x 25 Wafer | Wafer Head<br>10 x 45 Type 17 |

NOTE: Minimum three threads penetration into substrate.

## METAL CEILING BATTENS

(CONTINUED)

### **BUTT JOINT STITCHING BATTEN**

B005 Butt joint Stitching Batten developed with the plasterboard industry provides a constant recess shape for finishing when installed as per the plasterboard manufacturers recommendations. A faster, more cost-effective joint with greater strength can be achieved.

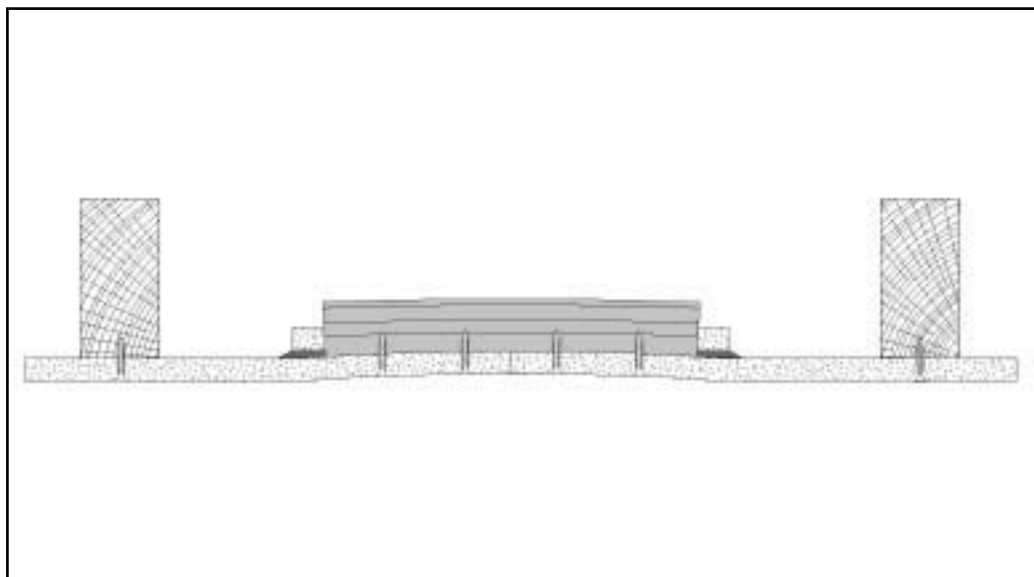


FIGURE 17: Metal Stitching Battens

MASONRY WALL BATTEN

Rondo furring channels and adjustable anchors are the ideal combination for battening out irregular walls, ready for the fixing of building boards. Furring channels with an adjustable anchor will correct irregular surfaces of 25mm. For surfaces which do not require any alignment but require a cavity for cables or plumbing Rondo battens, 301, 310, 333 should be used. Anchors should be spaced in accordance with the table below. Anchors may be of the adjustable or acoustic type as shown previously, depending on the application. Masonry fasteners should be selected in accordance with the manufacturer’s recommendations.

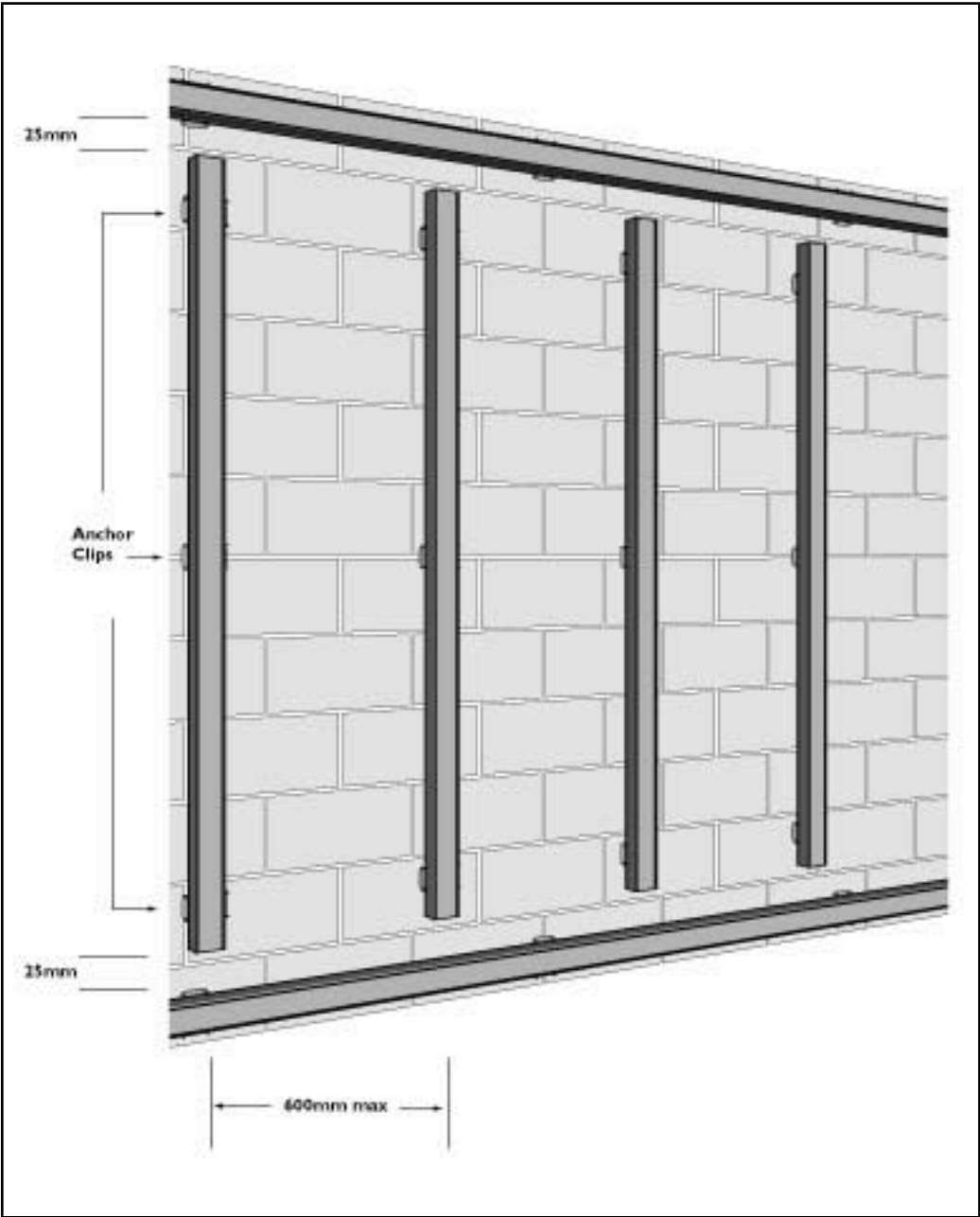


FIGURE 18: MASONRY WALL BATTENS

| TABLE 5: Maximum Anchor Spacing |                     |
|---------------------------------|---------------------|
| FURRING CHANNEL                 | ANCHOR SPACING (mm) |
| 333                             | 900                 |
| 308                             | 900                 |
| 129                             | 1200                |

NOTE:  
The above spacings are the maximum recommended installation requirements. This may not be suitable for high traffic areas or external applications.

# TOP HAT INSTALLATION

Top hat sections are generally installed to a structural frame which provides the necessary support.

In high wind areas, double fasteners at each support may not be adequate. Refer to the table below for guidance on fastener requirements.

The top hat sections need to be accurately setout and levelled prior to installing the nominated finish.

Where expressed joints and Compressed Fibrous Cement (CFC) sheeting is used, the #256 top hat is required to ensure adequate screw edge distances are maintained. The joint setout should be specified by the architect.

Control joints need to be installed and constructed in accordance with the building board manufacturer's recommendations. Control joint spacing, construction and setout are very important for the proper function and performance of the system.

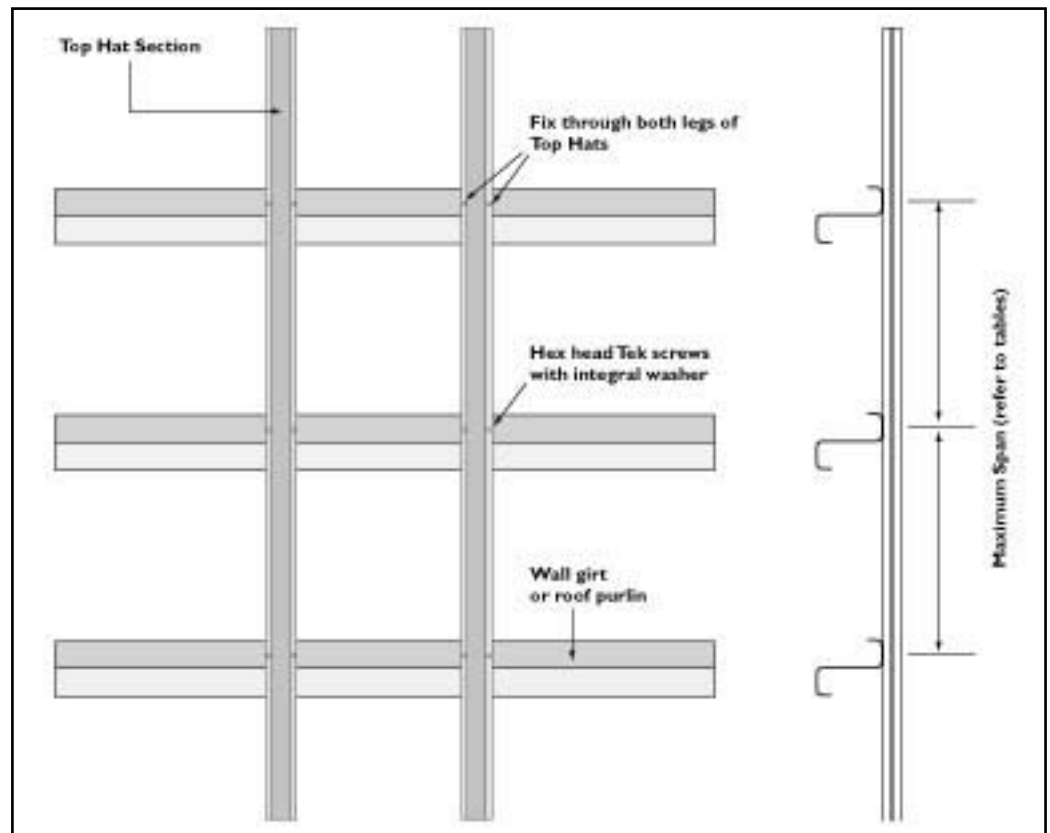


FIGURE 19: TOP HAT INSTALLATION

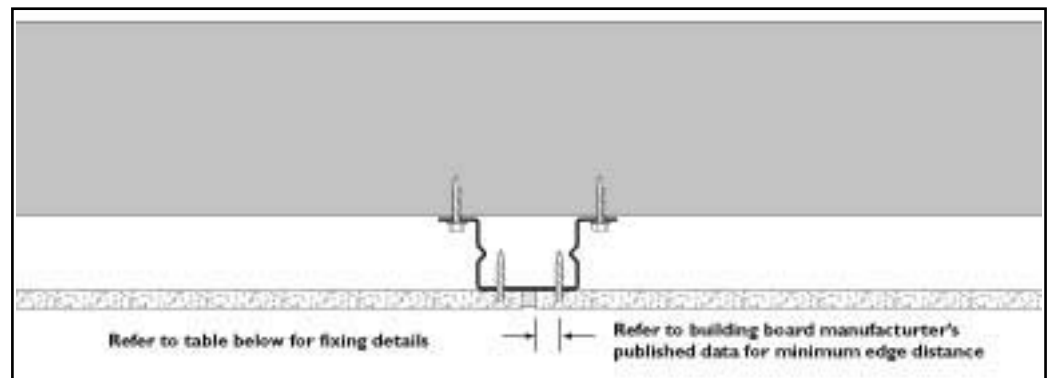


FIGURE 20: FIXING DETAIL

**TABLE 6: #12 Hex Head Fasteners**

| TOP HAT SPAN | TOP HAT SPACING | NO. OF FASTENERS | ULTIMATE WIND LOAD (kPa) |
|--------------|-----------------|------------------|--------------------------|
| 900          | 600             | 2                | 4.80                     |
| 1200         | 600             | 2                | 3.60                     |
| 1500         | 600             | 2                | 2.90                     |
| 1800         | 600             | 2                | 2.40                     |

NOTES: 1. Minimum thickness of supporting structure to be 1.50 BMT, G450 material – i.e. purlin type support.  
2. Fastener head/washer diameter to be 12.5mm minimum.  
3. All screws to be manufactured in accordance with AS 3566. Screw coating to be selected based on installation requirements and manufacturer's recommendations.

# TIMBER-LOCK

## DEMOUNTABLE CEILING/WALL SYSTEM

Wood panelled walls and ceilings have been installed in boardrooms, hotel foyers, speciality shops such as jewellers and areas that required something special.

The Rondo Timber-Lock system is ideal for these requirements, but offers much more as it is fully demountable and has concealed fixings (no screw-heads to fill in).

Developed from the Rondo Key-Lock system, Rondo Timber-Lock uses the standard components of Key-Lock except for the concealed locking clip which holds the tongue and groove timber panels in place. The panels can be individually replaced if damaged by removing the nearest end panel and sliding the other panels along.

Two thicknesses of panels are incorporated in the system design (10mm or 13mm), with the interior designer choosing the type of finish wanted: natural, stained, polished or painted.

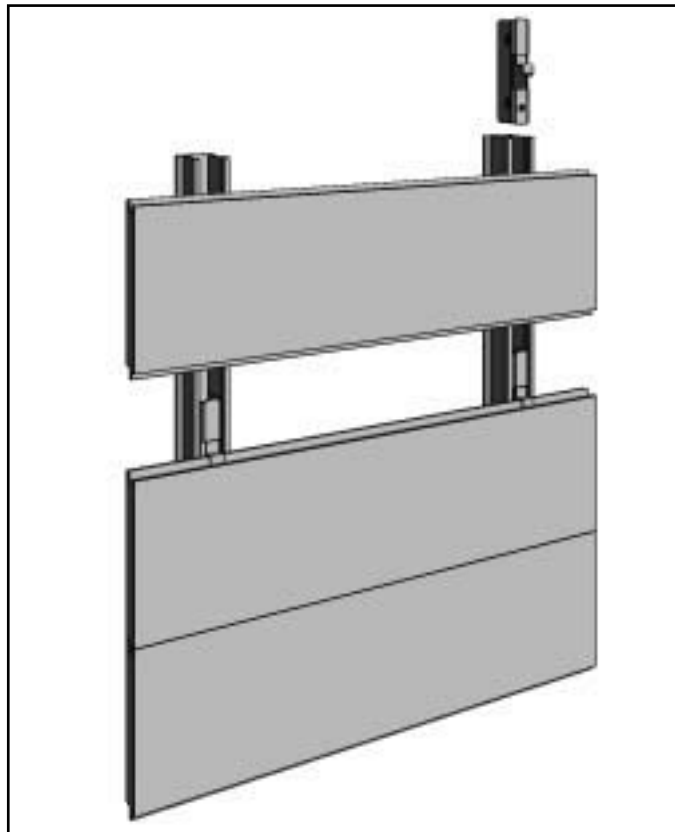


FIGURE 21: TIMBER-LOCK WALLS

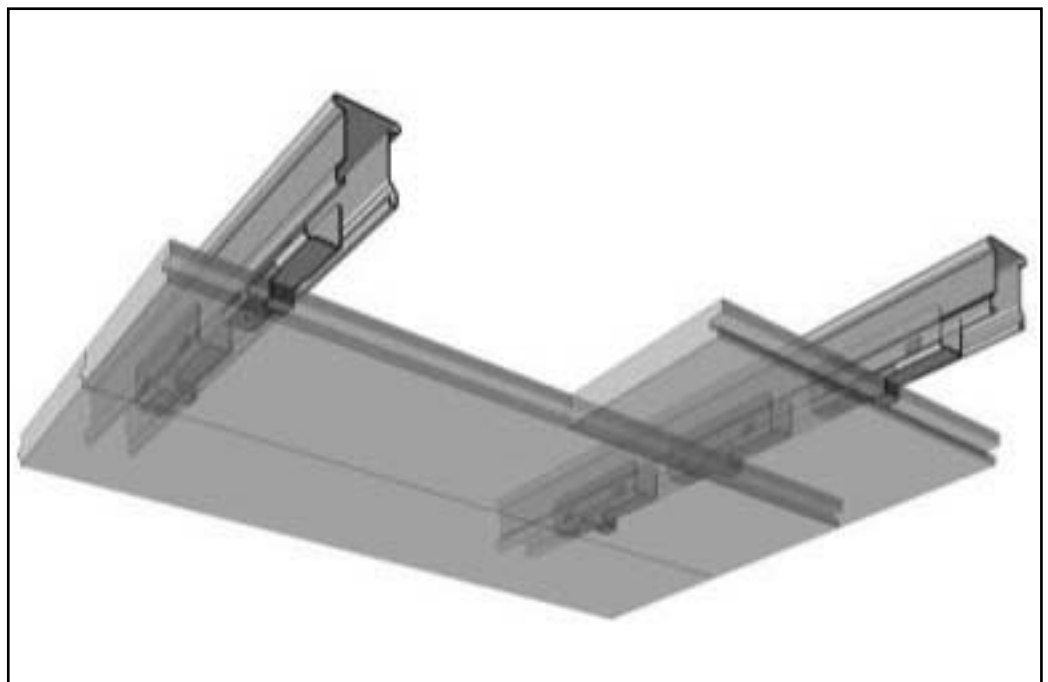


FIGURE 22: TIMBER-LOCK CEILINGS

# PRODUCT DATA SPECIFICATIONS

## FURRING CHANNELS/BATTENS

### MATERIAL SPECIFICATIONS

The sections are cold roll formed from zinc coated steel strip, which is manufactured to AS1397.

STEEL GRADE:

G2Z275

Part No's:

129/308/301/333/310

YIELD STRENGTH:

F<sub>y</sub> = 270 MPa (typical)

COATING GRADE:

Z275 – 275g/m<sup>2</sup> zinc

Part No: 303

YIELD STRENGTH:

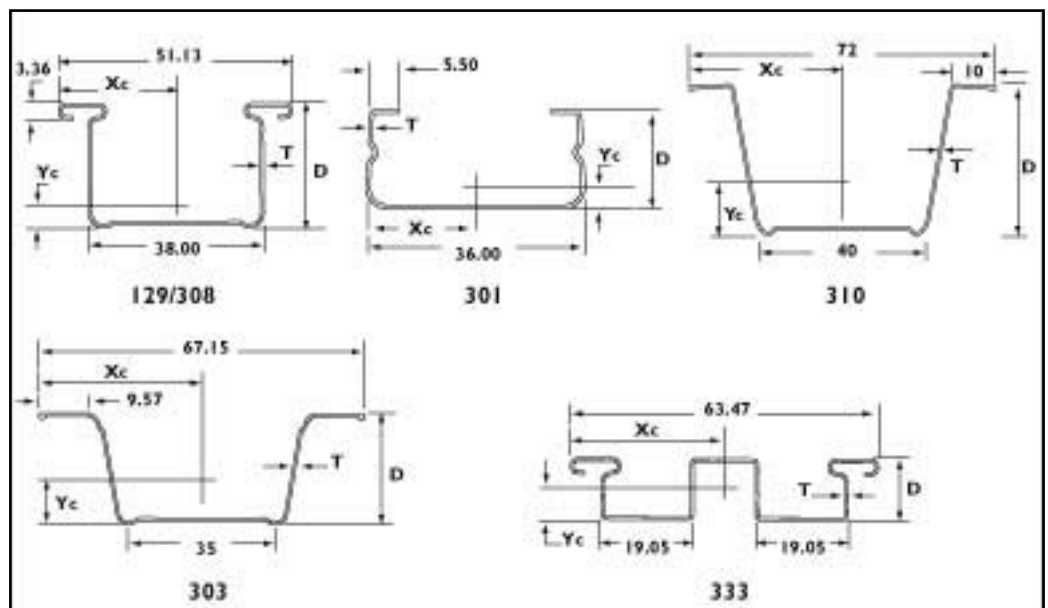
F<sub>y</sub> = 300 MPa

COATING GRADE:

G300 ZINCALUME™

BASE METAL THICKNESS:

As specified



**TABLE 7: Furring Channels & Battens – Section Dimensions**

| RONDO PART NO | AREA mm <sup>2</sup> | D mm | T (BMT) mm | Xc mm | Yc mm | YIELD STRESS MPa | SELF-WEIGHT kg/m |
|---------------|----------------------|------|------------|-------|-------|------------------|------------------|
| 129           | 59.6                 | 27.3 | 0.50       | 0     | 13.04 | 270              | 0.468            |
| 308           | 48.2                 | 16.0 | 0.50       | 0     | 7.70  | 270              | 0.378            |
| 333           | 63.2                 | 12.7 | 0.50       | 0     | 6.44  | 270              | 0.496            |
| 301           | 33.2                 | 16.3 | 0.45       | 0     | 5.81  | 270              | 0.261            |
| 303           | 45.1                 | 23.5 | 0.42       | 0     | 11.48 | 300              | 0.354            |
| 310           | 66.0                 | 35.0 | 0.50       | 0     | 15.97 | 270              | 0.518            |

**TABLE 8: Furring Channels & Battens – Section Properties**

| RONDO PART NO | MOMENT OF INERTIA 10 <sup>3</sup> mm <sup>4</sup> |                 | SECTION MODULUS mm <sup>3</sup> |                 | RADIUS OF GYRATION mm |                 | TORSION CONSTANT mm <sup>4</sup> | WARPING CONSTANT 10 <sup>6</sup> mm <sup>6</sup> | SHEAR CENTRE mm |
|---------------|---|-----------------|---------------------------------|-----------------|-----------------------|-----------------|----------------------------------|--|-----------------|
|               | I <sub>xx</sub>                                   | I <sub>yy</sub> | Z <sub>xx</sub>                 | Z <sub>yy</sub> | R <sub>xx</sub>       | R <sub>yy</sub> | J                                | I <sub>w</sub>                                   | Y <sub>0</sub>  |
| 129           | 6.72  | 18.30           | 478                             | 711             | 10.60                 | 17.5            | 4.97                             | 1.375  | -25.20          |
| 308           | 1.74  | 13.70           | 216                             | 545             | 6.01                  | 16.8            | 4.02                             | 0.368  | -12.80          |
| 333           | 1.58  | 24.20           | 255                             | 768             | 5.00                  | 19.6            | 5.27                             | 0.830  | -4.86           |
| 301           | 1.14  | 6.50            | 113                             | 366             | 5.86                  | 14.0            | 2.24                             | 0.313  | -12.72          |
| 303           | 4.03  | 16.70           | 336                             | 516             | 9.46                  | 19.2            | 2.65                             | 0.467  | -18.33          |
| 310           | 11.90   | 33.50           | 632                             | 932             | 13.40                 | 22.5            | 5.50                             | 1.573  | -28.40          |

NOTES: 1. The above tables list the gross section properties. Any design carried out using these properties needs to be checked in accordance with AS/NZS 4600.  
2. Section properties may vary due to manufacturing tolerances, but total material used will not vary.  
3. Section capacity calculated based on effective section at yield.

## TOP CROSS RAILS

### MATERIAL SPECIFICATIONS

The sections are cold roll formed from zinc coated steel strip, which is manufactured to AS1397.

STEEL GRADE:

G2Z275

YIELD STRENGTH:

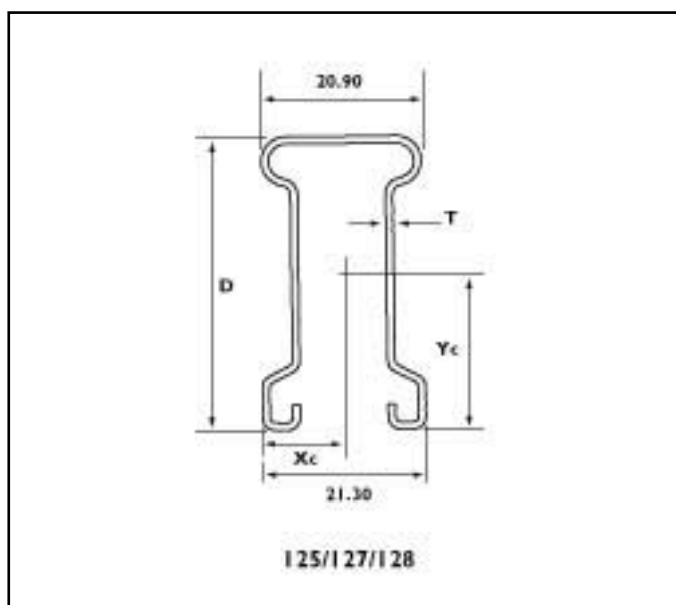
F<sub>y</sub> = 270 MPa (typical)

COATING GRADE:

Z275 – 275 g/m<sup>2</sup> zinc

BASE METAL THICKNESS:

As specified



**TABLE 9: Top Cross Rails – Section Dimensions**

| RONDO PART NO | AREA<br>mm <sup>2</sup> | D<br>mm | T (BMT)<br>mm | X <sub>c</sub><br>mm | Y <sub>c</sub><br>mm | YIELD STRESS<br>MPa | SELF-WEIGHT<br>kg/m |
|---------------|-------------------------|---------|---------------|----------------------|----------------------|---------------------|---------------------|
| 125           | 48.2                    | 26.35   | 0.55          | 0                    | 14.18                | 270                 | 0.378               |
| 127           | 65.7                    | 26.35   | 0.75          | 0                    | 14.20                | 270                 | 0.516               |
| 128           | 84.2                    | 38.65   | 0.75          | 0                    | 20.41                | 270                 | 0.661               |

**TABLE 10: Top Cross Rails – Section Properties**

| RONDO PART NO | MOMENT OF INERTIA<br>10 <sup>3</sup> mm <sup>4</sup> |                 | SECTION MODULUS<br>mm <sup>3</sup> |                 | RADIUS OF GYRATION<br>mm |                 | TORSION CONSTANT<br>mm <sup>4</sup> | WARPING CONSTANT<br>10 <sup>6</sup> mm <sup>6</sup> | SHEAR CENTRE<br>mm |
|---------------|--|-----------------|------------------------------------|-----------------|--------------------------|-----------------|-------------------------------------|---|--------------------|
|               | I <sub>xx</sub>                                      | I <sub>yy</sub> | Z <sub>xx</sub>                    | Z <sub>yy</sub> | R <sub>xx</sub>          | R <sub>yy</sub> | J                                   | I <sub>w</sub>                                      | Y <sub>0</sub>     |
| 125           | 4.12   | 2.78            | 299                                | 270             | 9.25                     | 7.59            | 4.86                                | 0.228   | 23.8               |
| 127           | 5.62   | 3.79            | 407                                | 369             | 9.25                     | 7.59            | 12.30                               | 0.311   | 23.8               |
| 128           | 15.10  | 4.51            | 754                                | 440             | 13.40                    | 7.32            | 15.80                               | 0.661   | 34.6               |

NOTES: 1. The above tables list the gross section properties. Any design carried out using these properties needs to be checked in accordance with AS/NZS 4600.  
2. Section properties may vary due to manufacturing tolerances, but total material used will not vary.  
3. Section capacity calculated based on effective section at yield.

# PRODUCT DATA SPECIFICATIONS

(CONTINUED)

## TOP HAT SECTIONS

### MATERIAL SPECIFICATIONS

The sections are cold roll formed from zinc coated steel strip, which is manufactured to AS1397.

STEEL GRADE:

G2Z275

YIELD STRENGTH:

F<sub>y</sub> = 270 MPa (typical)

COATING GRADE:

Z275 – 275 g/m<sup>2</sup> zinc

BASE METAL THICKNESS:

1.15mm

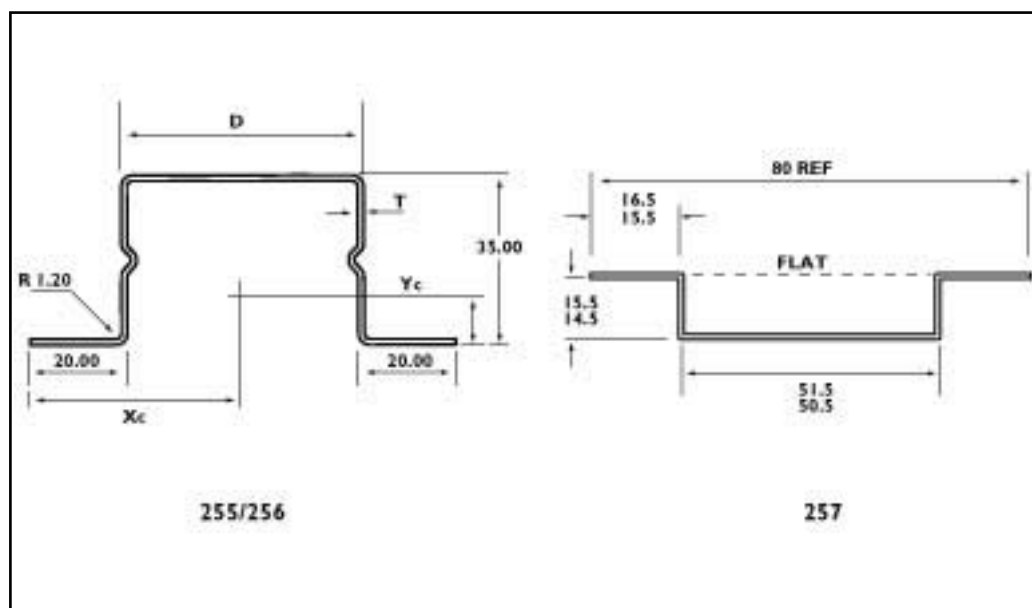


TABLE 11: Top Hat – Section Dimensions

| RONDO PART NO | AREA<br>mm <sup>2</sup> | D<br>mm | T (BMT)<br>mm | X <sub>c</sub><br>mm | Y <sub>c</sub><br>mm | YIELD STRESS<br>MPa | SELF-WEIGHT<br>kg/m |
|---------------|-------------------------|---------|---------------|----------------------|----------------------|---------------------|---------------------|
| 255           | 174                     | 50.0    | 1.15          | 0                    | 18.00                | 270                 | 1.360               |
| 256           | 203                     | 75.0    | 1.15          | 0                    | 20.30                | 270                 | 1.590               |
| 257           | 119                     | 51.0    | 1.15          | 0                    | 8.13                 | 270                 | 0.933               |

TABLE 12: Top Hat – Section Properties

| RONDO PART NO | MOMENT OF INERTIA<br>10 <sup>3</sup> mm <sup>4</sup> |                 | SECTION MODULUS<br>mm <sup>3</sup> |                 | RADIUS OF GYRATION<br>mm |                 | TORSION CONSTANT<br>mm <sup>4</sup> | WARPING CONSTANT<br>10 <sup>6</sup> mm <sup>6</sup> | SHEAR CENTRE<br>mm |
|---------------|--|-----------------|------------------------------------|-----------------|--------------------------|-----------------|-------------------------------------|---|--------------------|
|               | I <sub>xx</sub>                                      | I <sub>yy</sub> | Z <sub>xx</sub>                    | Z <sub>yy</sub> | R <sub>xx</sub>          | R <sub>yy</sub> | J                                   | I <sub>w</sub>                                      | Y <sub>0</sub>     |
| 255           | 34.70  | 108.0           | 1866                               | 2470            | 14.1                     | 24.9            | 76.7                                | 9.260   | 29.2               |
| 256           | 40.90  | 237.0           | 1961                               | 4206            | 14.2                     | 34.1            | 89.4                                | 22.700  | 28.6               |
| 257           | 4.50   | 64.7            | 517                                | 1625            | 6.15                     | 23.3            | 52.4                                | 0.880   | 11.3               |

NOTES: 1. The above tables list the gross section properties. Any design carried out using these properties needs to be checked in accordance with AS/NZS 4600.  
2. Section properties may vary due to manufacturing tolerances, but total material used will not vary.  
3. Section capacity calculated based on effective section at yield.

# SPAN TABLES

## 129 FURRING CHANNEL – DIRECT FIX



**TABLE 13: Maximum Spans: Wind Loads N2 (0.29 kPa Ult)**

| CLADDING DETAILS      | FURRING CHANNEL SPACING |      |                 |      |
|-----------------------|-------------------------|------|-----------------|------|
|                       | SINGLE SPAN             |      | CONTINUOUS SPAN |      |
|                       | 450                     | 600  | 450             | 600  |
| 1 x 10mm Plasterboard | 1245                    | 1148 | 1713            | 1580 |
| 1 x 13mm Plasterboard | 1213                    | 1119 | 1670            | 1540 |
| 1 x 16mm Plasterboard | 1184                    | 1092 | 1630            | 1503 |
| 2 x 13mm Plasterboard | 1128                    | 1041 | 1552            | 1432 |
| 2 x 16mm Plasterboard | 1088                    | 1004 | 1498            | 1381 |

For working examples, refer to Appendix A on Page 35.

