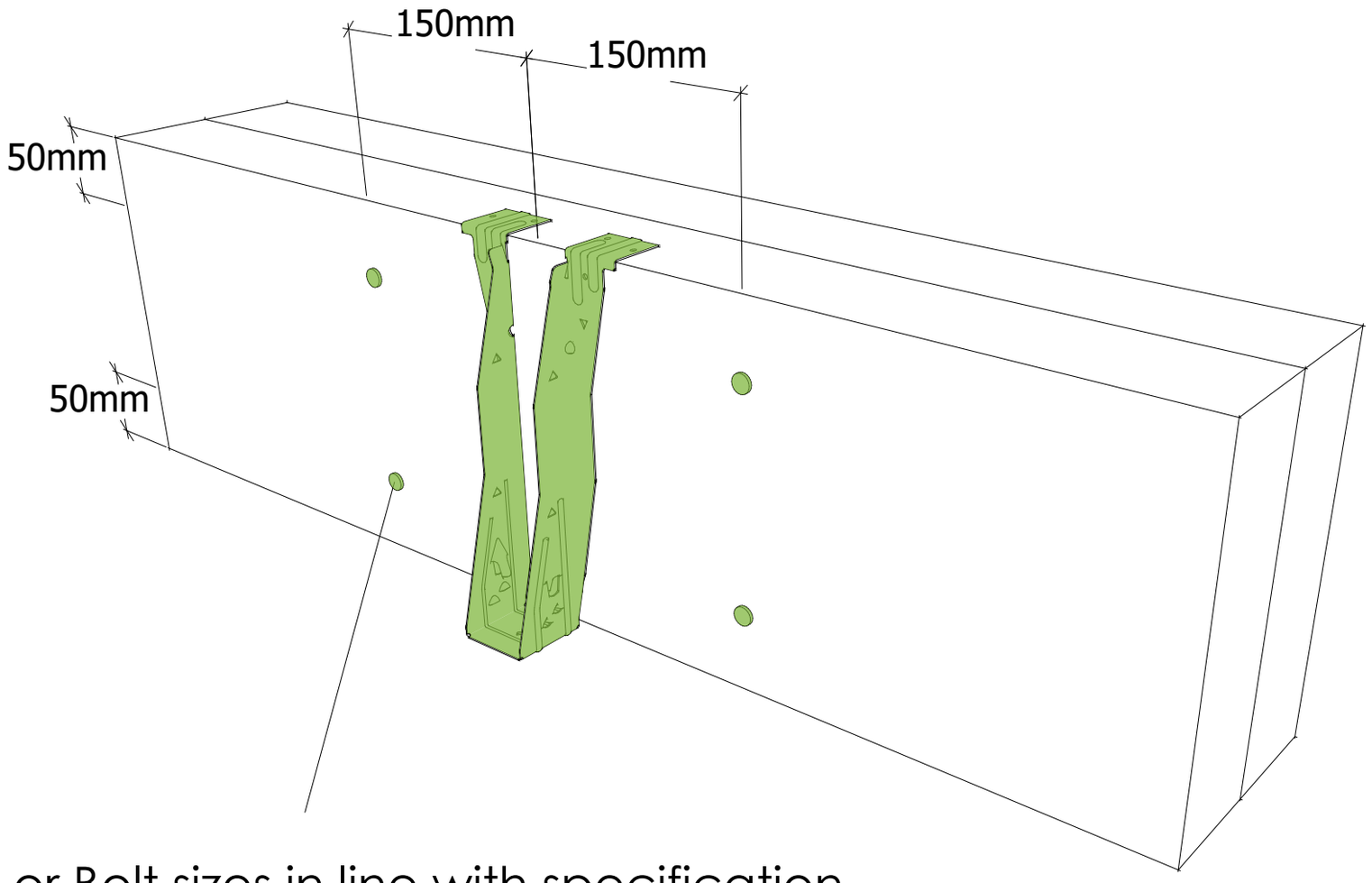
C1 Multi ply LVL connection at point load

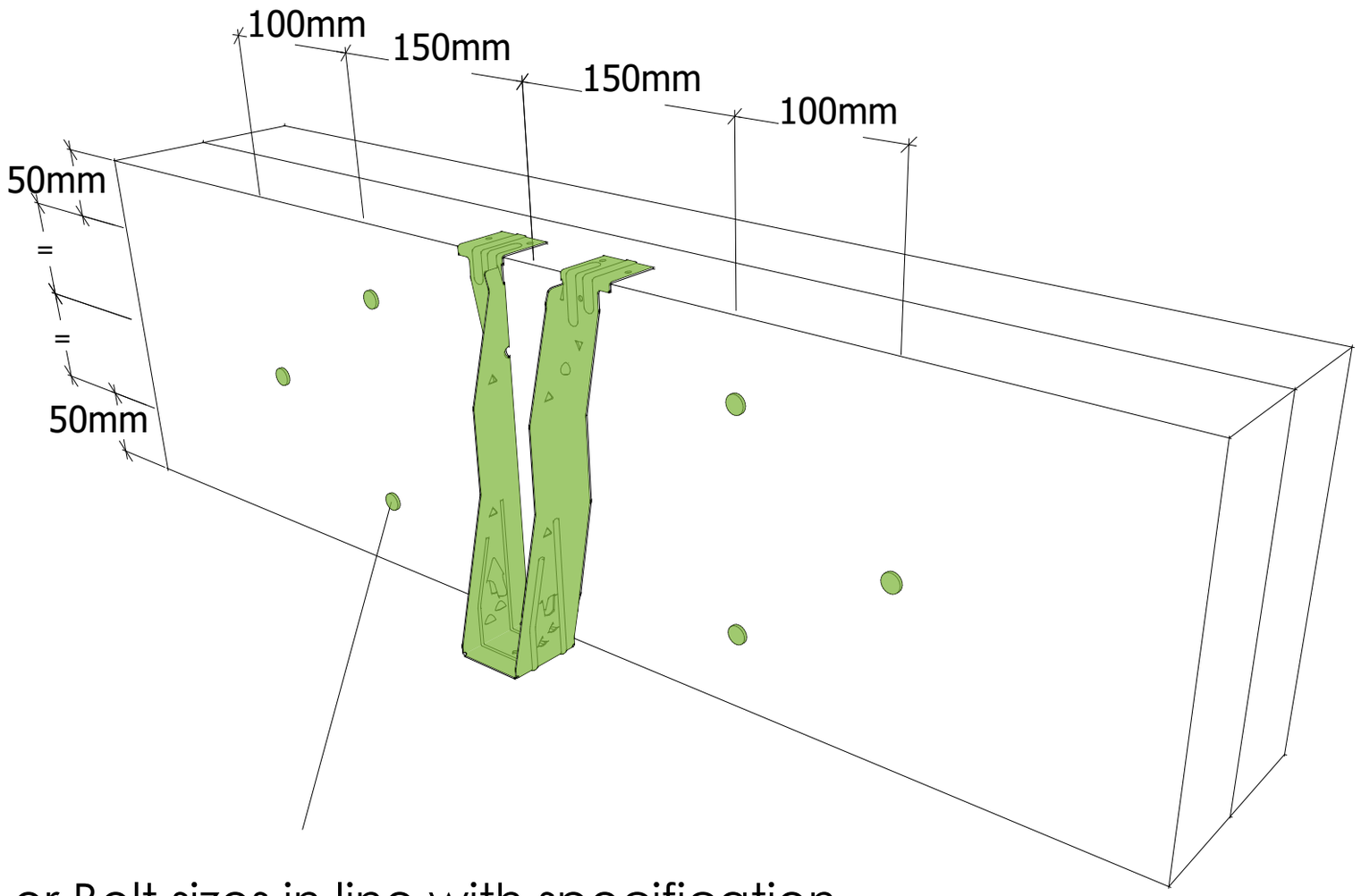
Two fixings either side of incoming load



