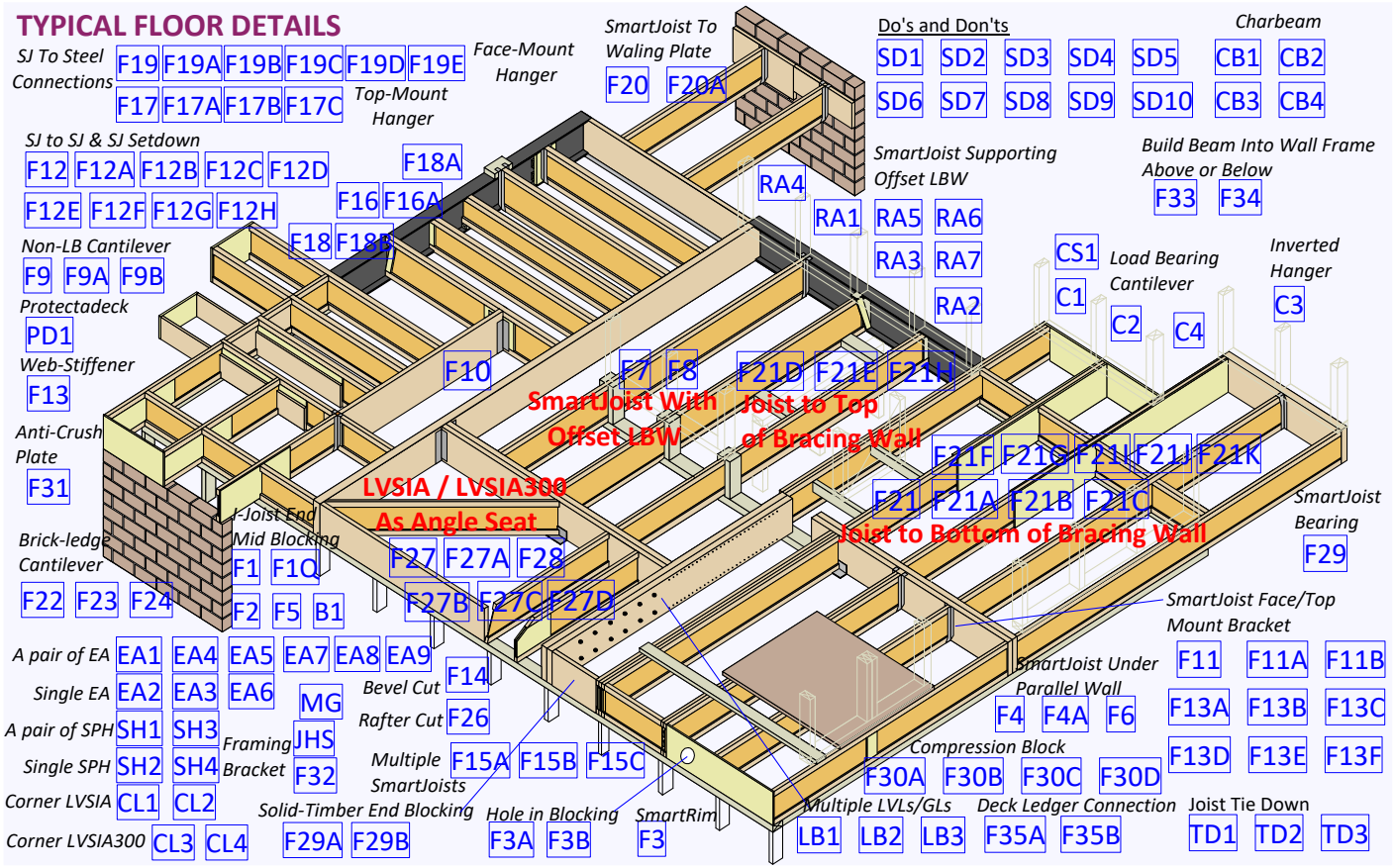
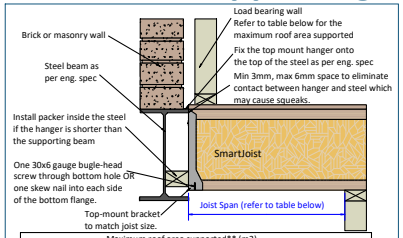

TYPICAL FLOOR DETAILS
SJ To Steel Connections
F19 F19A F19B F19C F19D F19E
F17 F17A F17B F17C
Top-Mount Hanger
Face-Mount Hanger
SmartJoist To Waling Plate
F20 F20A
Do's and Don'ts
SD1 SD2 SD3 SD4 SD5
SD6 SD7 SD8 SD9 SD10
Charbeam
CB1 CB2
CB3 CB4
SJ to SJ & SJ Setdown
F12 F12A F12B F12C F12D
F12E F12F F12G F12H
F18A
F16 F16A
F18 F18B
SmartJoist Supporting Offset LBW
RA4
RA1 RA5 RA6
RA3 RA7
RA2
Build Beam Into Wall Frame Above or Below
F33 F34
Non-LB Cantilever
F9 F9A F9B
Protectadeck
PD1
Web-Stiffener
F13
CS1
C1
Load Bearing Cantilever
C2 C4
Inverted Hanger
C3
F10
F7 F8
F21D F21E F21H
SmartJoist With Offset LBW
Joist to Top of Bracing Wall
Anti-Crush Plate
F31
LVSIA / LVSIA300 As Angle Seat
F21F F21G F21I F21J F21K
F21 F21A F21B F21C
Joist to Bottom of Bracing Wall
SmartJoist Bearing
F29
I-Joist End Mid Blocking
Brick-ledge Cantilever
F1 F1Q
F22 F23 F24
F2 F5 B1
F27 F27A F28
F27B F27C F27D
SmartJoist Face/Top Mount Bracket
A pair of EA
EA1 EA4 EA5 EA7 EA8 EA9
Single EA
EA2 EA3 EA6
MG
Bevel Cut
F14
Rafter Cut
F26
SmartJoist Under Parallel Wall
F11 F11A F11B
F4 F4A F6
F13A F13B F13C
A pair of SPH
SH1 SH3
Framing Bracket
JHS
F32
Single SPH
SH2 SH4
Multiple SmartJoists
F15A F15B F15C
Compression Block
F30A F30B F30C F30D
F13D F13E F13F
Corner LVSIA
CL1 CL2
Solid-Timber End Blocking
Hole in Blocking
SmartRim
F3A F3B F3
Multiple LVLs/GLs
LB1 LB2 LB3
Deck Ledger Connection
F35A F35B
Joist Tie Down
TD1 TD2 TD3
Corner LVSIA300
CL3 CL4
F29A F29B

SmartJoist Supporting Offset Load Bearing Wall

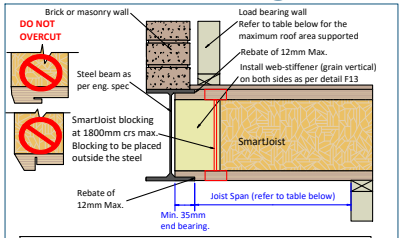


Maximum roof area supported** (m2)								
Joist Spacing (mm)	300	400	450	600	300	400	450	600
Joist Span (mm)	Sheet roof				Tile roof			
3500	21.7	15.0	12.8	8.2	9.6	6.7	5.7	3.6
4000	21.1	14.5	12.3	6.9	9.4	6.4	5.5	3.1
4500	20.5	13.9	11.7	5.7	9.1	6.2	5.2	2.5
5000	20.0	13.4	10.4	4.4	8.9	5.9	4.6	2.0
5500	19.4	12.1	9.1	3.2	8.6	5.4	4.1	1.4

**Based upon worst case of 40mm flange width (conservative for wider flange joists)

SmartJoist Supporting Offset Load Bearing Wall With Uniform Roof Loads Using Top-Mount Hanger

RA1

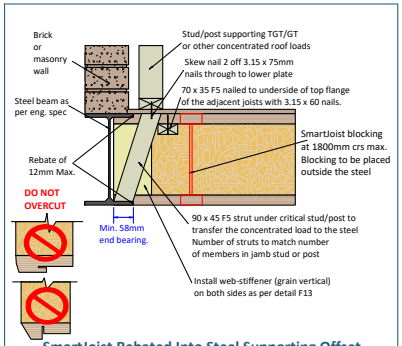


Maximum roof area supported** (m2)								
Joist Spacing (mm)	300	400	450	600	300	400	450	600
Joist Span (mm)	Sheet roof				Tile roof			
3500	6.9	6.4	6.2	5.3	3.1	2.9	2.8	2.4
4000	6.7	6.2	6.0	4.6	3.0	2.8	2.7	2.0
4500	6.6	6.0	5.7	3.9	2.9	2.7	2.5	1.7
5000	6.4	5.8	5.1	3.1	2.9	2.6	2.3	1.4
5500	6.3	5.3	4.6	2.4	2.8	2.4	2.0	1.1

**Based upon worst case of 40mm flange width (conservative for wider flange joists)

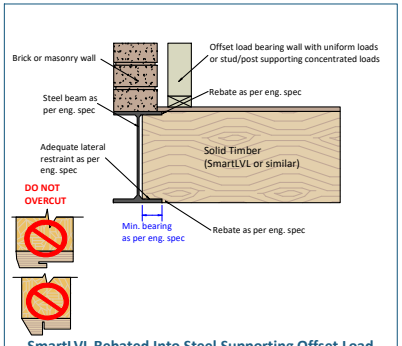
SmartJoist Rebated Into Steel Supporting Offset Load Bearing Wall With Uniform Roof Loads

RA2



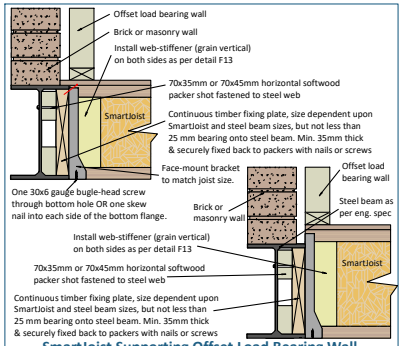
SmartJoist Rebated Into Steel Supporting Offset Load Bearing Wall With Concentrated Roof Loads

RA3



SmartLVL Rebated Into Steel Supporting Offset Load Bearing Wall With Concentrated/Uniform Loads

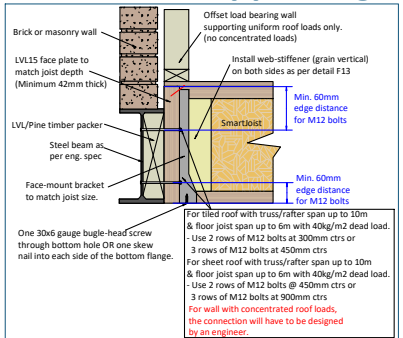
RA4



SmartJoist Supporting Offset Load Bearing Wall With Uniform Roof Loads Using Face-Mount Hanger

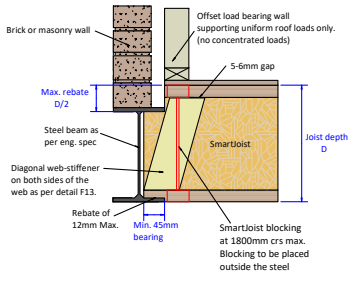
RA5

SmartJoist Supporting Offset Load Bearing Wall



SmartJoist Supporting Offset Load Bearing Wall With Uniform Roof Loads Using Face-Mount Hanger

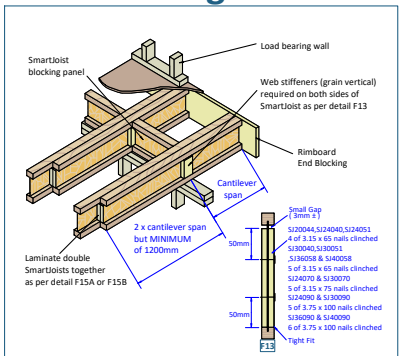
RA6



SmartJoist Rebated Into Steel Supporting Offset Load Bearing Wall With Uniform Roof Loads

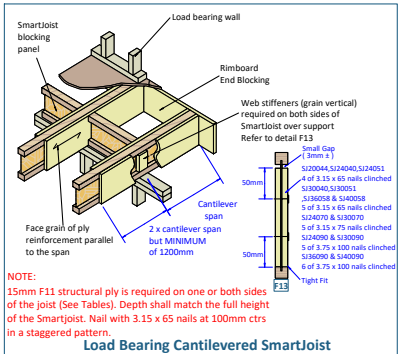
RA7

Load Bearing Cantilevered SmartJoist



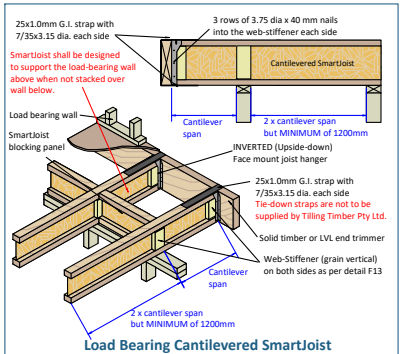
Load Bearing Cantilevered Double SmartJoists