**TABLE 14: Maximum Spans: Wind Loads N3 (0.45 kPa Ult)**

| CLADDING DETAILS      | FURRING CHANNEL SPACING |      |                 |      |
|-----------------------|-------------------------|------|-----------------|------|
|                       | SINGLE SPAN             |      | CONTINUOUS SPAN |      |
|                       | 450                     | 600  | 450             | 600  |
| 1 x 10mm Plasterboard | 1125                    | 1037 | 1547            | 1428 |
| 1 x 13mm Plasterboard | 1105                    | 1018 | 1519            | 1401 |
| 1 x 16mm Plasterboard | 1085                    | 1001 | 1494            | 1378 |
| 2 x 13mm Plasterboard | 1047                    | 965  | 1440            | 1328 |
| 2 x 16mm Plasterboard | 1018                    | 938  | 1400            | 1292 |

NOTE: 1. Wind loading to AS 4055 as follows: **N2** :  $V_{hu} = 40\text{m/s}$   $V_{hs} = 26\text{m/s}$   $C_{pi} = -0.3$  Previously W33.  
**N3** :  $V_{hu} = 50\text{m/s}$   $V_{hs} = 32\text{m/s}$   $C_{pi} = -0.3$  Previously W41.  
 2. Ultimate limit state: **LC1**: 1.2G + W<sub>u</sub>  
 3. Serviceability limit states: **LC2**: G - Limit L/600 to AS 3623 **LC3**: G + W<sub>s</sub> - Limit L/200 to AS 1170.0

**TABLE 15: Maximum Spans: Wind Loads 0.50 kPa — 1.00 kPa**

| CLADDING DETAILS      | FURRING CHANNEL SPACING |      |                 |      |             |     |                 |      |
|-----------------------|-------------------------|------|-----------------|------|-------------|-----|-----------------|------|
|                       | 0.50 kPa                |      |                 |      | 0.60 kPa    |     |                 |      |
|                       | SINGLE SPAN             |      | CONTINUOUS SPAN |      | SINGLE SPAN |     | CONTINUOUS SPAN |      |
|                       | 450                     | 600  | 450             | 600  | 450         | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 1097                    | 1011 | 1510            | 1392 | 1049        | 967 | 1443            | 1331 |
| 1 x 13mm Plasterboard | 1078                    | 995  | 1484            | 1369 | 1034        | 954 | 1423            | 1312 |
| 1 x 16mm Plasterboard | 1062                    | 979  | 1461            | 1347 | 1020        | 941 | 1403            | 1295 |
| 2 x 13mm Plasterboard | 1026                    | 946  | 1412            | 1302 | 990         | 913 | 1362            | 1256 |
| 2 x 16mm Plasterboard | 999                     | 922  | 1375            | 1269 | 967         | 892 | 1331            | 1228 |

| CLADDING DETAILS      | 0.70 kPa    |     |                 |      | 0.80 kPa    |     |                 |      |
|-----------------------|-------------|-----|-----------------|------|-------------|-----|-----------------|------|
|                       | SINGLE SPAN |     | CONTINUOUS SPAN |      | SINGLE SPAN |     | CONTINUOUS SPAN |      |
|                       | 450         | 600 | 450             | 600  | 450         | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 1009        | 931 | 1389            | 1281 | 976         | 900 | 1343            | 1239 |
| 1 x 13mm Plasterboard | 997         | 919 | 1372            | 1265 | 965         | 890 | 1328            | 1225 |
| 1 x 16mm Plasterboard | 985         | 908 | 1355            | 1250 | 955         | 880 | 1314            | 1212 |
| 2 x 13mm Plasterboard | 959         | 885 | 1320            | 1217 | 932         | 860 | 1283            | 1183 |
| 2 x 16mm Plasterboard | 940         | 866 | 1293            | 1192 | 915         | 844 | 1259            | 1161 |

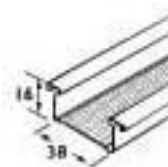
| CLADDING DETAILS      | 0.90 kPa    |     |                 |      | 1.00 kPa    |     |                 |      |
|-----------------------|-------------|-----|-----------------|------|-------------|-----|-----------------|------|
|                       | SINGLE SPAN |     | CONTINUOUS SPAN |      | SINGLE SPAN |     | CONTINUOUS SPAN |      |
|                       | 450         | 600 | 450             | 600  | 450         | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 947         | 873 | 1302            | 1202 | 922         | 850 | 1268            | 1170 |
| 1 x 13mm Plasterboard | 937         | 865 | 1290            | 1190 | 913         | 842 | 1257            | 1159 |
| 1 x 16mm Plasterboard | 928         | 856 | 1278            | 1178 | 905         | 835 | 1246            | 1149 |
| 2 x 13mm Plasterboard | 908         | 838 | 1250            | 1153 | 887         | 818 | 1221            | 1126 |
| 2 x 16mm Plasterboard | 893         | 824 | 1229            | 1133 | 873         | 806 | 1202            | 1108 |

NOTE: 1. Stated pressure is the ultimate design wind load, including all local factors.  
 2. Deflection limited to the lesser of L/600 under dead load, or L/200 under dead plus service wind load.  
 3. Service wind load checked at 0.65 times the ultimate pressure.  
 4. Strength check of unrestrained flange in compression.  
 5. Connections to be independently checked.

# SPAN TABLES

(CONTINUED)

## 308 FURRING CHANNEL – DIRECT FIX



**TABLE 16: Maximum Spans: Wind Loads N2 (0.29 kPa Ult)**

| CLADDING DETAILS      | FURRING CHANNEL SPACING |     |                 |      |
|-----------------------|-------------------------|-----|-----------------|------|
|                       | SINGLE SPAN             |     | CONTINUOUS SPAN |      |
|                       | 450                     | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 1018                    | 933 | 1384            | 1269 |
| 1 x 13mm Plasterboard | 990                     | 907 | 1359            | 1245 |
| 1 x 16mm Plasterboard | 965                     | 885 | 1324            | 1215 |
| 2 x 13mm Plasterboard | 915                     | 840 | 1170            | 1095 |
| 2 x 16mm Plasterboard | 881                     | 808 | 1094            | 1027 |

For working examples, refer to Appendix A on Page 35.

**TABLE 17: Maximum Spans: Wind Loads N3 (0.45 kPa Ult)**

| CLADDING DETAILS      | FURRING CHANNEL SPACING |     |                 |      |
|-----------------------|-------------------------|-----|-----------------|------|
|                       | SINGLE SPAN             |     | CONTINUOUS SPAN |      |
|                       | 450                     | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 913                     | 837 | 1253            | 1149 |
| 1 x 13mm Plasterboard | 895                     | 821 | 1228            | 1126 |
| 1 x 16mm Plasterboard | 878                     | 806 | 1206            | 1106 |
| 2 x 13mm Plasterboard | 845                     | 775 | 1160            | 1064 |
| 2 x 16mm Plasterboard | 820                     | 752 | 1094            | 1027 |

NOTE: 1. Wind loading to AS 4055 as follows: **N2** :  $V_{hu} = 40\text{m/s}$   $V_{hs} = 26\text{m/s}$   $C_{pi} = -0.3$  Previously W33.

**N3** :  $V_{hu} = 50\text{m/s}$   $V_{hs} = 32\text{m/s}$   $C_{pi} = -0.3$  Previously W41.

2. Ultimate limit state: **LC1**: 1.2G + W<sub>u</sub>

3. Serviceability limit states: **LC2**: G - Limit L/600 to AS 3623 **LC3**: G + W<sub>s</sub> - Limit L/200 to AS 1170.0

**TABLE 18: Maximum Spans: Wind Loads 0.20 kPa, 0.30 kPa, 0.40 kPa, 0.50 kPa**

| CLADDING DETAILS      | FURRING CHANNEL SPACING |      |                 |      |             |     |                 |      |
|-----------------------|-------------------------|------|-----------------|------|-------------|-----|-----------------|------|
|                       | 0.20 kPa                |      |                 |      | 0.30 kPa    |     |                 |      |
|                       | SINGLE SPAN             |      | CONTINUOUS SPAN |      | SINGLE SPAN |     | CONTINUOUS SPAN |      |
|                       | 450                     | 600  | 450             | 600  | 450         | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 1104                    | 1012 | 1444            | 1317 | 1008        | 925 | 1320            | 1202 |
| 1 x 13mm Plasterboard | 1065                    | 976  | 1460            | 1340 | 981         | 900 | 1347            | 1235 |
| 1 x 16mm Plasterboard | 1031                    | 946  | 1415            | 1298 | 958         | 877 | 1313            | 1205 |
| 2 x 13mm Plasterboard | 968                     | 888  | 1328            | 1218 | 909         | 835 | 1249            | 1145 |
| 2 x 16mm Plasterboard | 925                     | 848  | 1268            | 1163 | 876         | 803 | 1202            | 1102 |

| CLADDING DETAILS      | 0.40 kPa    |     |                 |      | 0.50 kPa    |     |                 |      |
|-----------------------|-------------|-----|-----------------|------|-------------|-----|-----------------|------|
|                       | SINGLE SPAN |     | CONTINUOUS SPAN |      | SINGLE SPAN |     | CONTINUOUS SPAN |      |
|                       | 450         | 600 | 450             | 600  | 450         | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 940         | 863 | 1229            | 1119 | 888         | 815 | 1160            | 1055 |
| 1 x 13mm Plasterboard | 920         | 844 | 1263            | 1158 | 872         | 800 | 1198            | 1098 |
| 1 x 16mm Plasterboard | 901         | 827 | 1238            | 1135 | 858         | 787 | 1177            | 1080 |
| 2 x 13mm Plasterboard | 864         | 792 | 1185            | 1088 | 827         | 758 | 1135            | 1042 |
| 2 x 16mm Plasterboard | 837         | 767 | 1149            | 1053 | 805         | 738 | 1105            | 1003 |

NOTE: 1. Stated pressure is the ultimate design wind load, including all local factors.

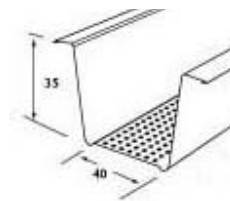
2. Deflection limited to the lesser of L/600 under dead load, or L/200 under dead plus service wind load.

3. Service wind load checked at 0.65 times the ultimate pressure.

4. Strength check of unrestrained flange in compression.

5. Connections to be independently checked.

### 310 BATTEN – DIRECT FIX



For working examples, refer to Appendix A on Page 35.

**TABLE 19: Maximum Spans: Wind Loads N2 (0.29 kPa Ult)**

| CLADDING DETAILS      | BATTEN SPACING |      |                 |      |
|-----------------------|----------------|------|-----------------|------|
|                       | SINGLE SPAN    |      | CONTINUOUS SPAN |      |
|                       | 450            | 600  | 450             | 600  |
| 1 x 10mm Plasterboard | 1197           | 1101 | 1645            | 1513 |
| 1 x 13mm Plasterboard | 1166           | 1072 | 1602            | 1473 |
| 1 x 16mm Plasterboard | 1137           | 1046 | 1563            | 1438 |
| 2 x 13mm Plasterboard | 1081           | 995  | 1486            | 1368 |
| 2 x 16mm Plasterboard | 1042           | 959  | 1432            | 1318 |

**TABLE 20: Maximum Spans: Wind Loads N3 (0.45 kPa Ult)**

| CLADDING DETAILS      | BATTEN SPACING |     |                 |      |
|-----------------------|----------------|-----|-----------------|------|
|                       | SINGLE SPAN    |     | CONTINUOUS SPAN |      |
|                       | 450            | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 1078           | 992 | 1482            | 1363 |
| 1 x 13mm Plasterboard | 1058           | 973 | 1454            | 1337 |
| 1 x 16mm Plasterboard | 1039           | 956 | 1428            | 1314 |
| 2 x 13mm Plasterboard | 1001           | 921 | 1375            | 1265 |
| 2 x 16mm Plasterboard | 972            | 894 | 1337            | 1230 |

NOTE: 1. Wind loading to AS 4055 as follows: **N2** :  $V_{hu} = 40\text{m/s}$   $V_{hs} = 26\text{m/s}$   $C_{pi} = -0.3$ . Previously W33.  
**N3** :  $V_{hu} = 50\text{m/s}$   $V_{hs} = 32\text{m/s}$   $C_{pi} = -0.3$ . Previously W41.

2. Ultimate limit state: **LC1**: 1.2G + W<sub>u</sub>

3. Serviceability limit states: **LC2**: G - Limit L/600 to AS 3623 **LC3**: G + W<sub>s</sub> - Limit L/200 to AS 1170.0

**TABLE 21: Maximum Spans: Wind Loads 0.50 kPa — 1.00 kPa**

| CLADDING DETAILS      | BATTEN SPACING |     |                 |      |             |     |                 |      |
|-----------------------|----------------|-----|-----------------|------|-------------|-----|-----------------|------|
|                       | 0.50 kPa       |     |                 |      | 0.60 kPa    |     |                 |      |
|                       | SINGLE SPAN    |     | CONTINUOUS SPAN |      | SINGLE SPAN |     | CONTINUOUS SPAN |      |
|                       | 450            | 600 | 450             | 600  | 450         | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 1050           | 966 | 1443            | 1328 | 1003        | 923 | 1379            | 1268 |
| 1 x 13mm Plasterboard | 1032           | 949 | 1419            | 1305 | 988         | 909 | 1359            | 1249 |
| 1 x 16mm Plasterboard | 1015           | 934 | 1396            | 1284 | 975         | 896 | 1339            | 1232 |
| 2 x 13mm Plasterboard | 980            | 902 | 1347            | 1240 | 945         | 869 | 1299            | 1195 |
| 2 x 16mm Plasterboard | 954            | 878 | 1312            | 1207 | 923         | 849 | 1268            | 1167 |

| CLADDING DETAILS      | 0.70 kPa    |     |                 |      | 0.80 kPa    |     |                 |      |
|-----------------------|-------------|-----|-----------------|------|-------------|-----|-----------------|------|
|                       | SINGLE SPAN |     | CONTINUOUS SPAN |      | SINGLE SPAN |     | CONTINUOUS SPAN |      |
|                       | 450         | 600 | 450             | 600  | 450         | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 964         | 887 | 1325            | 1219 | 931         | 857 | 1280            | 1178 |
| 1 x 13mm Plasterboard | 952         | 875 | 1308            | 1204 | 921         | 847 | 1265            | 1164 |
| 1 x 16mm Plasterboard | 940         | 865 | 1292            | 1189 | 911         | 837 | 1250            | 1151 |
| 2 x 13mm Plasterboard | 915         | 841 | 1257            | 1156 | 888         | 817 | 1220            | 1123 |
| 2 x 16mm Plasterboard | 895         | 824 | 1231            | 1132 | 871         | 802 | 1197            | 1102 |

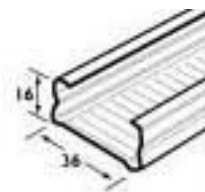
| CLADDING DETAILS      | 0.90 kPa    |     |                 |      | 1.00 kPa    |     |                 |      |
|-----------------------|-------------|-----|-----------------|------|-------------|-----|-----------------|------|
|                       | SINGLE SPAN |     | CONTINUOUS SPAN |      | SINGLE SPAN |     | CONTINUOUS SPAN |      |
|                       | 450         | 600 | 450             | 600  | 450         | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 903         | 830 | 1240            | 1141 | 878         | 807 | 1206            | 1110 |
| 1 x 13mm Plasterboard | 893         | 822 | 1228            | 1130 | 869         | 800 | 1195            | 1099 |
| 1 x 16mm Plasterboard | 885         | 814 | 1215            | 1119 | 860         | 793 | 1184            | 1089 |
| 2 x 13mm Plasterboard | 865         | 796 | 1189            | 1094 | 844         | 777 | 1160            | 1067 |
| 2 x 16mm Plasterboard | 850         | 782 | 1168            | 1075 | 830         | 764 | 1141            | 1050 |

NOTE: 1. Stated pressure is the ultimate design wind load, including all local factors.  
2. Deflection limited to the lesser of L/600 under dead load, or L/200 under dead plus service wind load.  
3. Service wind load checked at 0.65 times the ultimate pressure.  
4. Strength check of unrestrained flange in compression.  
5. Connections to be independently checked.

# SPAN TABLES

(CONTINUED)

## 301 BATTEN – DIRECT FIX



**TABLE 22: 301 Batten – Maximum Spans: Wind Loads N2 (0.29 kPa Ult)**

| CLADDING DETAILS      | BATTEN SPACING |     |                 |      |
|-----------------------|----------------|-----|-----------------|------|
|                       | SINGLE SPAN    |     | CONTINUOUS SPAN |      |
|                       | 450            | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 950            | 900 | 1200            | 1100 |
| 1 x 13mm Plasterboard | 950            | 900 | 1300            | 1200 |

For working examples, refer to Appendix A on Page 35.

**TABLE 23: 301 Batten – Maximum Spans: Wind Loads N3 (0.45 kPa Ult)**

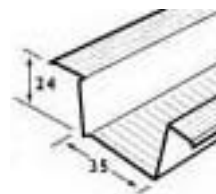
| CLADDING DETAILS      | BATTEN SPACING |     |                 |      |
|-----------------------|----------------|-----|-----------------|------|
|                       | SINGLE SPAN    |     | CONTINUOUS SPAN |      |
|                       | 450            | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 900            | 800 | 1100            | 1000 |
| 1 x 13mm Plasterboard | 900            | 800 | 1200            | 1100 |

NOTE: 1. Wind loading to AS 4055 as follows: **N2** :  $V_{hu} = 40\text{m/s}$   $V_{hs} = 26\text{m/s}$   $C_{pi} = -0.3$ . Previously W33.  
**N3** :  $V_{hu} = 50\text{m/s}$   $V_{hs} = 32\text{m/s}$   $C_{pi} = -0.3$ . Previously W41.

2. Ultimate limit state: **LC1**: 1.2G +  $W_u$

3. Serviceability limit states: **LC2**: G - Limit L/600 to AS 3623 **LC3**: G +  $W_s$  - Limit L/200 to AS 1170.0

### 303 CYCLONIC BATTEN – DIRECT FIX



For working examples, refer to Appendix A on Page 35.

**TABLE 24: Maximum Spans: Wind Loads N2 (0.29 kPa Ult)**

| CLADDING DETAILS      | FURRING CHANNEL SPACING |     |                 |      |
|-----------------------|-------------------------|-----|-----------------|------|
|                       | SINGLE SPAN             |     | CONTINUOUS SPAN |      |
|                       | 450                     | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 945                     | 871 | 1300            | 1200 |
| 1 x 13mm Plasterboard | 920                     | 850 | 1267            | 1168 |
| 1 x 16mm Plasterboard | 900                     | 830 | 1237            | 1141 |
| 2 x 13mm Plasterboard | 856                     | 790 | 1179            | 1087 |
| 2 x 16mm Plasterboard | 826                     | 762 | 1137            | 1049 |

**TABLE 25: Maximum Spans: Wind Loads N3 (0.45 kPa Ult)**

| CLADDING DETAILS      | FURRING CHANNEL SPACING |     |                 |      |
|-----------------------|-------------------------|-----|-----------------|------|
|                       | SINGLE SPAN             |     | CONTINUOUS SPAN |      |
|                       | 450                     | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 854                     | 787 | 1175            | 1084 |
| 1 x 13mm Plasterboard | 838                     | 773 | 1154            | 1064 |
| 1 x 16mm Plasterboard | 824                     | 760 | 1134            | 1046 |
| 2 x 13mm Plasterboard | 795                     | 733 | 1093            | 1009 |
| 2 x 16mm Plasterboard | 773                     | 713 | 1063            | 981  |

NOTE: 1. Wind loading to AS 4055 as follows: **N2** :  $V_{hu} = 40\text{m/s}$   $V_{hs} = 26\text{m/s}$   $C_{pi} = -0.3$  Previously W33.  
**N3** :  $V_{hu} = 50\text{m/s}$   $V_{hs} = 32\text{m/s}$   $C_{pi} = -0.3$  Previously W41.

2. Ultimate limit state:

**LC1**: 1.2G + W<sub>u</sub>

3. Serviceability limit states: **LC2**: G - Limit L/600 to AS 3623 **LC3**: G + W<sub>s</sub> - Limit L/200 to AS 1170.0

**TABLE 26: Maximum Spans: Wind Loads 0.50 kPa — 1.00 kPa**

| CLADDING DETAILS      | FURRING CHANNEL SPACING |     |                 |      |             |     |                 |      |
|-----------------------|-------------------------|-----|-----------------|------|-------------|-----|-----------------|------|
|                       | 0.50 kPa                |     |                 |      | 0.60 kPa    |     |                 |      |
|                       | SINGLE SPAN             |     | CONTINUOUS SPAN |      | SINGLE SPAN |     | CONTINUOUS SPAN |      |
|                       | 450                     | 600 | 450             | 600  | 450         | 600 | 450             | 600  |
| 1 x 10mm Plasterboard | 833                     | 767 | 1145            | 1057 | 796         | 735 | 1095            | 1010 |
| 1 x 13mm Plasterboard | 819                     | 755 | 1128            | 1039 | 784         | 724 | 1081            | 996  |
| 1 x 16mm Plasterboard | 805                     | 743 | 1109            | 1022 | 774         | 714 | 1066            | 983  |
| 2 x 13mm Plasterboard | 779                     | 719 | 1073            | 989  | 752         | 694 | 1035            | 955  |
| 2 x 16mm Plasterboard | 759                     | 700 | 1045            | 963  | 735         | 678 | 1010            | 933  |

| CLADDING DETAILS      | 0.70 kPa    |     |                 |     | 0.80 kPa    |     |                 |     |
|-----------------------|-------------|-----|-----------------|-----|-------------|-----|-----------------|-----|
|                       | SINGLE SPAN |     | CONTINUOUS SPAN |     | SINGLE SPAN |     | CONTINUOUS SPAN |     |
|                       | 450         | 600 | 450             | 600 | 450         | 600 | 450             | 600 |
| 1 x 10mm Plasterboard | 766         | 707 | 1055            | 973 | 741         | 684 | 1020            | 941 |
| 1 x 13mm Plasterboard | 756         | 699 | 1042            | 961 | 733         | 676 | 1009            | 931 |
| 1 x 16mm Plasterboard | 747         | 690 | 1030            | 950 | 725         | 669 | 998             | 920 |
| 2 x 13mm Plasterboard | 729         | 672 | 1003            | 925 | 708         | 653 | 975             | 899 |
| 2 x 16mm Plasterboard | 714         | 658 | 982             | 906 | 695         | 641 | 956             | 883 |

| CLADDING DETAILS      | 0.90 kPa    |     |                 |     | 1.00 kPa    |     |                 |     |
|-----------------------|-------------|-----|-----------------|-----|-------------|-----|-----------------|-----|
|                       | SINGLE SPAN |     | CONTINUOUS SPAN |     | SINGLE SPAN |     | CONTINUOUS SPAN |     |
|                       | 450         | 600 | 450             | 600 | 450         | 600 | 450             | 600 |
| 1 x 10mm Plasterboard | 719         | 664 | 990             | 913 | 700         | 646 | 963             | 888 |
| 1 x 13mm Plasterboard | 712         | 657 | 980             | 904 | 694         | 640 | 955             | 881 |
| 1 x 16mm Plasterboard | 705         | 650 | 970             | 895 | 687         | 634 | 946             | 873 |
| 2 x 13mm Plasterboard | 690         | 637 | 950             | 877 | 674         | 622 | 927             | 856 |
| 2 x 16mm Plasterboard | 679         | 626 | 933             | 862 | 664         | 612 | 913             | 842 |

NOTE: 1. Stated pressure is the ultimate design wind load, including all local factors.  
2. Deflection limited to the lesser of L/600 under dead load, or L/200 under dead plus service wind load.  
3. Service wind load checked at 0.65 times the ultimate pressure.  
4. Strength check of unrestrained flange in compression.  
5. Connections to be independently checked.

# SPAN TABLES

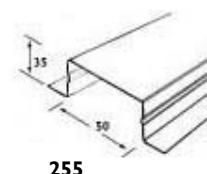
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## TOP HAT SECTIONS – ULTIMATE LIMIT STATE

**TABLE 27: Part Number 255: Ultimate Limit State Load Capacity (kPa)**

| SPAN | #255 TOP HAT SPACING |      |                 |      |
|------|----------------------|------|-----------------|------|
|      | SINGLE SPAN          |      | CONTINUOUS SPAN |      |
|      | 450                  | 600  | 450             | 600  |
| 900  | 7.48                 | 5.61 | 8.58            | 6.44 |
| 1000 | 5.66                 | 4.24 | 6.78            | 5.09 |
| 1100 | 4.32                 | 3.24 | 5.33            | 4.00 |
| 1200 | 3.32                 | 2.49 | 4.31            | 3.23 |
| 1300 | 2.53                 | 1.89 | 3.59            | 2.69 |
| 1400 | 1.96                 | 1.47 | 2.89            | 2.16 |
| 1500 | 1.55                 | 1.16 | 2.42            | 1.82 |
| 1600 | 1.25                 | 0.94 | 2.02            | 1.52 |
| 1700 | 1.02                 | 0.77 | 1.66            | 1.24 |
| 1800 | 0.85                 | 0.64 | 1.40            | 1.05 |

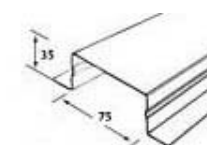
For working examples, refer to Appendix A on Page 35.



**255**

**TABLE 28: Part Number 256: Ultimate Limit State Load Capacity (kPa)**

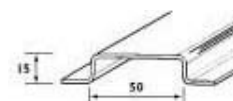
| SPAN | #256 TOP HAT SPACING |      |                 |      |
|------|----------------------|------|-----------------|------|
|      | SINGLE SPAN          |      | CONTINUOUS SPAN |      |
|      | 450                  | 600  | 450             | 600  |
| 900  | 8.95                 | 6.71 | 9.58            | 7.18 |
| 1000 | 6.99                 | 5.24 | 7.60            | 5.70 |
| 1100 | 5.54                 | 4.16 | 6.19            | 4.64 |
| 1200 | 4.45                 | 3.33 | 5.03            | 3.78 |
| 1300 | 3.60                 | 2.70 | 4.21            | 3.16 |
| 1400 | 2.93                 | 2.20 | 3.49            | 2.62 |
| 1500 | 2.40                 | 1.80 | 2.98            | 2.23 |
| 1600 | 1.97                 | 1.48 | 2.50            | 1.88 |
| 1700 | 1.60                 | 1.20 | 2.16            | 1.62 |
| 1800 | 1.30                 | 0.98 | 1.83            | 1.37 |



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**TABLE 29: Part Number 257: Ultimate Limit State Load Capacity (kPa)**

| SPAN | #257 TOP HAT SPACING |      |                 |      |
|------|----------------------|------|-----------------|------|
|      | SINGLE SPAN          |      | CONTINUOUS SPAN |      |
|      | 450                  | 600  | 450             | 600  |
| 600  | 4.99                 | 3.74 | 5.62            | 4.22 |
| 650  | 4.09                 | 3.06 | 4.66            | 3.49 |
| 700  | 3.38                 | 2.54 | 3.98            | 2.98 |
| 750  | 2.83                 | 2.12 | 3.33            | 2.50 |
| 800  | 2.39                 | 1.79 | 2.81            | 2.11 |
| 850  | 2.03                 | 1.53 | 2.39            | 1.79 |
| 900  | 1.75                 | 1.31 | 2.09            | 1.57 |
| 1000 | 1.32                 | 0.99 | 1.59            | 1.19 |
| 1100 | 1.02                 | 0.76 | 1.26            | 0.95 |
| 1200 | 0.81                 | 0.61 | 0.98            | 0.74 |



**257**

NOTE: 1. Ultimate limit state load capacity to be calculated in accordance with AS/NZS 1170.0 or AS/NZS 1170.2 as applicable.  
 2. Connections to be independently checked.  
 3. Serviceability limit state to be checked using Tables 30, 31 and 32 respectively.  
 4. Lining contribution has been ignored in analysis.

## TOP HAT SECTIONS – SERVICEABILITY LIMIT STATE

**TABLE 30: Part Number 255: Serviceability Limit State Load Capacity (kPa)**

| SPAN | #255 TOP HAT SPACING   |      |                 |      |                        |      |                 |      |
|------|------------------------|------|-----------------|------|------------------------|------|-----------------|------|
|      | L/250 DEFLECTION LIMIT |      |                 |      | L/360 DEFLECTION LIMIT |      |                 |      |
|      | SINGLE SPAN            |      | CONTINUOUS SPAN |      | SINGLE SPAN            |      | CONTINUOUS SPAN |      |
|      | 450                    | 600  | 450             | 600  | 450                    | 600  | 450             | 600  |
| 900  | 6.51                   | 4.88 | 12.28           | 9.21 | 4.52                   | 3.39 | 8.53            | 6.40 |
| 1000 | 4.74                   | 3.56 | 8.95            | 6.71 | 3.29                   | 2.47 | 6.22            | 4.66 |
| 1100 | 3.56                   | 2.67 | 6.73            | 5.05 | 2.48                   | 1.86 | 4.67            | 3.50 |
| 1200 | 2.75                   | 2.06 | 5.18            | 3.89 | 1.91                   | 1.43 | 3.60            | 2.70 |
| 1300 | 2.16                   | 1.62 | 4.08            | 3.06 | 1.50                   | 1.12 | 2.83            | 2.12 |
| 1400 | 1.73                   | 1.30 | 3.26            | 2.45 | 1.20                   | 0.90 | 2.27            | 1.70 |
| 1500 | 1.41                   | 1.05 | 2.65            | 1.99 | 0.98                   | 0.73 | 1.84            | 1.38 |
| 1600 | 1.16                   | 0.87 | 2.19            | 1.64 | 0.80                   | 0.60 | 1.52            | 1.14 |
| 1700 | 0.97                   | 0.72 | 1.82            | 1.37 | 0.67                   | 0.50 | 1.27            | 0.95 |
| 1800 | 0.81                   | 0.61 | 1.54            | 1.15 | 0.56                   | 0.42 | 1.07            | 0.80 |

**TABLE 31: Part Number 256: Serviceability Limit State Load Capacity (kPa)**

| SPAN | #256 TOP HAT SPACING   |      |                 |       |                        |      |                 |      |
|------|------------------------|------|-----------------|-------|------------------------|------|-----------------|------|
|      | L/250 DEFLECTION LIMIT |      |                 |       | L/360 DEFLECTION LIMIT |      |                 |      |
|      | SINGLE SPAN            |      | CONTINUOUS SPAN |       | SINGLE SPAN            |      | CONTINUOUS SPAN |      |
|      | 450                    | 600  | 450             | 600   | 450                    | 600  | 450             | 600  |
| 900  | 7.66                   | 5.75 | 14.46           | 10.84 | 5.32                   | 3.99 | 10.04           | 7.53 |
| 1000 | 5.59                   | 4.19 | 10.54           | 7.91  | 3.88                   | 2.91 | 7.32            | 5.49 |
| 1100 | 4.20                   | 3.15 | 7.92            | 5.94  | 2.91                   | 2.19 | 5.50            | 4.12 |
| 1200 | 3.23                   | 2.42 | 6.10            | 4.57  | 2.24                   | 1.68 | 4.24            | 3.18 |
| 1300 | 2.54                   | 1.91 | 4.80            | 3.60  | 1.77                   | 1.32 | 3.33            | 2.50 |
| 1400 | 2.04                   | 1.53 | 3.84            | 2.88  | 1.41                   | 1.06 | 2.67            | 2.00 |
| 1500 | 1.65                   | 1.24 | 3.12            | 2.34  | 1.15                   | 0.86 | 2.17            | 1.63 |
| 1600 | 1.36                   | 1.02 | 2.57            | 1.93  | 0.95                   | 0.71 | 1.79            | 1.34 |
| 1700 | 1.14                   | 0.85 | 2.15            | 1.61  | 0.79                   | 0.59 | 1.49            | 1.12 |
| 1800 | 0.96                   | 0.72 | 1.81            | 1.36  | 0.67                   | 0.50 | 1.26            | 0.94 |

**TABLE 32: Part Number 257: Serviceability Limit State Load Capacity (kPa)**

| SPAN | #257 TOP HAT SPACING   |      |                 |      |                        |      |                 |      |
|------|------------------------|------|-----------------|------|------------------------|------|-----------------|------|
|      | L/250 DEFLECTION LIMIT |      |                 |      | L/360 DEFLECTION LIMIT |      |                 |      |
|      | SINGLE SPAN            |      | CONTINUOUS SPAN |      | SINGLE SPAN            |      | CONTINUOUS SPAN |      |
|      | 450                    | 600  | 450             | 600  | 450                    | 600  | 450             | 600  |
| 600  | 2.85                   | 2.13 | 5.37            | 4.03 | 1.98                   | 1.48 | 3.73            | 2.80 |
| 650  | 2.24                   | 1.68 | 4.22            | 3.17 | 1.55                   | 1.17 | 2.93            | 2.20 |
| 700  | 1.79                   | 1.34 | 3.38            | 2.54 | 1.24                   | 0.93 | 2.35            | 1.76 |
| 750  | 1.46                   | 1.09 | 2.75            | 2.06 | 1.01                   | 0.76 | 1.91            | 1.43 |
| 800  | 1.20                   | 0.90 | 2.27            | 1.70 | 0.83                   | 0.63 | 1.57            | 1.18 |
| 850  | 1.00                   | 0.75 | 1.89            | 1.42 | 0.70                   | 0.52 | 1.31            | 0.98 |
| 900  | 0.84                   | 0.63 | 1.59            | 1.19 | 0.59                   | 0.44 | 1.10            | 0.83 |
| 1000 | 0.61                   | 0.46 | 1.16            | 0.87 | 0.43                   | 0.32 | 0.81            | 0.60 |
| 1100 | 0.46                   | 0.35 | 0.87            | 0.65 | 0.32                   | 0.24 | 0.61            | 0.45 |
| 1200 | 0.36                   | 0.27 | 0.67            | 0.50 | 0.25                   | 0.19 | 0.47            | 0.35 |

- NOTE: 1. Serviceability limit state load capacity to be calculated in accordance with AS/NZS 1170.0 or AS/NZS 1170.2 as applicable.  
2. Connections to be independently checked.  
3. Ultimate limit state to be checked using Tables 27, 28 and 29 respectively.  
4. Lining contribution has been ignored in analysis.  
5. Cantilever not to exceed 0.2 times the backspan.