Nail or Bolt sizes in line with specification detailed in relevant STEICO Technical Bulletin

C2 Multi ply LVL connection at point load

Three fixings either side of incoming load

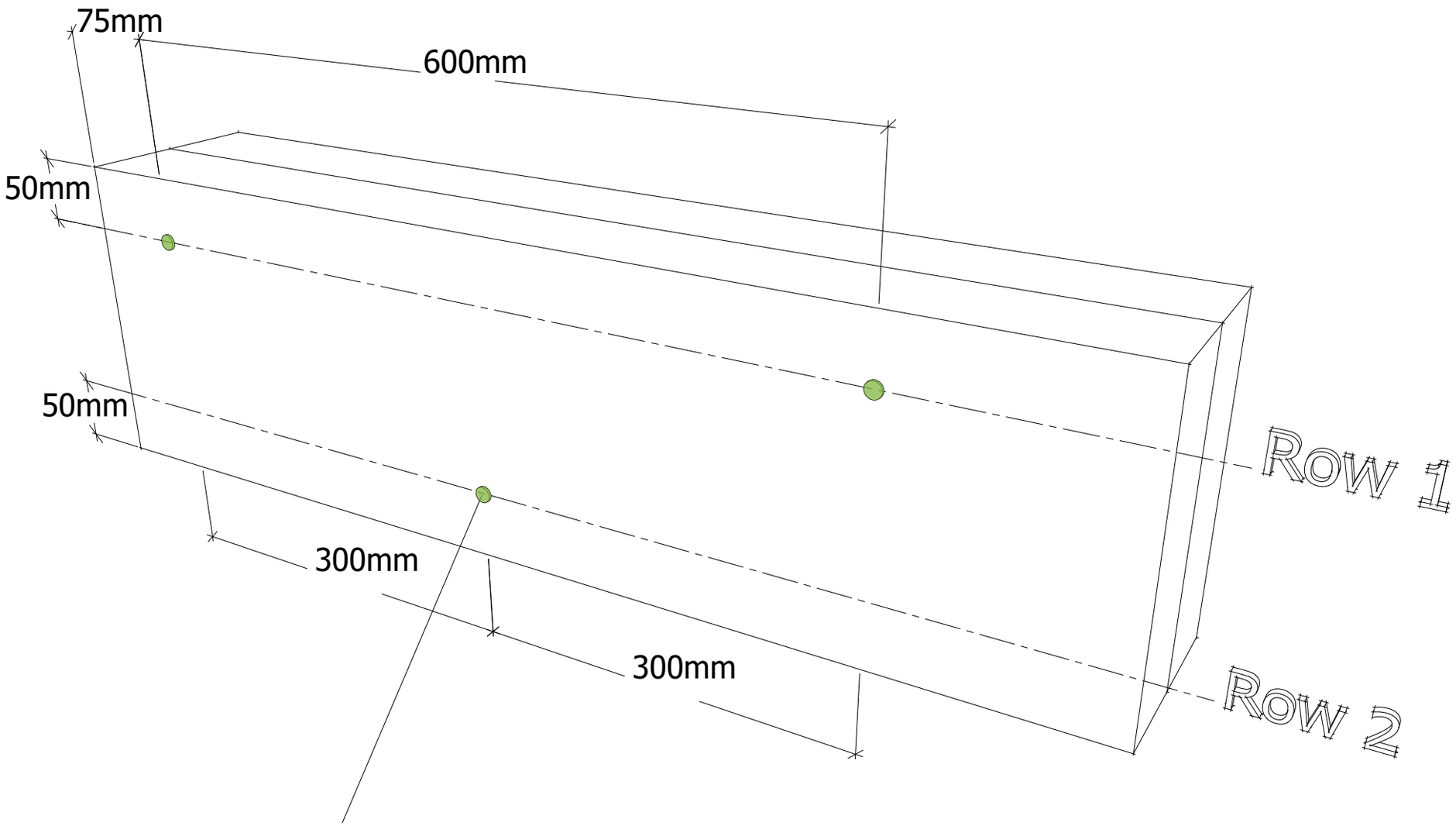


Nail or Bolt sizes in line with specification detailed in relevant STEICO Technical Bulletin