C1



Load Bearing Cantilevered SmartJoist With Ply Reinfocement

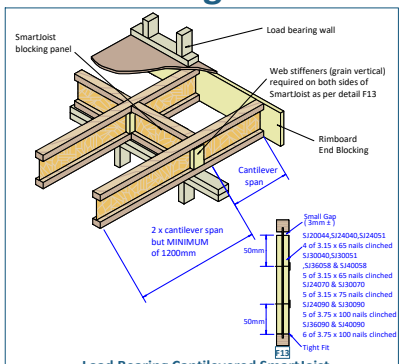
C2



Load Bearing Cantilevered SmartJoist With Inverted Face-Mount Bracket

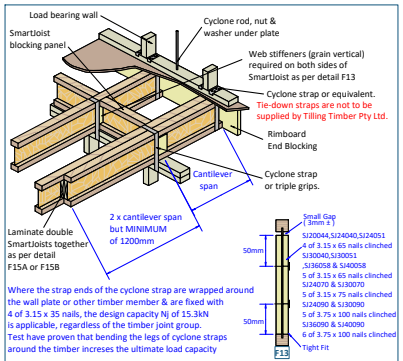
C3

Load Bearing Cantilevered SmartJoist



Load Bearing Cantilevered SmartJoist

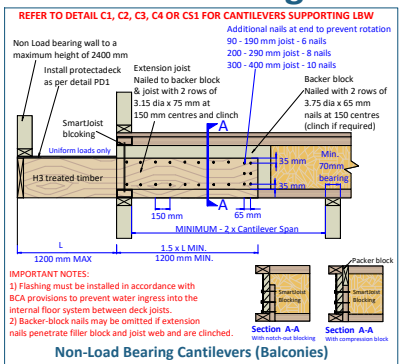
C4



Load Bearing Cantilevered SmartJoist With Cyclone Straps

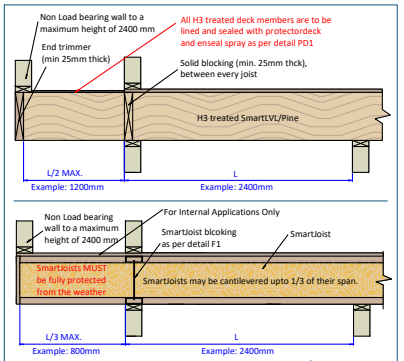
CS1

Non-Load Bearing Cantilevered SmartJoist



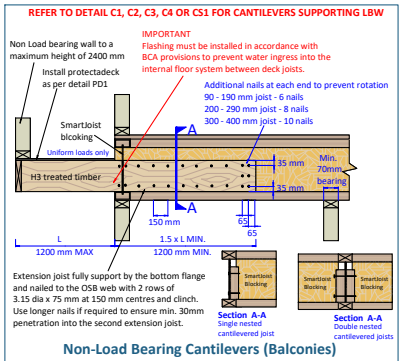
Non-Load Bearing Cantilevers (Balconies) With Adjacent Cantilevers Joists

F9



Non-Load Bearing Cantilevered SmartJoist/SmartLVL

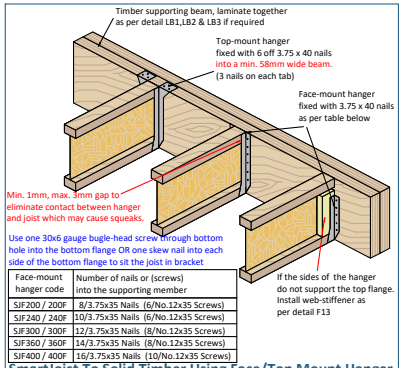
F9A



Non-Load Bearing Cantilevers (Balconies) With Nested Cantilevers Joists

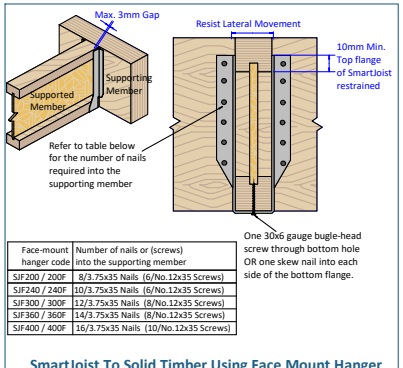
F9B

SmartJoist To Timber Beam



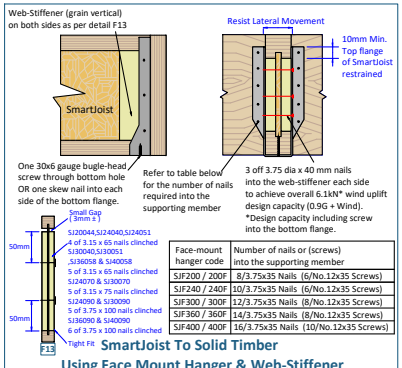
Face-mount hanger code	Number of nails or (screws) into the supporting member
SJF200 / 200F	8/3.75x35 Nails (6/No.12x35 Screws)
SJF240 / 240F	10/3.75x35 Nails (6/No.12x35 Screws)
SJF300 / 300F	12/3.75x35 Nails (8/No.12x35 Screws)
SJF360 / 360F	14/3.75x35 Nails (8/No.12x35 Screws)
SJF400 / 400F	16/3.75x35 Nails (10/No.12x35 Screws)

SmartJoist To Solid Timber Using Face/Top Mount Hanger
F11



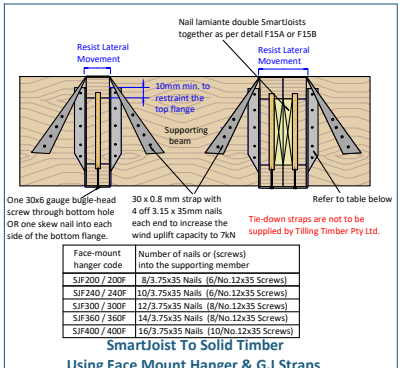
Face-mount hanger code	Number of nails or (screws) into the supporting member
SJF200 / 200F	8/3.75x35 Nails (6/No.12x35 Screws)
SJF240 / 240F	10/3.75x35 Nails (6/No.12x35 Screws)
SJF300 / 300F	12/3.75x35 Nails (8/No.12x35 Screws)
SJF360 / 360F	14/3.75x35 Nails (8/No.12x35 Screws)
SJF400 / 400F	16/3.75x35 Nails (10/No.12x35 Screws)

SmartJoist To Solid Timber Using Face Mount Hanger
F11A



Face-mount hanger code	Number of nails or (screws) into the supporting member
SJF200 / 200F	8/3.75x35 Nails (6/No.12x35 Screws)
SJF240 / 240F	10/3.75x35 Nails (6/No.12x35 Screws)
SJF300 / 300F	12/3.75x35 Nails (8/No.12x35 Screws)
SJF360 / 360F	14/3.75x35 Nails (8/No.12x35 Screws)
SJF400 / 400F	16/3.75x35 Nails (10/No.12x35 Screws)

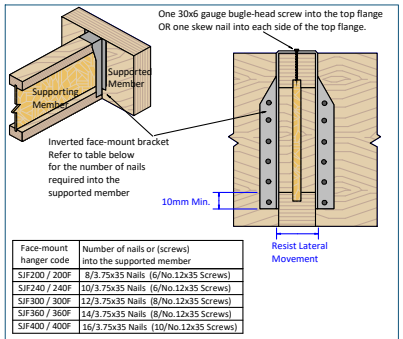
SmartJoist To Solid Timber Using Face Mount Hanger & Web-Stiffener
F13A



Face-mount hanger code	Number of nails or (screws) into the supporting member
SJF200 / 200F	8/3.75x35 Nails (6/No.12x35 Screws)
SJF240 / 240F	10/3.75x35 Nails (6/No.12x35 Screws)
SJF300 / 300F	12/3.75x35 Nails (8/No.12x35 Screws)
SJF360 / 360F	14/3.75x35 Nails (8/No.12x35 Screws)
SJF400 / 400F	16/3.75x35 Nails (10/No.12x35 Screws)

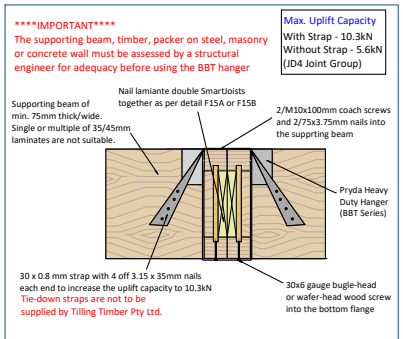
SmartJoist To Solid Timber Using Face Mount Hanger & G.I Straps
F13B

SmartJoist To Timber Beam



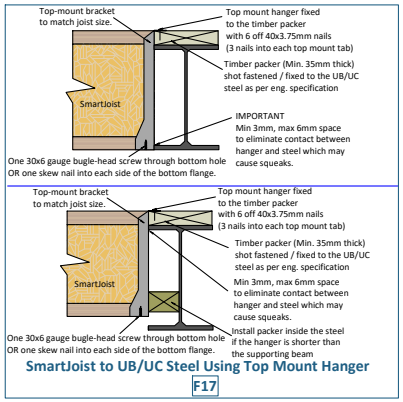
Face-mount hanger code	Number of nails or (screws) into the supported member
SJF200 / 200F	8/3.75x35 Nails (6/No.12x35 Screws)
SJF240 / 240F	10/3.75x35 Nails (6/No.12x35 Screws)
SJF300 / 300F	12/3.75x35 Nails (8/No.12x35 Screws)
SJF360 / 360F	14/3.75x35 Nails (8/No.12x35 Screws)
SJF400 / 400F	16/3.75x35 Nails (10/No.12x35 Screws)

SmartJoist To Solid Timber Using Inverted Face Mount Hanger
F11B

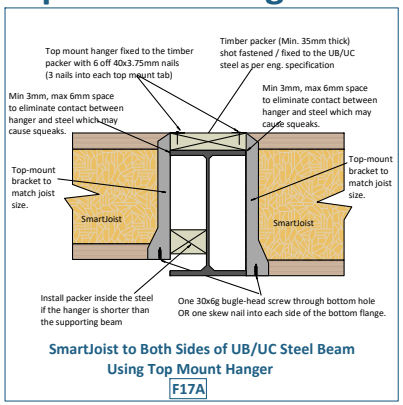


Double SmartJoists To Solid Timber Using Pryda Heavy Duty Hanger (BBT Series) & G.I Straps
F13D

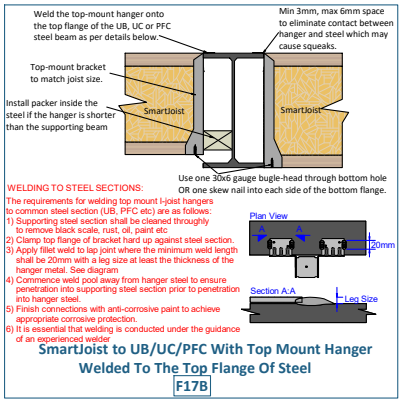
SmartJoist To Steel With Top-Mount Hanger



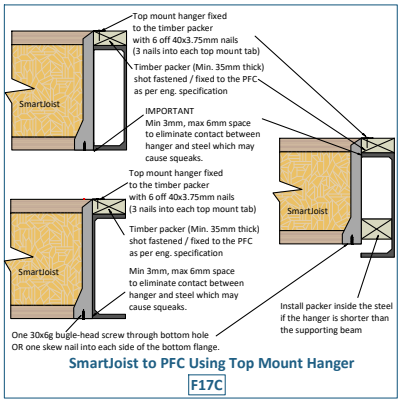
SmartJoist to UB/UC Steel Using Top Mount Hanger
F17



SmartJoist to Both Sides of UB/UC Steel Beam Using Top Mount Hanger
F17A

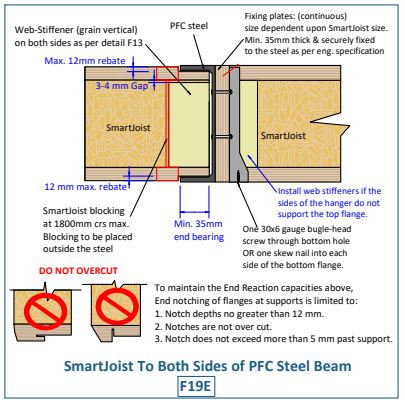


SmartJoist to UB/UC/PFC With Top Mount Hanger Welded To The Top Flange Of Steel
F17B



SmartJoist to PFC Using Top Mount Hanger
F17C

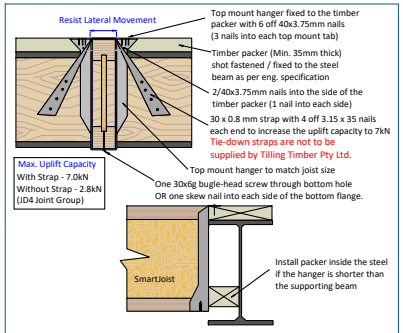
SJ To Both Sides of PFC



To maintain the End Reaction capacities above, End notching of flanges at supports is limited to:
1. Notch depths no greater than 12 mm.
2. Notches are not over cut.
3. Notch does not exceed more than 5 mm past support.