# LOAD TABLES

## 125 TOP CROSS RAIL



**TABLE 33: Maximum Ceiling Load – Span of Top Cross Rail: 900mm**

| SPACING OF<br>TOP CROSS RAIL | FURRING CHANNEL SPACING                    |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
|                              | 450  |                        | 600                    |                        |
|                              | ALLOWABLE CEILING WEIGHT kg/m <sup>2</sup> |                        |                        |                        |
|                              | 129<br>FURRING CHANNEL                     | 308<br>FURRING CHANNEL | 129<br>FURRING CHANNEL | 308<br>FURRING CHANNEL |
| 900                          | 49   | 41                     | 49                     | 30                     |
| 1200                         | 36   | 15                     | 36                     | 11                     |
| 1500                         | 21   | 6.4                    | 15                     | 4.1                    |
| 1800                         | 9.1  | —                      | 5.9                    | —                      |

**TABLE 34: Maximum Ceiling Load – Span of Top Cross Rail: 1200mm**

| SPACING OF<br>TOP CROSS RAIL | FURRING CHANNEL SPACING                    |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
|                              | 450  |                        | 600                    |                        |
|                              | ALLOWABLE CEILING WEIGHT kg/m <sup>2</sup> |                        |                        |                        |
|                              | 129<br>FURRING CHANNEL                     | 308<br>FURRING CHANNEL | 129<br>FURRING CHANNEL | 308<br>FURRING CHANNEL |
| 900                          | 19   | 19                     | 19                     | 19                     |
| 1200                         | 13   | 13                     | 13                     | 11                     |
| 1500                         | 10   | 6.4                    | 10                     | 4.1                    |
| 1800                         | 7.9  | —                      | 5.9                    | —                      |

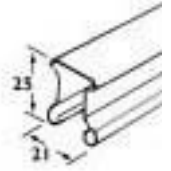
**TABLE 35: Maximum Ceiling Load – Span of Top Cross Rail: 1500mm**

| SPACING OF<br>TOP CROSS RAIL | FURRING CHANNEL SPACING                    |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
|                              | 450  |                        | 600                    |                        |
|                              | ALLOWABLE CEILING WEIGHT kg/m <sup>2</sup> |                        |                        |                        |
|                              | 129<br>FURRING CHANNEL                     | 308<br>FURRING CHANNEL | 129<br>FURRING CHANNEL | 308<br>FURRING CHANNEL |
| 900                          | 8.1  | 8.1                    | 8.1                    | 8.1                    |
| 1200                         | 5.2  | 5.2                    | 5.2                    | 5.2                    |
| 1500                         | 3.4  | 3.4                    | 3.4                    | 3.4                    |
| 1800                         | —  | —                      | —                      | —                      |

NOTE: 1. The above tables give the allowable dead load for the various ceiling configurations. The calculated ceiling weight therefore does not have to be factored in accordance with AS/NZS 2785.  
 2. Connections to be independently checked.  
 3. Deflection limited to L/360.  
 4. Lining contribution has been ignored in analysis.  
 5. Refer to details on Page 11 for external suspended ceiling systems.  
 6. Ultimate limit state: 1.4G + 1.7U. Serviceability limit state: G + U.

For working examples, refer to Appendix A on Page 35.

## 127 TOP CROSS RAIL



**TABLE 36: Maximum Ceiling Load – Span of Top Cross Rail: 900mm**

| SPACING OF<br>TOP CROSS RAIL | FURRING CHANNEL SPACING                    |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
|                              | 450  |                        | 600                    |                        |
|                              | ALLOWABLE CEILING WEIGHT kg/m <sup>2</sup> |                        |                        |                        |
|                              | 129<br>FURRING CHANNEL                     | 308<br>FURRING CHANNEL | 129<br>FURRING CHANNEL | 308<br>FURRING CHANNEL |
| 900                          | 67   | 41                     | 67                     | 30                     |
| 1200                         | 50   | 15                     | 37                     | 11                     |
| 1500                         | 21   | 6.4                    | 15                     | 4.1                    |
| 1800                         | 9.1  | —                      | 5.9                    | —                      |

**TABLE 37: Maximum Ceiling Load – Span of Top Cross Rail: 1200mm**

| SPACING OF<br>TOP CROSS RAIL | FURRING CHANNEL SPACING                    |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
|                              | 450  |                        | 600                    |                        |
|                              | ALLOWABLE CEILING WEIGHT kg/m <sup>2</sup> |                        |                        |                        |
|                              | 129<br>FURRING CHANNEL                     | 308<br>FURRING CHANNEL | 129<br>FURRING CHANNEL | 308<br>FURRING CHANNEL |
| 900                          | 27   | 27                     | 27                     | 27                     |
| 1200                         | 19   | 15                     | 19                     | 11                     |
| 1500                         | 15   | 6.4                    | 15                     | 4.1                    |
| 1800                         | 9.1  | —                      | 5.9                    | —                      |

**TABLE 38: Maximum Ceiling Load – Span of Top Cross Rail: 1500mm**

| SPACING OF<br>TOP CROSS RAIL | FURRING CHANNEL SPACING                    |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
|                              | 450  |                        | 600                    |                        |
|                              | ALLOWABLE CEILING WEIGHT kg/m <sup>2</sup> |                        |                        |                        |
|                              | 129<br>FURRING CHANNEL                     | 308<br>FURRING CHANNEL | 129<br>FURRING CHANNEL | 308<br>FURRING CHANNEL |
| 900                          | 12   | 12                     | 12                     | 12                     |
| 1200                         | 8.4  | 8.4                    | 8.4                    | 8.4                    |
| 1500                         | 6.1  | 6.1                    | 6.1                    | 4.1                    |
| 1800                         | 4.6  | —                      | 4.6                    | —                      |

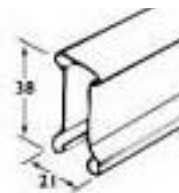
NOTE: 1. The above tables give the allowable dead load for the various ceiling configurations. The calculated ceiling weight therefore does not have to be factored in accordance with AS/NZS 2785.  
 2. Connections to be independently checked.  
 3. Deflection limited to L/360.  
 4. Lining contribution has been ignored in analysis.  
 5. Refer to details on Page 11 for external suspended ceiling systems.  
 6. Ultimate limit state: 1.4G + 1.7U. Serviceability limit state: G + U.

For working examples, refer to Appendix A on Page 35.

# LOAD TABLES

(CONTINUED)

## 128 TOP CROSS RAIL



**TABLE 39: Maximum Ceiling Load – Span of Top Cross Rail: 1200mm**

| SPACING OF<br>TOP CROSS RAIL | FURRING CHANNEL SPACING                    |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
|                              | 450  |                        | 600                    |                        |
|                              | ALLOWABLE CEILING WEIGHT kg/m <sup>2</sup> |                        |                        |                        |
|                              | 129<br>FURRING CHANNEL                     | 308<br>FURRING CHANNEL | 129<br>FURRING CHANNEL | 308<br>FURRING CHANNEL |
| 900                          | 50   | 41                     | 50                     | 30                     |
| 1200                         | 37   | 15                     | 37                     | 11                     |
| 1500                         | 21   | 6.4                    | 15                     | 4.1                    |
| 1800                         | 9.1  | —                      | 5.9                    | —                      |

**TABLE 40: Maximum Ceiling Load – Span of Top Cross Rail: 1500mm**

| SPACING OF<br>TOP CROSS RAIL | FURRING CHANNEL SPACING                    |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
|                              | 450  |                        | 600                    |                        |
|                              | ALLOWABLE CEILING WEIGHT kg/m <sup>2</sup> |                        |                        |                        |
|                              | 129<br>FURRING CHANNEL                     | 308<br>FURRING CHANNEL | 129<br>FURRING CHANNEL | 308<br>FURRING CHANNEL |
| 900                          | 22   | 22                     | 22                     | 22                     |
| 1200                         | 16   | 15                     | 16                     | 11                     |
| 1500                         | 12   | 6.4                    | 15                     | 4.1                    |
| 1800                         | 9.1  | —                      | 5.9                    | —                      |

**TABLE 41: Maximum Ceiling Load – Span of Top Cross Rail: 1800mm**

| SPACING OF<br>TOP CROSS RAIL | FURRING CHANNEL SPACING                    |                        |                        |                        |
|------------------------------|--|------------------------|------------------------|------------------------|
|                              | 450  |                        | 600                    |                        |
|                              | ALLOWABLE CEILING WEIGHT kg/m <sup>2</sup> |                        |                        |                        |
|                              | 129<br>FURRING CHANNEL                     | 308<br>FURRING CHANNEL | 129<br>FURRING CHANNEL | 308<br>FURRING CHANNEL |
| 900                          | 10   | 10                     | 10                     | 10                     |
| 1200                         | 7  | 7                      | 7                      | 7                      |
| 1500                         | 5  | 5                      | 5                      | 5                      |
| 1800                         | 3  | —                      | 3                      | —                      |

NOTE: 1. The above tables give the allowable dead load for the various ceiling configurations. The calculated ceiling weight therefore does not have to be factored in accordance with AS/NZS 2785.

2. Connections to be independently checked.

3. Deflection limited to L/360.

4. Lining contribution has been ignored in analysis.

5. Refer to details on Page 11 for external suspended ceiling systems.

6. Ultimate limit state: 1.4G + 1.7U. Serviceability limit state: G + U.

For working examples, refer to Appendix A on Page 35.

# APPENDIX A

## WORKING EXAMPLES

Following are working examples for the span and load tables starting on Page 25 of this brochure.

### TABLE 13

Example:  
Residential house located in Region A  
Terrain Category 2.5  
Topographic location T1  
Partial shielding (PS)  
From AS4055: Wind Loading - N2  
Select preferred option depending on linings and span

### TABLE 14

Example:  
Residential house located in Region B  
Terrain Category 3  
Topographic location T2  
Partial shielding (PS)  
From AS4055: Wind Loading - N3  
Select preferred option depending on linings and span

### TABLE 15

Example:  
1 x 13mm plasterboard, and the engineer has given a wind loading of 0.68kPa positive or negative  
Using the 0.70kPa table, adopt #129 Furring Channel at 600mm centres - maximum span = 1265mm continuous.

### TABLE 16

Example:  
Residential house located in Region A  
Terrain Category 2.5  
Topographic location T1  
Partial shielding (PS)  
From AS4055: Wind Loading - N2  
Select preferred option depending on linings and span

### TABLE 17

Example:  
Residential house located in Region B  
Terrain Category 3  
Topographic location T2  
Partial shielding (PS)  
From AS4055: Wind Loading - N3  
Select preferred option depending on linings and span

### TABLE 18

Example:  
1 x 16mm plasterboard, and the engineer has given a wind loading of 0.48kPa positive or negative  
Using the 0.50kPa table, adopt #308 Furring Channel at 450mm centres – maximum span = 1177mm continuous.

### TABLE 19

Example:  
Residential house located in Region A  
Terrain Category 2.5  
Topographic location T1  
Partial shielding (PS)  
From AS4055: Wind Loading - N2  
Select preferred option depending on linings and span

### TABLE 20

Example:  
Residential house located in Region B  
Terrain Category 3  
Topographic location T2  
Partial shielding (PS)  
From AS4055: Wind Loading - N3  
Select preferred option depending on linings and span

### TABLE 21

Example:  
2 x 13mm plasterboard, and the engineer has given a wind loading of 0.80kPa positive or negative  
Using the 0.80kPa table, adopt #310 Battens at 450mm centres – maximum span = 1220mm continuous.

### TABLE 24

Example:  
Residential house located in Region A  
Terrain Category 2.5  
Topographic location T1  
Partial shielding (PS)  
From AS4055: Wind Loading - N2  
Select preferred option depending on linings and span

### TABLE 25

Example:  
Residential house located in Region B  
Terrain Category 3  
Topographic location T2  
Partial shielding (PS)  
From AS4055: Wind Loading - N3  
Select preferred option depending on linings and span

### TABLE 26

Example:  
1 x 10mm plasterboard, and the engineer has given a wind loading of 0.45kPa positive or negative  
Using the 0.50kPa table, adopt #303 Battens at 600mm centres – maximum span = 1057mm continuous.

### TABLES 27, 28, 29

Example:  
Dead Load - 1 x 9mm FC sheeting – 0.18kPa  
Wind Load to AS/NZS1170.2:  
Using Appendix D4  
Region B Terrain category 3  
Height of soffit = 12m  
Projection of soffit = 6m  
Building Height = 18m

$V_{1000} = 60\text{m/s}$   
 $V_{20} = 38\text{m/s}$   
Direction Multiplier  $M_D = 1$   
Terrain/Height  
Multiplier  $M_{zcat3} = 0.92$   
Shielding/Topography  
 $M_s M_t = 1.0$   
 $V_{des\theta} = 55.2\text{m/s}$  Ultimate  
 $\theta = 0$  degrees only:  
 $hc / h = 0.67$ , and  $hc/wc = 0.5$   
 $C_{pn} = +0.44$  or  $-0.37$   
Area reduction  $K_a = 1.0$   
Local pressure factor  
 $K_l = 1.5, 2.0$  or  $3.0$  - Upward  
**Maximum Negative:**  
 $p_u = 0.6 \times (55.2)^2 \times -0.37 \times 2.0 = 1.35\text{kPa}$  Downward  
**Maximum Positive:**  
 $p_u = 0.6 \times (55.2)^2 \times 0.44 \times 3.0 = 2.41\text{kPa}$  Upward

Check Load Combinations to AS/NZS1170.0  
LC1: 1.35G  
 $W^* = 1.35 \times 0.18 = 0.243\text{kPa}$   
LC2: 1.2G, 1.5Q  
Q = 0kPa for ceiling, therefore 1.2G not critical

LC3: 1.2G,  $W_u, \psi_c Q$   
Q = 0kPa for ceiling, therefore 1.2G,  $W_u$   
Downward:  
 $W^* = (1.2 \times 0.18) + 1.35 = 1.57\text{ kPa}$

LC4: 0.9G,  $W_u, \psi_c Q$   
Q = 0kPa for ceiling, therefore 0.9G,  $W_u$   
Upward:  
 $W^* = (0.9 \times 0.18) - 2.41 = 2.25\text{ kPa}$

**Therefore,  $W^* = 2.25\text{kPa}$  controls**

Top hat continuous span  
Adopt #255 at 600 ctrs – maximum span = 1300mm  
Adopt #256 at 600 ctrs – maximum span = 1400mm  
\* Check serviceability Page 31

## WORKING EXAMPLES

### TABLES 30, 31, 32

Check serviceability of previous example

External soffit therefore adopt  $L / 360$  under dead load and  $L / 250$  under wind load as deflection limits.

Wind loading:

Maximum Negative  $p_s = 1.35 \times (38/60)^2 = 0.54\text{kPa}$

Maximum Positive  $p_s = 2.41 \times (38/60)^2 = 0.97\text{kPa}$

From Previous #255 at 600 ctrs – maximum span = 1300mm

$L / 360$  Limit  $W^* = 2.12\text{kPa} > 0.18\text{kPa}$  OK

$L / 250$  Limit  $W^* = 3.06\text{kPa} > 0.81\text{kPa}$  OK

From previous #256 at 600 ctrs – maximum span = 1400mm

$L / 360$  Limit  $W^* = 2.00\text{kPa} > 0.18\text{kPa}$  OK

$L / 250$  Limit  $W^* = 2.88\text{kPa} > 0.81\text{kPa}$  OK

Both sections satisfy strength and serviceability

### TABLE 33

Example:

Dead Load:

1 x 13mm Plasterboard = 10kg/m<sup>2</sup>

Wind Load:

No wind load, building effectively sealed and air conditioned.

Using Table 34:

#125 TCR at 1200 centres with suspension at 1200mm centres along TCR

#308 furring channels at 600mm centres appears to be the most economical.

### TABLE 36

Example:

Dead Load:

2 x 13mm Plasterboard = 20kg/m<sup>2</sup>

Wind Load:

No wind load, building effectively sealed and air conditioned.

Using Table 37:

#127 TCR at 900 centres with suspension at 1200mm centres along TCR

#308 furring channels at 600mm centres appears to be the most economical.

### TABLE 39

Example:

Dead Load:

2 x 16mm Plasterboard = 26kg/m<sup>2</sup>

1 x 6mm Fibrous cement = 10kg/m<sup>2</sup>

Total = 36kg/m<sup>2</sup>

Wind Load:

No wind load, building effectively sealed and air conditioned.

Using Table 39:

#128 TCR at 1200 centres with suspension at 1200mm centres along TCR

#129 furring channels at 600mm centres

Suspension setout =  $1.2 \times 1.2 = 1.44\text{m}^2$

## APPENDIX B

### GLOSSARY

|          |   |  |
|----------|---|--|
| $V_{hu}$ | – | Ultimate design gust wind speed at height $h$            |
| $V_{hs}$ | – | Serviceability design gust wind speed at height $h$      |
| $C_{pi}$ | – | Internal pressure coefficient                            |
| $L_{ci}$ | – | Load combination No. 1 etc.                              |
| $G$      | – | Dead load  |
| $W_u$    | – | Ultimate design wind load (kPa)                          |
| $W_s$    | – | Serviceability design wind load (kPa)                    |
| $L/600$  | – | Deflection limits i.e. 1 mm in every 60mm of span length |
| $U$      | – | Service load as defined in AS/NZS 2785                   |

Wind classification N2 was previously W33 using permissible stress method.

Wind classification N3 was previously W41 using permissible stress method.

# ARCHITECTURAL SPECIFICATIONS

## SCOPE

The contractor is to furnish all materials, labour and equipment for the erection of a Rondo Key-Lock Building Board Ceiling Suspension System where so indicated on the architectural drawings.

## MATERIAL

The Rondo Key-Lock Building Board Ceiling Suspension System shall be as manufactured by Rondo Building Services Pty Ltd. All materials supplied by Rondo Building Services meet the relevant Australian and New Zealand Standards.

## INSTALLATION

The Rondo Key-Lock Building Board Ceiling Suspension System shall be installed as per step by step instructions shown in this brochure.

The Primary Rail shall be hung on 5 mm soft galvanised rod, accurately levelled. Suspension Clips shall be at ..... mm centres along the Primary Rail. Primary Rails are to be spaced at ..... mm centres. Furring Channels shall run at right angles to the Primary Rails and be positively locked to the Primary Rails with locking keys. Furring Channel centres shall not exceed the recommendation of the building board manufacturer and shall be joined end to end, with Furring Channel joiners. Primary Rails and Furring Channels shall be spaced so as not to exceed the design ceiling load or as otherwise to provide a 1/..... of span deflection. Extra hangers shall be provided for light fittings, air conditioning units, etc. that are supported by the grid system. Down bracing to be incorporated in ceiling systems when used externally or adjacent to openings prone to sudden uplift caused by external wind forces.

## IMPORTANT

The Rondo Key-Lock Ceiling Suspension System is one system in the range of Rondo Ceiling Systems. It can interlock with one or more of the grid systems in the same ceiling, e.g., Rondo Key-Lock Ceiling System can change to a Duo Ceiling System, then to a One Way Linear System, and then back to a Key-Lock Ceiling System. All positively locked together with individual provision for expansion and contraction. The Rondo range of ceiling systems can interlock with each other in the same ceiling area, providing specialised ceilings after partitioning.

## NON-STANDARD LENGTHS

These can be manufactured once a firm order has been placed. A surcharge may be applied, subject to the quantity ordered.

## ADVISORY SERVICE

Individual projects may require special detailing and development. Technical assistance is available from our engineering staff, such as detailed drawings, custom sections, or clarification of other Rondo services.

## NOTE

As new technology is introduced, or industry standards are altered, Rondo reserves the right to alter existing specifications without notice.

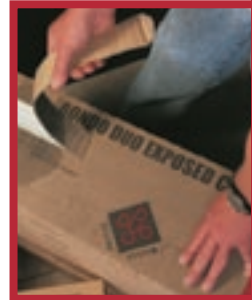
## GUARANTEE

Rondo Building Services Pty Ltd supplies the Key-Lock Building Board Ceiling Suspension System which is warranted to be free from defects in material and workmanship, and will replace and/or repair any product found to be defective, if installed in accordance with our technical literature and standard guarantee details. This warranty is in addition to any rights the customer may have at law. All Rondo Building Services' products are designed to satisfy Australian and New Zealand conditions.

## ADDITIONAL RONDO PRODUCTS

### CEILING SYSTEMS

- Rondo KEY-LOCK™ Concealed Suspended Ceiling Systems.
- Rondo DUO® Exposed Suspended Ceiling Systems.
- Rondo TAG-LOCK™ Aluminium Exposed Suspended Ceiling Systems.
- Rondo CLASSIC™ Concealed Suspended Ceiling Systems — face demountable.
- Rondo WALK-ABOUT™ Trafficable Ceiling Systems .
- Rondo Metal Ceiling Batten Systems for Residential Construction.
- Rondo Suspended Tongue & Groove Timber Ceiling Systems.



### DRYWALL STEEL STUD WALL FRAMING SYSTEMS

- Rondo Drywall Steel Stud Partition Systems (fire-rated, loadbearing/non-loadbearing, internal partition and curtain wall framing systems).
- Rondo Shaftwall Framing Systems.

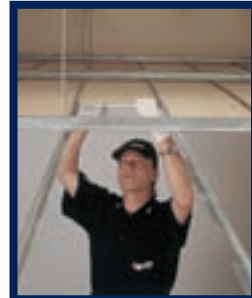


### SOUND ISOLATION ASSEMBLIES FOR WALLS & CEILINGS

- Rondo Acoustic Isolation Assemblies for sound-rated wall & ceiling systems.

### WALL & CEILING ACCESS PANEL SYSTEMS

- Rondo PANTHER® Access Panels (acoustic & fire-rated systems).



### FINISHING SECTIONS

- Rondo EXANGLE® Building Board and Render Finishing Sections.

### EZY-DRIVE

- Rondo EZY-DRIVE® Roadside Guide Posts.
- Rondo EZY-DRIVE® Utility Markers & Poly-Flex Safety Products.
- Rondo EZY-DRIVE® Roadside Accessories.
- Rondo EZY-DRIVE® STEEL-FLEX™ Flexible Steel Guide Posts.



### OTHER SERVICES

- Rondo Custom Roll Forming Services.
- Rondo Technical Design and Research & Development Services.
- Rondo Freight & Logistics Services.



## Rondo OFFICES

### AUSTRALIA

CUSTOMER SERVICE HOTLINE: 1300-36-RONDO (1300-36-7663)

#### NEW SOUTH WALES

3-33 Glossop Street St Marys NSW 2760  
(PO Box 324 St Marys NSW 1790)  
Phone: 61-2-9912 7300 Fax: 61-2-9912 7310

#### VICTORIA

12-14 Dunlop Road Mulgrave VIC 3170  
Phone: 61-3-8561 2222 Fax: 61-3-8561 2266

#### QUEENSLAND

Lot 512 Binary Street Yatala QLD 4207  
Phone: 61-7-3287 4944 Fax: 61-7-3287 1881

#### SOUTH AUSTRALIA

39 George Street Greenfields SA 5017  
Phone: 61-8-8283 4065 Fax: 61-8-8283 4320

#### WESTERN AUSTRALIA

5 Hazelhurst Street Kewdale WA 6105  
Phone: 61-8-9353 2944 Fax: 61-8-9353 2955

#### HEAD OFFICE

PO Box 324 St Marys NSW 1790  
Phone: 61-2-9912 7303 Fax: 61-2-9912 7313

#### EXPORT

Phone: 61-438-427-479 Fax: 61-7-3287-1881

### NEW ZEALAND

#### RONDO BUILDING SERVICES PTY LTD

117A Captain Springs Road Onehunga Auckland  
Phone: 64-9-636 5110 Fax: 64-9-636 5111  
FREE CALL: 0800-0800-RONDO (0800-0800-76)

### MALAYSIA

#### RONDO METAL PRODUCTS SDN BHD

Lot 606, off Jalan SS 13/1K,  
Subang Jaya, Selangor  
Phone: 60-3-5636 8868 Fax: 60-3-5636 7669

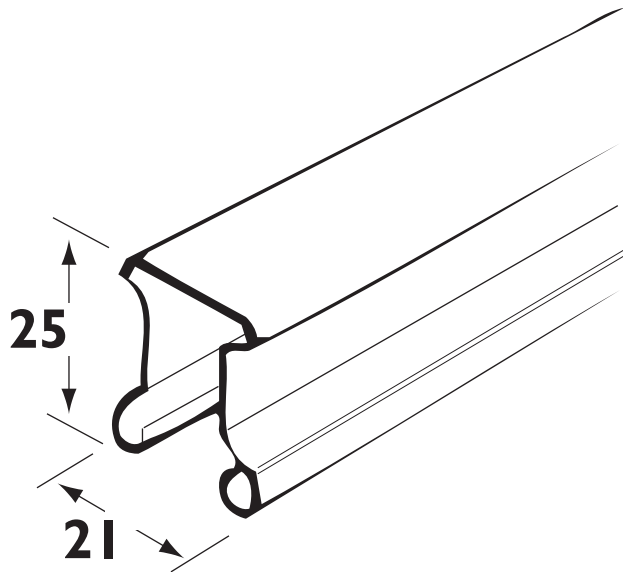


1300-36-RONDO (1300-36-7663)  
[www.rondo.com.au](http://www.rondo.com.au)





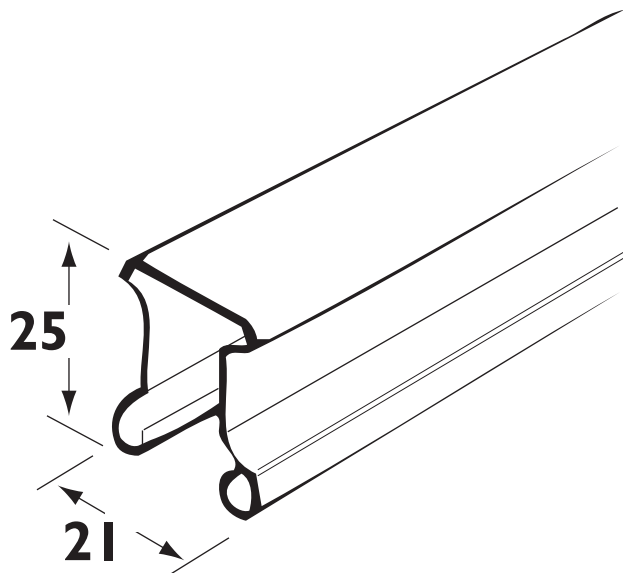
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**I 25**



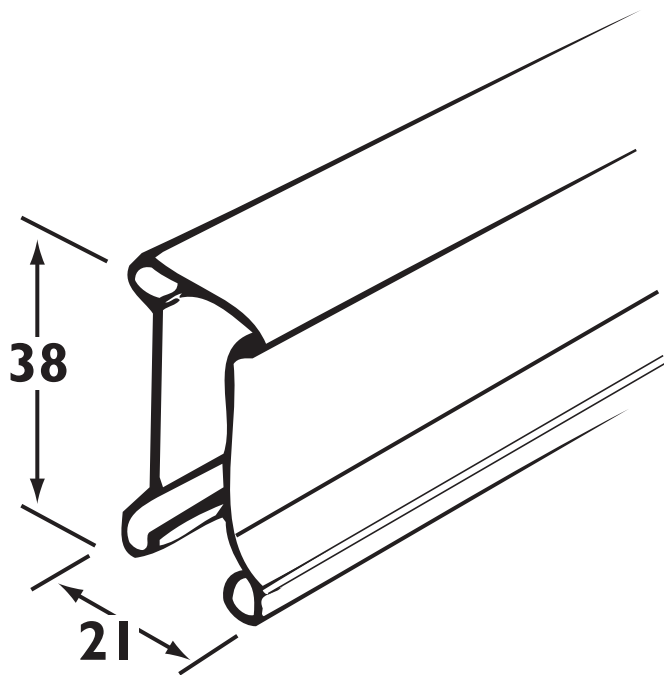
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**I 27**



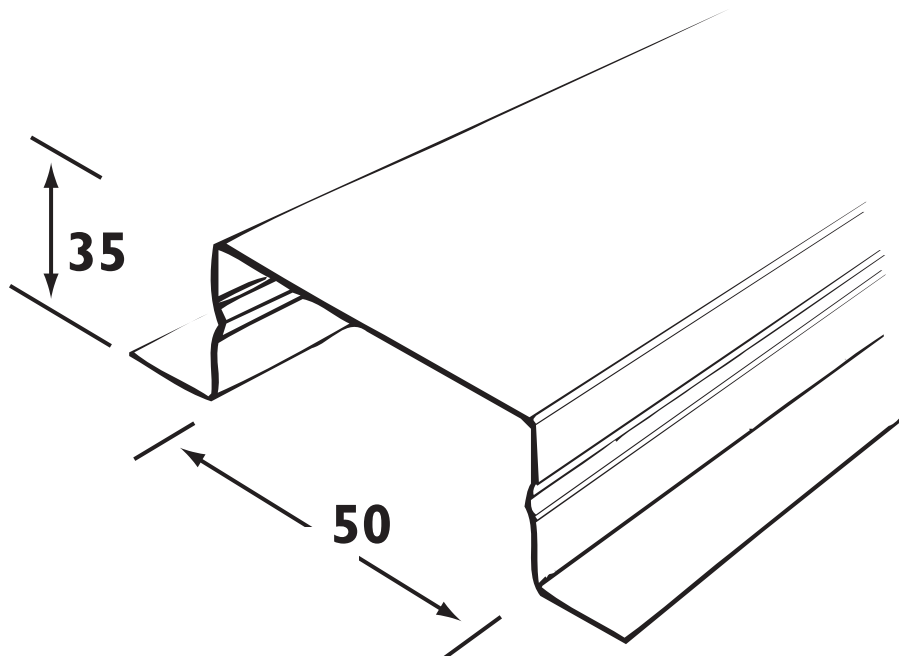
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**I 28**