C3

Multi ply LVL connection with uniform loading

2 Rows at 600mm centers

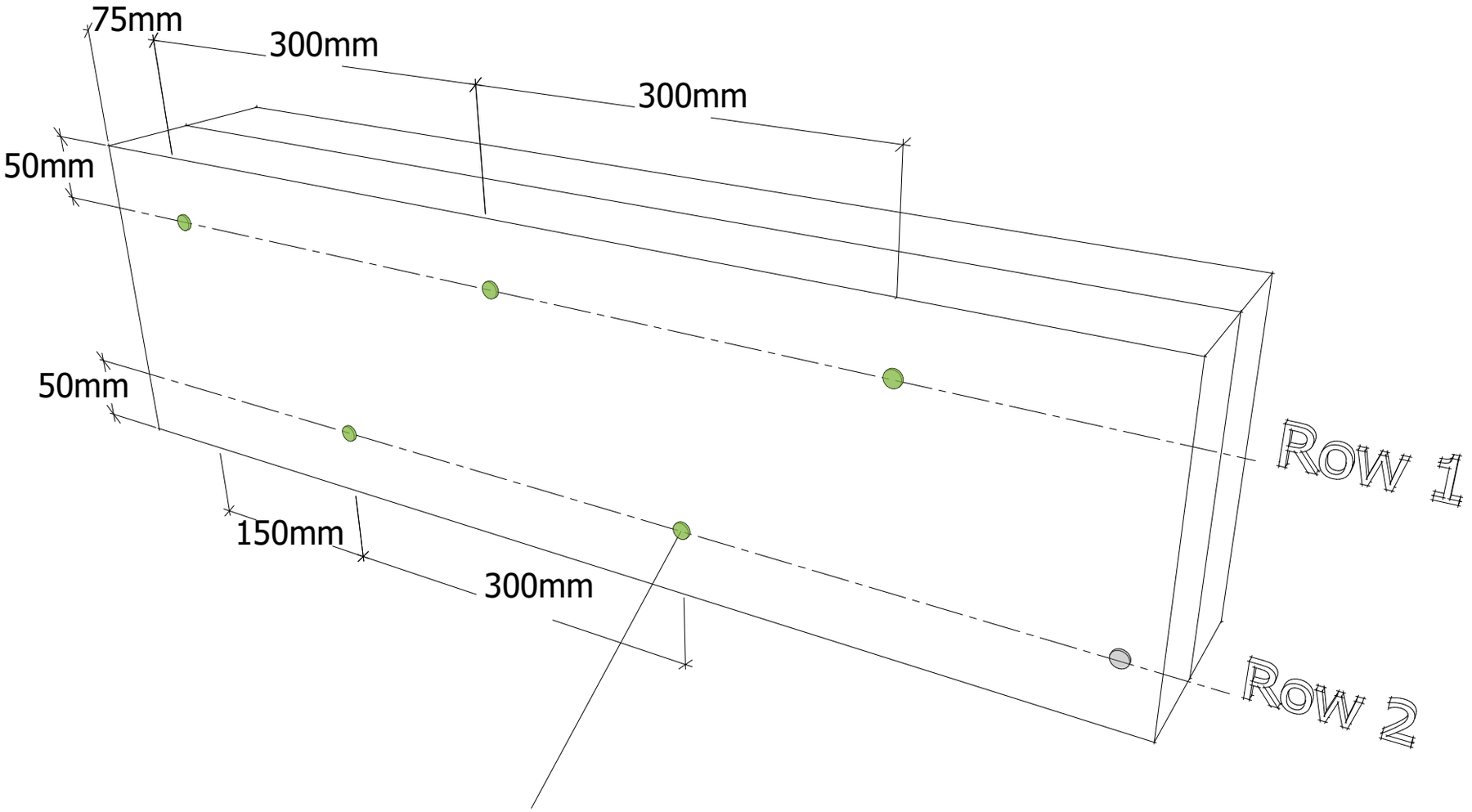


Nail or Bolt sizes in line with specification detailed in relevant STEICO Technical Bulletin