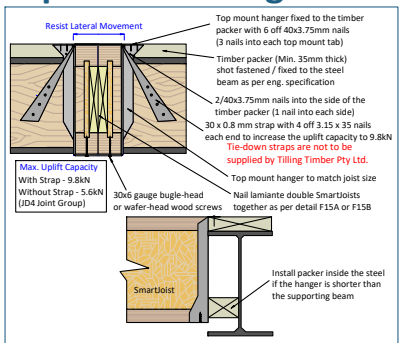
SmartJoist To Both Sides of PFC Steel Beam
F19E

SmartJoist To Steel With Top-Mount Hanger & Tie-Down Strap



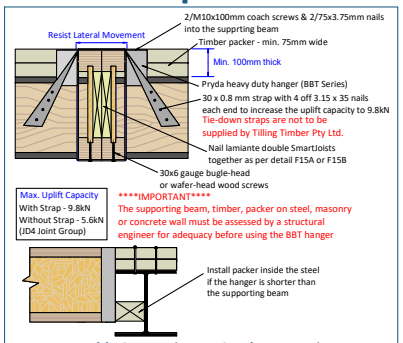
SmartJoist To Steel Beam
Using Top Mount Hanger & G.I Straps

F13C



Double SmartJoists To Steel Beam
Using Top Mount Hanger & G.I Straps

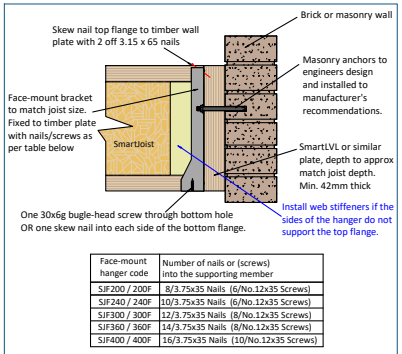
F13E



Double SmartJoists To Steel Beam Using
Pryda Heavy Duty Hanger (BBT Series) & G.I Straps

F13F

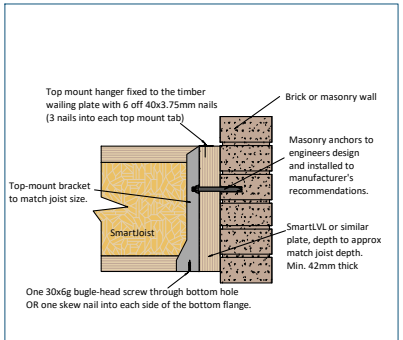
SmartJoist To Brick Wall



Face-mount hanger code	Number of nails or (screws) into the supporting member
SJF200 / 200F	8/3.75x35 Nails (6/No.12x35 Screws)
SJF240 / 240F	10/3.75x35 Nails (6/No.12x35 Screws)
SJF300 / 300F	12/3.75x35 Nails (8/No.12x35 Screws)
SJF360 / 360F	14/3.75x35 Nails (8/No.12x35 Screws)
SJF400 / 400F	16/3.75x35 Nails (10/No.12x35 Screws)

SmartJoist to Brick Wall With Face Mount Hanger

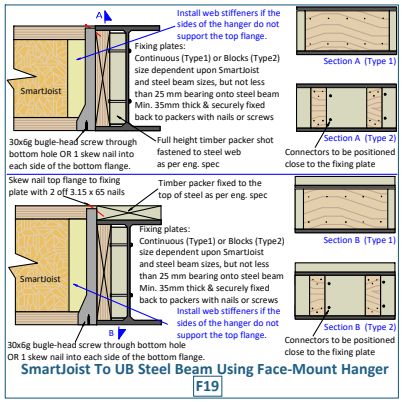
F20



SmartJoist to Brick Wall With Top Mount Hanger

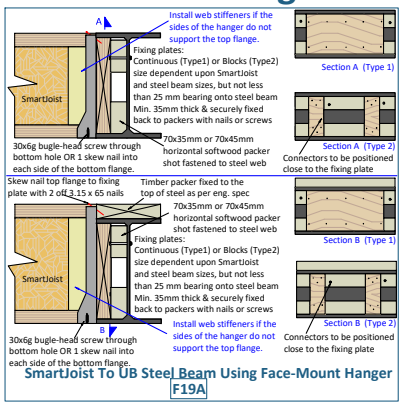
F20A

SmartJoist To Steel With Face-Mount Hanger



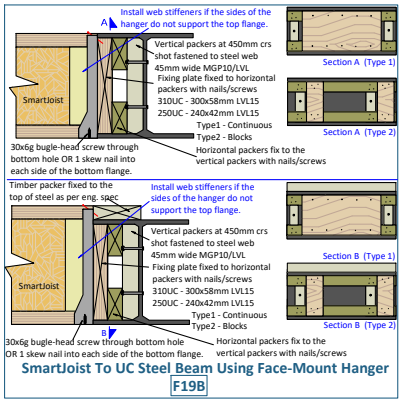
SmartJoist To UB Steel Beam Using Face-Mount Hanger

F19



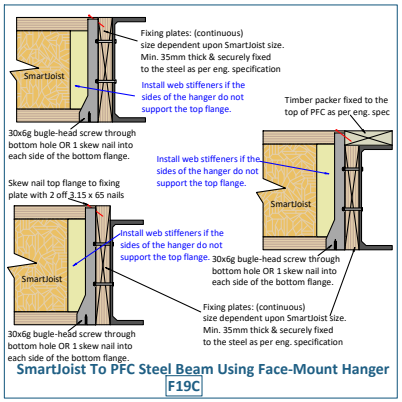
SmartJoist To UB Steel Beam Using Face-Mount Hanger

F19A



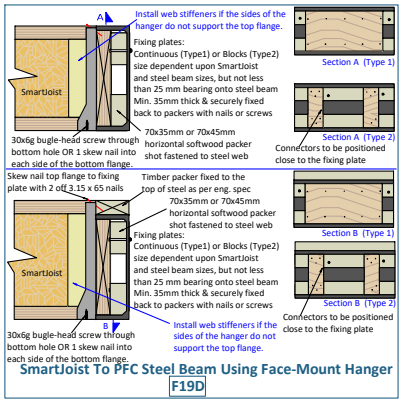
SmartJoist To UC Steel Beam Using Face-Mount Hanger

F19B



SmartJoist To PFC Steel Beam Using Face-Mount Hanger

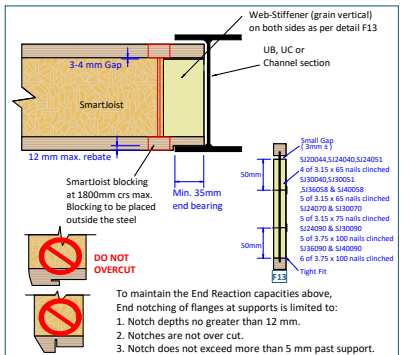
F19C



SmartJoist To PFC Steel Beam Using Face-Mount Hanger

F19D

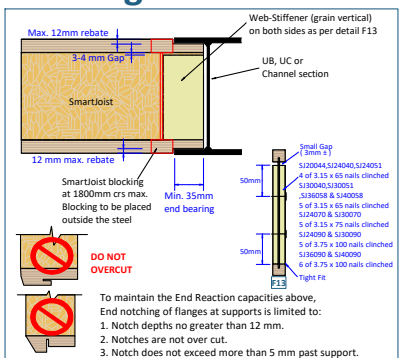
SmartJoist To Steel Without Hanger



To maintain the End Reaction capacities above, End notching of flanges at supports is limited to:
1. Notch depths no greater than 12 mm.
2. Notches are not over cut.
3. Notch does not exceed more than 5 mm past support.

SmartJoist Rebated Into Steel Beam With Web-Stiffener

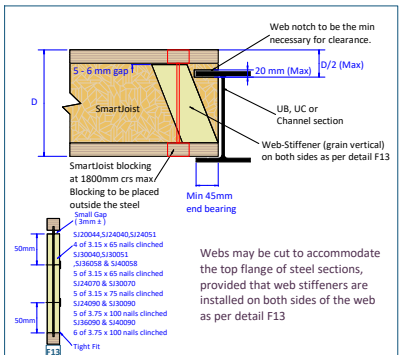
F16



To maintain the End Reaction capacities above, End notching of flanges at supports is limited to:
1. Notch depths no greater than 12 mm.
2. Notches are not over cut.
3. Notch does not exceed more than 5 mm past support.

SmartJoist Rebated Into Steel Beam With Web-Stiffener

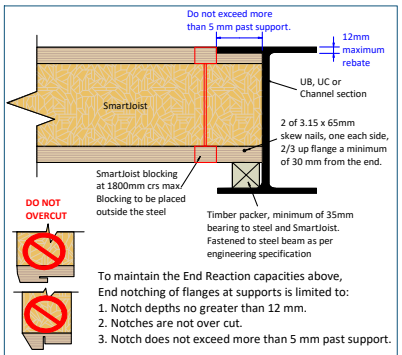
F16A



Webs may be cut to accommodate the top flange of steel sections, provided that web stiffeners are installed on both sides of the web as per detail F13

SmartJoist Rebated Into Steel Beam With Web-Stiffener

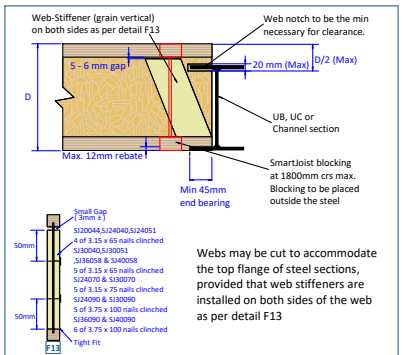
F18



To maintain the End Reaction capacities above, End notching of flanges at supports is limited to:
1. Notch depths no greater than 12 mm.
2. Notches are not over cut.
3. Notch does not exceed more than 5 mm past support.

SmartJoist Rebated Into Steel Beam

F18A

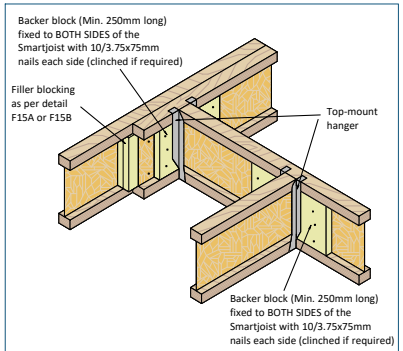


Webs may be cut to accommodate the top flange of steel sections, provided that web stiffeners are installed on both sides of the web as per detail F13

SmartJoist Rebated Into Steel Beam With Web-Stiffener

F18B

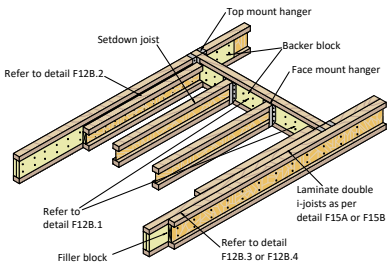
SmartJoist To SmartJoist



SmartJoist To SmartJoist Using Top-Mount Hanger

F12

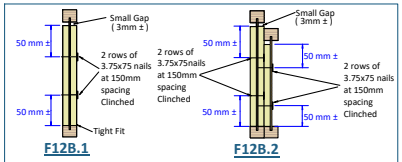
THIS DETAIL NEEDS TO BE READ IN CONJUNCTION WITH DETAIL F12B



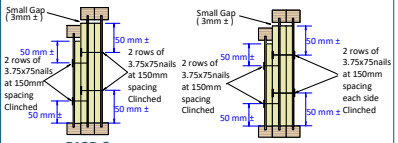
THIS DETAIL NEEDS TO BE READ IN CONJUNCTION WITH DETAIL F12B

SmartJoist To SmartJoist With Wet-Area Setdown

F12A

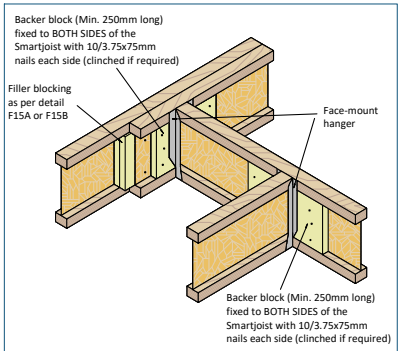


THIS DETAIL NEEDS TO BE READ IN CONJUNCTION WITH DETAIL F12A



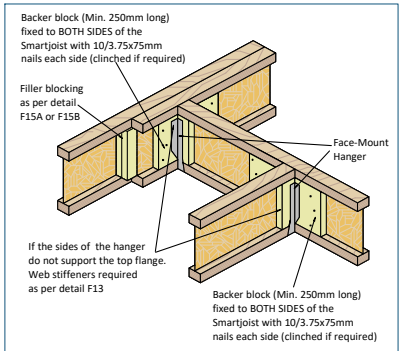
SmartJoist Filler Block Fixing Detail

F12B



SmartJoist To SmartJoist Using Face-Mount Hanger

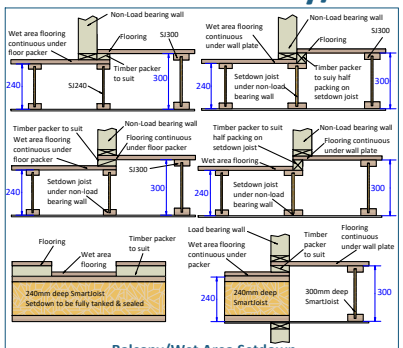
F12C



SmartJoist To SmartJoist Using Face-Mount Hanger

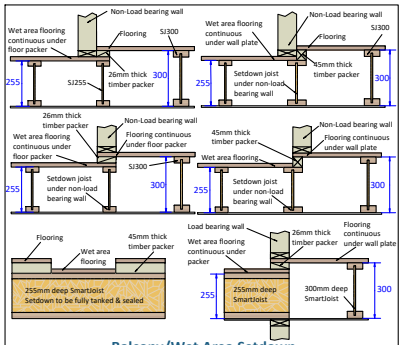
F12D

SmartJoist Balcony/Wet Area Setdown



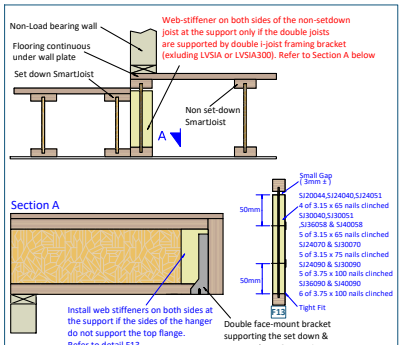
Balcony/Wet Area Setdown Using SJ240 & SJ300 deep SmartJoist

F12E



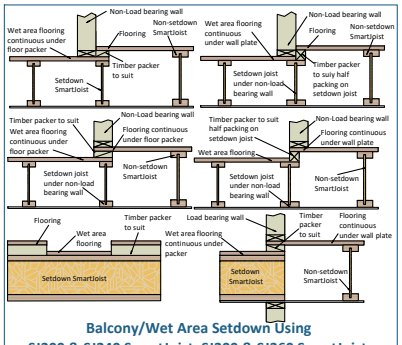
Balcony/Wet Area Setdown Using SJ255 & SJ300 deep SmartJoist