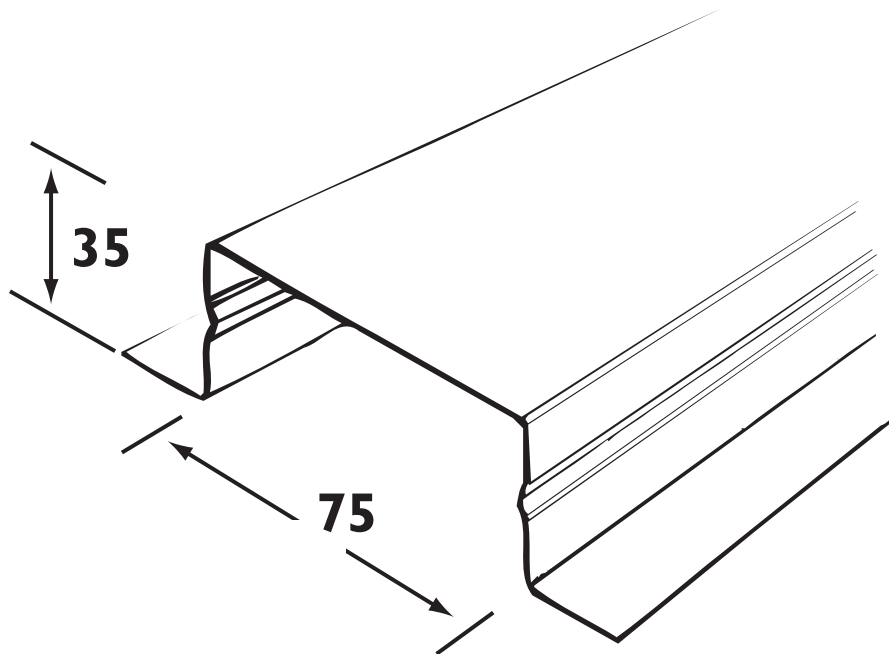
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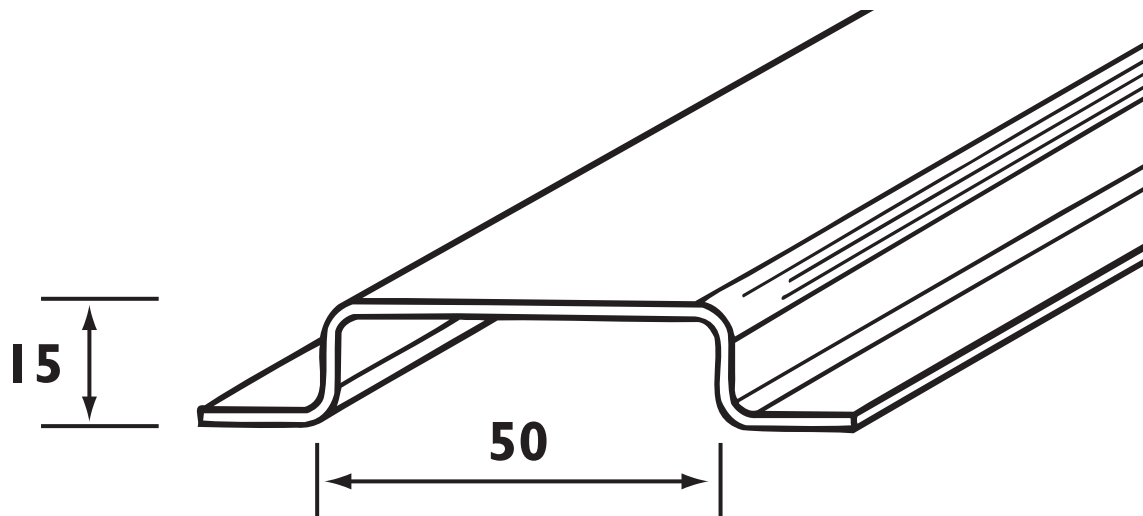
**255**



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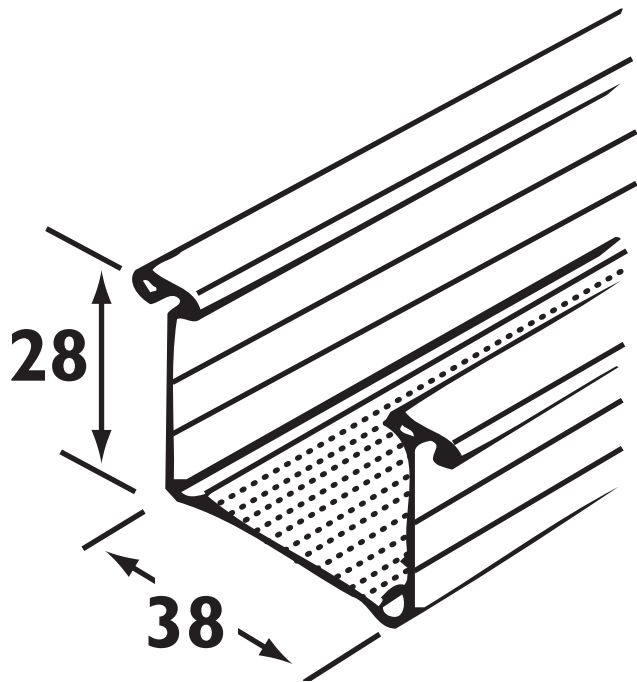
**256**



**257**



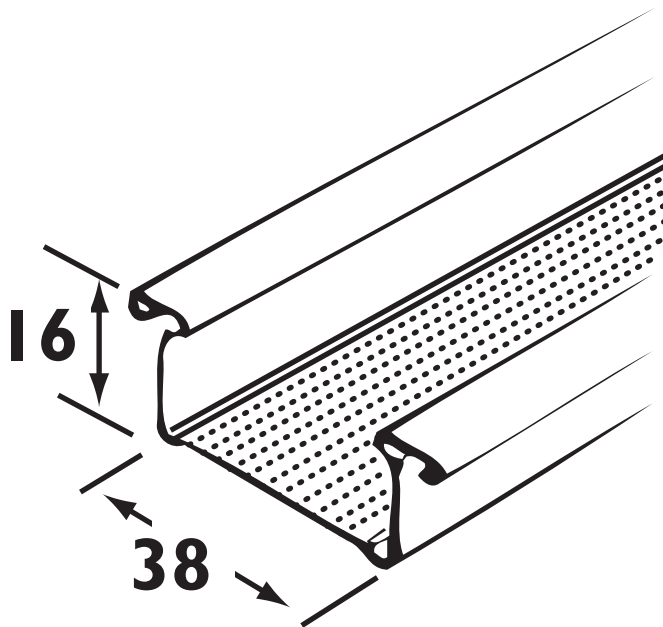
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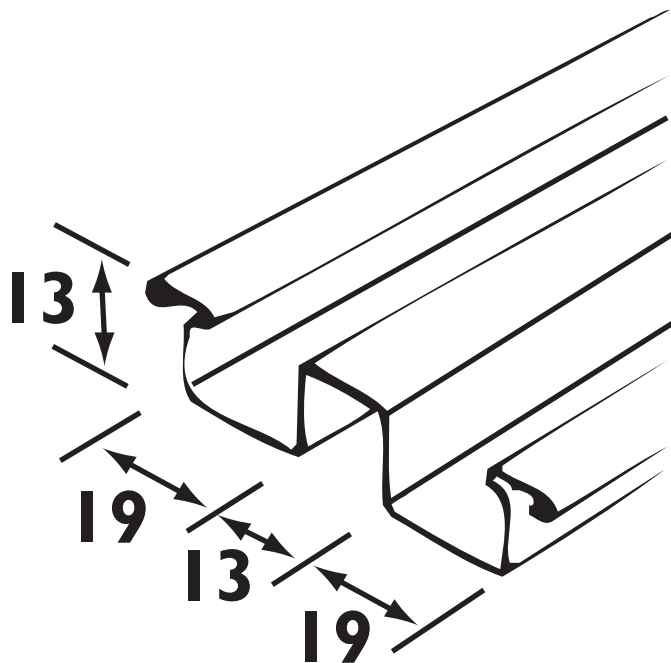
**I 29**



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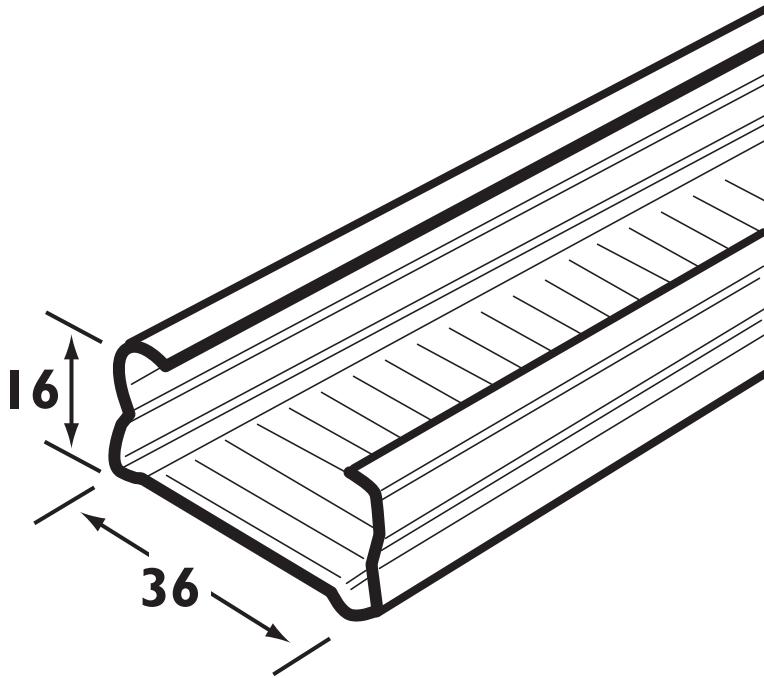
**308**



**333**



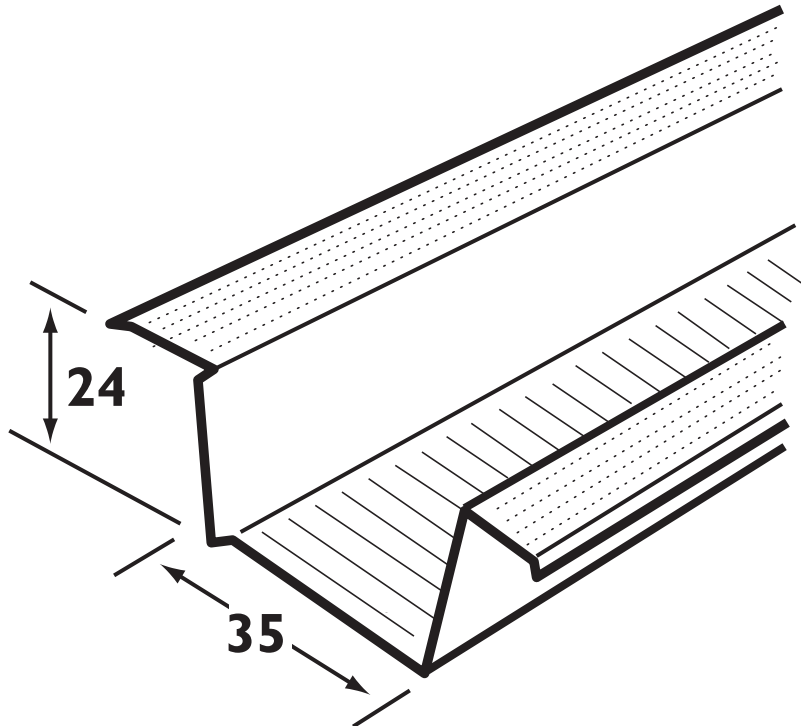
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**301**



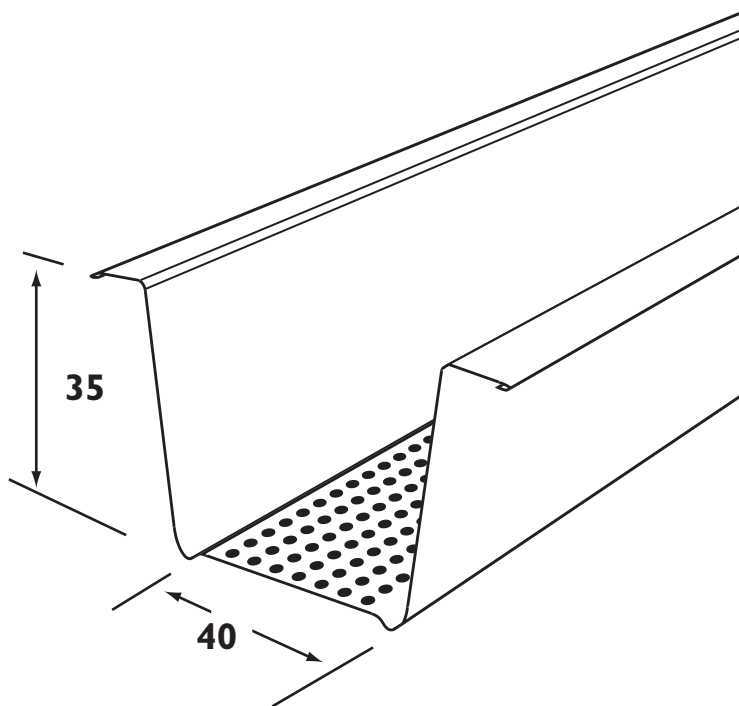
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**303**



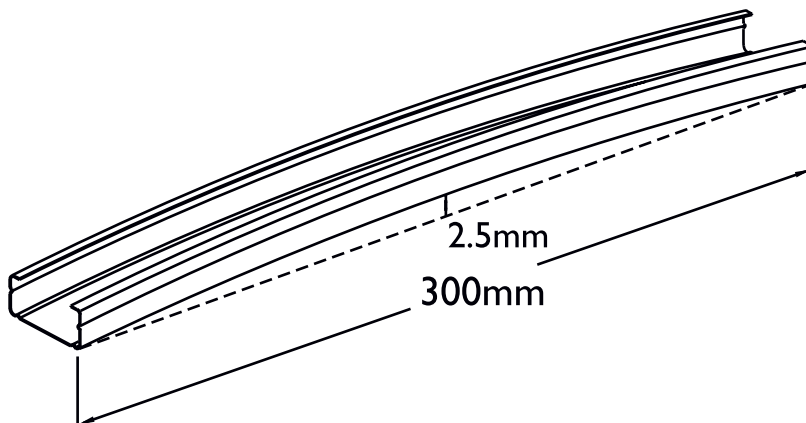
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**310**



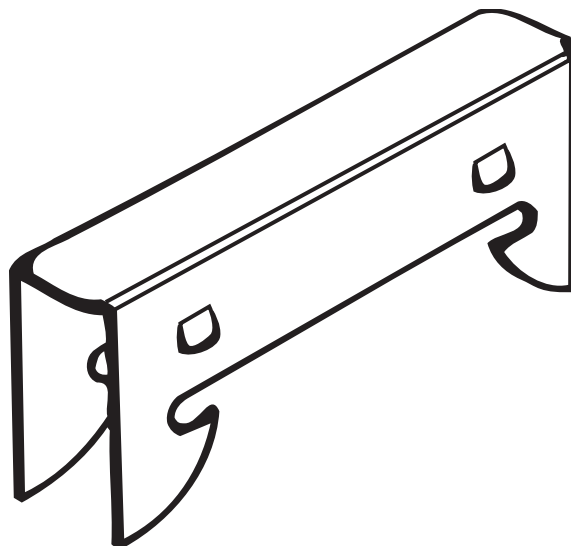
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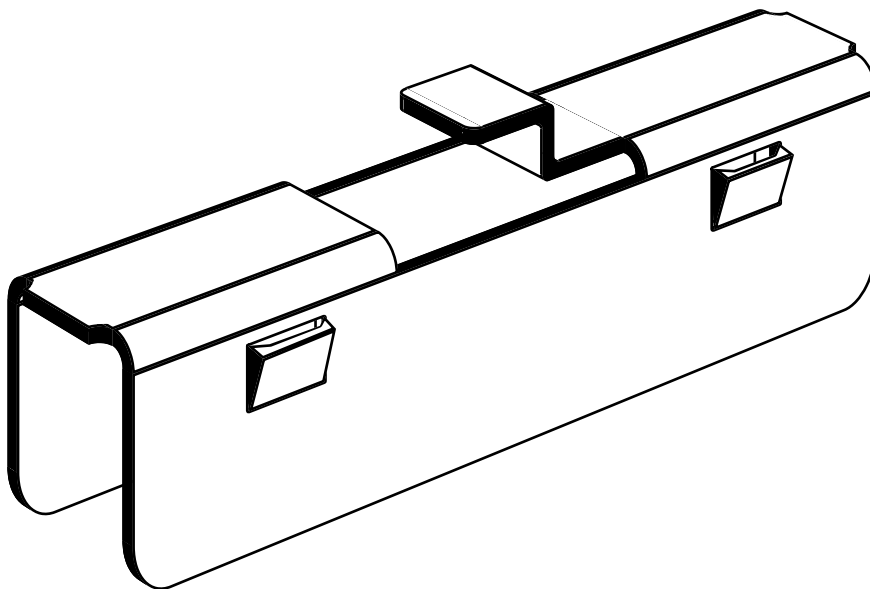
**B005**



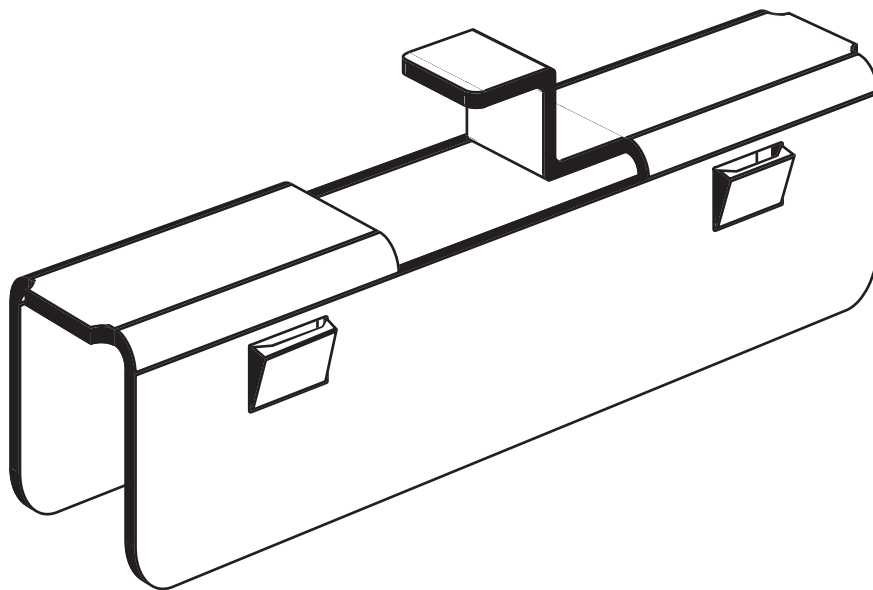
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**I 39**



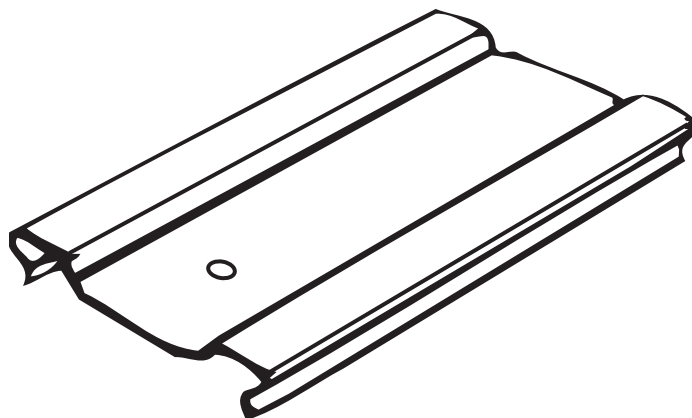
**I36-I0**



**I36-I3**



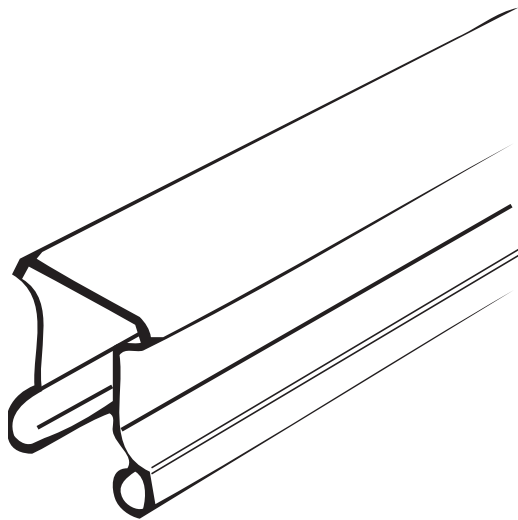
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**I 38**



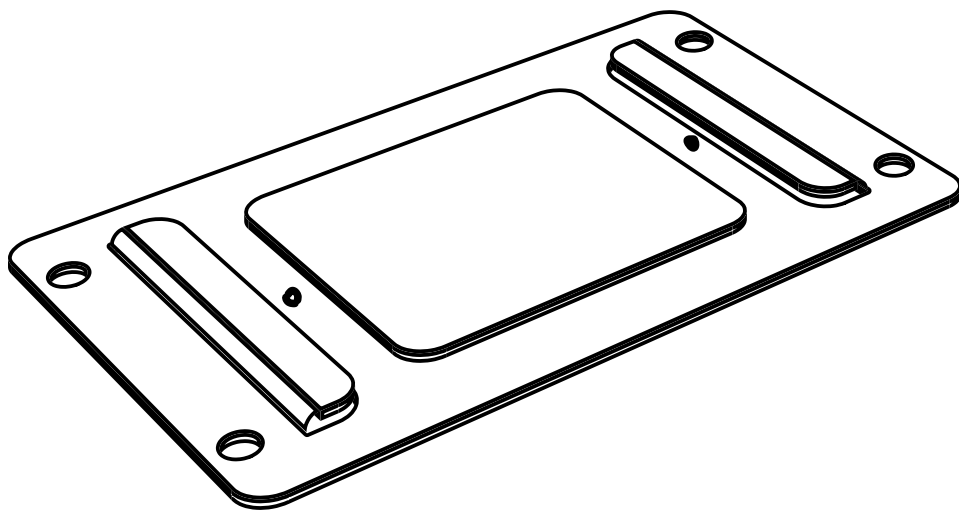
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**272**



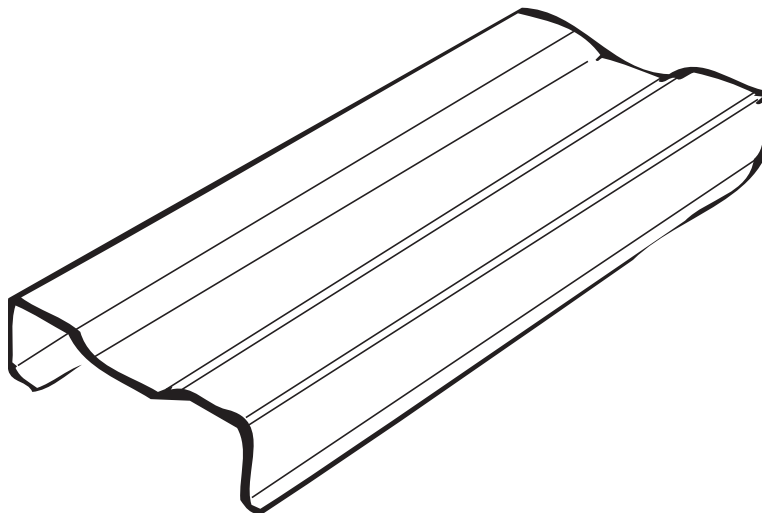
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**312**



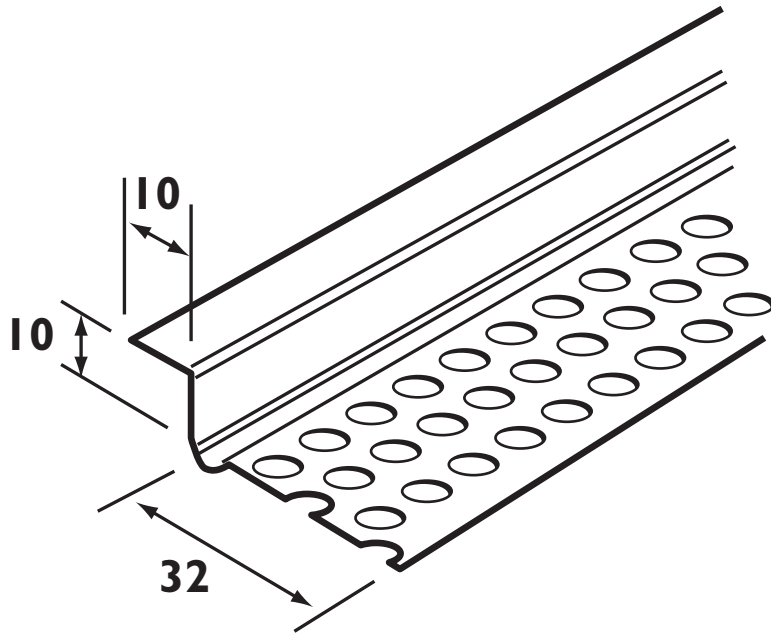
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**315**



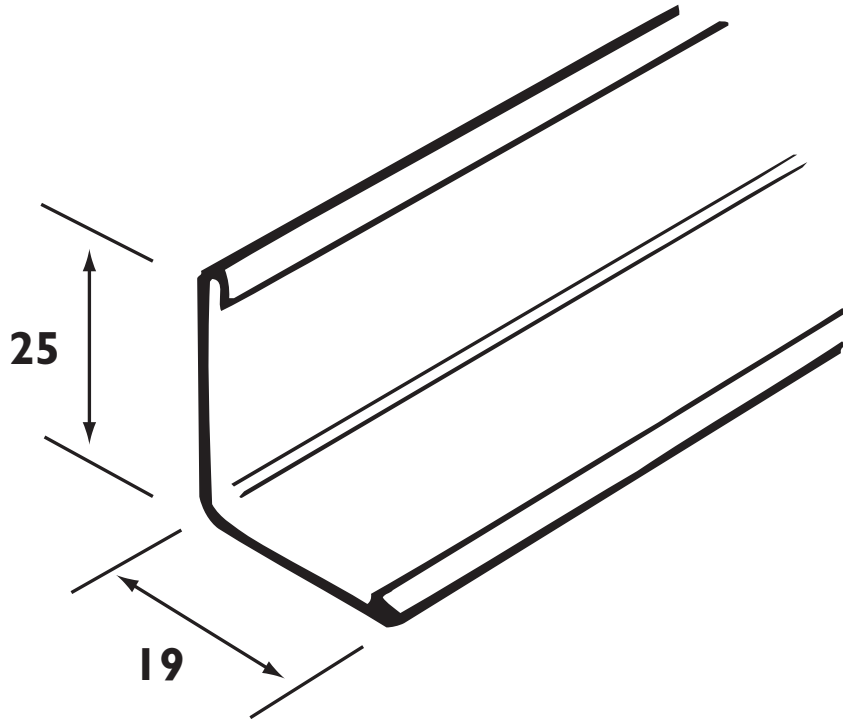
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**P50/P60**



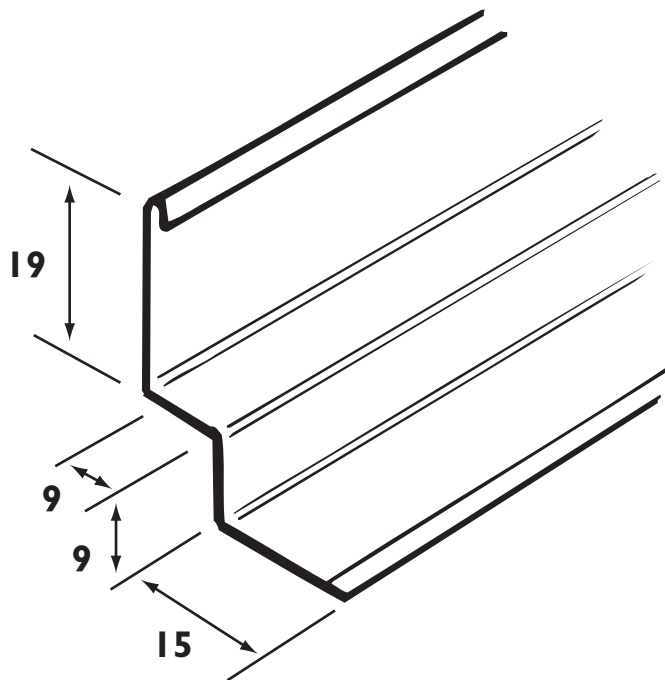
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**DUO 5**



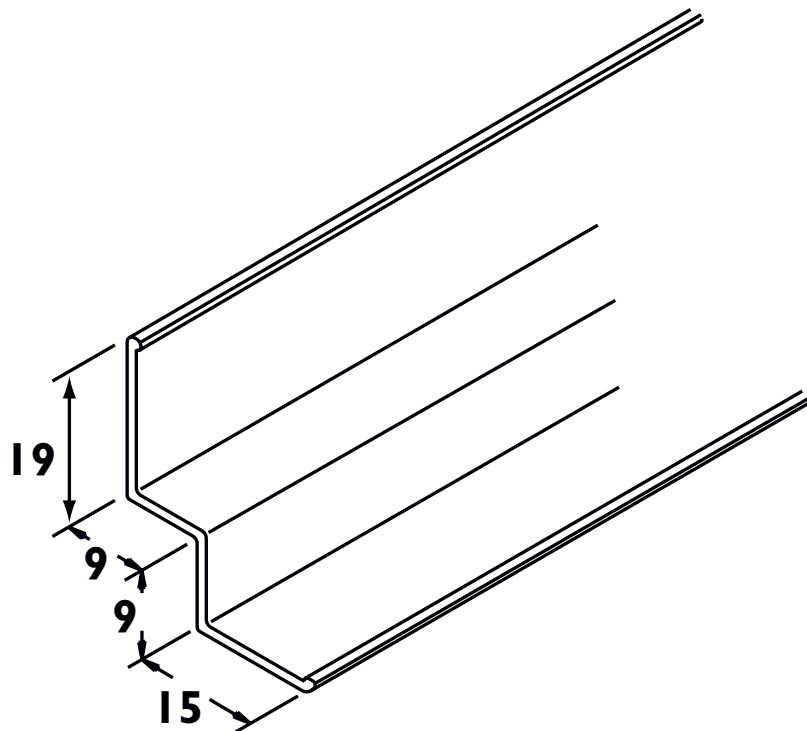
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# DUO 6



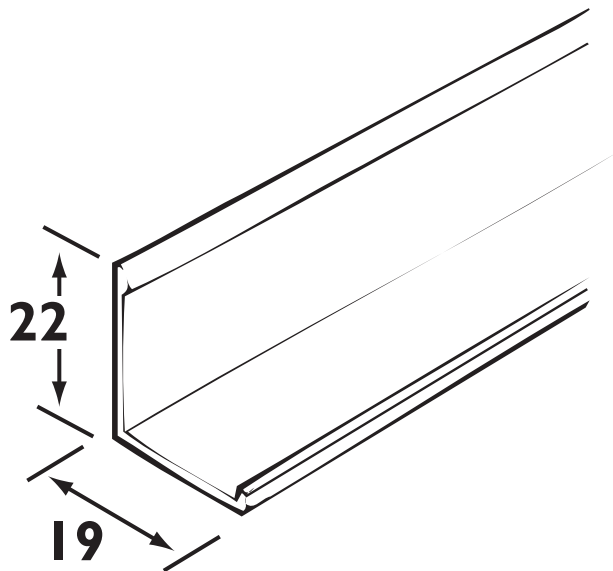
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**DUO 7**



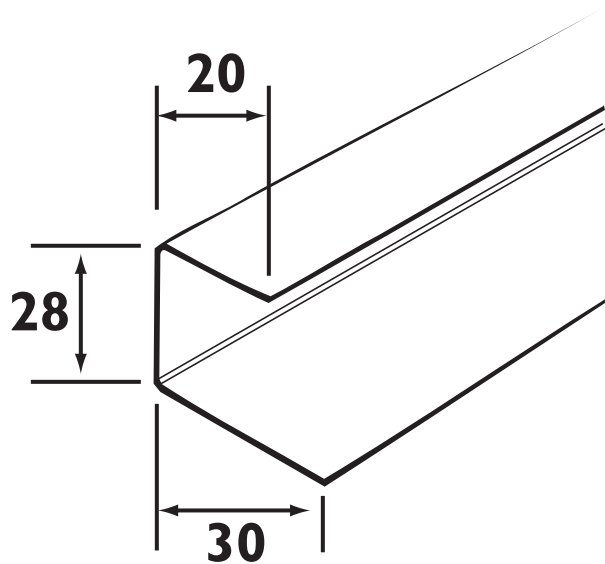
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**187**