C4

Multi ply LVL connection with uniform loading

2 Rows at 300mm centers

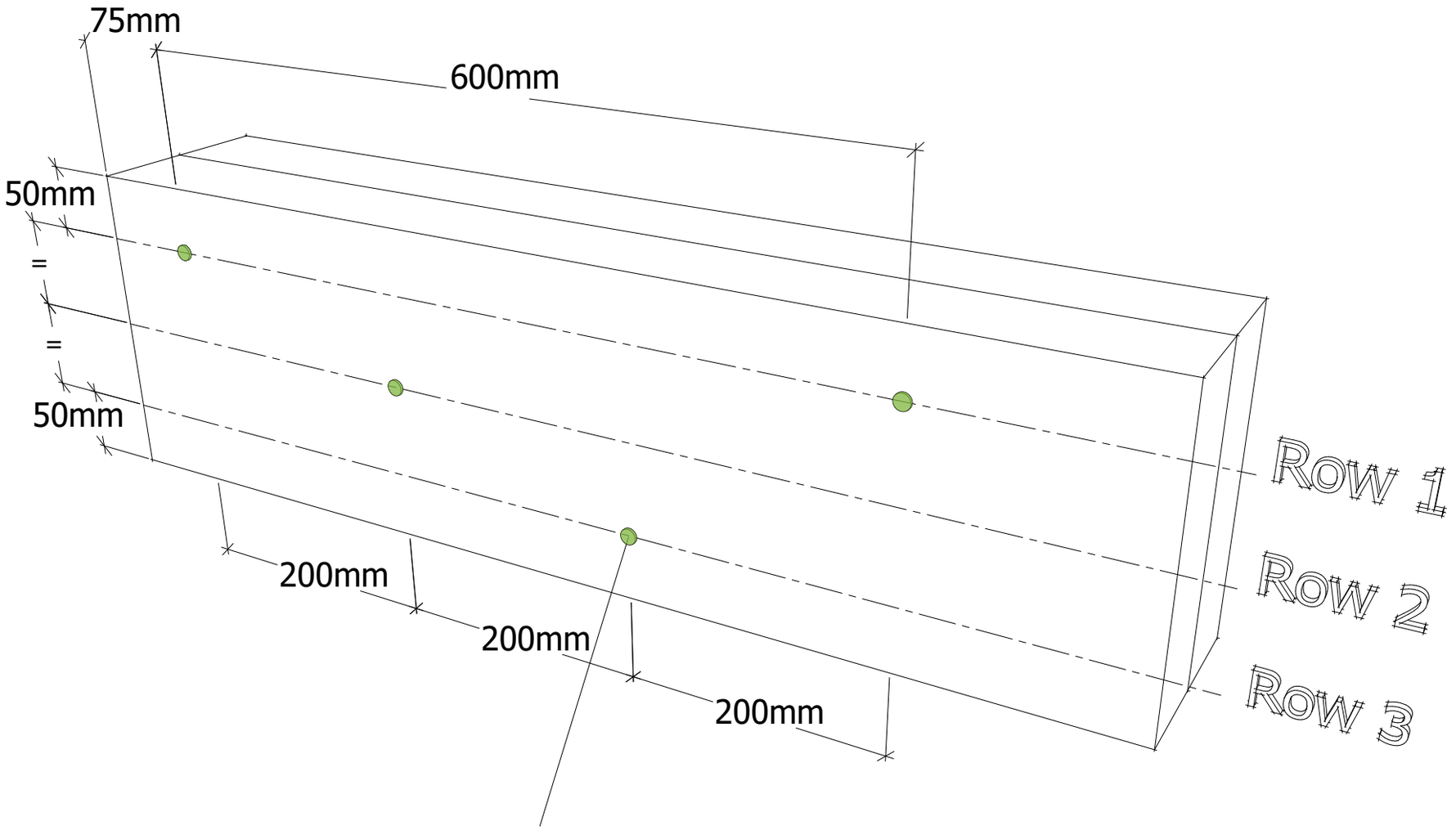


Nail or Bolt sizes in line with specification detailed in relevant STEICO Technical Bulletin

C5

Multi ply LVL connection with uniform loading

3 Rows at 600mm centers

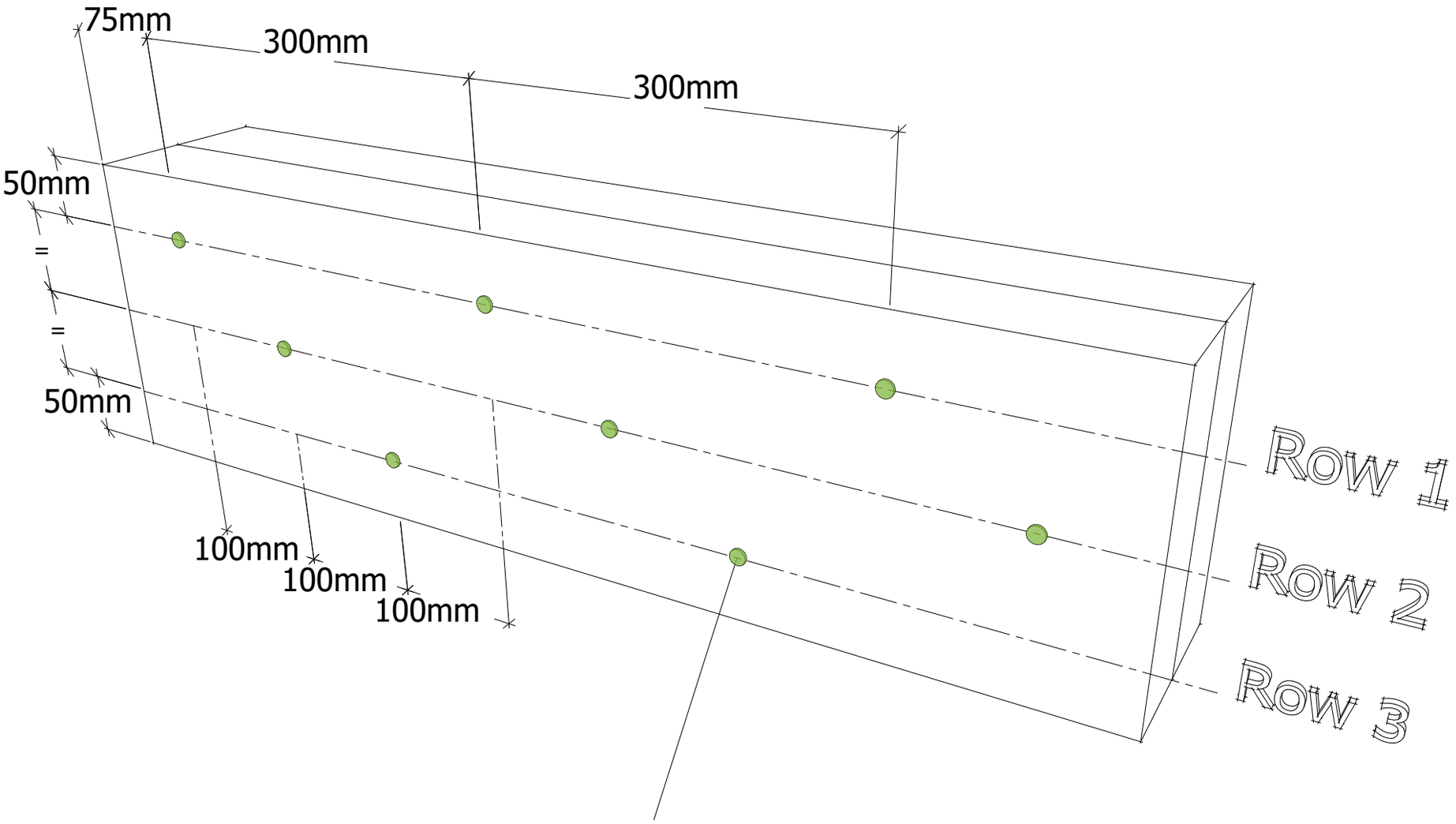


Nail or Bolt sizes in line with specification detailed in relevant STEICO Technical Bulletin