F12F



Balcony/Wet Area Setdown Using SmartJoist

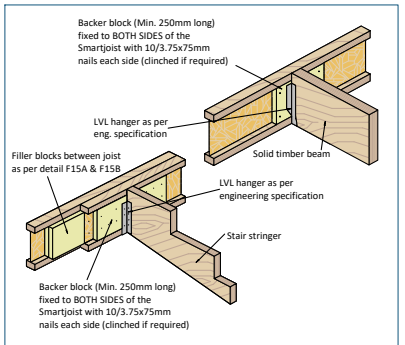
F12G



Balcony/Wet Area Setdown Using SJ200 & SJ240 SmartJoist, SJ300 & SJ360 SmartJoist and SJ360 & SJ400 SmartJoist

F12H

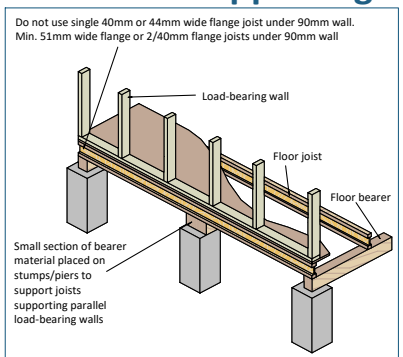
LVL To SmartJoist



Solid Timber/Stair Stringer To SmartJoist

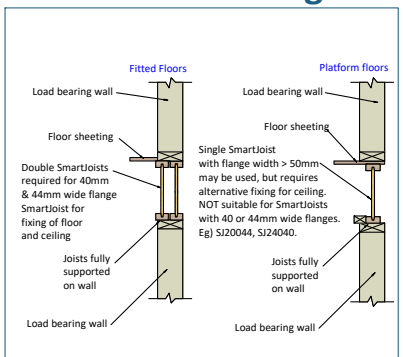
F10

SmartJoist Supporting External Load Bearing Wall



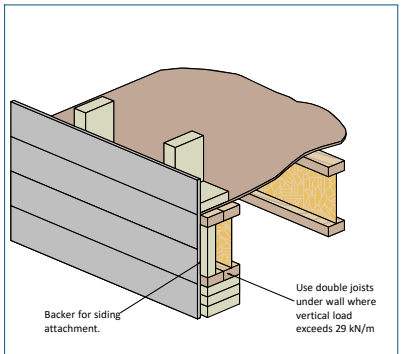
SmartJoist Supporting Parallel Load Bearing Wall

F4



SmartJoist Supporting Parallel Load Bearing Wall

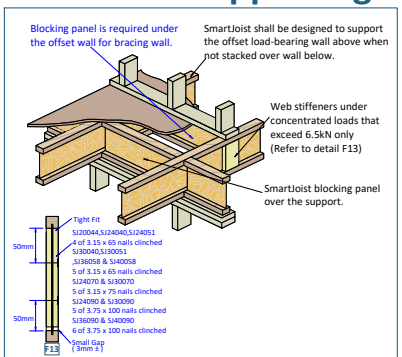
F4A



SmartJoist Supporting Parallel Load Bearing Wall

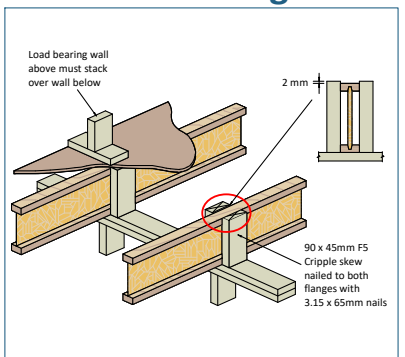
F6

SmartJoist Supporting Offset Load Bearing Wall



SmartJoist Supporting Offset Load Bearing / Bracing Wall

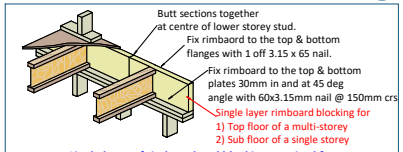
F7



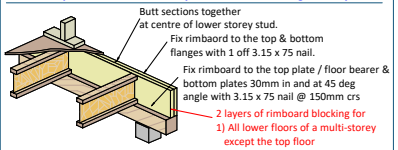
SmartJoist Supporting Parallel Load Bearing Wall

F8

SmartRim End Blocking



Single layer of rimboard end blocking required for top floor of a multi-storey or sub-floor of a single storey

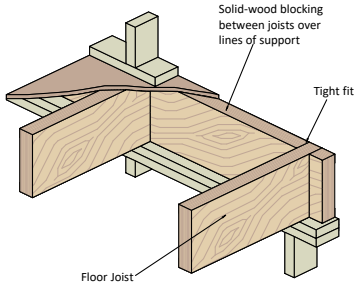


2 layers of rimboard end blocking required for all lower floors of a multi-storey except the top floor

SmartJoist Rimboard End Blocking

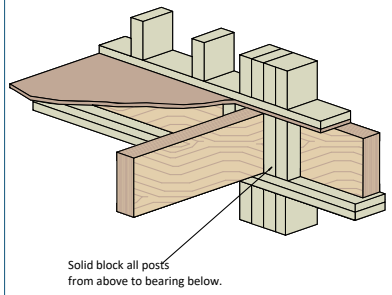
F3

Solid Timber End Blocking



Solid Timber End Blocking Detail

F29A

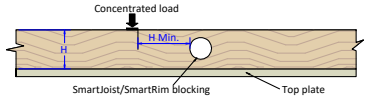


Solid Timber End Blocking Detail

F29B

Penetration In SmartJoist/SmartRim Blocking

When concentrated loads are present on SmartJoist/SmartRim (loads not supported by any other vertical-load-carrying members such as squash/compression blocks), holes SHOULD NOT be placed in the SmartJoist/SmartRim within a distance equal to the depth of the SmartJoist/SmartRim from the area of loading



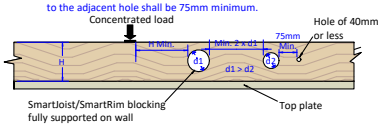
SmartJoist/SmartRim hole sizes & corresponding minimum length		
Blocking depth	Max. hole size [a] [b]	Min. length
200mm	130mm	1050mm
240mm	160mm	1280mm
300mm	200mm	1600mm
360mm	235mm	1900mm
400mm	265mm	2100mm

(a) These hole provisions do not apply to SmartJoist/SmartRim installed over openings such as doors or windows
(b) The diameter of the round hole or the longer dimension of the rectangular hole.

Penetration in SmartJoist/SmartRim End Blocking

F3A

For multiple holes, the clear spacing between hoels shall be at least two times the diameter of the larger hole, or twice the length of the longest rectangular hole. This minimum hole spacing does not apply to holes of 40mm or less in diameter, which can be placed anywhere in the rim board except that the clear distance to the adjacent hole shall be 75mm minimum.



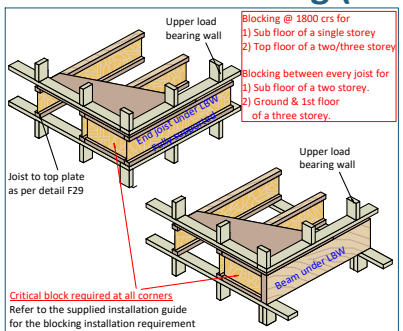
SmartJoist/SmartRim hole sizes & corresponding minimum length		
Blocking depth	Max. hole size [a] [b]	Min. length
200mm	130mm	1050mm
240mm	160mm	1280mm
300mm	200mm	1600mm
360mm	235mm	1900mm
400mm	265mm	2100mm

(a) These hole provisions do not apply to SmartJoist/SmartRim installed over openings such as doors or windows
(b) The diameter of the round hole or the longer dimension of the rectangular hole.

Multiple Penetrations in SmartJoist/SmartRim End Blocking

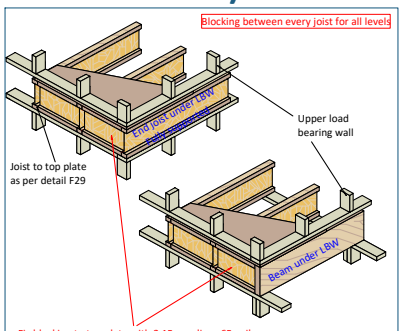
F3B

SmartJoist Blocking (End/Intermediate)



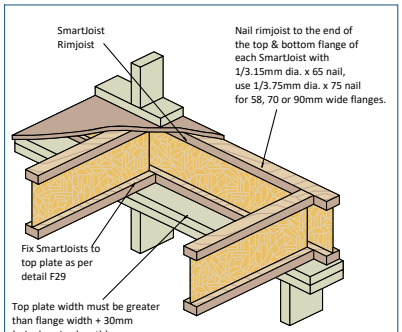
SmartJoist Cut-To-Length End Blocking

F1



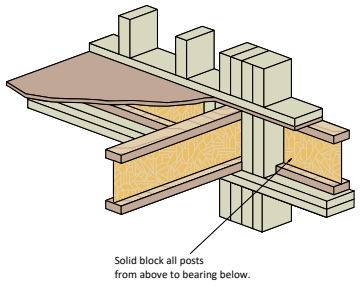
SmartJoist Cut-To-Length End Blocking

F1Q



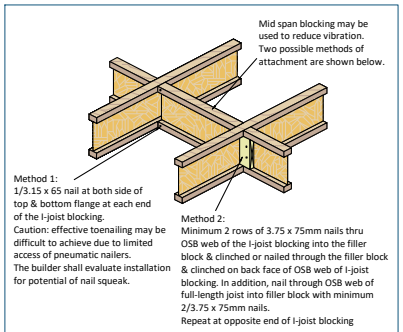
SmartJoist RimJoist End Blocking

F2



SmartJoist End Blocking

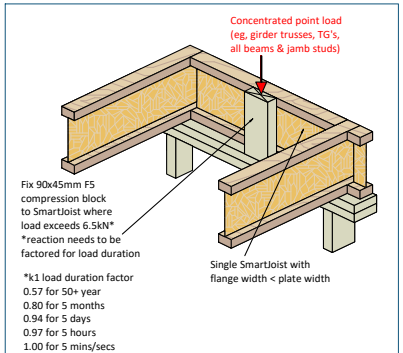
F5



SmartJoist Midspan Blocking

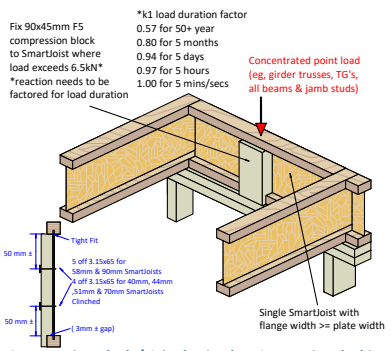
B1

SmartJoist/SmartRim Blocking Under Concentrated Load



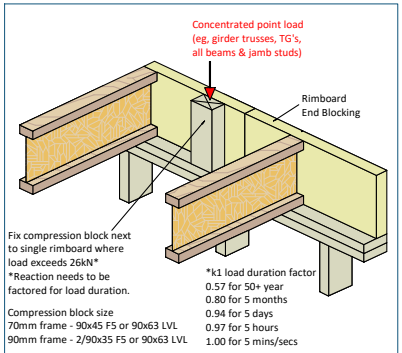
Compression Block / Cripple Next To SmartJoist Blocking

F30A



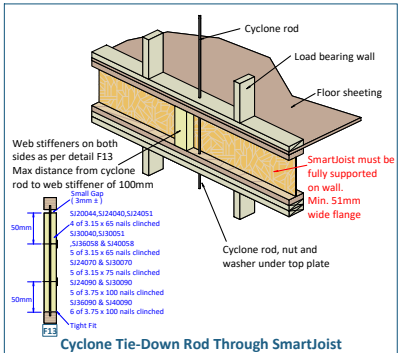
Compression Block / Cripple Fixed To SmartJoist Blocking

F30B



Compression Block / Cripple Next To Rimboard Blocking

F30C



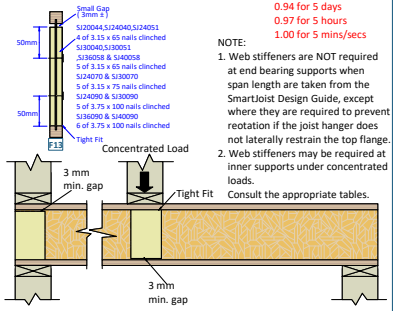
Cyclone Tie-Down Rod Through SmartJoist
Fully Supported On Wall Plate

F30D

Web-Stiffener On SJ

Web-stiffeners under concentrated loads are required as shown below for concentrated loads that exceed 6.5kN*
*reaction needs to be factored for load duration

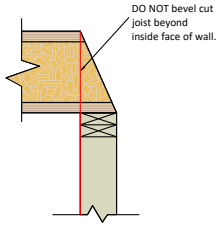
*k1 load duration factor
0.57 for 50+ year
0.80 for 5 months
0.94 for 5 days
0.97 for 5 hours
1.00 for 5 mins/secs



NOTE:
1. Web stiffeners are NOT required at end bearing supports when span length are taken from the SmartJoist Design Guide, except where they are required to prevent reotation if the joist hanger does not laterally restrain the top flange.
2. Web stiffeners may be required at inner supports under concentrated loads. Consult the appropriate tables.

SmartJoist Web Stiffener Attachment Detail
F13

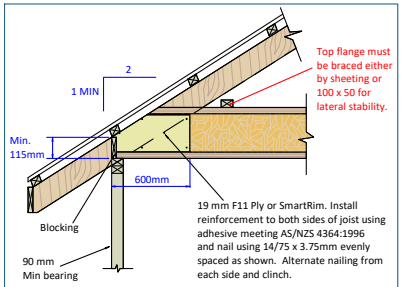
Bevel Cut On SJ



NOTE:
SmartJoist blocking or timber X - bracing required at bearing for lateral support.