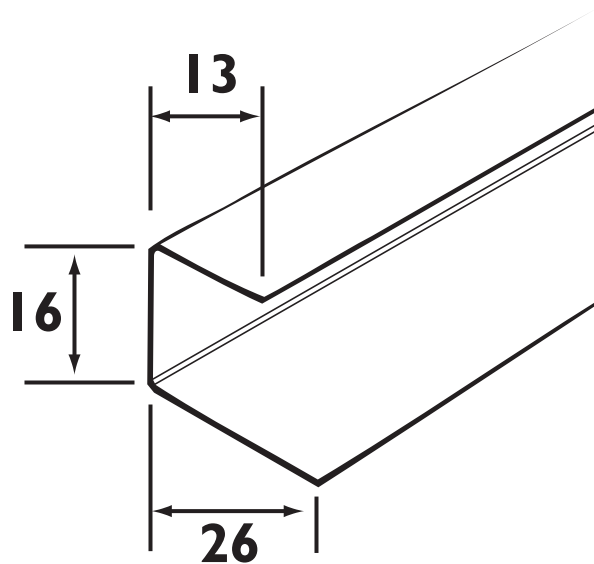
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**I 40**



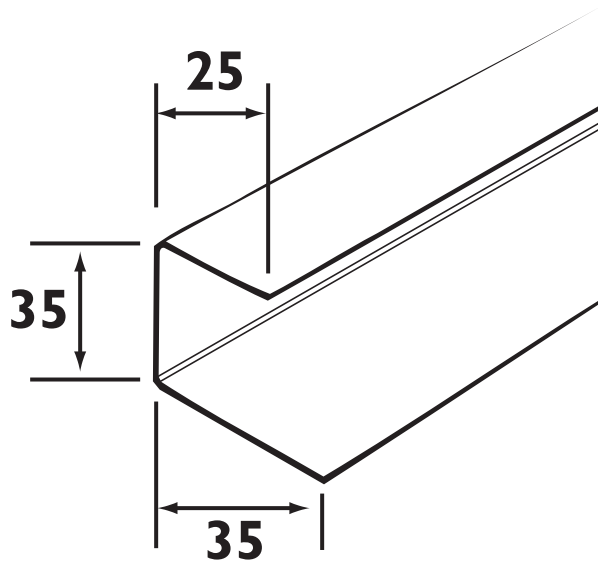
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**I 42**



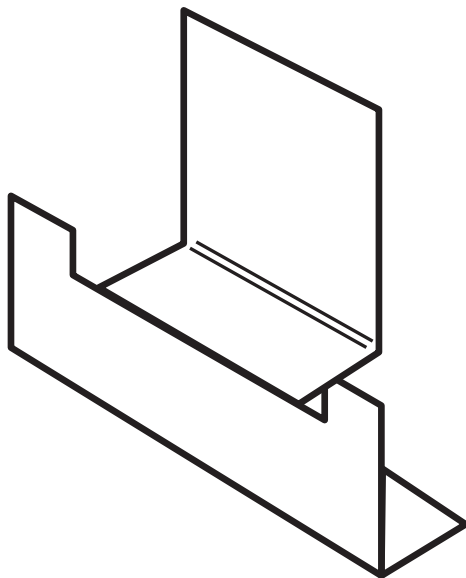
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**340**



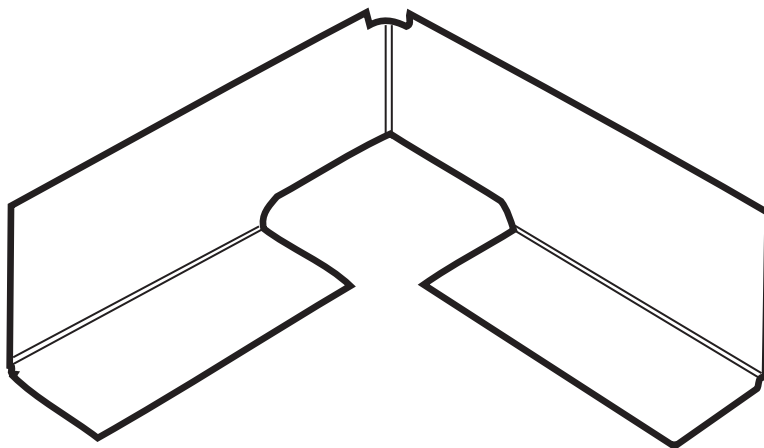
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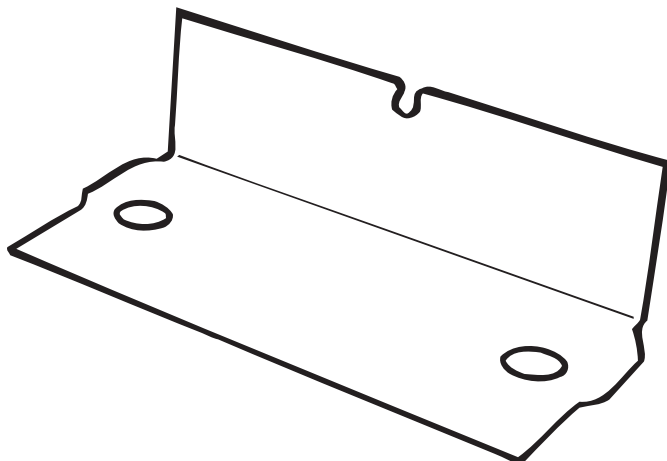
**717**



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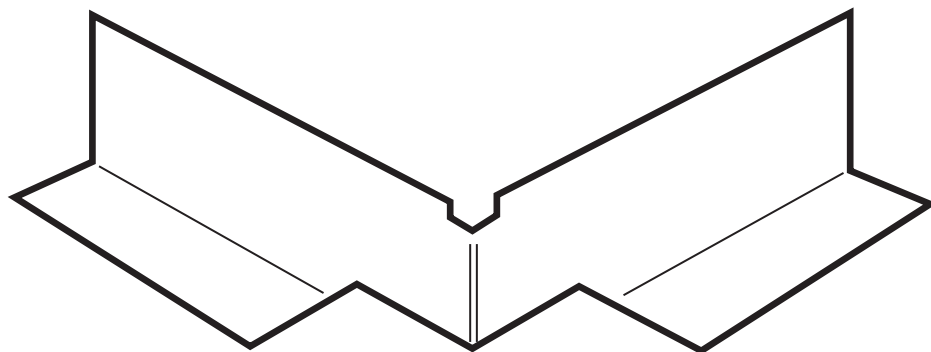
**711**



**709**



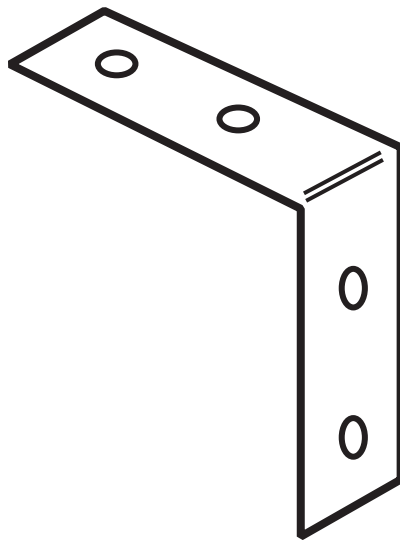
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**710**



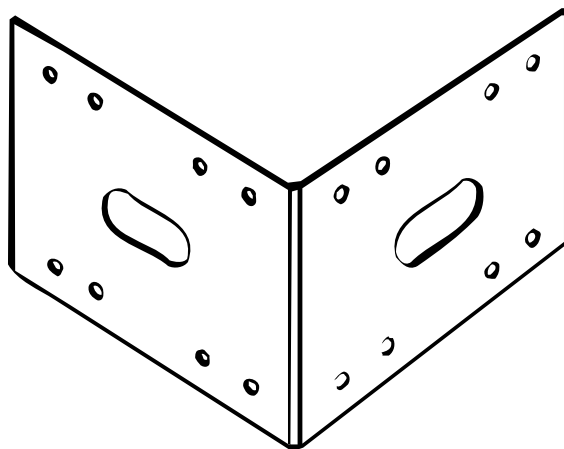
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**I 88**



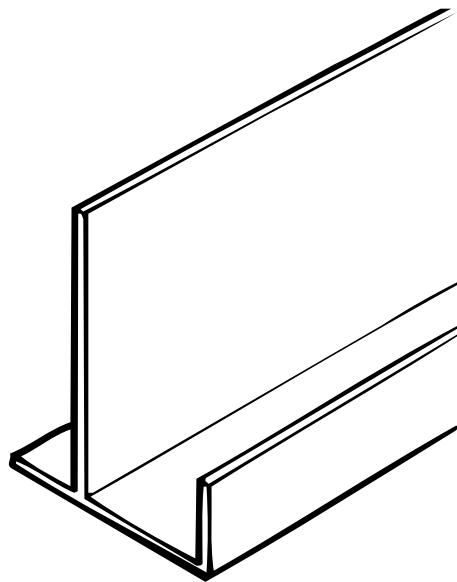
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**545**



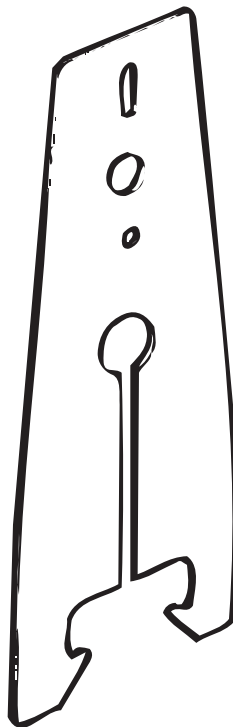
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**321**



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**I 66**



**226**



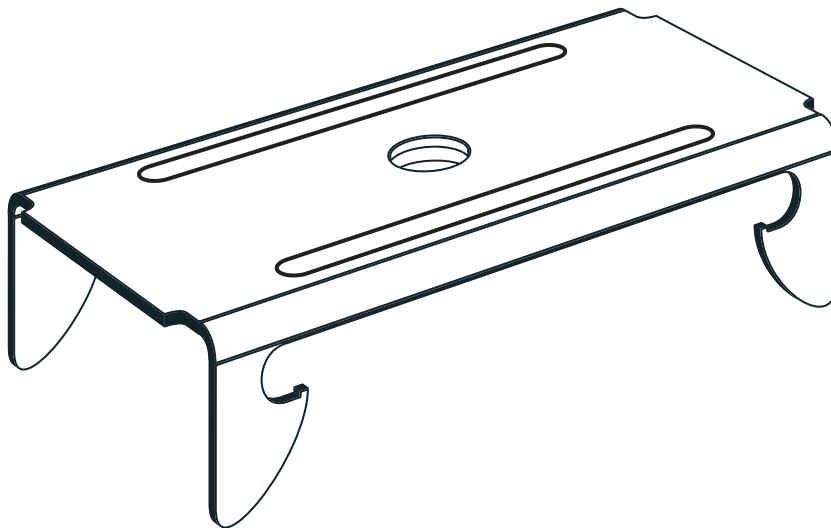
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**394**



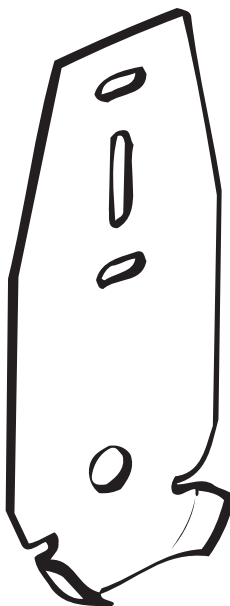
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**237**



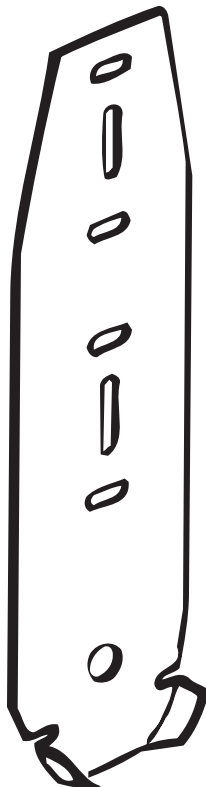
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**305**



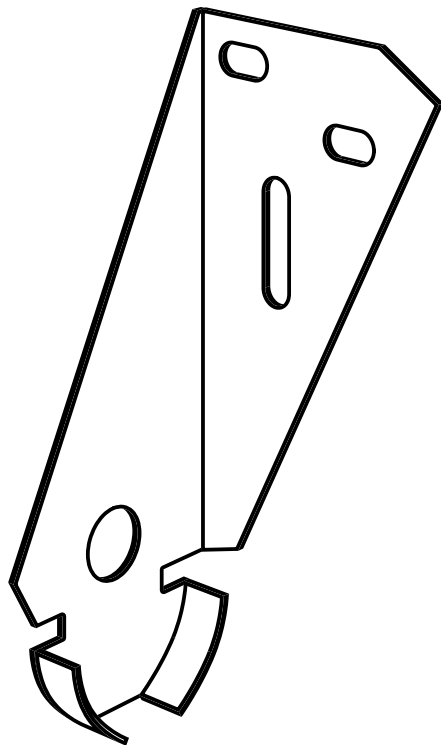
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**304**



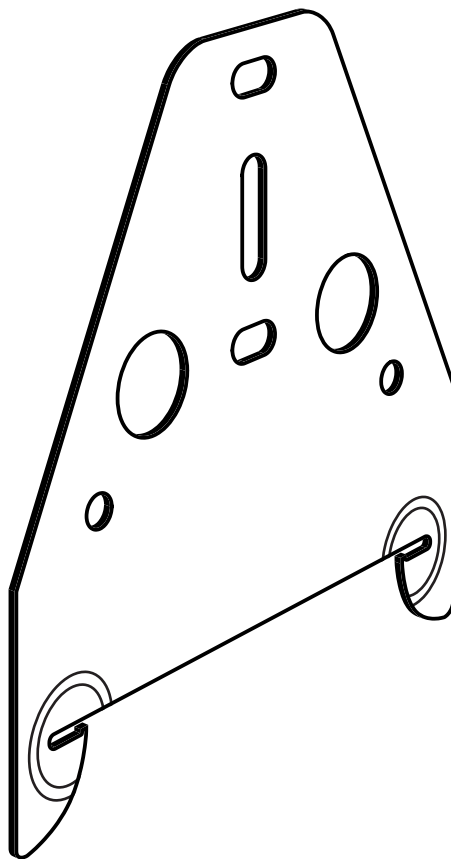
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**307**



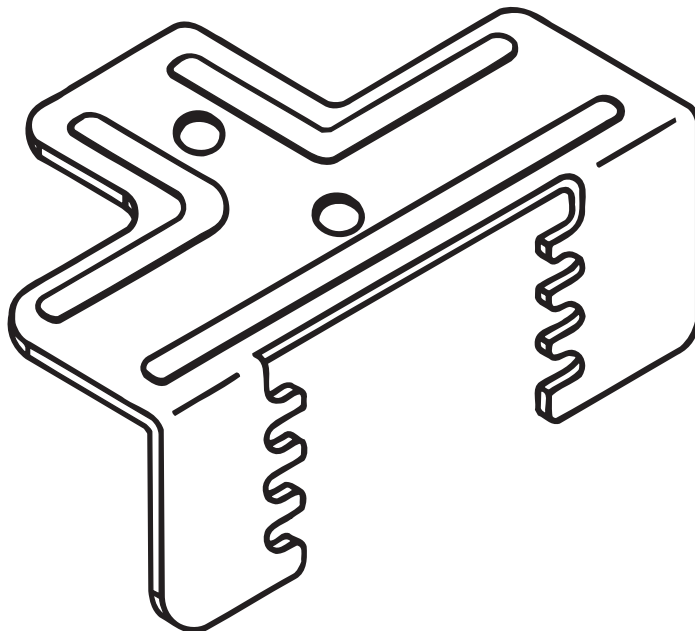
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**311**



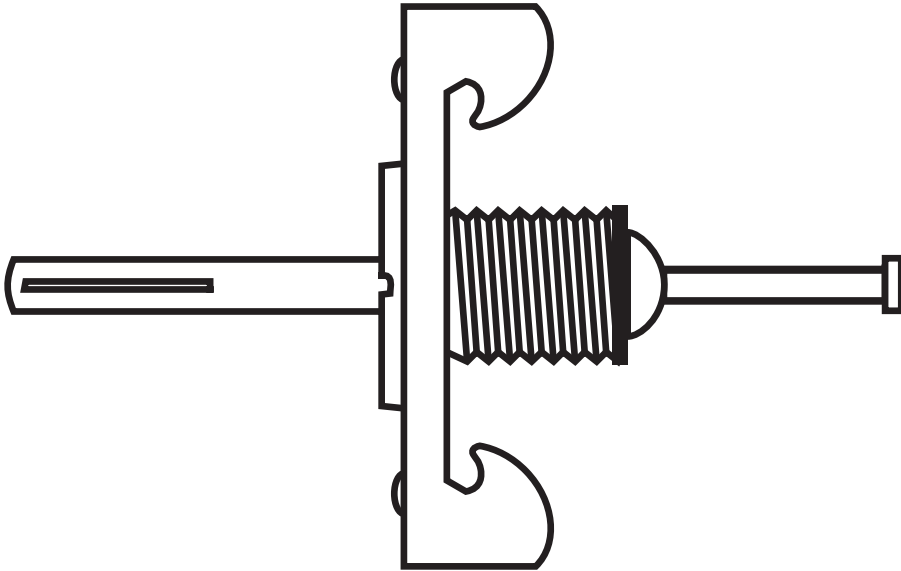
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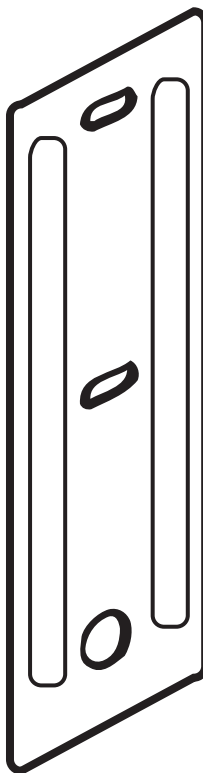
**BETA-FIX**



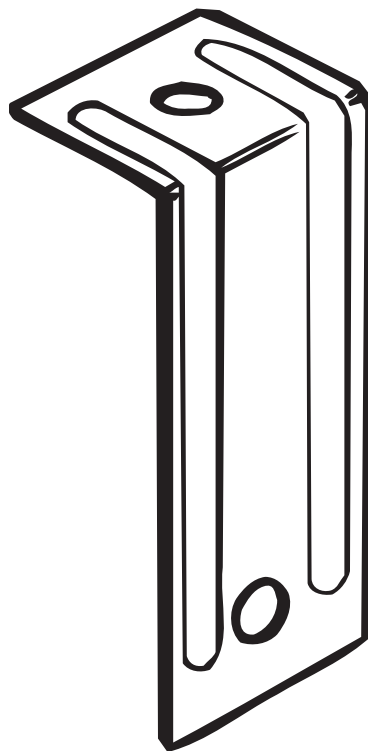
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**STSC**



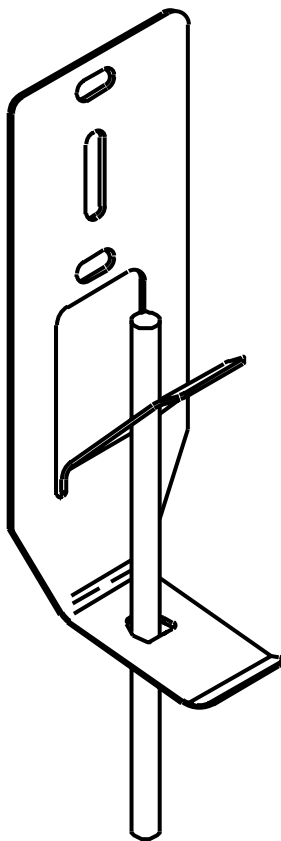
**274**



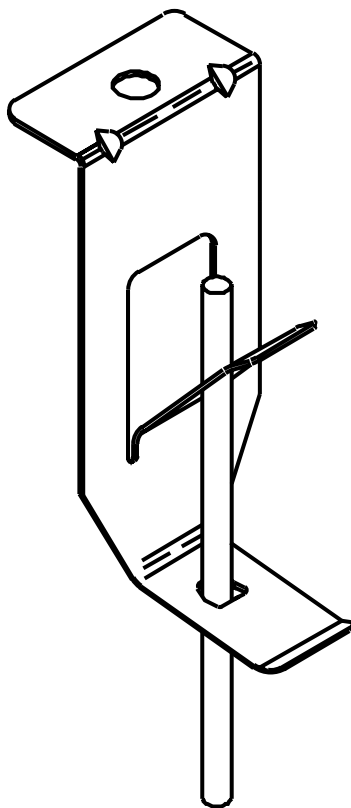
**247**



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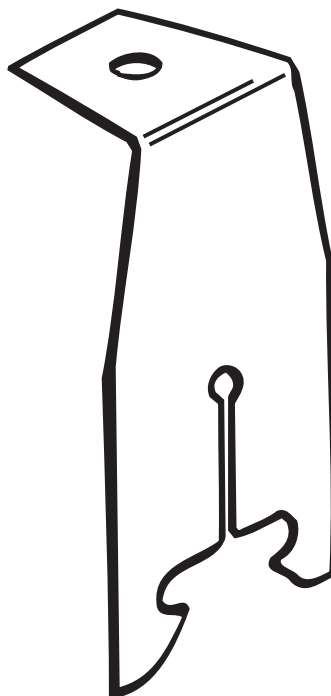
**534**



**547**



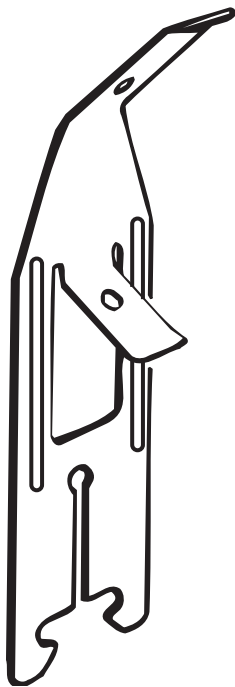
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**I 24**



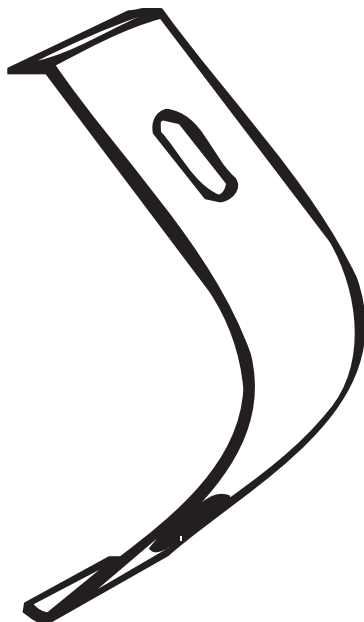
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**2534**



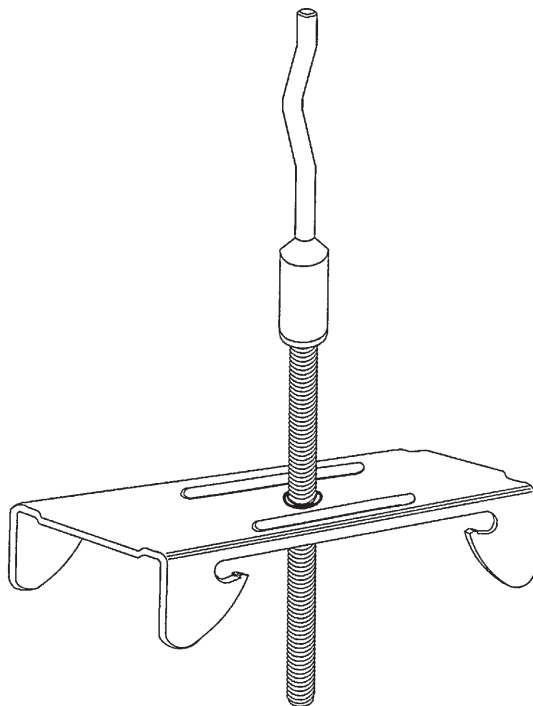
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**254**



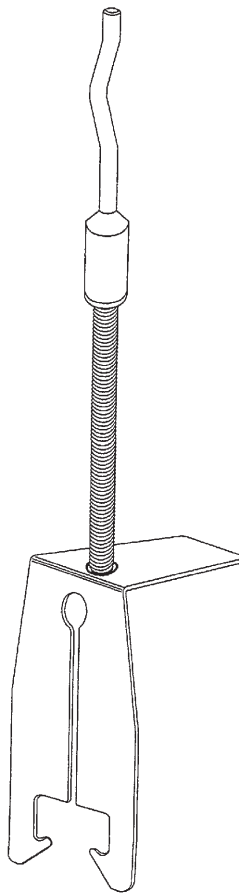
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**I 50**



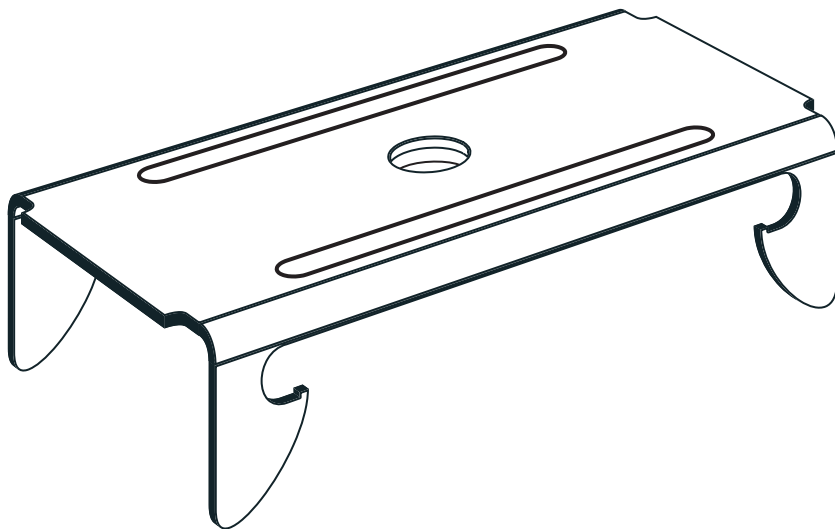
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**151**



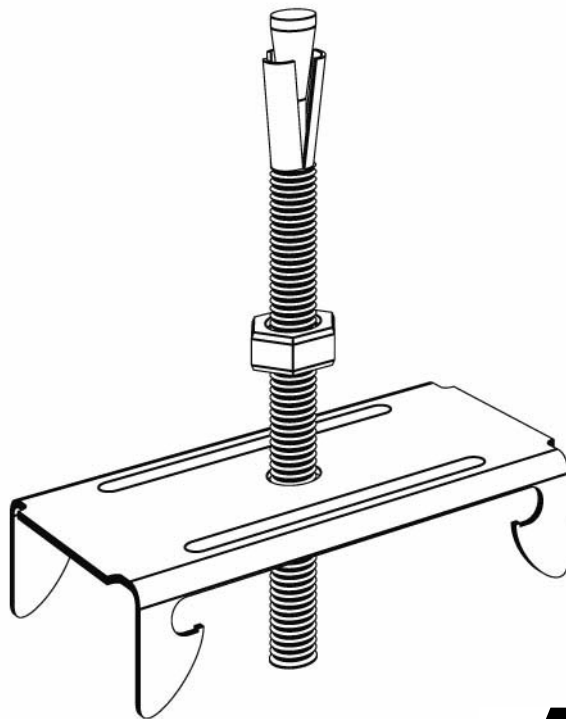
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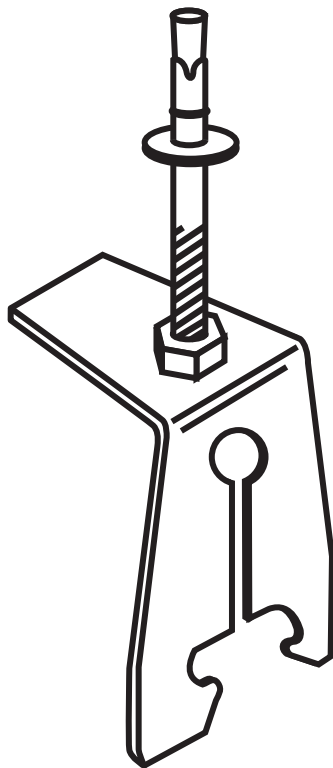
**239**



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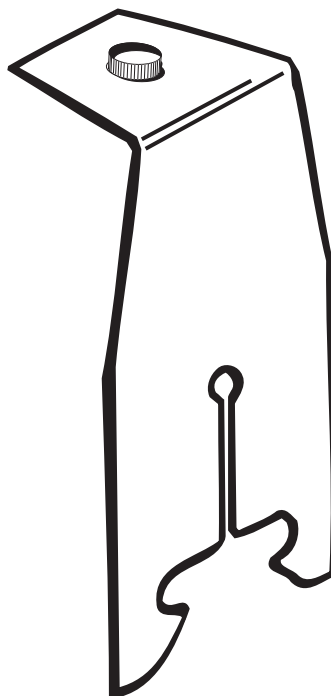
**A239**



**AI 24**



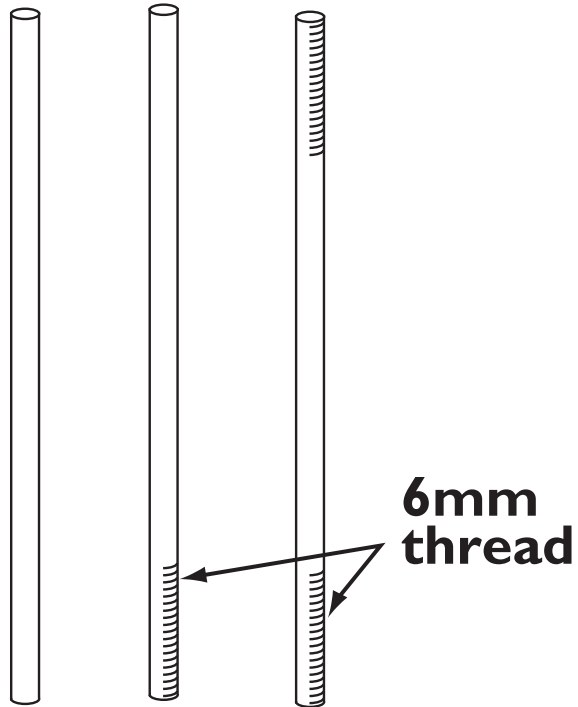
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**I 24N**



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**I 21 / I 22 / I 23**



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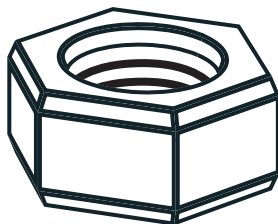
**PS56**



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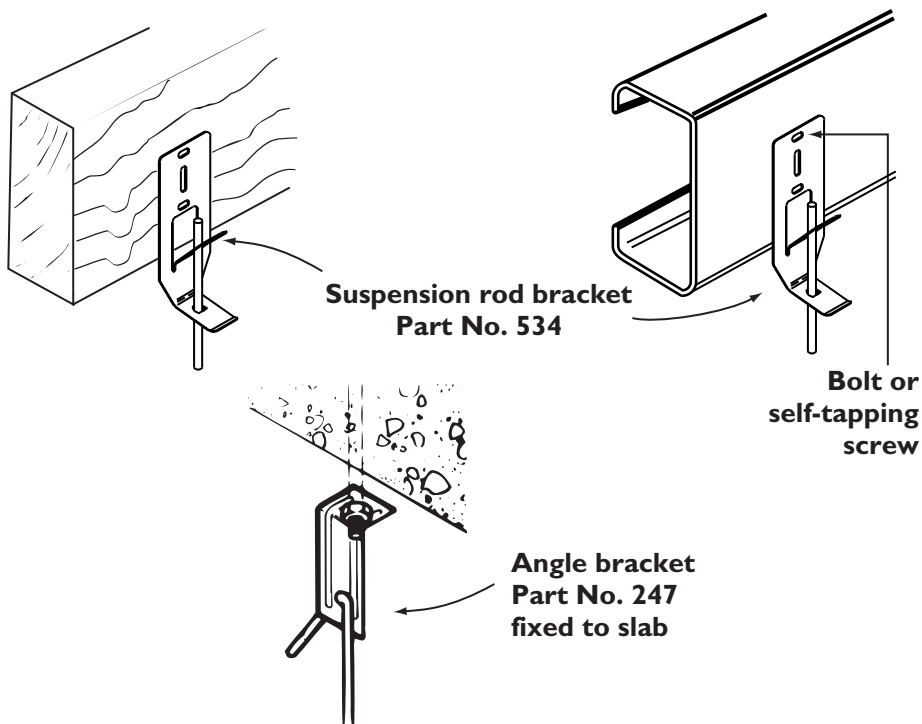
**SBAO**