C6

Multi ply LVL connection with uniform loading

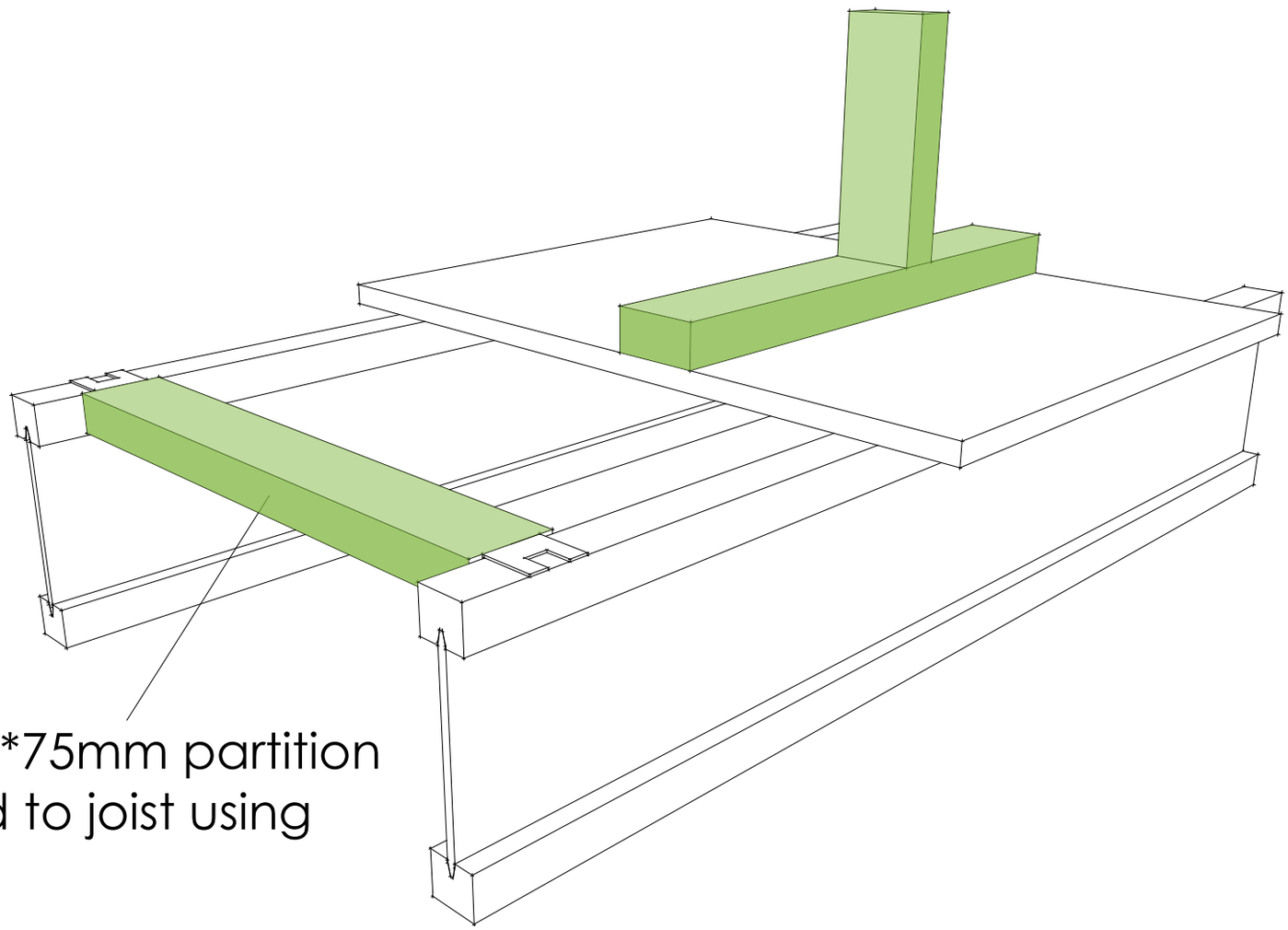
3 Rows at 300mm centers



Nail or Bolt sizes in line with specification detailed in relevant STEICO Technical Bulletin

G1 Non load bearing wall parallel to joists

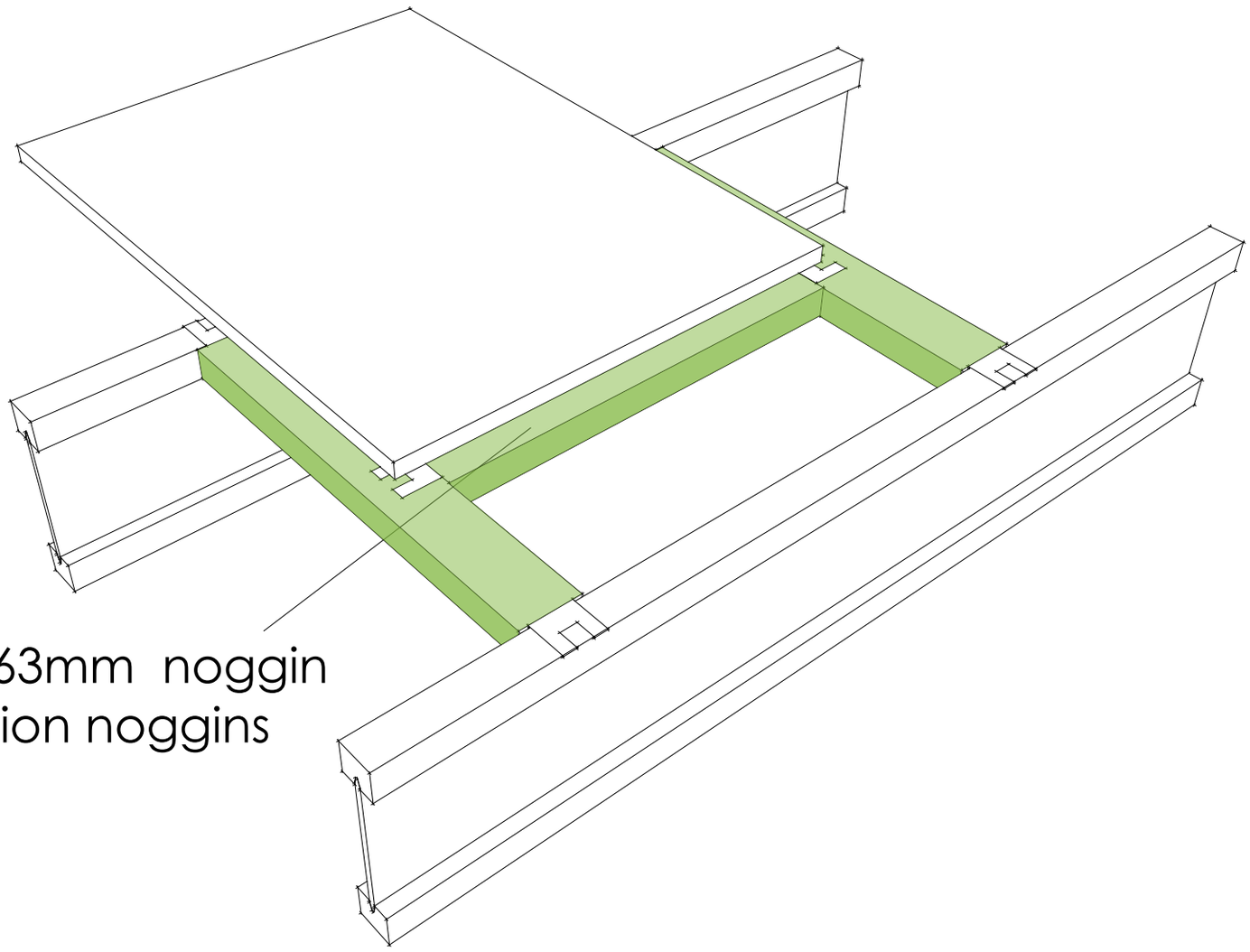
Maximum weight of non load bearing wall 0.80kN/m.
Designers to ensure joist design includes an allowance for the weight of walls above