Bevel Cut On SmartJoist
F14

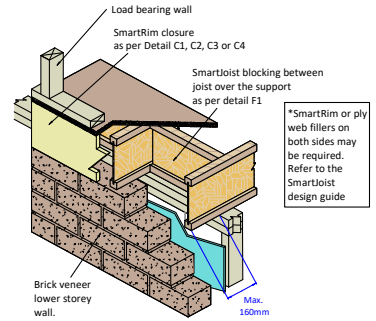
Rafter Cut On SJ



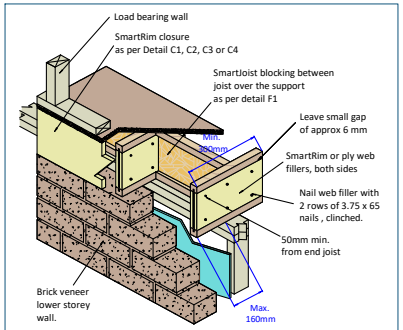
Rafter cuts are limited to:
1) 115mm MINIMUM end height for all joist sizes.
2) MINIMUM roof slopes of 1 in 2 (approxi 26.5 deg)
3) Must be blocked at the end to prevent rotation of the joist.

Rafter/Taper Cut On SmartJoist
F26

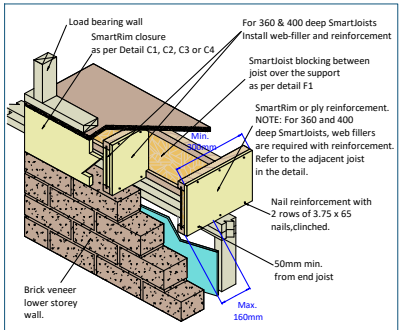
SmartJoist Brick-Ledge Cantilever



SmartJoist Brick-Ledge Cantilever
(Without Ply Reinforcement)
F22

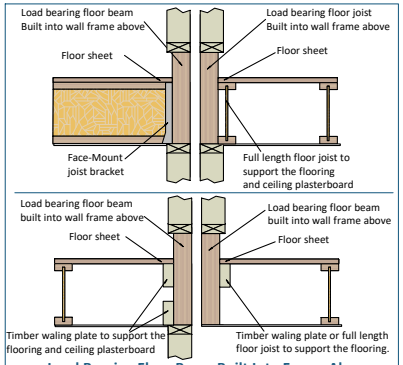


SmartJoist Brick-Ledge Cantilever
(With Ply Filler Reinforcement)
F23

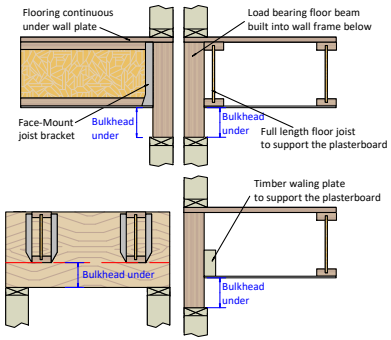


SmartJoist Brick-Ledge Cantilever
(With Full Depth Ply Reinforcement)
F24

Floor Beam Into Wall Frame Above or Below

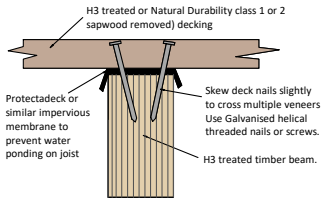


Load Bearing Floor Beam Built Into Frame Above
F33



Load Bearing Floor Beam Built Into Frame Below
F34

Protectadeck

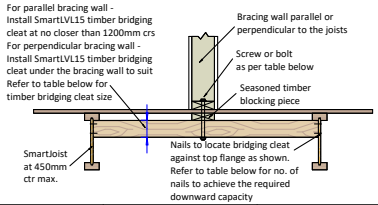


For all H3 LOSP treated products, we recommend the followings to prolong the service life of the product and to avoid voiding the treatment warranty.
1) Paint & prime all round with a quality alkyd (oil) based primer and finished with a high quality top coat.
2) Installation of a damp proof flashing (protectadeck or similar) to the tops of beams.
3) Treat all cut ends, notches check-outs, holes etc with Enseal spray or similar.
4) Caps over exposed end grain.
5) Avoiding built in moisture traps.
6) Protecting sun exposed surfaces
7) Beam regularly maintained.

Protectadeck On H3 Treated Timber Beam
PD1

Joist Parallel To Upper Bracing Wall

For solid timber joist, refer to Table 8.24(d) in AS1684.2



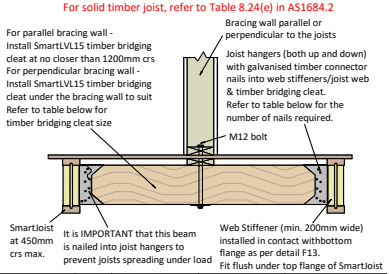
Timber bridging cleat size	No. of nails into joist web and end grain of the timber bridging cleat.	Design Capacity (Wind downward)
90 x 42/58mm LVL15	2/3.15 x 75mm nails	4.0kN
130 x 42/58mm LVL15	3/3.15 x 75mm nails	4.9kN
170 x 42/58mm LVL15	4/3.15 x 75mm nails	5.8kN

Bolt or screw into the timber bridging cleat	Design Capacity (Wind uplift)
1/M10 bolt with 42mm wide LVL15 timber bridging cleat	6.1kN
1/M12 bolt with 58mm wide LVL15 timber bridging cleat	8.0kN
1/No.14 screw with min. 40mm penetration into the timber bridging cleat	2.0kN

SmartJoist To The Bottom of Parallel/Perp. Bracing Wall

F21

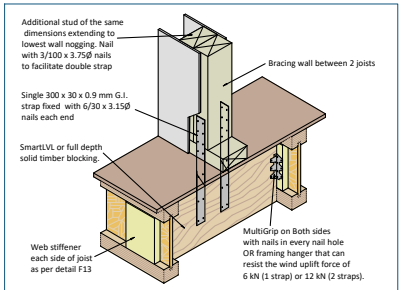
For solid timber joist, refer to Table 8.24(e) in AS1684.2



Timber bridging cleat size	Hanger size	No. of nails into the web-stiffener	No. of nails into the timber bridging cleat	Design Capacity Wind uplift or downward
90 x 58mm LVL15	FBS890	8/3.15 x 35mm nails	4/3.15 x 35mm nails	9.6kN
130 x 58mm LVL15	FBS8120	12/3.15 x 35mm nails	6/3.15 x 35mm nails	13.6kN
170 x 58mm LVL15	FBS8170	20/3.15 x 35mm nails	10/3.15 x 35mm nails	20kN

SmartJoist To The Bottom of Parallel/Perp. Bracing Wall

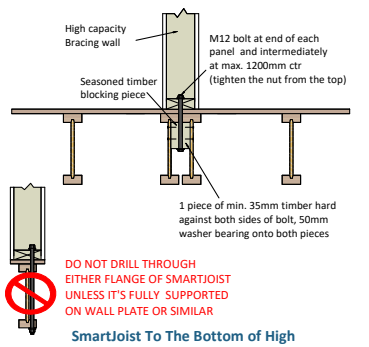
F21A



Strap & Nails	Design capacity (Wind uplift)
1 off 300x30x0.9 mm G.I strap fixed with 6/30x3.15 nails each end	6 kN
2 off 300x30x0.9 mm G.I strap fixed with 6/30x3.15 nails each end	12 kN

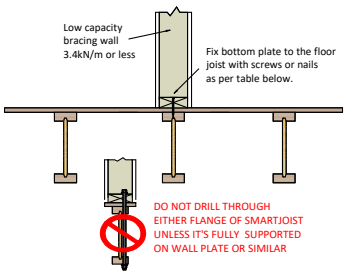
SmartJoist Parallel to Upper Bracing Wall Via SmartLVL or Solid Timber Blocking

F21I



SmartJoist To The Bottom of High Capacity Parallel Bracing Wall

F21B

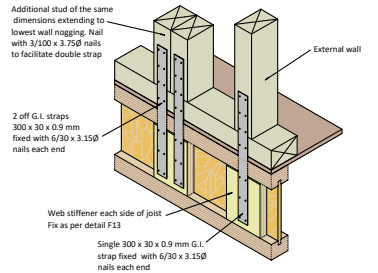


Nails or screws	Design capacity (Wind uplift)
2/3.05 nails with min. 40mm penetration into the joist	0.5kN
1/No.12 screw with min. 40mm penetration into the joist	2.4kN
1/No.14 screw with min. 40mm penetration into the joist	2.7kN

SmartJoist To The Bottom of Low Capacity Parallel Bracing Wall

F21F

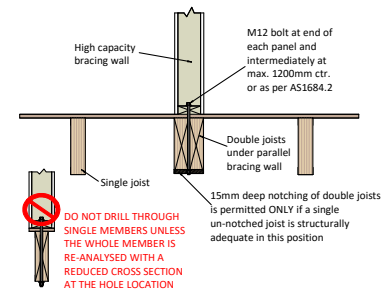
Joist Parallel To Upper Bracing Wall



Strap & Nails	Design capacity (Wind uplift)
1 off 300x30x0.9 mm G.I strap fixed with 6/30x3.15 nails each end	6 kN
2 off 300x30x0.9 mm G.I strap fixed with 6/30x3.15 nails each end	12 kN

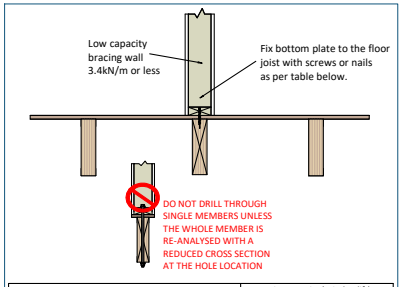
SmartJoist Parallel to Upper Bracing Wall Via Web-Stiffeners

F21J



Solid Timber Joist To The Bottom of High Capacity Parallel Bracing Wall

F21C

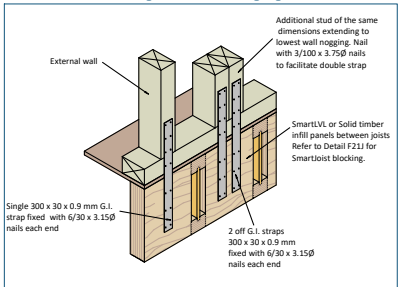


Nails or screws	Design capacity (Wind uplift)
2/3.05 nails with min. 40mm penetration into the joist	0.15kN
1/No.12 screw with min. 40mm penetration into the joist	1.5kN
1/No.14 screw with min. 40mm penetration into the joist	1.7kN

Solid Timber Joist To The Bottom of Low Capacity Parallel Bracing Wall

F21G

Joist Perp To Upper Bracing Wall



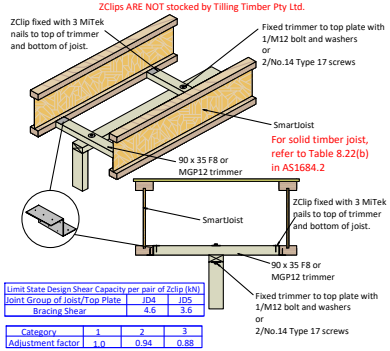
Strap & Nails	Design capacity (Wind uplift)
1 off 300x30x0.9 mm G.I strap fixed with 6/30x3.15 nails each end	6 kN
2 off 300x30x0.9 mm G.I strap fixed with 6/30x3.15 nails each end	12 kN

SmartJoist Perpendicular to Upper Bracing Wall Via SmartLVL or Solid Timber Blocking

F21K

Joist Parallel To Bottom Bracing Wall

ZClips ARE NOT stocked by Tilling Timber Pty Ltd.



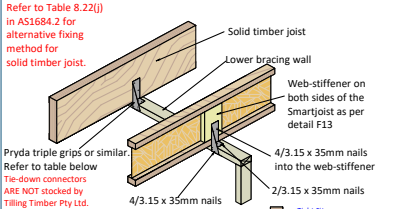
Limit State Design Shear Capacity per pair of Zclip (kN)		
Joint Group of Joist/Top Plate	JD4	JD5
Bracing Shear	4.6	3.6

Category	1	2	3
Adjustment factor	1.0	0.94	0.88

Floor Joist To The Top of Parallel Bracing Wall

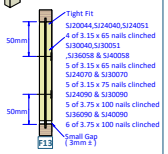
F21D

Refer to Table 8.22(j) in AS1684.2 for alternative fixing method for solid timber joist.



Limit State Design Shear Capacity per joist (kN)		
Joint Group of Joist/Top Plate	JD4	JD5
2/3.05 skew nails as per AS1684.2	1.1	0.9
2/3.33 skew nails as per AS1684.2	1.2	1.0
2/3.05 skew nails + 1/triple grip	2.1	1.5
2/3.33 skew nails + 1/triple grip	2.2	1.6
2/3.05 skew nails + 2/triple grips	4.8	3.7
2/3.33 skew nails + 2/triple grips	4.9	3.8

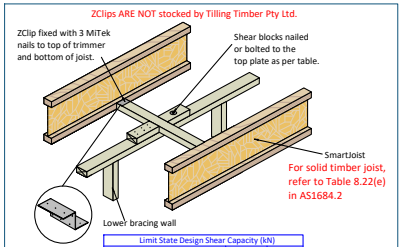
Category	1	2	3
Adjustment factor	1.0	0.94	0.88



Floor Joist To The Top of Perpendicular Bracing Wall

F21E

ZClips ARE NOT stocked by Tilling Timber Pty Ltd.