**826**



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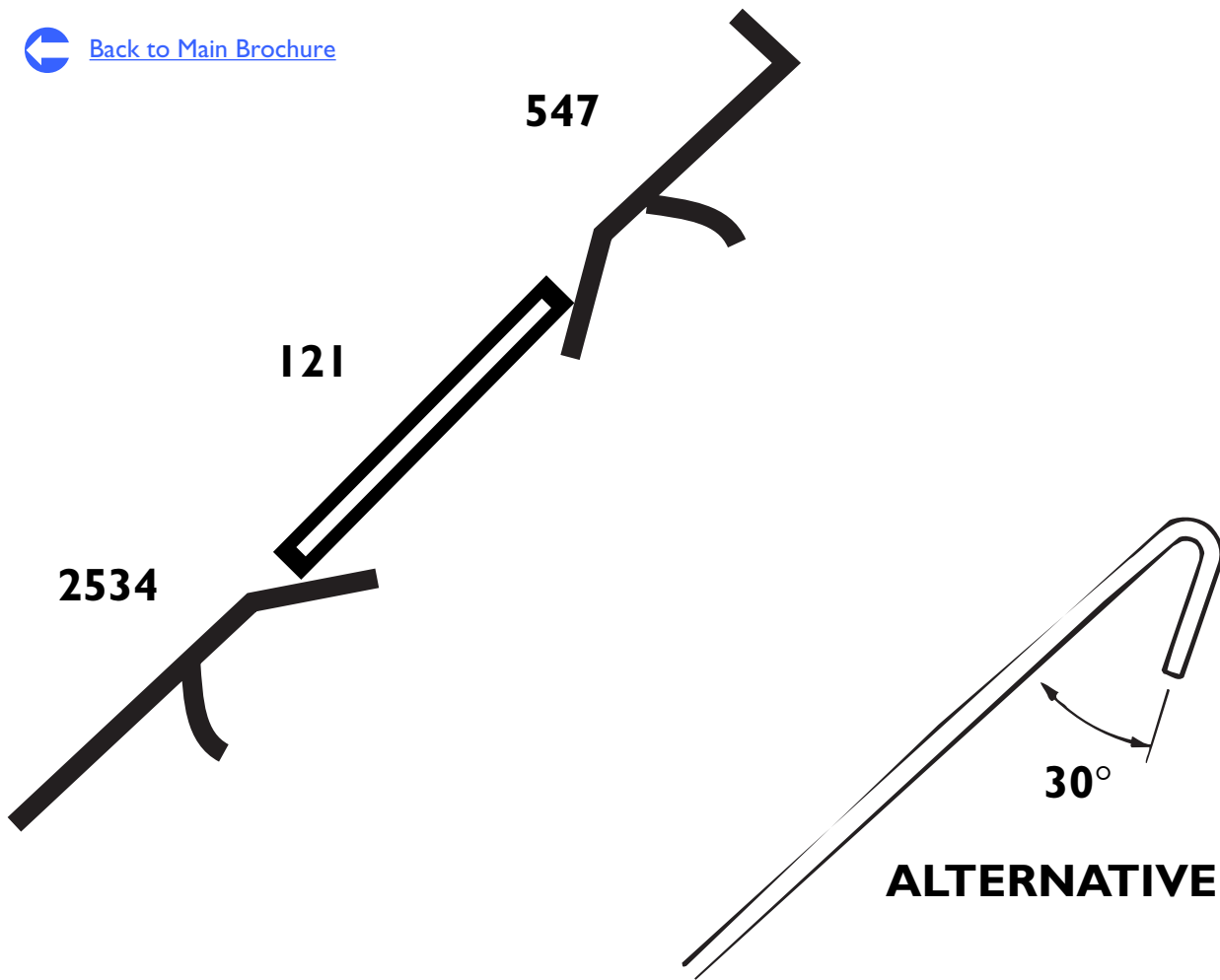
**547**

**121**

**2534**

**30°**

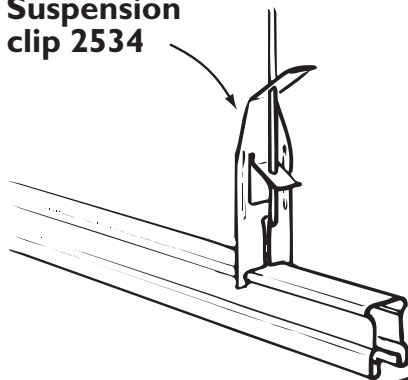
**ALTERNATIVE**



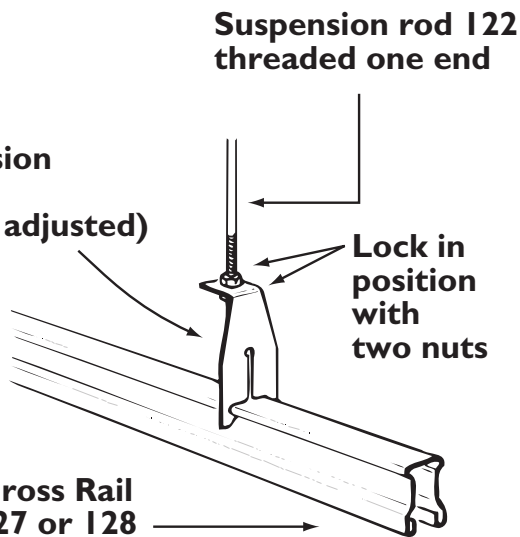


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**Suspension  
clip 2534**



**Suspension  
clip 124  
(thread adjusted)**

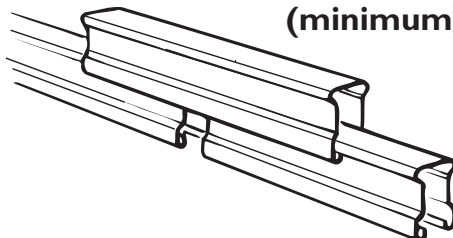


**Suspension rod 122  
threaded one end**

**Lock in  
position  
with  
two nuts**

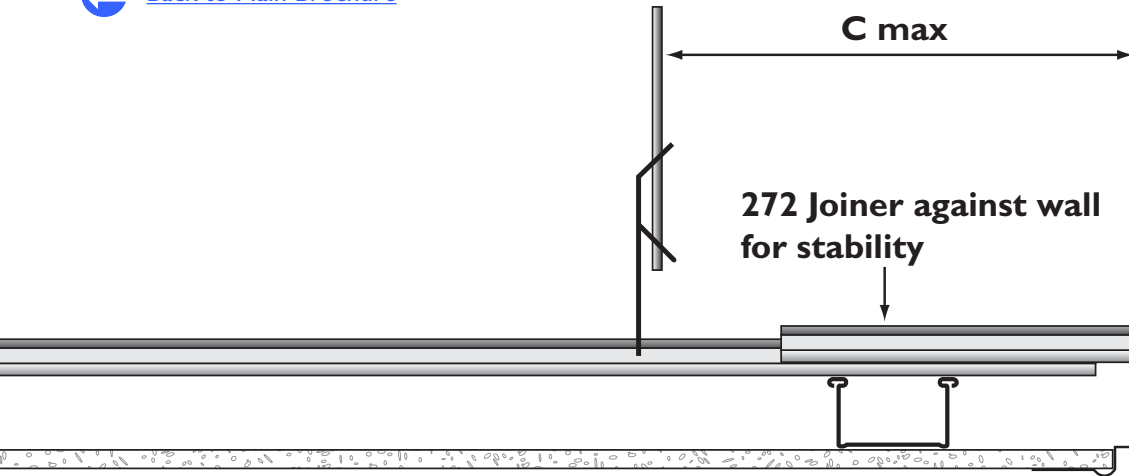
**Top Cross Rail  
125, 127 or 128**

**200mm long  
(minimum)**





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### C max

125 Top Cross Rail: 300mm maximum

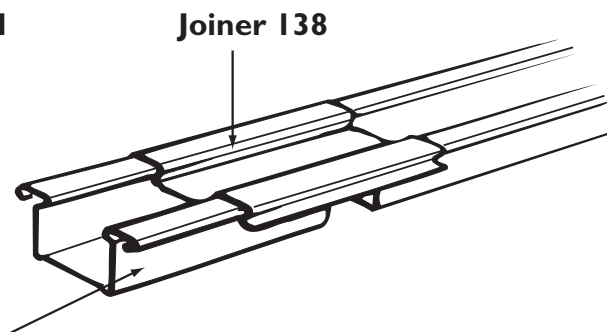
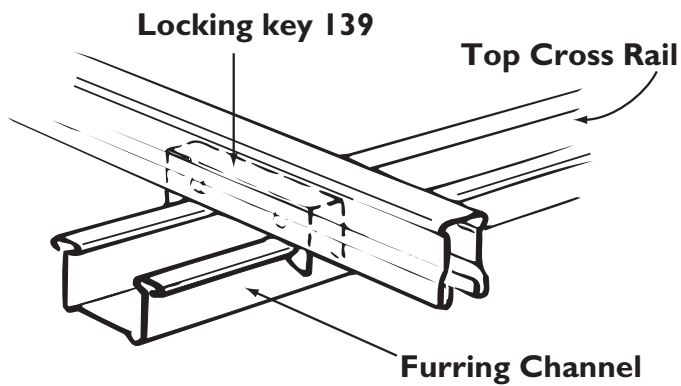
127 Top Cross Rail: 400mm maximum

128 Top Cross Rail: 400mm maximum

\* For single layer internal plasterboard ceilings



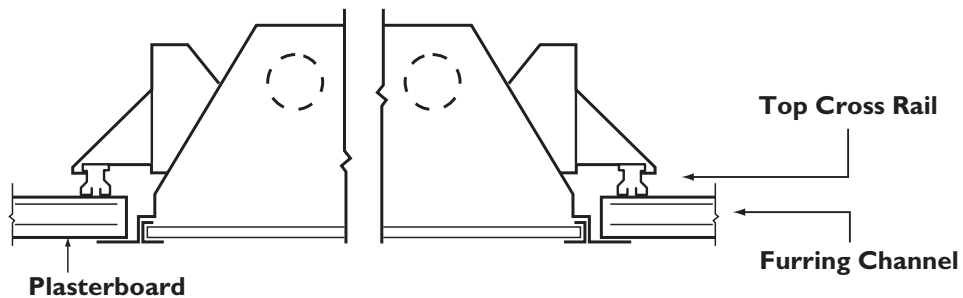
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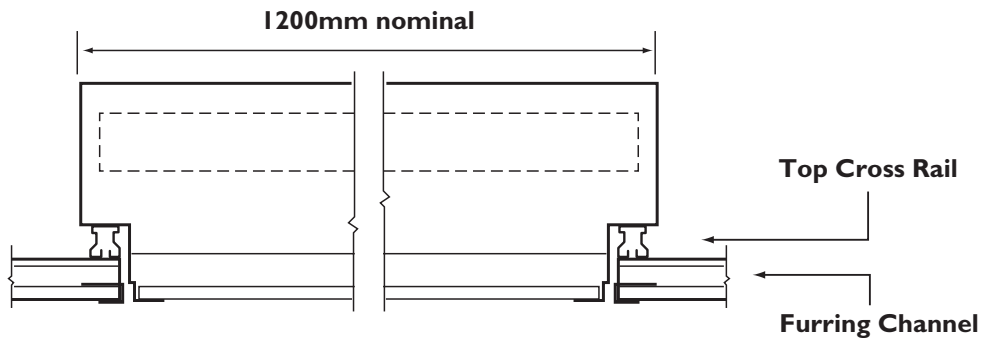


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**Light fitting (preferred size tubes)**



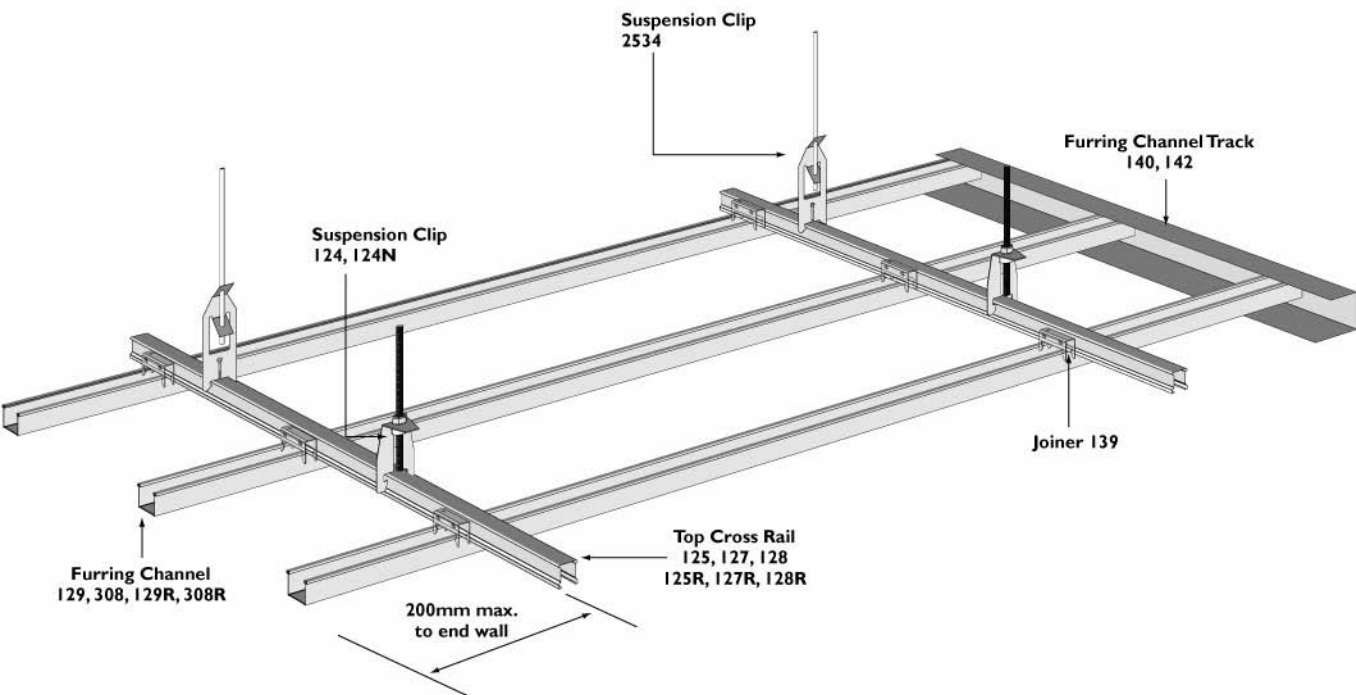
**SIDE MOUNTED**

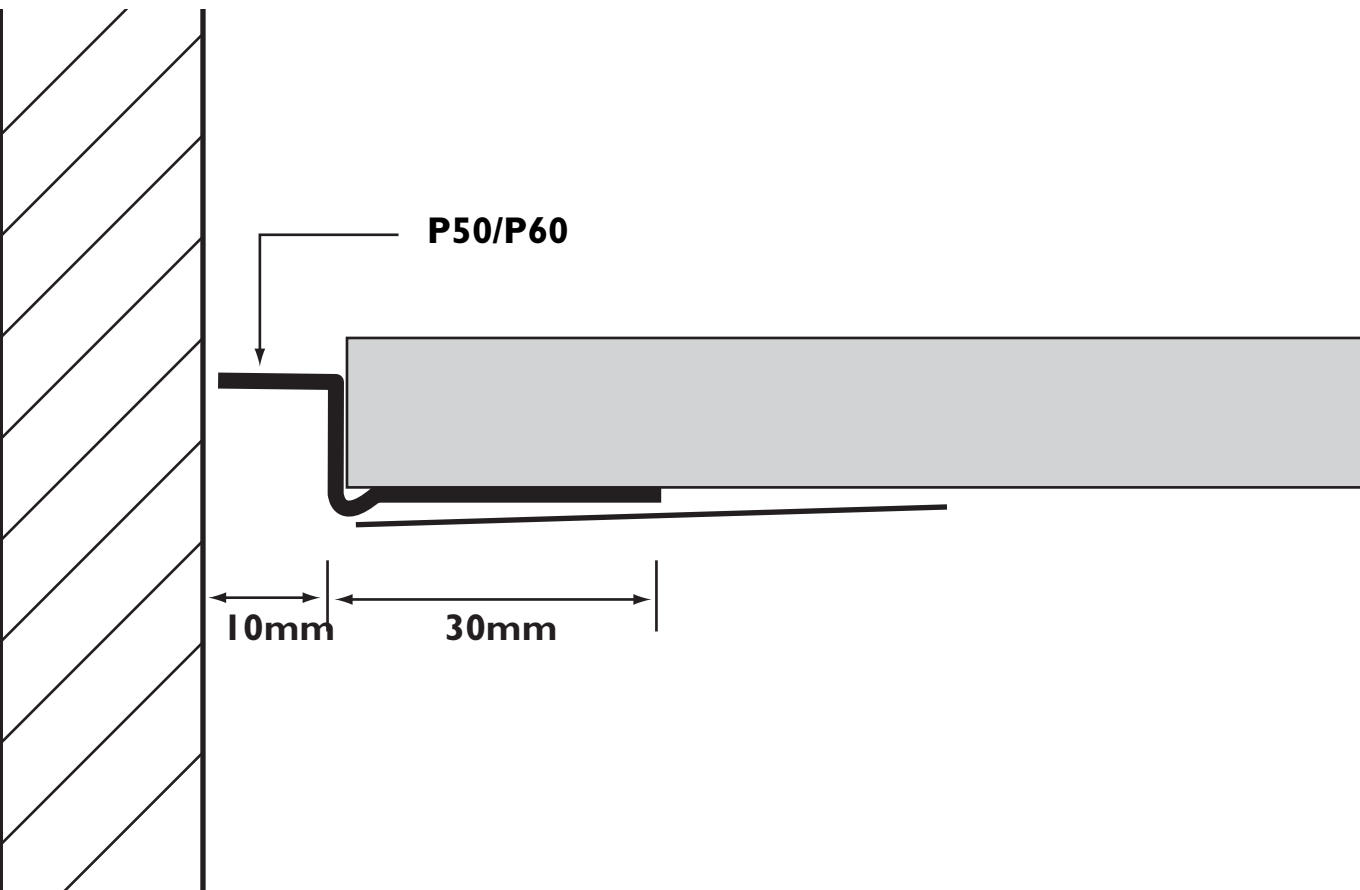


**END MOUNTED**



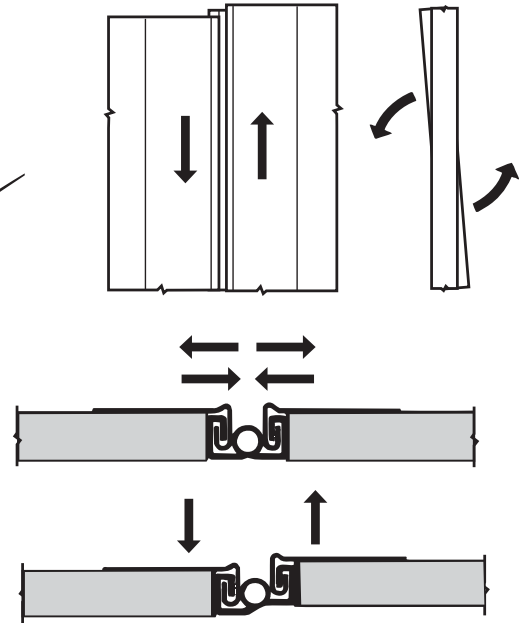
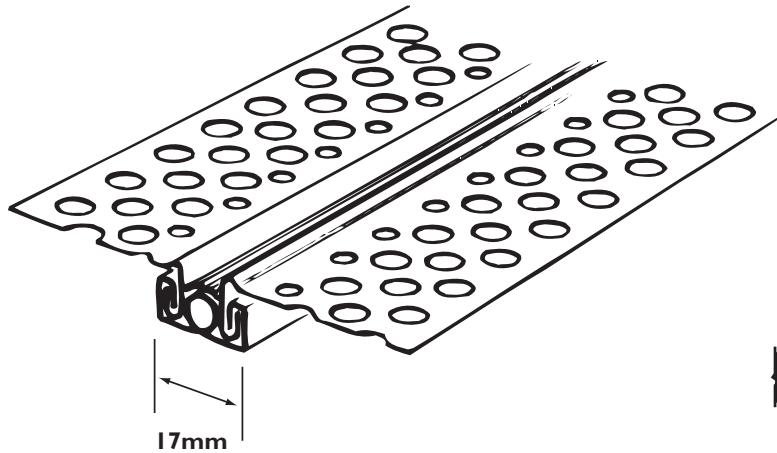
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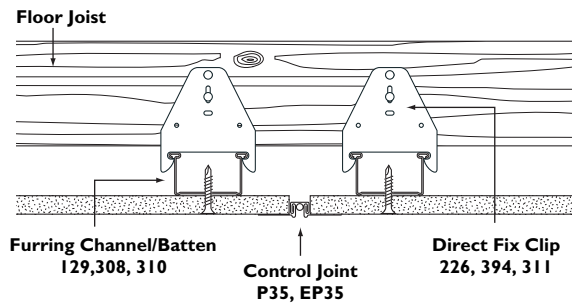
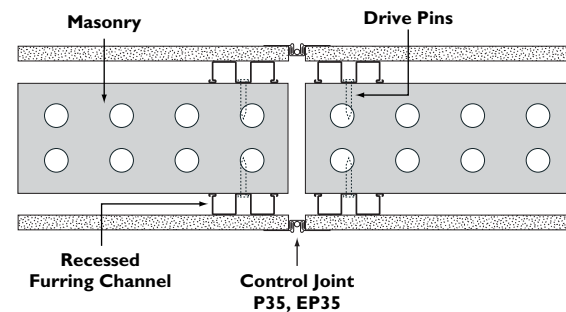
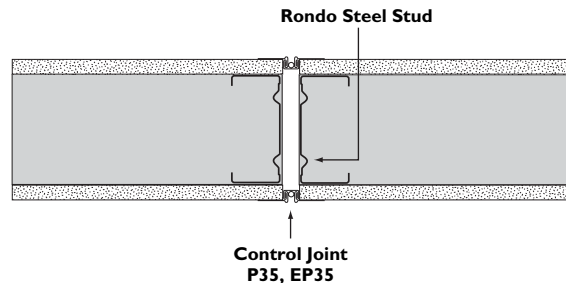
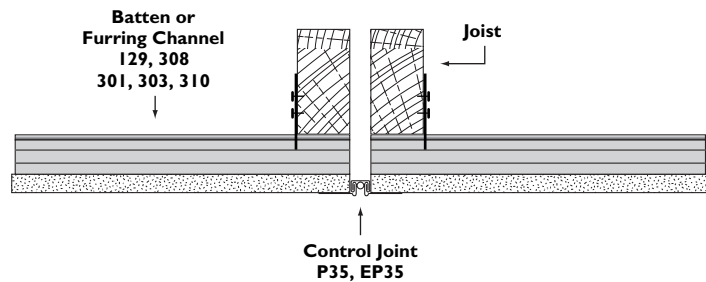
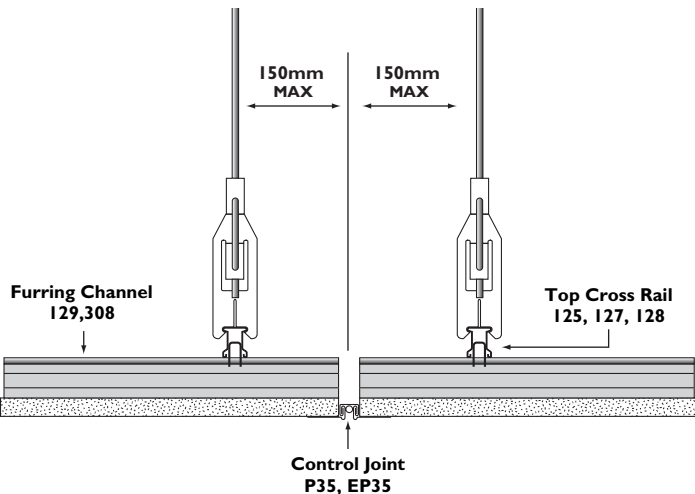
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The Rondo P35 Control Joint Bead for plasterboard and fibre cement sheeting allows for movement in all directions. Spacing: < 12 metres

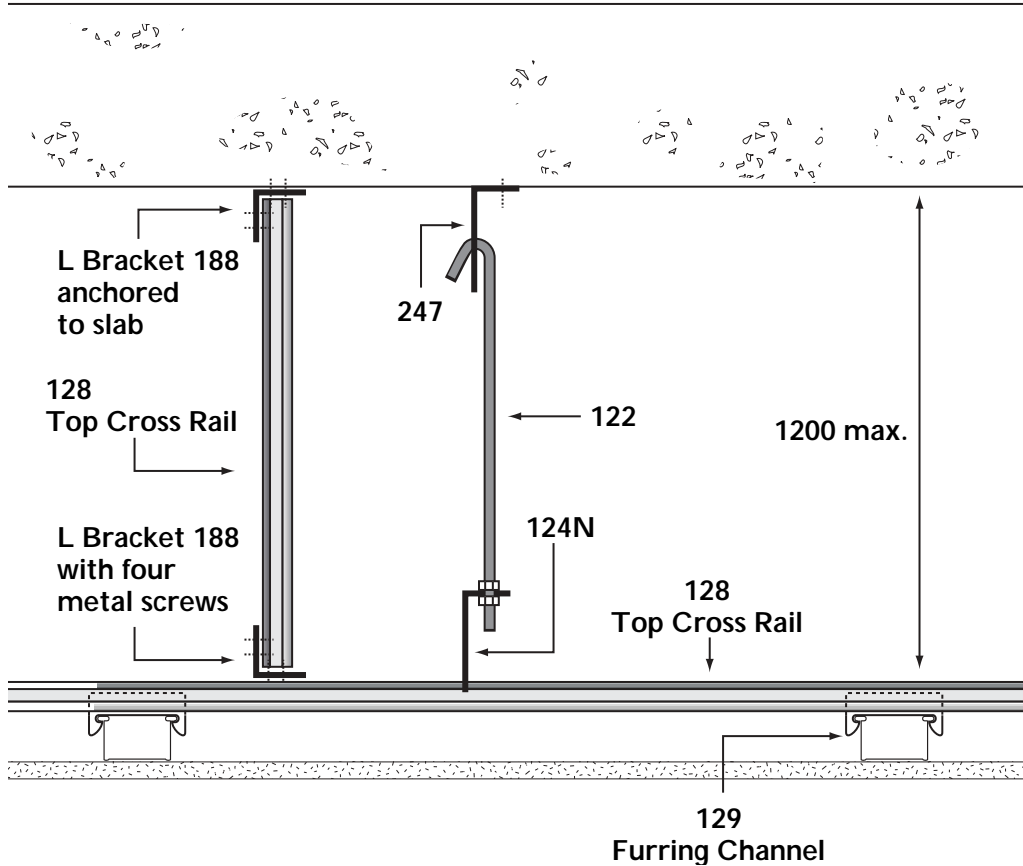


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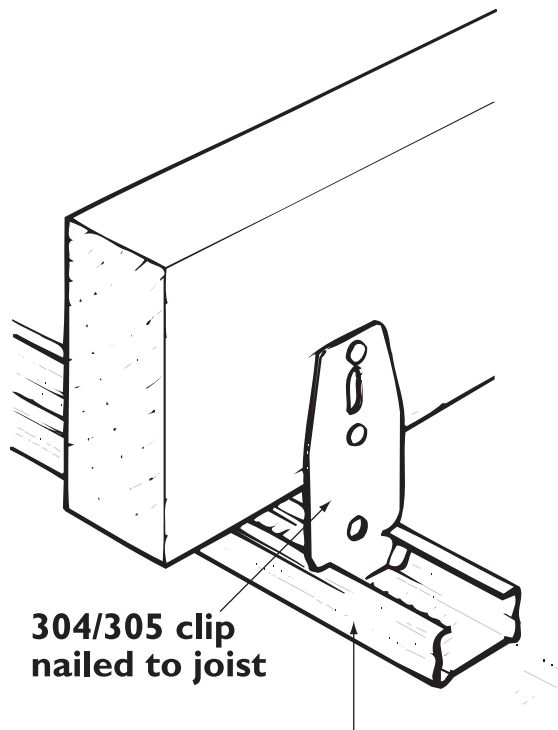


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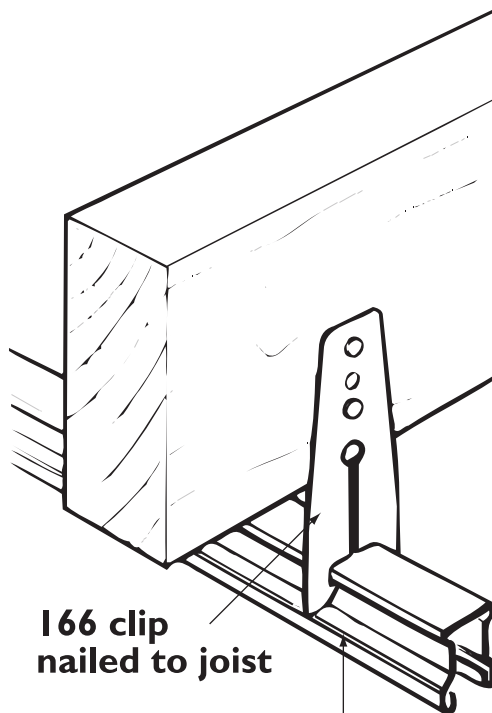


**304/305 clip  
nailed to joist**

**Ceiling Batten**



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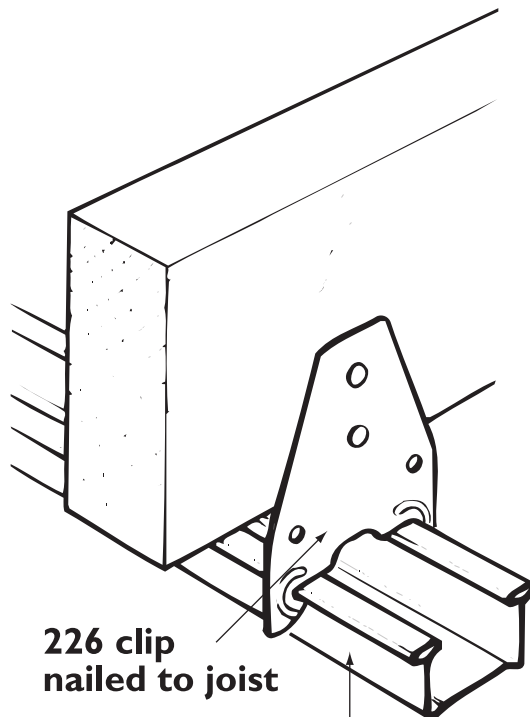


**166 clip  
nailed to joist**

**Top Cross Rail**



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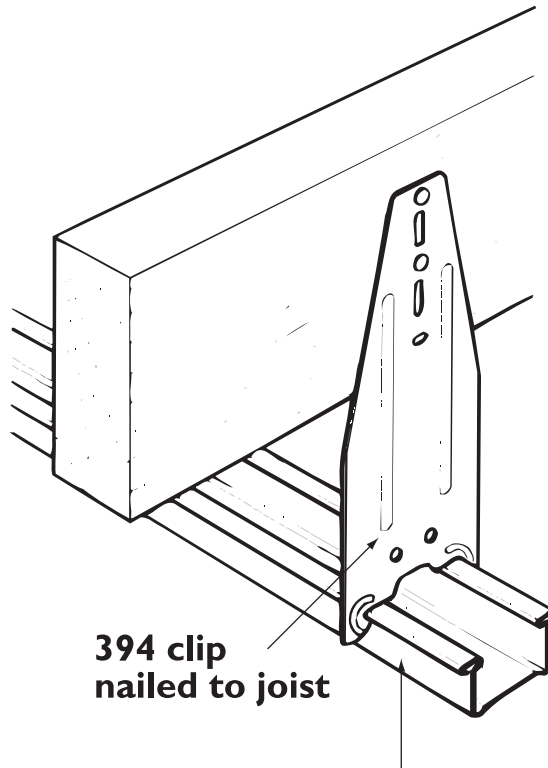