Minimum 38*75mm partition noggin fixed to joist using Z-Clip

G1a 'H' frame support for decking edge

When short decking edge does not fall directly above the joist an 'H' frame should be constructed.

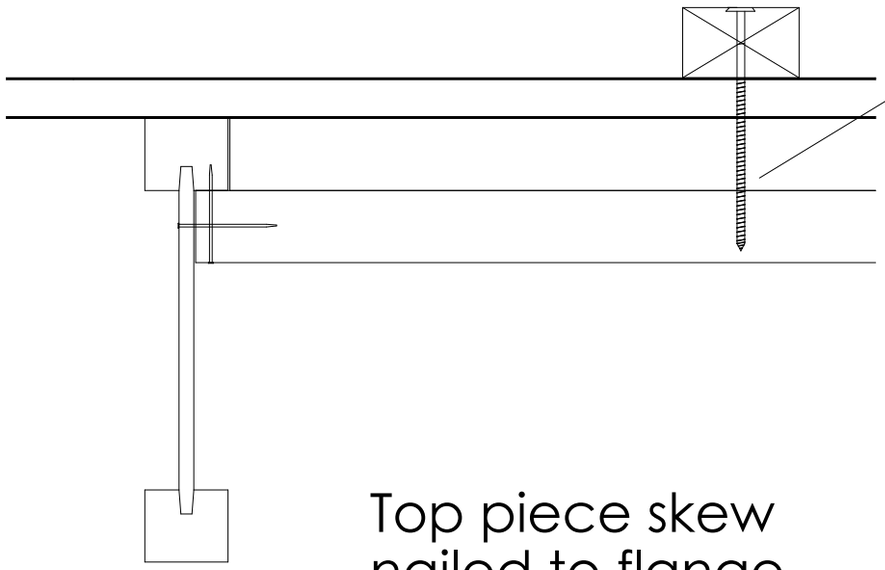


Minimum 38*63mm noggin fixed to partition noggins using Z-Clip

G1b Support for Bellway Racking Wall

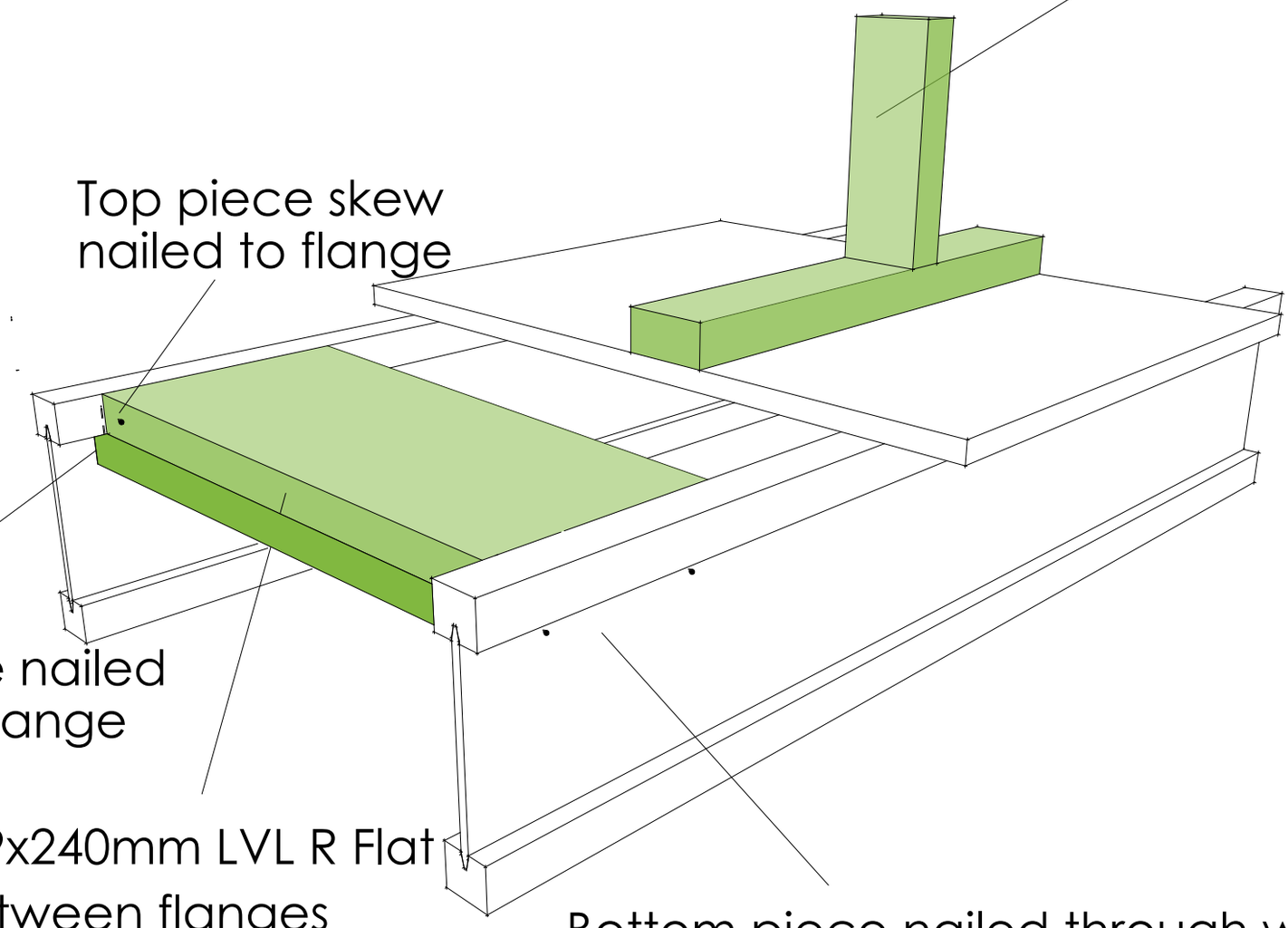