Limit State Design Shear Capacity (kN)		
Nails / Bolts	JD4	JD5
4/3.05 nails	3.6	3.0
4/3.33 nails	4.0	3.3
1/M10 bolt	4.3	3.0
1/M12 bolt	4.6	3.6

Category	1	2	3
Adjustment factor	1.0	0.94	0.88

ZClips ARE NOT stocked by Tilling Timber Pty Ltd.

Floor Joist To The Top of Parallel Bracing Wall

F21H

Multiple Member Lamination

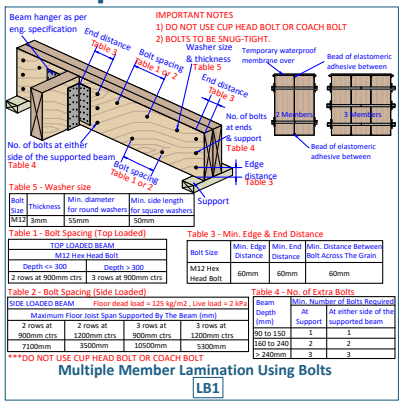


Table 5 - Washer size

Bolt Size	Thickness	Min. diameter for round washers	Min. side length for square washers
M12	3mm	55mm	50mm

Table 1 - Bolt Spacing (Top Loaded)

TOP LOADED BEAM	
M12 Hex Head Bolt	
Depth <= 300	Depth > 300
2 rows at 900mm ctrs	3 rows at 900mm ctrs

Table 3 - Min. Edge & End Distance

Bolt Size	Min. Edge Distance	Min. End Distance	Min. Distance Between Bolt Across The Grain
M12 Hex Head Bolt	60mm	60mm	60mm

Table 2 - Bolt Spacing (Side Loaded)

SIDE LOADED BEAM	Floor dead load = 125 kg/m2 , Live load = 2 kPa		
Maximum Floor Joist Span Supported By The Beam (mm)			
2 rows at 900mm ctrs	2 rows at 1200mm ctrs	3 rows at 900mm ctrs	3 rows at 1200mm ctrs
7100mm	3500mm	10500mm	5300mm

***DO NOT USE CUP HEAD BOLT OR COACH BOLT

Table 4 - No. of Extra Bolts

Beam Depth (mm)	Min. Number of Bolts Required	
	At Support	At either side of the supported beam
90 to 150	1	1
160 to 240	2	2
> 240mm	3	3

Multiple Member Lamination Using Bolts
LB1

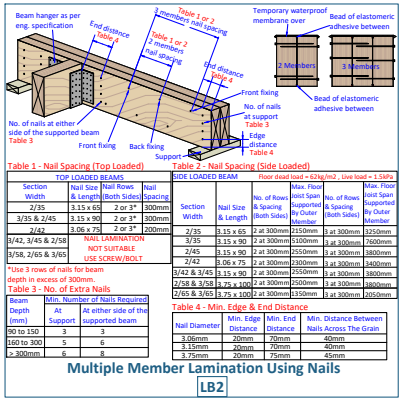


Table 1 - Nail Spacing (Top Loaded)

TOP LOADED BEAMS			
Section Width	Nail Size & Length	Nail Rows (Both Sides)	Nail Spacing
2/35	3.15 x 65	2 or 3*	300mm
3/35 & 2/45	3.15 x 90	2 or 3*	300mm
2/42	3.06 x 75	2 or 3*	200mm
3/42, 3/45 & 2/58	NAIL LAMINATION NOT SUITABLE USE SCREW/BOLT		
3/58, 2/65 & 3/65			

*Use 3 rows of nails for beam depth in excess of 300mm.

Table 3 - No. of Extra Nails

Beam Depth (mm)	Min. Number of Nails Required	
	At Support	At either side of the supported beam
90 to 150	3	3
160 to 300	5	6
> 300mm	6	8

Table 2 - Nail Spacing (Side Loaded)

SIDE LOADED BEAM	Floor dead load = 62kg/m2 , Live load = 1.5kPa				
Section Width	Nail Size & Length	No. of Rows & Spacing (Both Sides)	Max. Floor Joist Span Supported By Outer Member	No. of Rows & Spacing (Both Sides)	Max. Floor Joist Span Supported By Outer Member
2/35	3.15 x 65	2 at 300mm	2150mm	3 at 300mm	3250mm
3/35	3.15 x 90	2 at 300mm	5100mm	3 at 300mm	7600mm
2/45	3.15 x 90	2 at 300mm	2550mm	3 at 300mm	3800mm
2/42	3.06 x 75	2 at 300mm	2300mm	3 at 300mm	3400mm
3/42 & 3/45	3.15 x 90	2 at 300mm	2550mm	3 at 300mm	3800mm
2/58 & 3/58	3.75 x 100	2 at 300mm	2500mm	3 at 300mm	3800mm
2/65 & 3/65	3.75 x 100	2 at 300mm	1350mm	3 at 300mm	2050mm

Table 4 - Min. Edge & End Distance

Nail Diameter	Min. Edge Distance	Min. End Distance	Min. Distance Between Nails Across The Grain
3.06mm	20mm	70mm	40mm
3.15mm	20mm	70mm	40mm
3.75mm	20mm	75mm	45mm

Multiple Member Lamination Using Nails
LB2

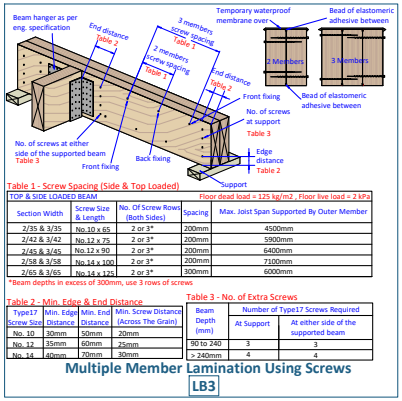


Table 1 - Screw Spacing (Side & Top Loaded)

TOP & SIDE LOADED BEAM		Floor dead load = 125 kg/m2 , Floor live load = 2 kPa	
Section Width	Screw Size & Length	No. Of Screw Rows (Both Sides)	Spacing	Max. Joist Span Supported By Outer Member
2/35 & 3/35	No.10 x 65	2 or 3*	200mm	4500mm
2/42 & 3/42	No.12 x 75	2 or 3*	200mm	5900mm
2/45 & 3/45	No.12 x 90	2 or 3*	200mm	6400mm
2/58 & 3/58	No.14 x 100	2 or 3*	200mm	7100mm
2/65 & 3/65	No.14 x 125	2 or 3*	300mm	6000mm

*Beam depths in excess of 300mm, use 3 rows of screws

Table 2 - Min. Edge & End Distance

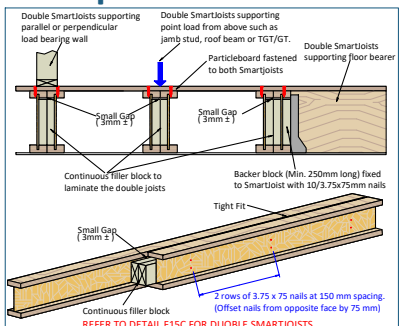
Type17 Screw Size	Min. Edge Distance	Min. End Distance	Min. Screw Distance (Across The Grain)
No. 10	30mm	50mm	20mm
No. 12	35mm	60mm	25mm
No. 14	40mm	70mm	30mm

Table 3 - No. of Extra Screws

Beam Depth (mm)	Number of Type17 Screws Required	
	At Support	At either side of the supported beam
90 to 240	3	3
> 240mm	4	4

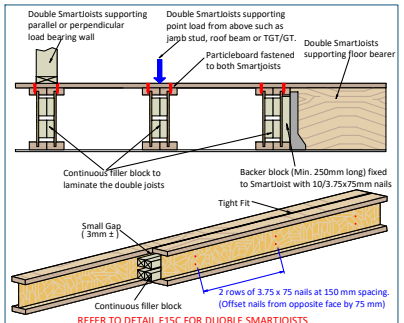
Multiple Member Lamination Using Screws
LB3

Multiple SmartJoist Lamination



REFER TO DETAIL F15C FOR DUOBLE SMARTJOISTS SUPPORTING UNIFORM FLOOR/ROOF LOADS

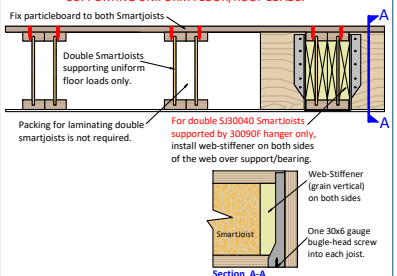
Double SmartJoists Supporting Load Bearing Wall, Concentrated Load or Bearer
F15A



REFER TO DETAIL F15C FOR DUOBLE SMARTJOISTS SUPPORTING UNIFORM FLOOR/ROOF LOADS

Double SmartJoists Supporting Load Bearing Wall, Concentrated Load or Bearer
F15B

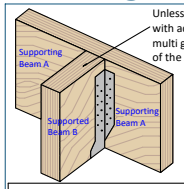
THIS DETAIL IS ONLY APPLICABLE FOR DOUBLE SMARTJOISTS SUPPORTING UNIFORM FLOOR/ROOF LOADS.



REFER TO DETAIL F15A/F15B FOR DUOBLE SMARTJOISTS SUPPORTING LOAD BEARING WALL, POINT LOAD & OTHER BEAM

Double SmartJoists Supporting Uniform Floor/Roof Loads
F15C

Framing Bracket, Pryda JHHS & Multigrip Connectors



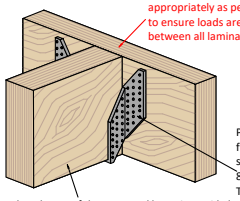
Unless the top of the supported beam is provided with additional lateral restraints such as mini or multi grips, the bracket must cover at least 60% of the supported beam depth.

Fix the framing bracket to the supporting & supported member with 3.15 x 35mm long nails as per table below

Bracket Code - SLF or FB Series Framing Bracket	Fixing to supporting beam (Beam A)	Fixing to supported beam (Beam B)
SLF3590, FB3590, SLF4290, FB4290 SLF4590, FB 4590, SLF5890, FB5890	8/35x3.15mm nails	4/35x3.15mm nails
SLF35120, FB35120, SLF42120, FB42120, SLF45120 FB45120, SLF58120, FB58120, SLF60130, FB60130	12/35x3.15mm nails	6/35x3.15mm nails
SLF35180, FB35180, SLF42170 FB42170, SLF45180, FB45180	20/35x3.15mm nails	10/35x3.15mm nails
SLF58170, FB58170, SLF65170, FB65170	18/35x3.15mm nails	6/35x3.15mm nails
SLF42220, FB42220, SLF45220, FB45220	26/35x3.15mm nails	12/35x3.15mm nails
SLF58200, FB58200, SLF70200, FB70200	24/35x3.15mm nails	12/35x3.15mm nails
SLF84220, FB84200	22/35x3.15mm nails	12/35x3.15mm nails
SLF90220, FB90220	26/35x3.15mm nails	13/35x3.15mm nails

Beam To Beam Fixing With Framing Bracket
F32

When multiple laminated beams are used as supporting beam, longer screws/nails may be required in bracket OR alternatively beams to be screw/bolt laminated appropriately as per detail LB1 or LB3 to ensure loads are shared between all laminations of beams.

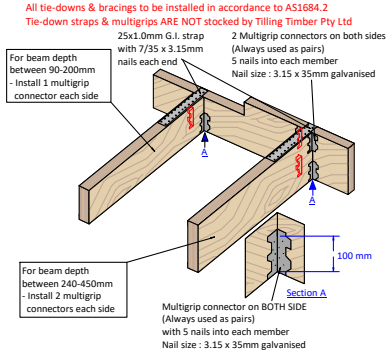


Pair of Pryda JHHS split hanger fixed to the supporting & supported beams with 8 off No.8 x 35mm long Type17 screws to each face

Unless the top of the supported beam is provided with additional lateral restraints such as mini or multi grips, the bracket must cover at least 60% of the supported beam depth.

Timber Beam To Timber Beam Fixing With Pryda JHHS Split Hanger
JHS

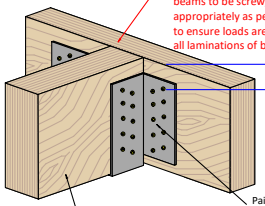
All tie-downs & bracings to be installed in accordance to AS1684.2
Tie-down straps & multigrips ARE NOT stocked by Tilling Timber Pty Ltd



Beam To Beam Fixing With Multigrip Connectors
MG

MiTek SPH, Dunning QSPH & Pryda JHHS Split Hanger

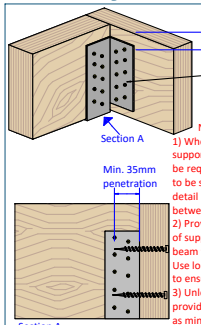
IMPORTANT
When multiple laminated beams are used as supporting beam, longer screws may be required in bracket OR alternatively beams to be screw/bolt laminated appropriately as per detail LB1 or LB3 to ensure loads are shared between all laminations of beams.



Unless the top of the supported beam is provided with additional lateral restraints such as mini or multi grips, the bracket must cover at least 60% of the supported beam depth.

Pair of split hangers fixed to the supporting & supported beams with 10 off No.14 x 30mm long Type17 screws to each face

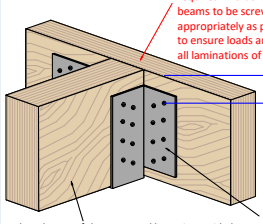
Timber Beam To Timber Beam Fixing With MiTek SPH220 or Dunnings BSPH220 Split Hanger
SH1



Notes:
1) When multiple laminated beams are used as supporting/supported beam, longer screws may be required in bracket OR alternatively beams to be screw/bolt laminated appropriately as per detail LB1 or LB3 to ensure loads are shared between all lamination of beams.
2) Provide 2/No.14 x 90 screws from the back of supporting beam into end-grain of supported beam to resist twisting of supporting beam. Use longer screw lengths if required to ensure a min. 35mm penetration.
3) Unless the top of the supported beam is provided with additional lateral restraints such as mini or multi grips, the bracket must cover at least 60% of the supported beam depth.