**226 clip  
nailed to joist**

**Furring Channel**



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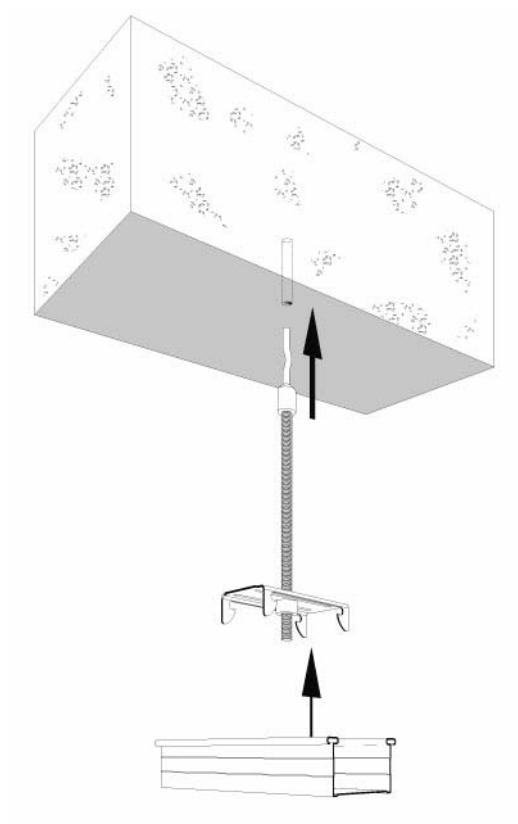


**394 clip  
nailed to joist**

**Furring Channel**



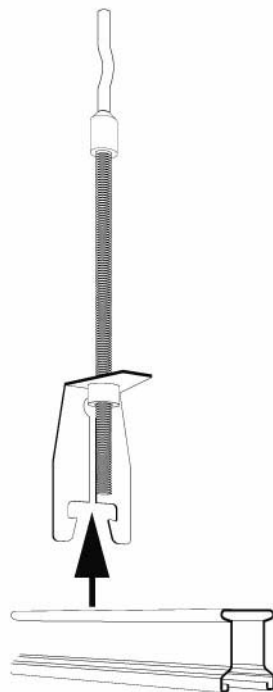
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**I 50 to Furring Channel**



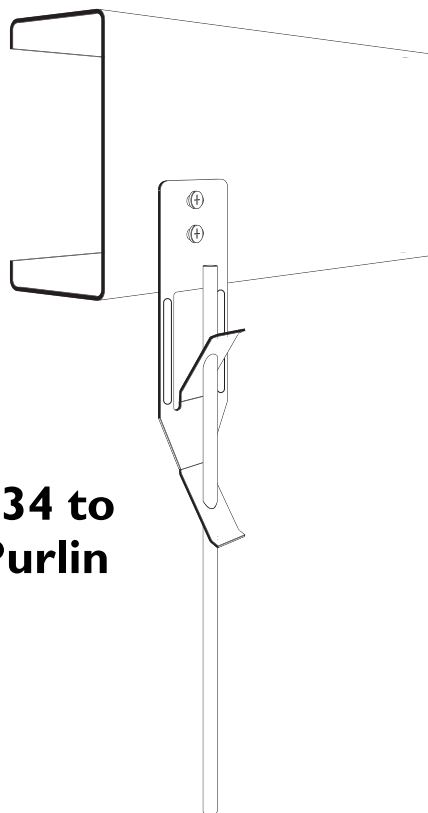
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**151 to Top Cross Rail**



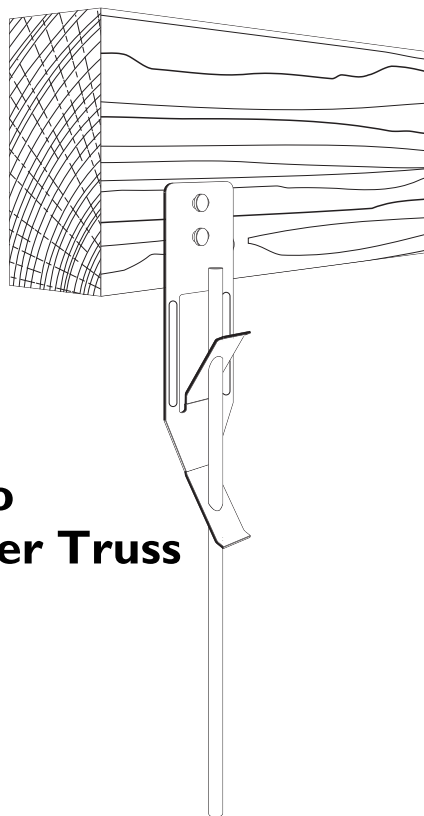
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**534 to  
Purlin**



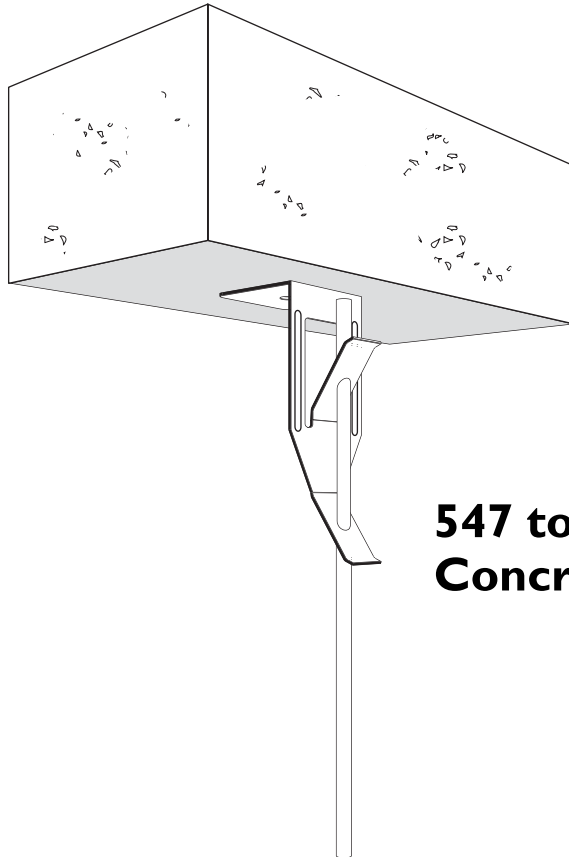
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**534 to  
Timber Truss**



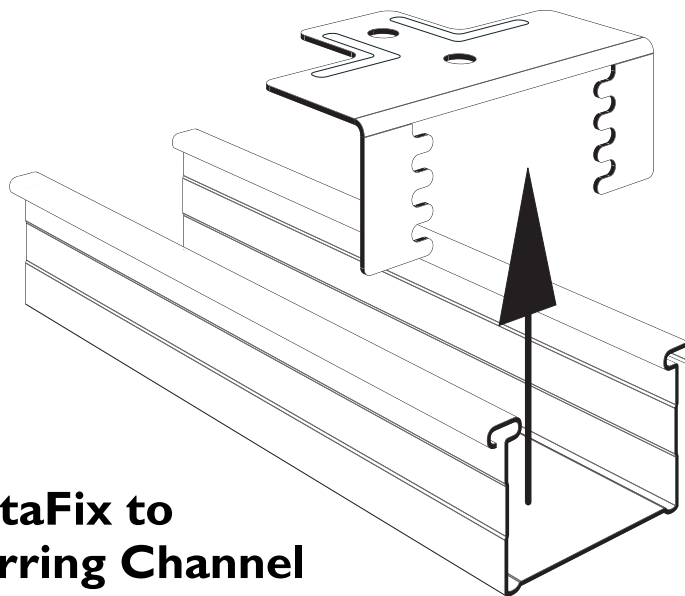
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**547 to  
Concrete**



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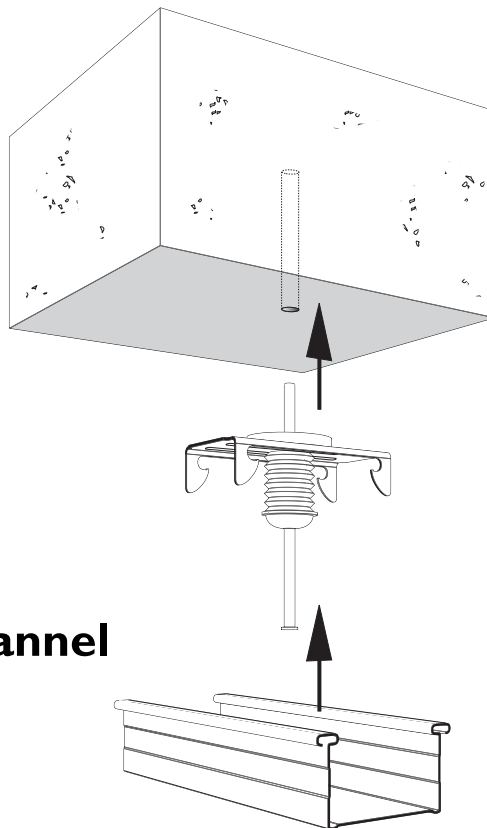


**BetaFix to  
Furring Channel**



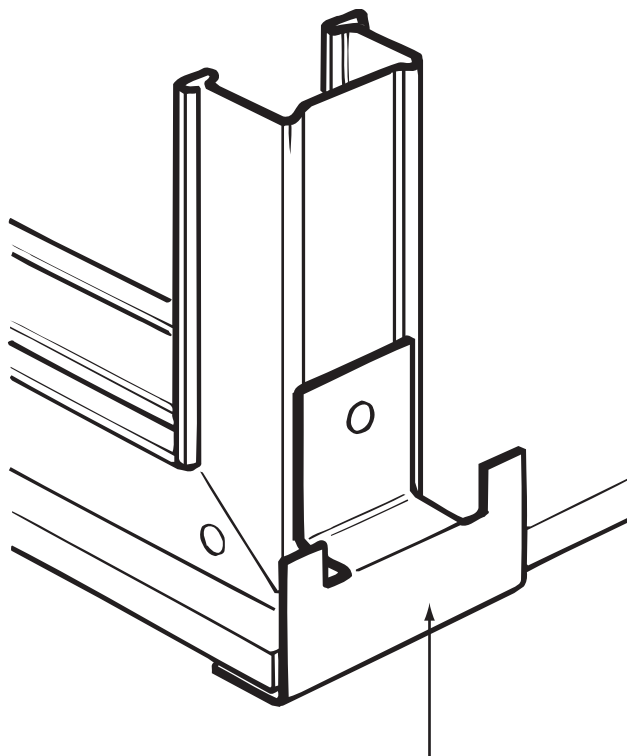
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## STSC to Furring Channel





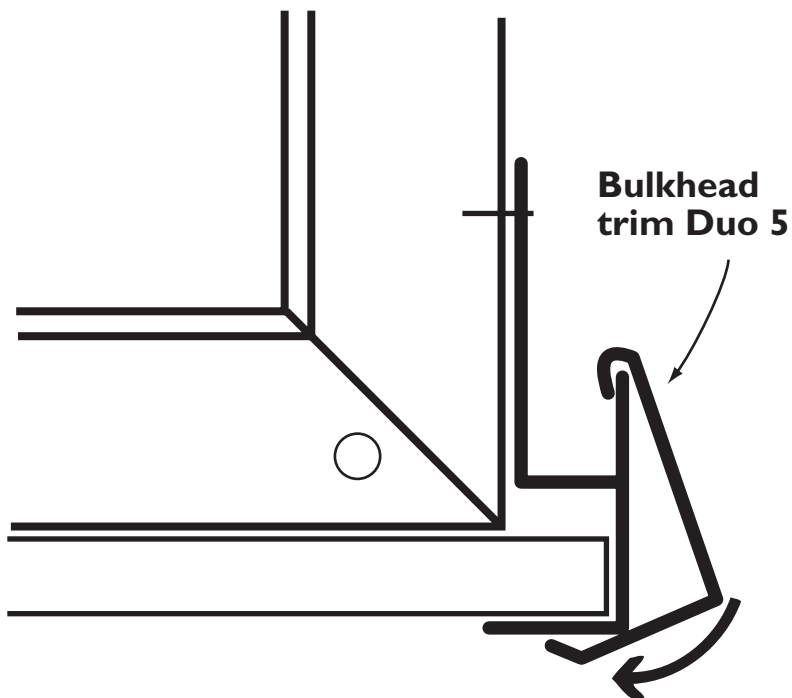
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**Support Clip  
717**

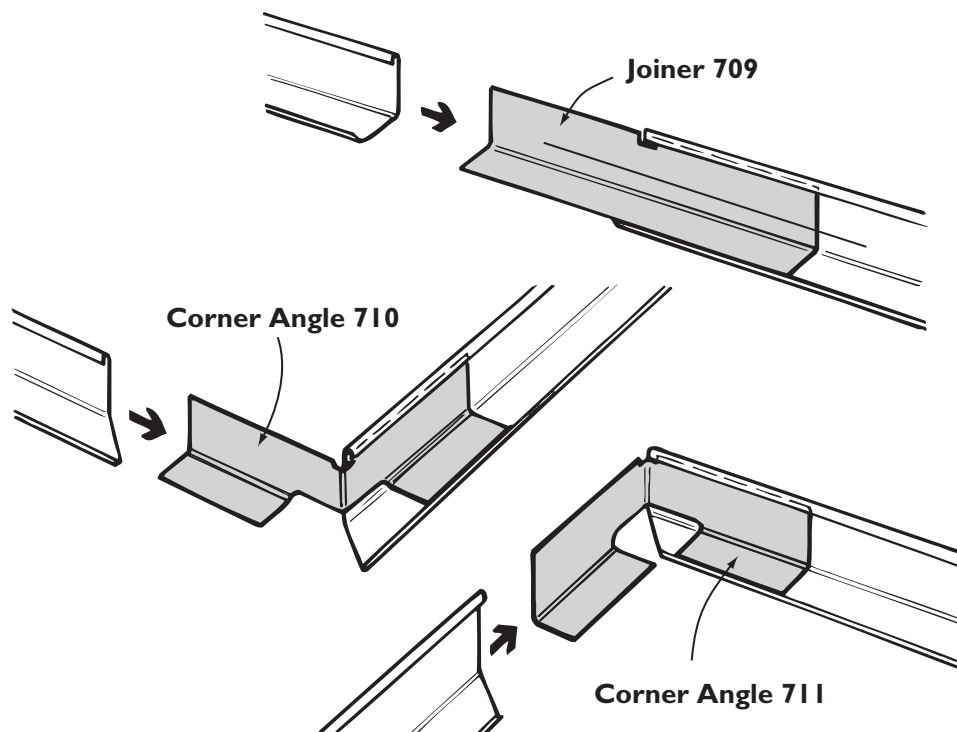


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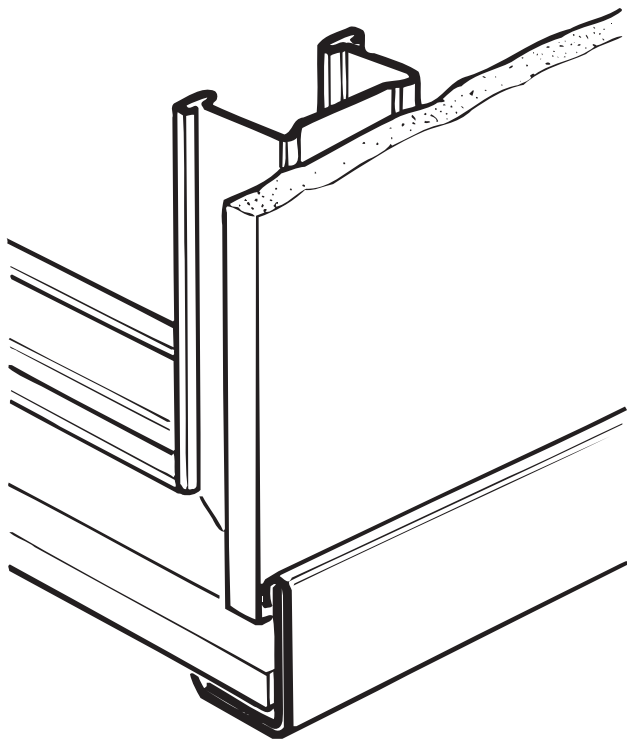


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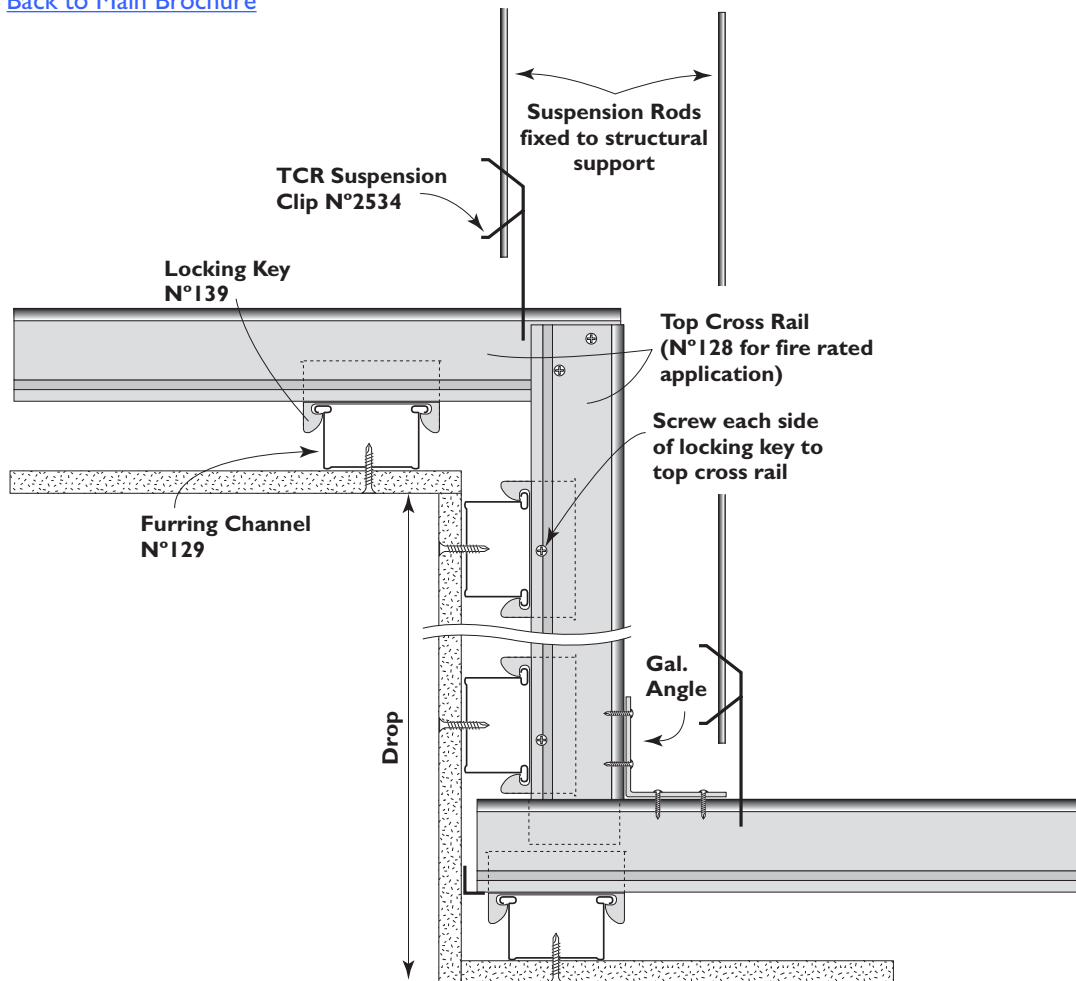


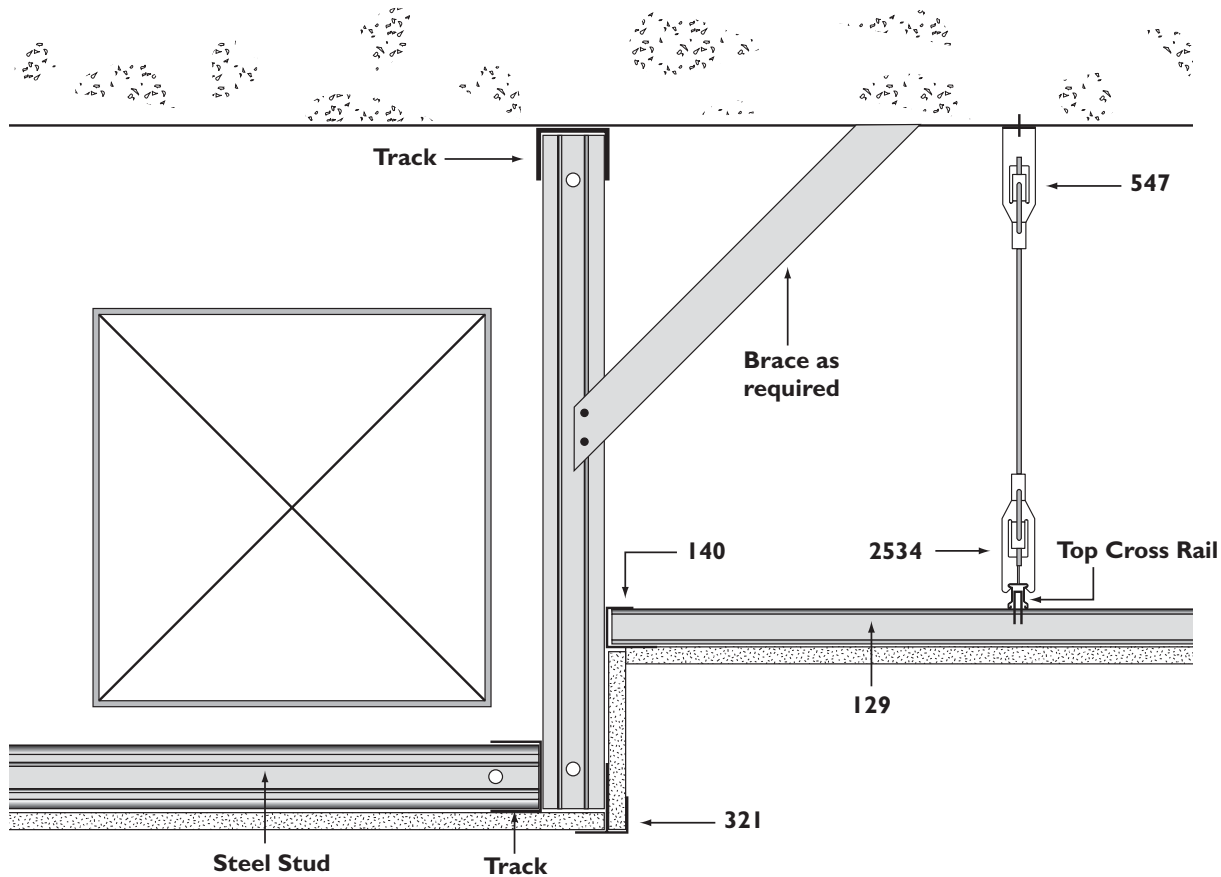
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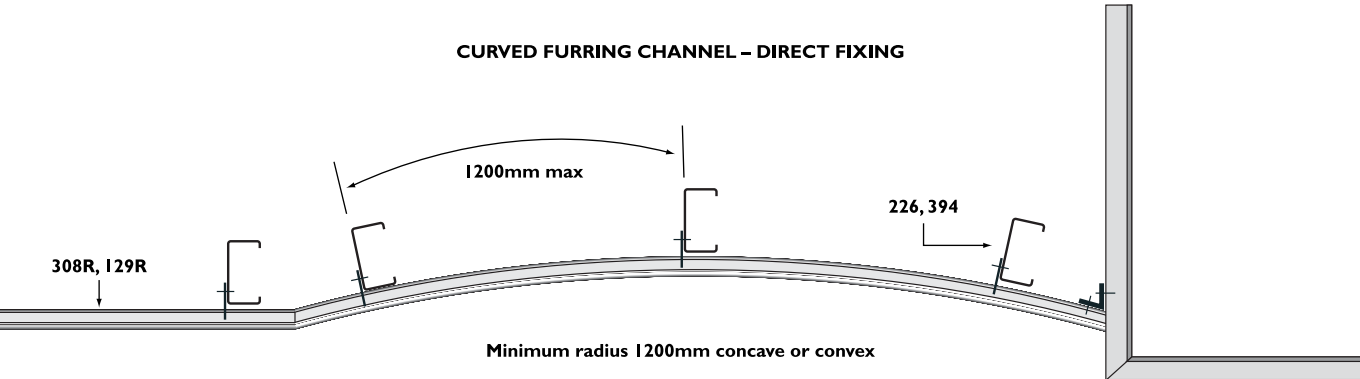




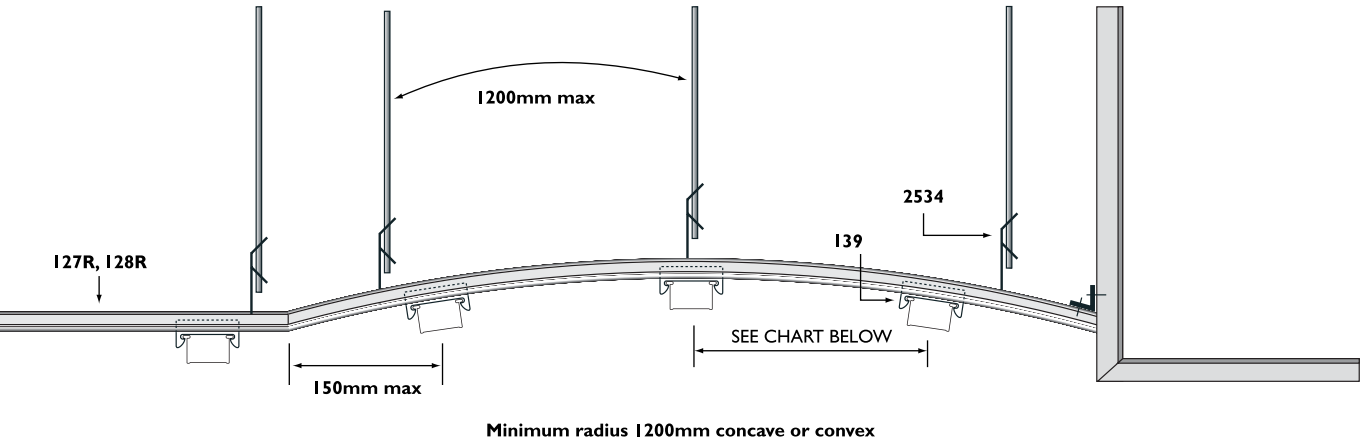


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### CURVED FURRING CHANNEL – DIRECT FIXING



### CURVED TOP CROSS RAIL – SUSPENDED CEILING



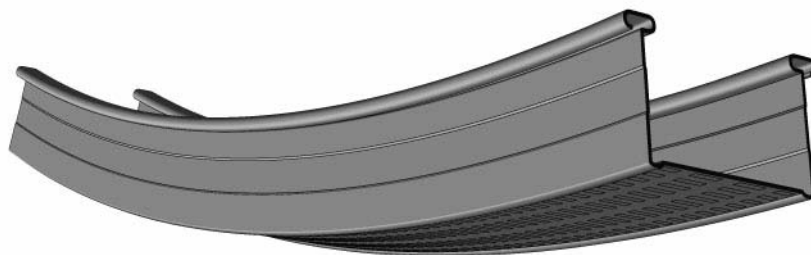


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## **FURRING CHANNEL**



**Concave**

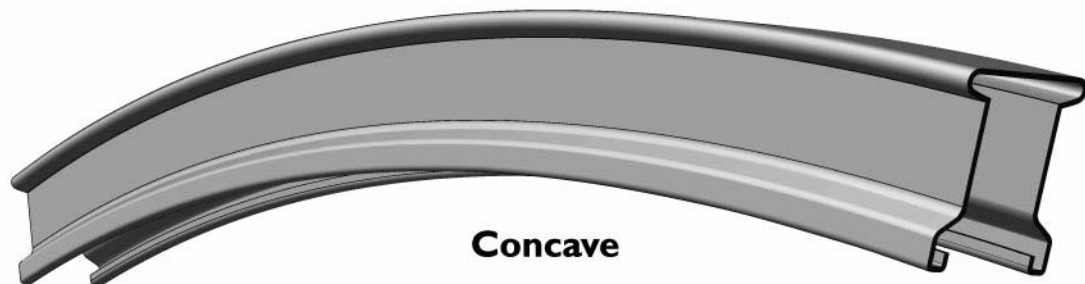


**Convex**



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## TOP CROSS RAIL



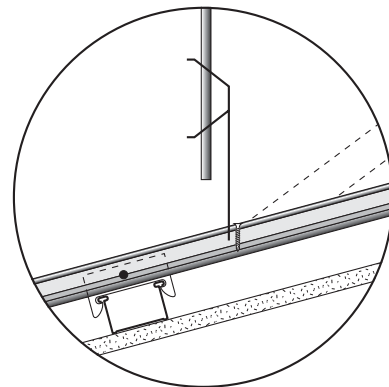
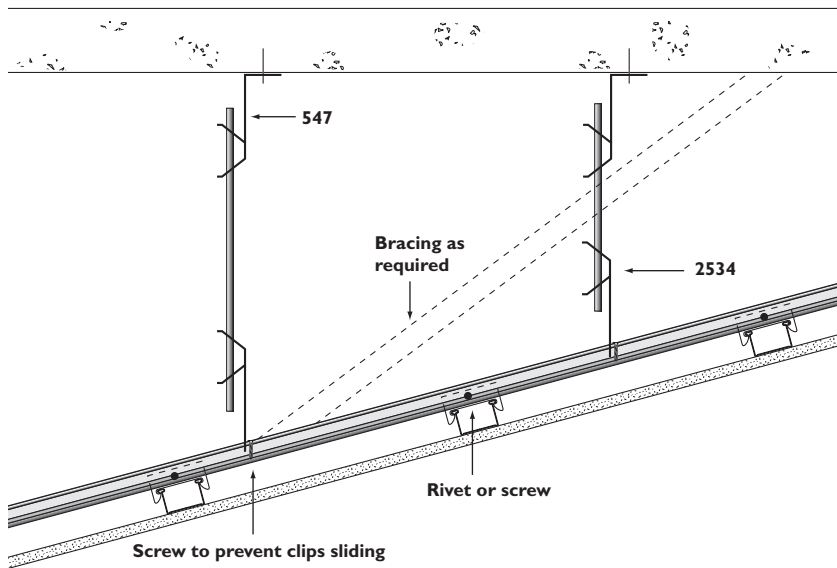
**Concave**