39mm LVL R at 600mm centres

2 No 18x125 Screws
Per Noggin
Pre drilled through
sole plate and deck



Racking Partition 3.0kN/m

Top piece skew
nailed to flange



Bottom Piece nailed
up into top flange

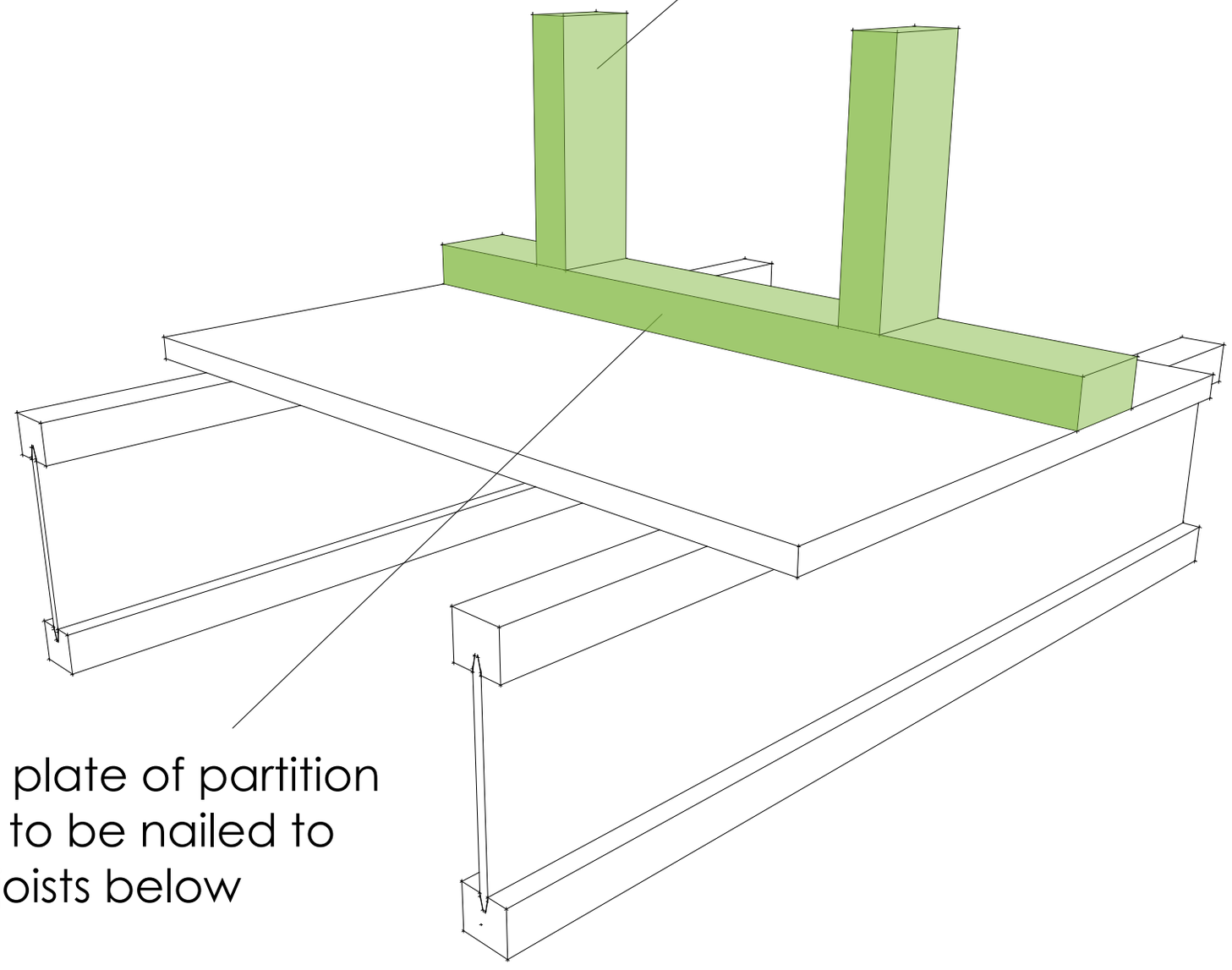
2 pieces or 39x240mm LVL R Flat

Top piece between flanges
Bottom piece between web

Bottom piece nailed through web