Timber Beam To Timber Beam Corner Fixing With MiTek SPH220 or Dunnings BSPH220 Split Hanger
SH2

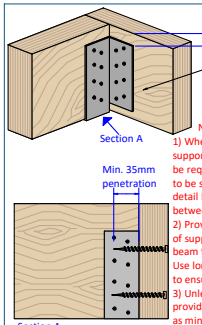
IMPORTANT
When multiple laminated beams are used as supporting beam, longer screws may be required in bracket OR alternatively beams to be screw/bolt laminated appropriately as per detail LB1 or LB3 to ensure loads are shared between all laminations of beams.



Unless the top of the supported beam is provided with additional lateral restraints such as mini or multi grips, the bracket must cover at least 60% of the supported beam depth.

Pair of split hangers fixed to the supporting & supported beams with 8 off No.14 x 30mm long Type17 screws to each face

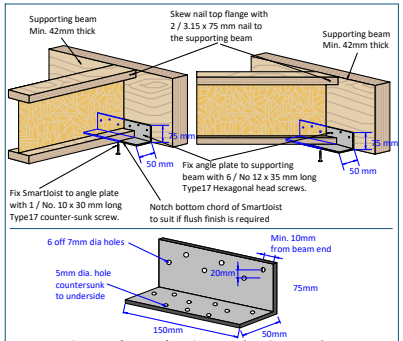
Timber Beam To Timber Beam Fixing With MiTek SPH180 or Dunnings BSPH180 Split Hanger
SH3



Notes:
1) When multiple laminated beams are used as supporting/supported beam, longer screws may be required in bracket OR alternatively beams to be screw/bolt laminated appropriately as per detail LB1 or LB3 to ensure loads are shared between all lamination of beams.
2) Provide 2/No.14 x 90 screws from the back of supporting beam into end-grain of supported beam to resist twisting of supporting beam. Use longer screw lengths if required to ensure a min. 35mm penetration.
3) Unless the top of the supported beam is provided with additional lateral restraints such as mini or multi grips, the bracket must cover at least 60% of the supported beam depth.

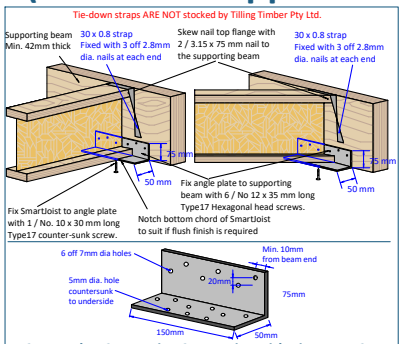
Timber Beam To Timber Beam Corner Fixing With MiTek SPH180 or Dunnings BSPH180 Split Hanger
SH4

LVSIA & LVSIA300 Bracket (Horizontal Application Supporting SmartJoist)



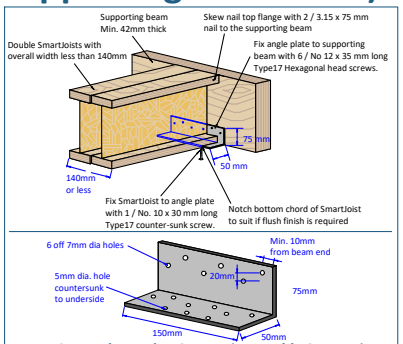
LVSIA Angle Bracket Supporting SmartJoist
Horizontal Application As An Angle Seat

F27



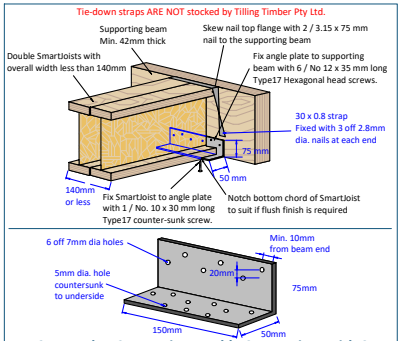
LVSIA Bracket Supporting SmartJoist With Tie-Down Strap
Horizontal Application As An Angle Seat

F27B



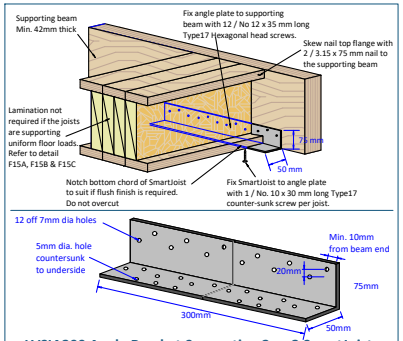
LVSIA Angle Bracket Supporting Double SmartJoists
Horizontal Application As An Angle Seat

F27C



LVSIA Bracket Supporting Double SmartJoists With Strap
Horizontal Application As An Angle Seat

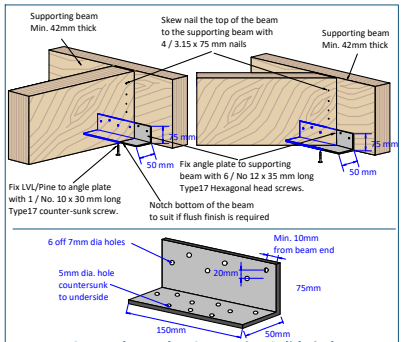
F27D



LVSIA300 Angle Bracket Supporting 2 or 3 SmartJoists
Horizontal Application As An Angle Seat

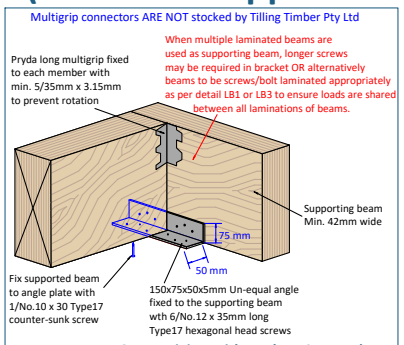
F28

LVSIA & LVSIA300 Bracket (Horizontal Application Supporting Solid Timber)



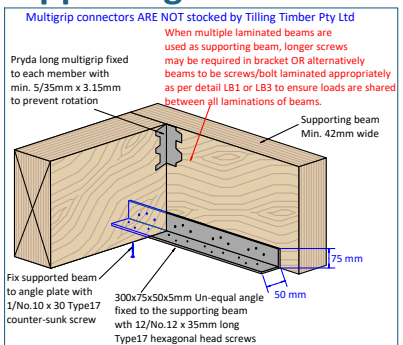
LVSIA Angle Bracket Supporting Solid Timber
Horizontal Application As An Angle Seat

F27A



Beam to Beam Corner Fixing With Pryda LVSIA Bracket
Horizontal Application As An Angle Seat At Corner

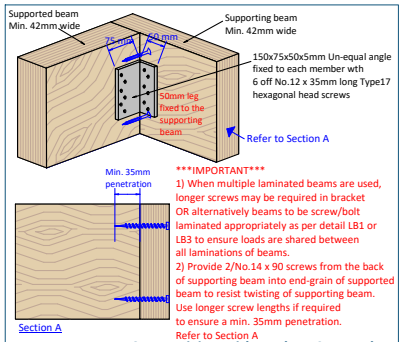
CL1



Beam to Beam Corner Fixing With LVSIA300 Bracket
Horizontal Application As An Angle Seat At Corner

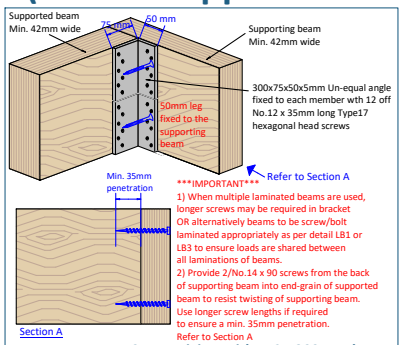
CL4

LVSIA & LVSIA300 Bracket (Vertical Application Supporting Solid Timber)



Beam to Beam Corner Fixing With Pryda LVSIA Bracket
Vertical Application As An Angle Cleat

CL2

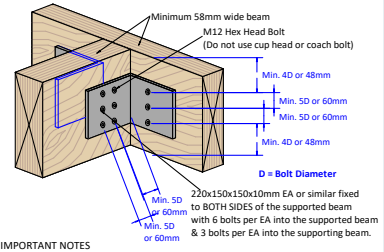


Beam to Beam Corner Fixing With LVSIA300 Bracket
Vertical Application As An Angle Cleat

CL3

Pair of EA Brackets With M12 Hex-Head Bolts

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd



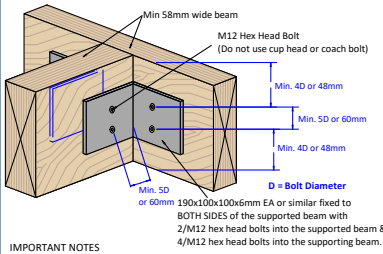
IMPORTANT NOTES
1) DO NOT USE CUP HEAD BOLT OR COACH BOLT
2) BOLTS TO BE SNUG-TIGHT.
3) USE 50x50x3mm SQURE WASHER or 55x3mm ROUND WASHER FOR M12 BOLTS

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd

Timber Beam To Timber Beam Fixing
220x150x150x10mm Equal Angle With M12 Bolts

EA1

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd



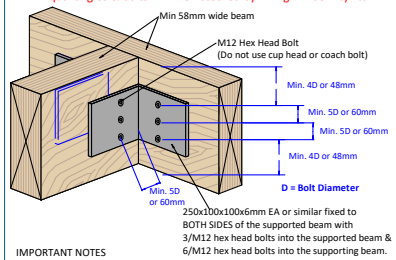
IMPORTANT NOTES
1) DO NOT USE CUP HEAD BOLT OR COACH BOLT
2) BOLTS TO BE SNUG-TIGHT.
3) USE 50x50x3mm SQURE WASHER or 55x3mm ROUND WASHER FOR M12 BOLTS

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd

Timber Beam To Timber Beam Fixing
With 190x100x100x6mm Equal Angle With M12 Bolts

EA4

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd



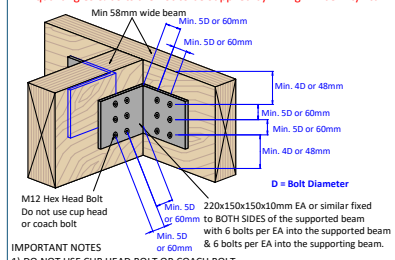
IMPORTANT NOTES
1) DO NOT USE CUP HEAD BOLT OR COACH BOLT
2) BOLTS TO BE SNUG-TIGHT.
3) USE 50x50x3mm SQURE WASHER or 55x3mm ROUND WASHER FOR M12 BOLTS

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd

Timber Beam To Timber Beam Fixing
With 250x100x100x6mm Equal Angle With M12 Bolts

EA5

Equal angles & bolts are not to be supplied by Tilling Timber Pty Ltd



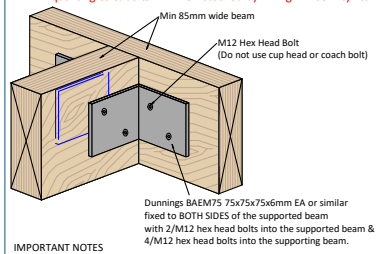
IMPORTANT NOTES
1) DO NOT USE CUP HEAD BOLT OR COACH BOLT
2) BOLTS TO BE SNUG-TIGHT.
3) USE 50x50x3mm SQURE WASHER or 55x3mm ROUND WASHER FOR M12 BOLTS

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd

Timber Beam To Timber Beam Fixing
220x150x150x10mm Equal Angle With M12 Bolts

EA7

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd



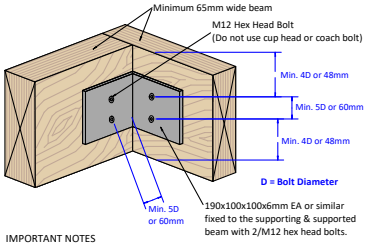
IMPORTANT NOTES
1) DO NOT USE CUP HEAD BOLT OR COACH BOLT
2) BOLTS TO BE SNUG-TIGHT.
3) USE 50x50x3mm SQURE WASHER or 55x3mm ROUND WASHER FOR M12 BOLTS

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd

Timber Beam To Timber Beam Fixing With Dunnings
BAEM75 75x75x75x6mm Equal Angle & M12 Bolts

EA9

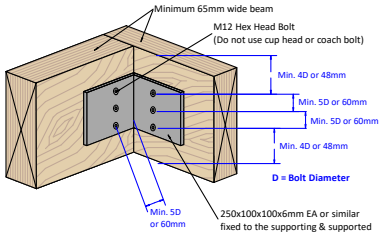
Single EA Bracket With M12 Hex-Head Bolts



IMPORTANT NOTES
1) DO NOT USE CUP HEAD BOLT OR COACH BOLT
2) BOLTS TO BE SNUG-TIGHT.
3) USE MIN. 50x50x3mm SQURE WASHER or
55x3mm ROUND WASHER FOR M12 BOLTS

Timber Beam To Timber Beam Corner Fixing
With 190x100x100x6mm Equal Angle With M12 Bolts

EA2



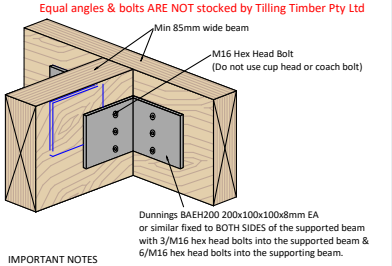
IMPORTANT NOTES
1) DO NOT USE CUP HEAD BOLT OR COACH BOLT
2) BOLTS TO BE SNUG-TIGHT.
3) USE MIN. 50x50x3mm SQURE WASHER or
55x3mm ROUND WASHER FOR M12 BOLTS