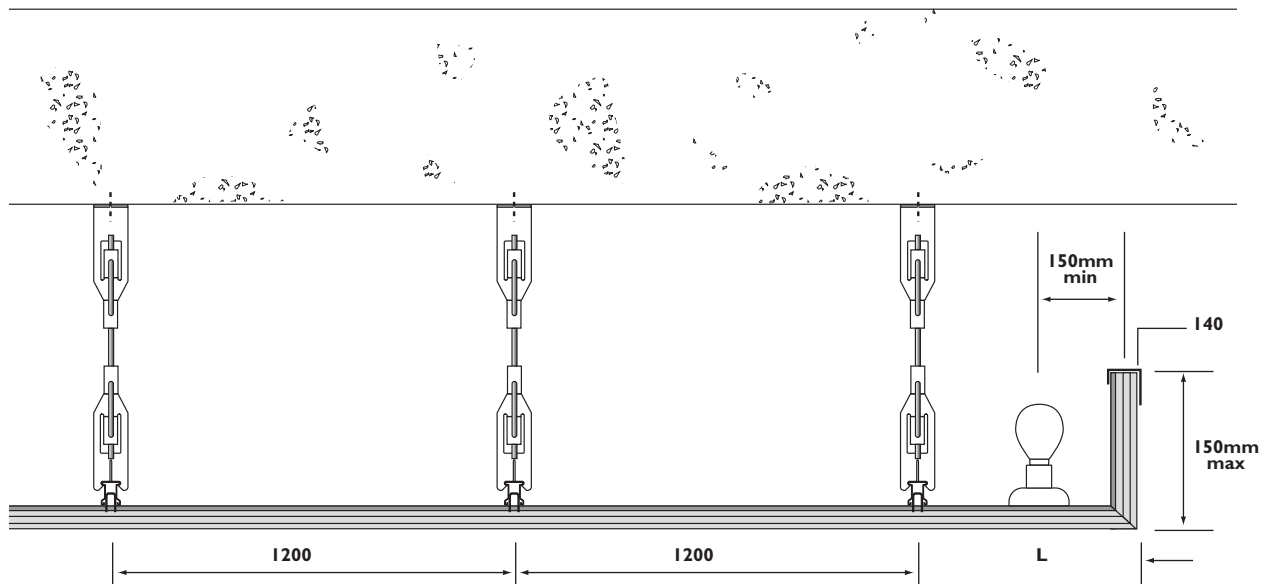


**Convex**



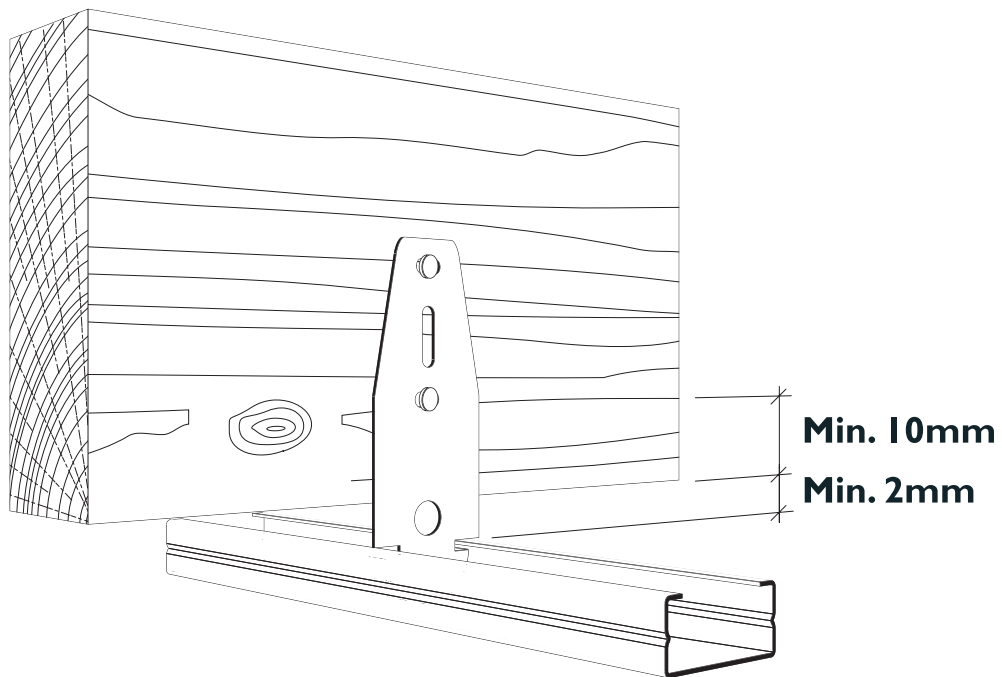
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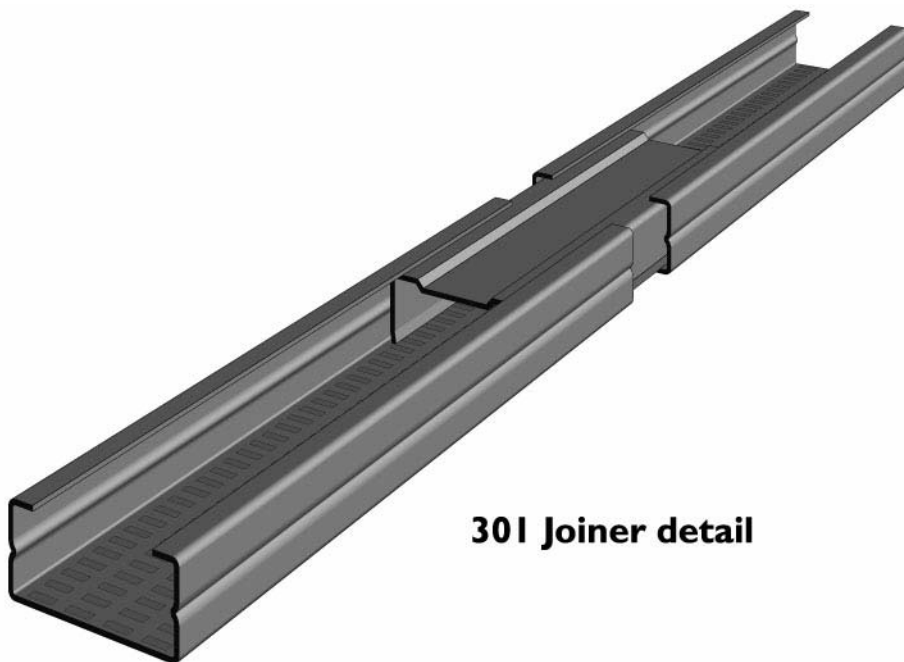


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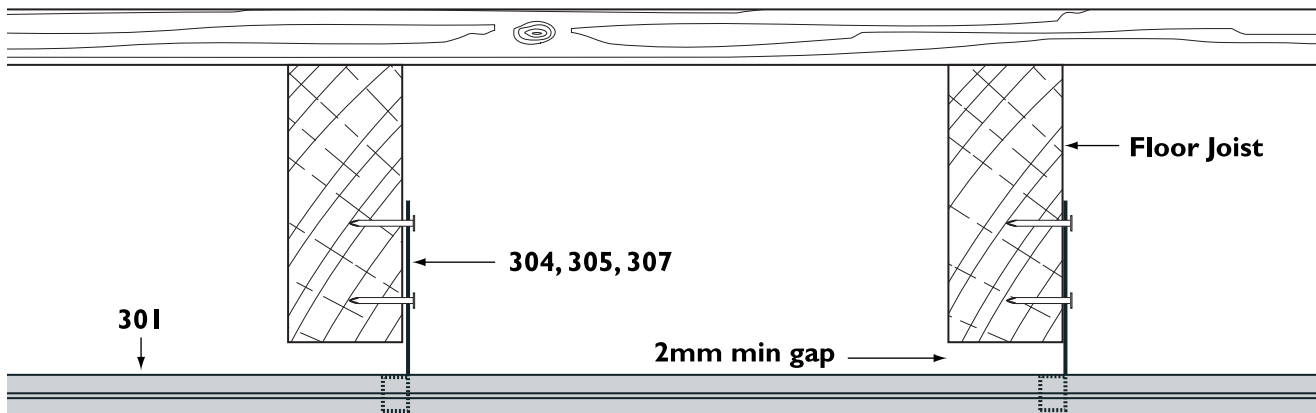
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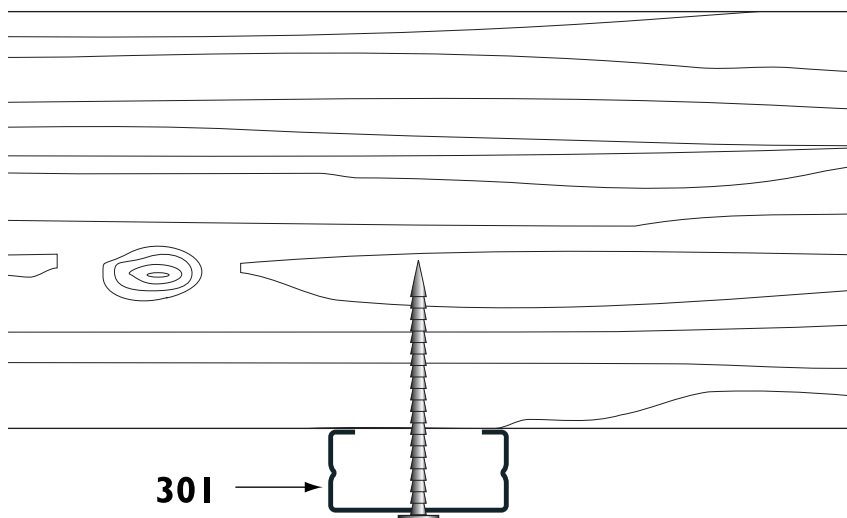


**30I Joiner detail**



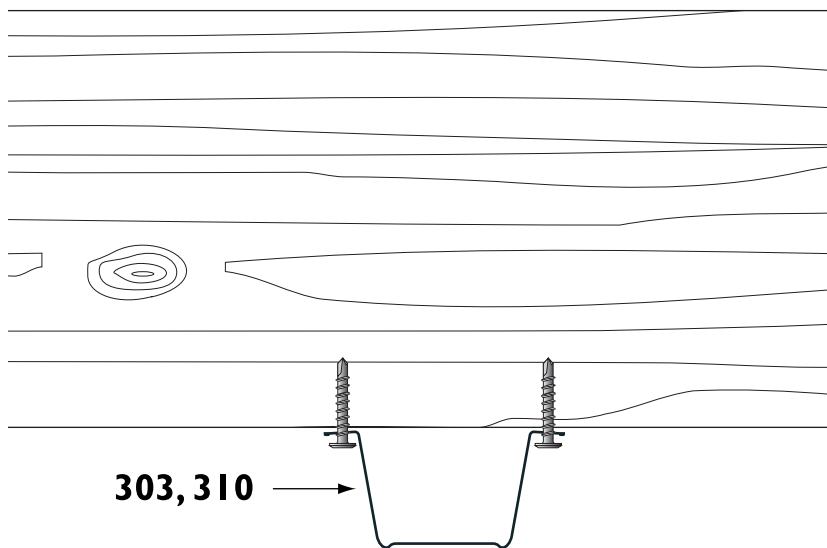
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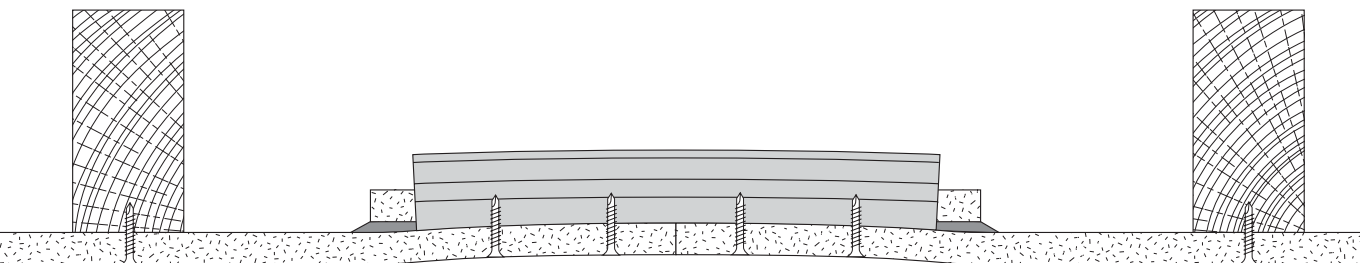






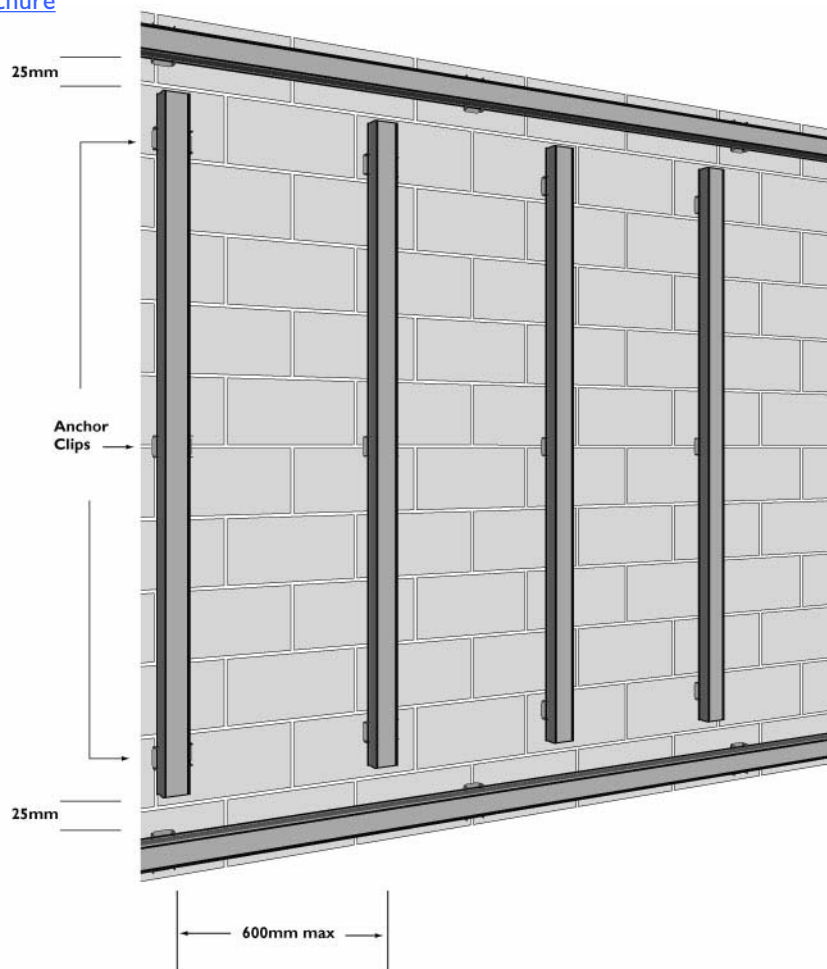
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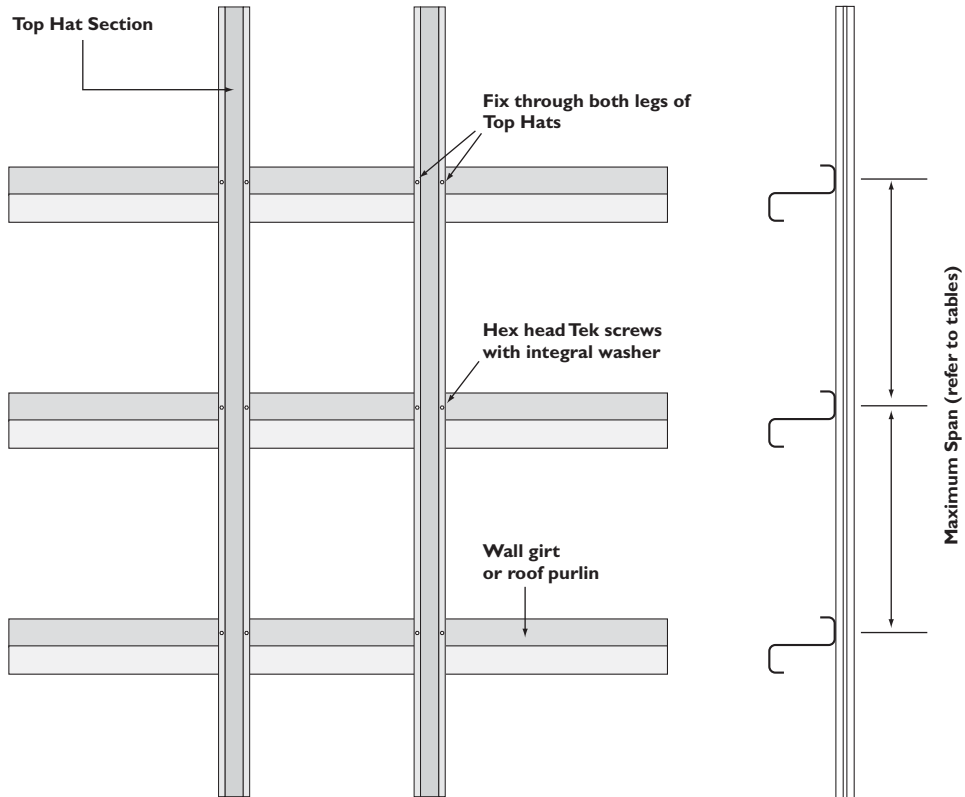


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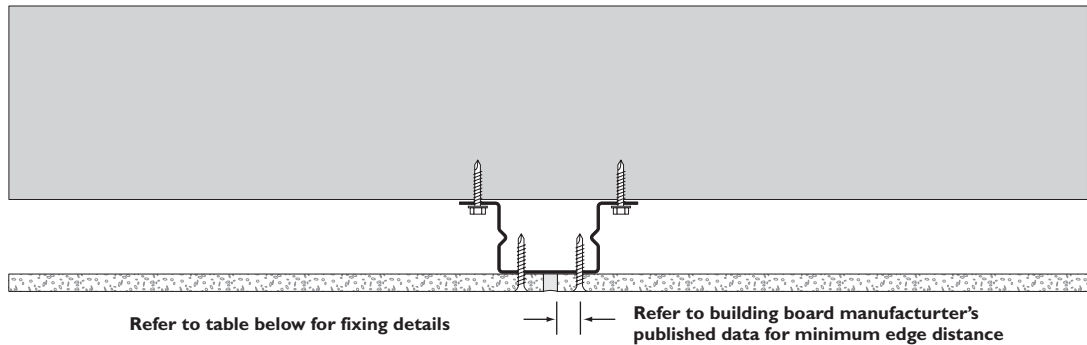


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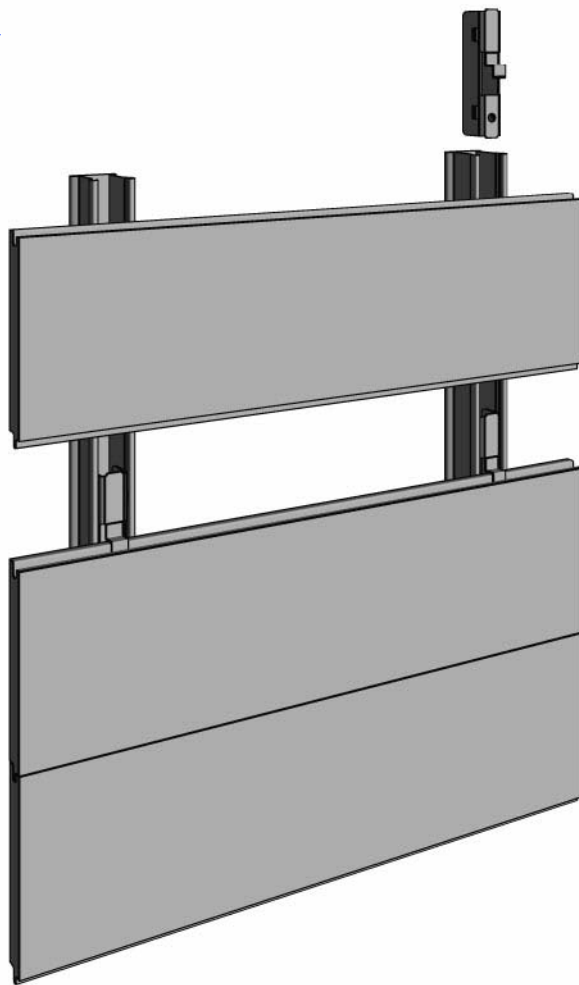


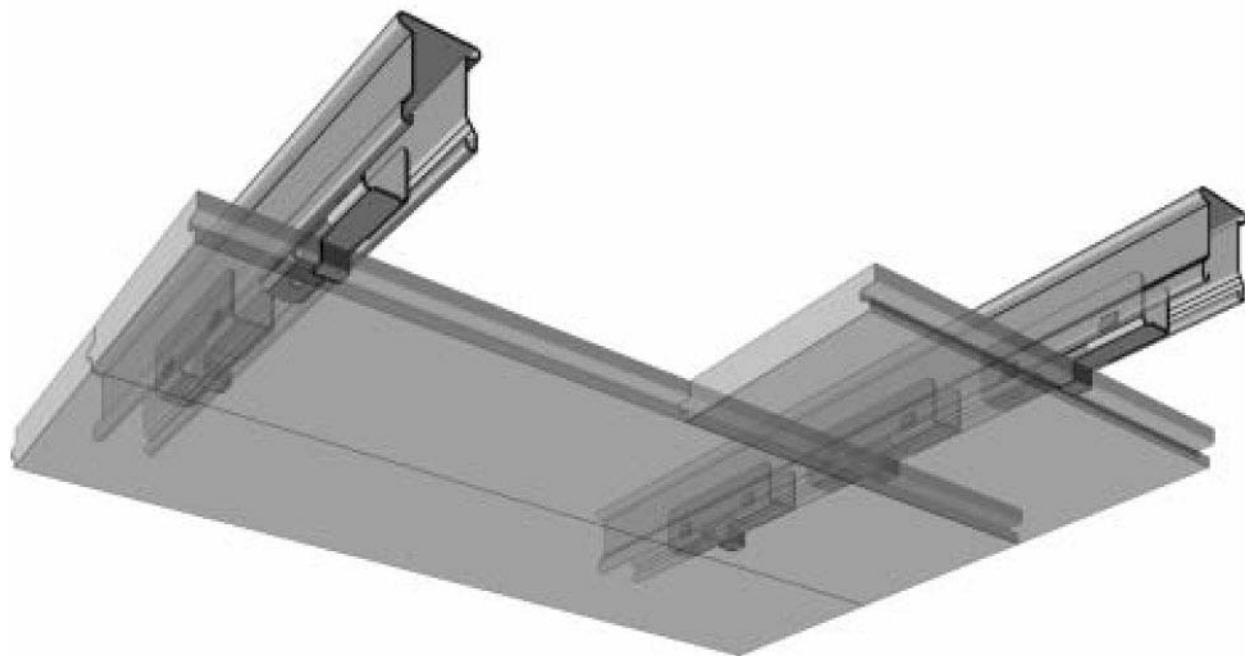
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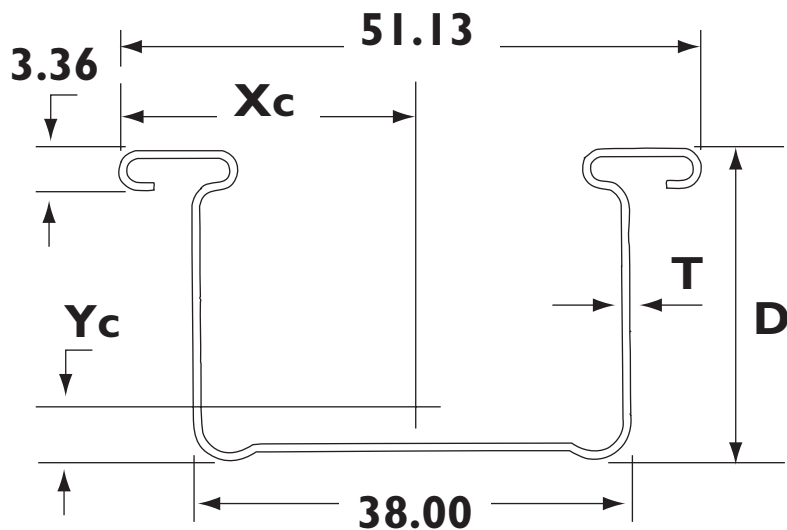
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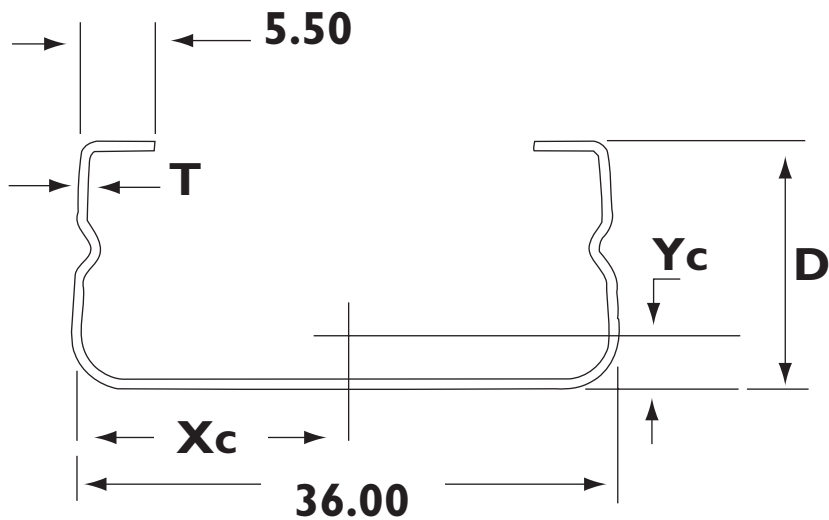
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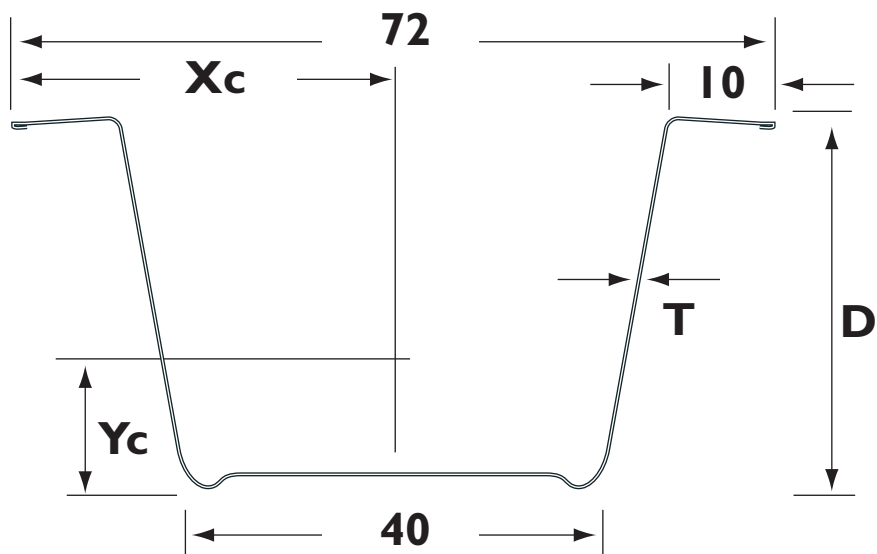
**I 29/308**



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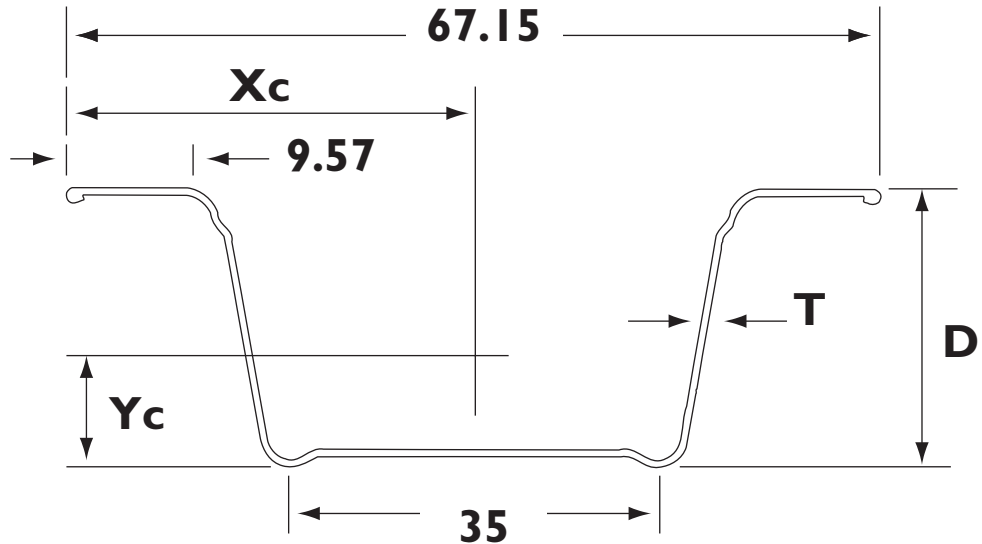
**30 I**



**310**



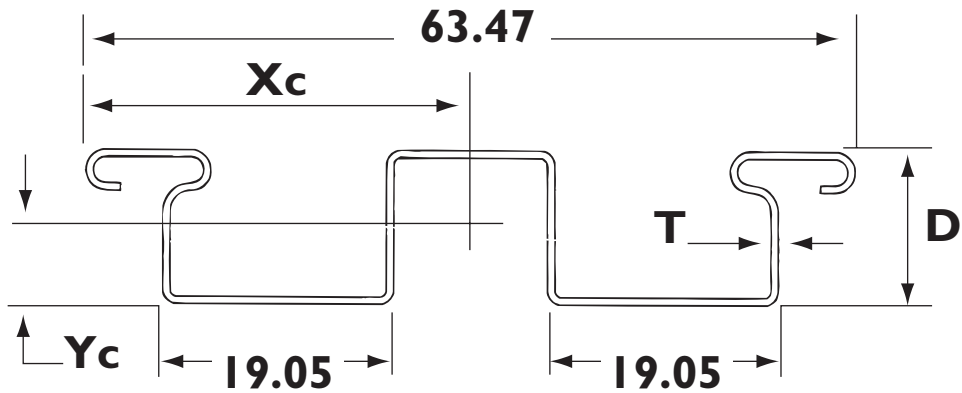
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**303**



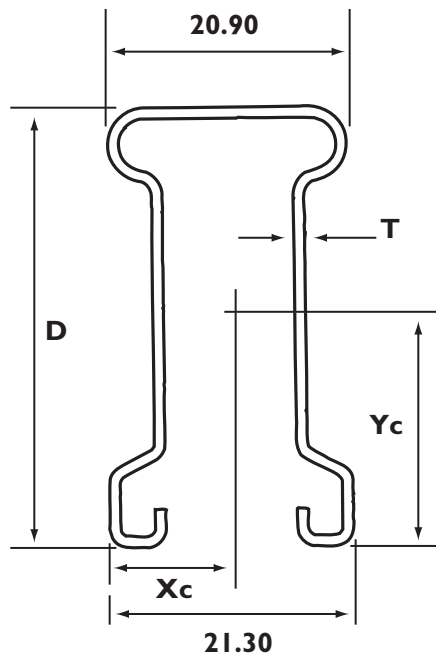
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**333**



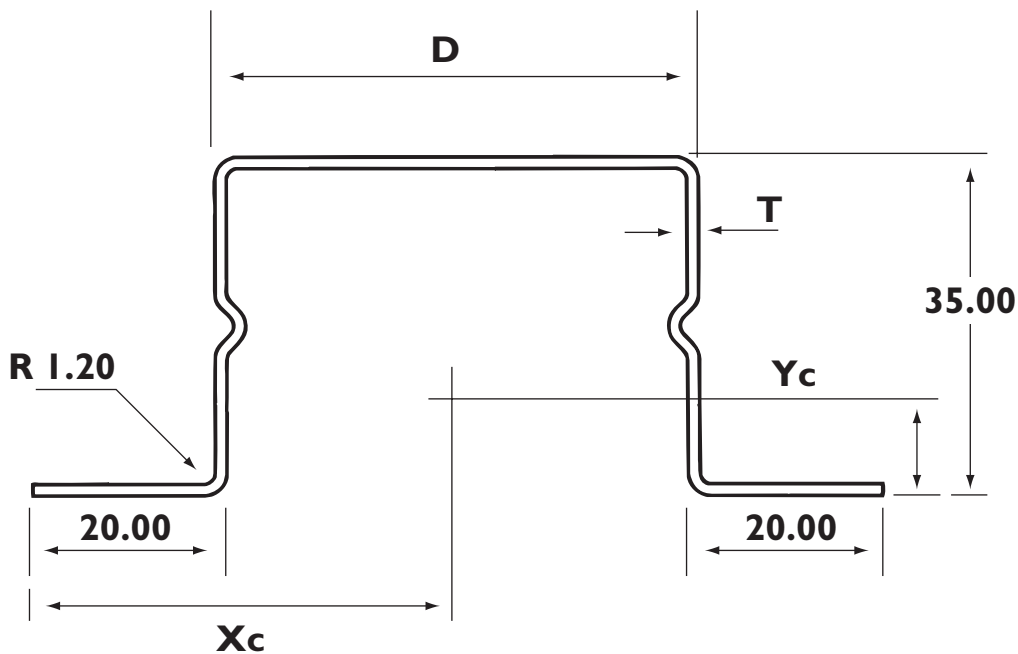
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**I25/I27/I28**



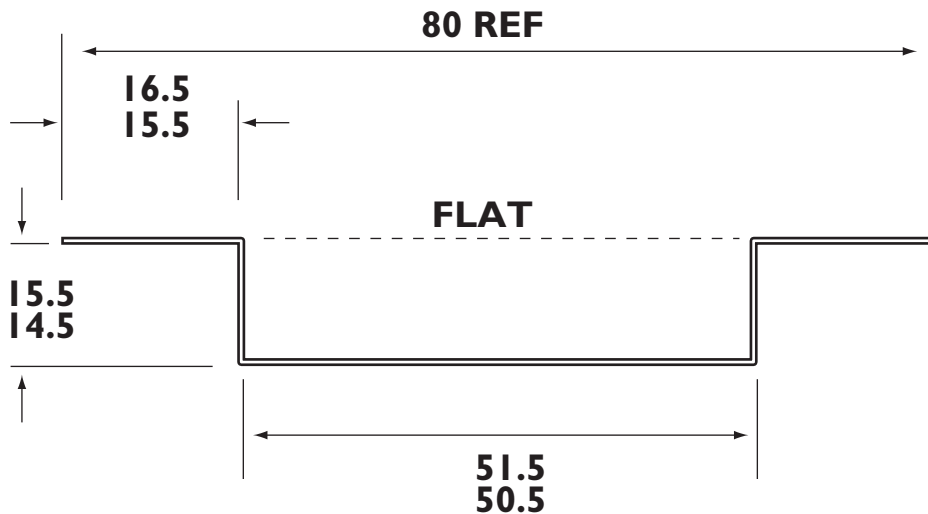
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