Timber Beam To Timber Beam Corner Fixing
With 250x100x100x6mm Equal Angle With M12 Bolts

EA3

Pair of EA Brackets With M16 Hex-Head Bolts

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd



IMPORTANT NOTES
1) DO NOT USE CUP HEAD BOLT OR COACH BOLT
2) BOLTS TO BE SNUG-TIGHT.
3) USE 57x57x4mm SQURE WASHER or 65x4mm ROUND WASHER FOR M16 BOLTS

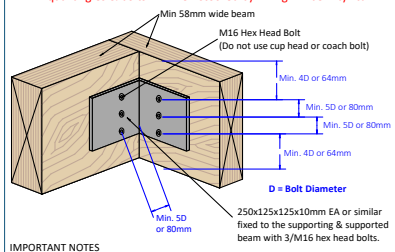
Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd

Timber Beam To Timber Beam Fixing With Dunnings
BAEH200 200x100x100x8mm Equal Angle & M16 Bolts

EA8

Single EA Bracket With M16 Hex-Head Bolts

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd



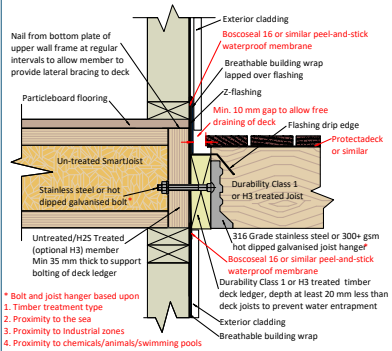
IMPORTANT NOTES
1) DO NOT USE CUP HEAD BOLT OR COACH BOLT
2) BOLTS TO BE SNUG-TIGHT.
3) USE 57x57x4mm SQURE WASHER or 65x4mm ROUND WASHER FOR M16 BOLTS

Equal angles & bolts ARE NOT stocked by Tilling Timber Pty Ltd

Timber Beam To Timber Beam Corner Fixing
With 250x125x125x6mm Equal Angle With M16 Bolts

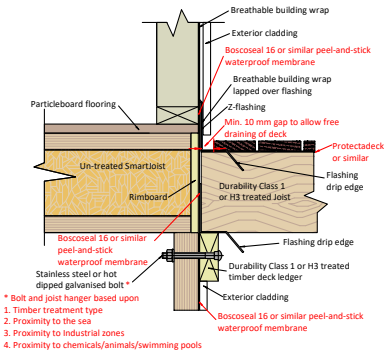
EA6

H3 Deck Ledger To Un-treated Frame



H3 Deck Ledger Connection To Un-treated House Frame

F35A



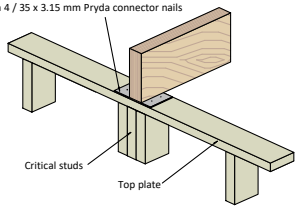
H3 Deck Ledger Connection To Un-treated House Frame

F35B

MiTek/Pryda Steel Anti-Crush Plate

Anti-Crush Plates ARE NOT stocked by Tilling Timber Pty Ltd

130 x 80 x 6mm MiTek bearing plate
Fix with 4 / 30 x 2.8 mm reinforced head nails
OR
140 x 75 x 6mm Pryda anti-crush plate
Fix with 4 / 35 x 3.15 mm Pryda connector nails



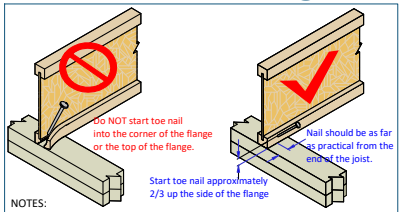
Note: Steel anti-crush plate to be supplied by others

Anti-Crush Plates ARE NOT stocked by Tilling Timber Pty Ltd

MiTek/Pryda Steel Anti-Crush Plate

F31

SmartJoist Bearing

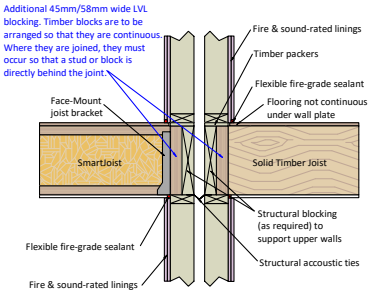


NOTES:
1) Nail joists at each bearing with 2 of 3.15mm dia x 65 nails, using one each side place 30mm from the end to avoid splitting.
2) Except where otherwise noted, 30mm minimum bearing is required at joist ends and 42mm minimum bearing is required at intermediate supports.
3) Sheathing nailing to top flange
(JOISTS MUST BE FULLY BRACED BEFORE SHEATHING IS NAILED)
- space 2.8mm dia. x 65 & 3.15mm dia. x 65 nails no closer than 50mm per row.
- space 3.75 x 75 nails no closer than 75mm.
Maximum nail spacing of 300mm.

SmartJoist Bearing Detail

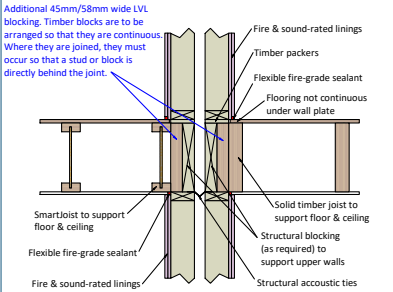
F29

Charbeam Between Party Wall



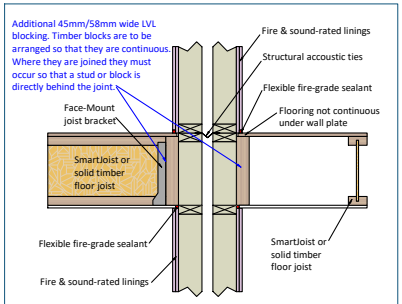
Floor Joists Running Perpendicular To Party Wall
(Wall Stud Not Continuous Through Junction)
FRL 60 minutes

CB1



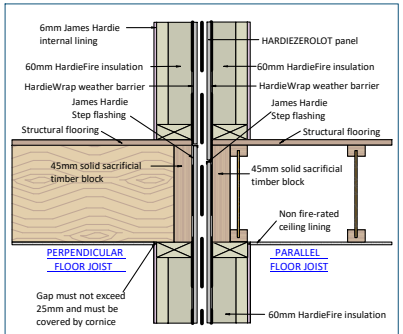
Floor Joists Running Parallel To Party Wall
(Wall Stud Not Continuous Through Junction)
FRL 60 minutes

CB2



Floor Joists Running Perp/Parallel To Party Wall
(Wall Stud Continuous Through Junction)
FRL 60 minutes

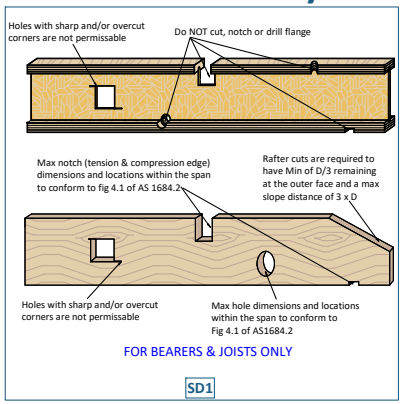
CB3



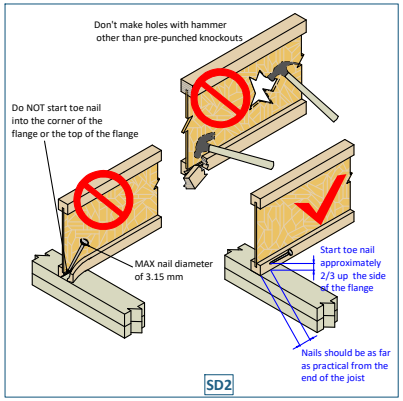
HardieSmart Zerolot Wall System
Discontinuous Wall Floor Junction

CB4

SmartJoist Floor System - General Installation Details



SD1



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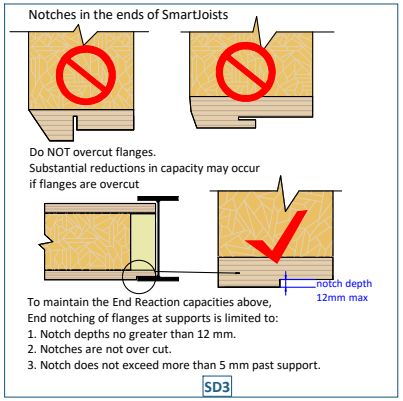

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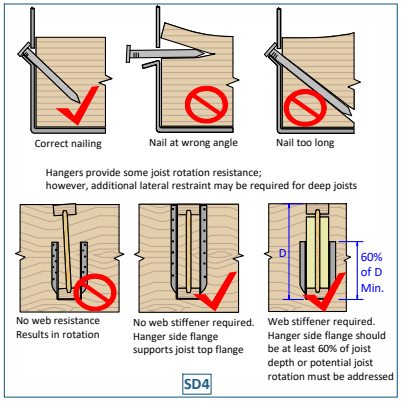
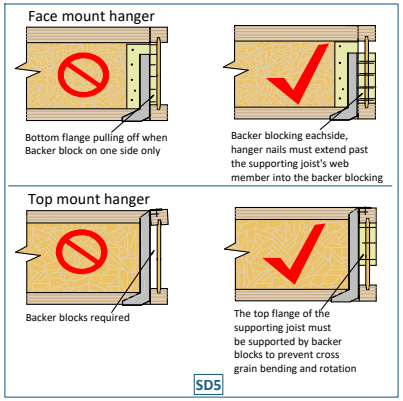
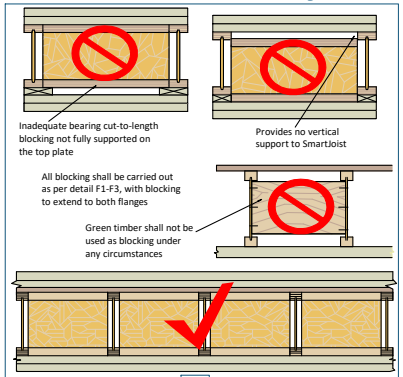


SD4

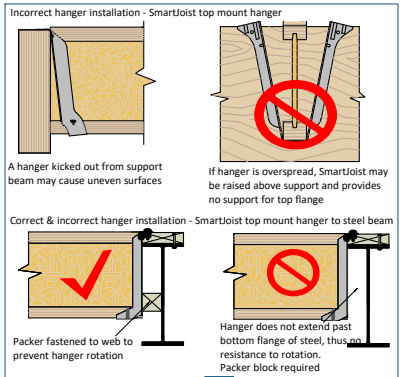


SD5

SmartJoist Floor System - General Installation Details



SD6



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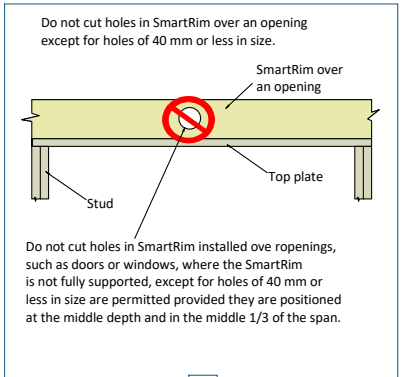
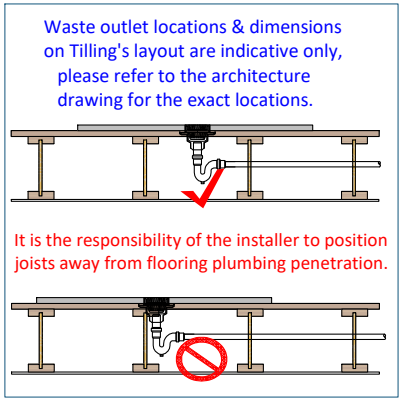
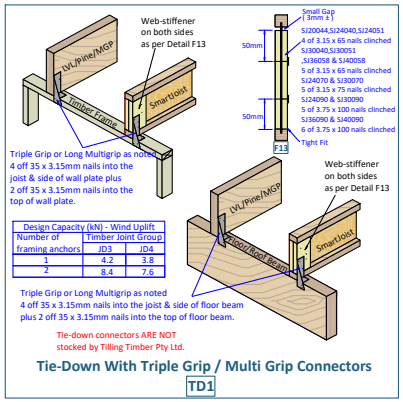


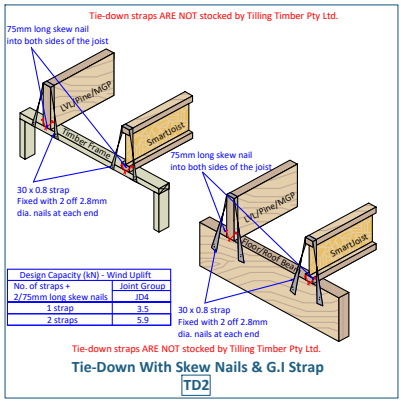
SD8



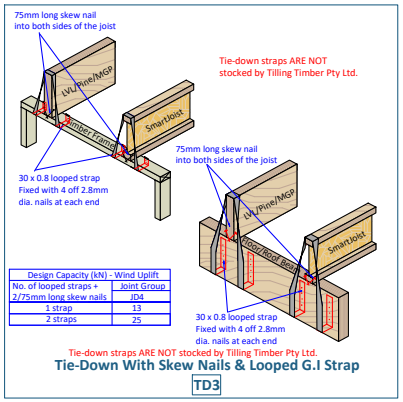
Tie-Down Details



Tie-Down With Triple Grip / Multi Grip Connectors
TD1



Tie-Down With Skew Nails & G.I Strap
TD2



Tie-Down With Skew Nails & Looped G.I Strap
TD3