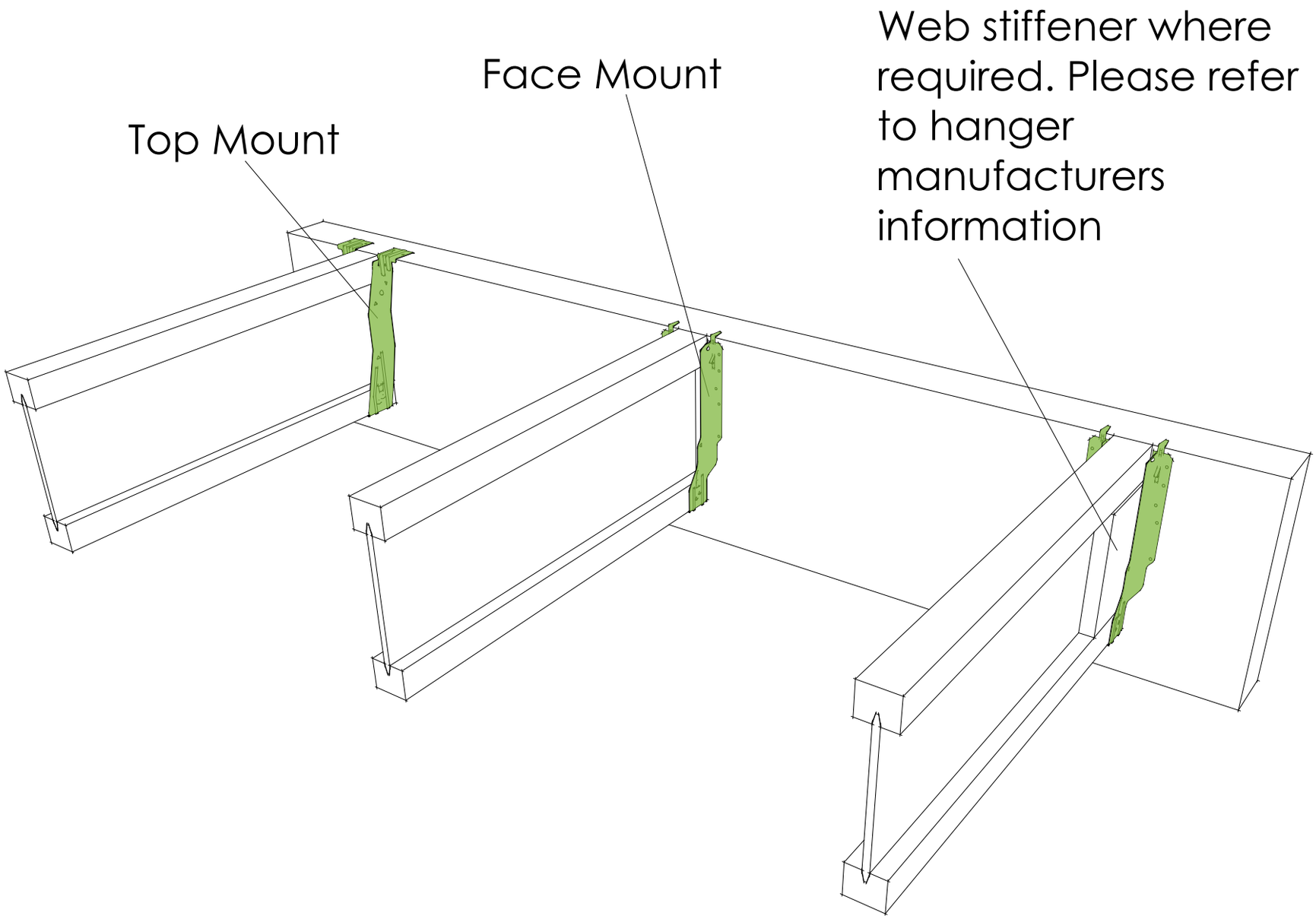
G2 Non load bearing wall across joists

The designer is responsible for ensuring the i-joist design is adequate to support the wall



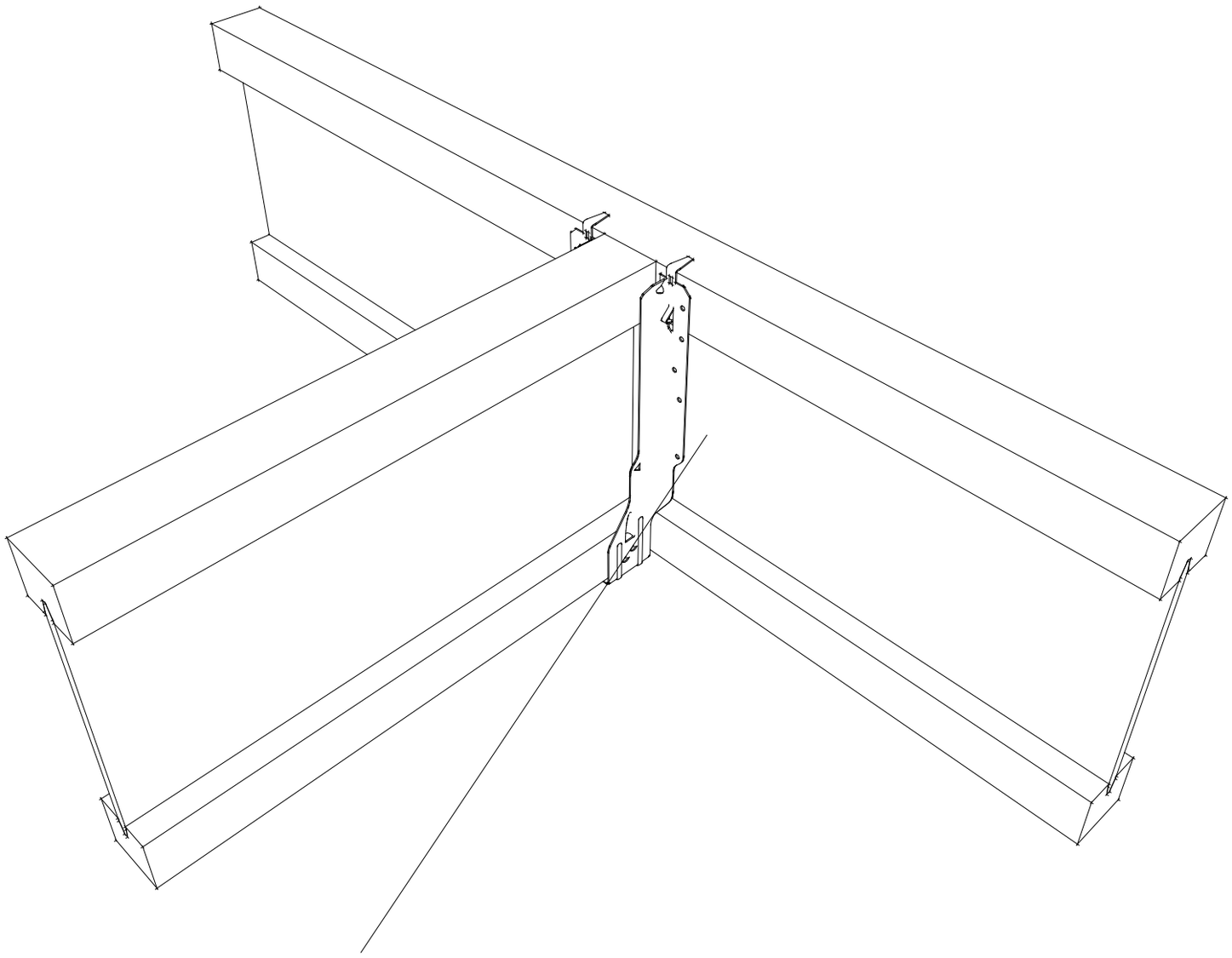
G3

Different hanger applications



G4a STEICO*joist* to STEICO*joist* connection

Backerless hanger should be installed in line with manufacturers guidance.

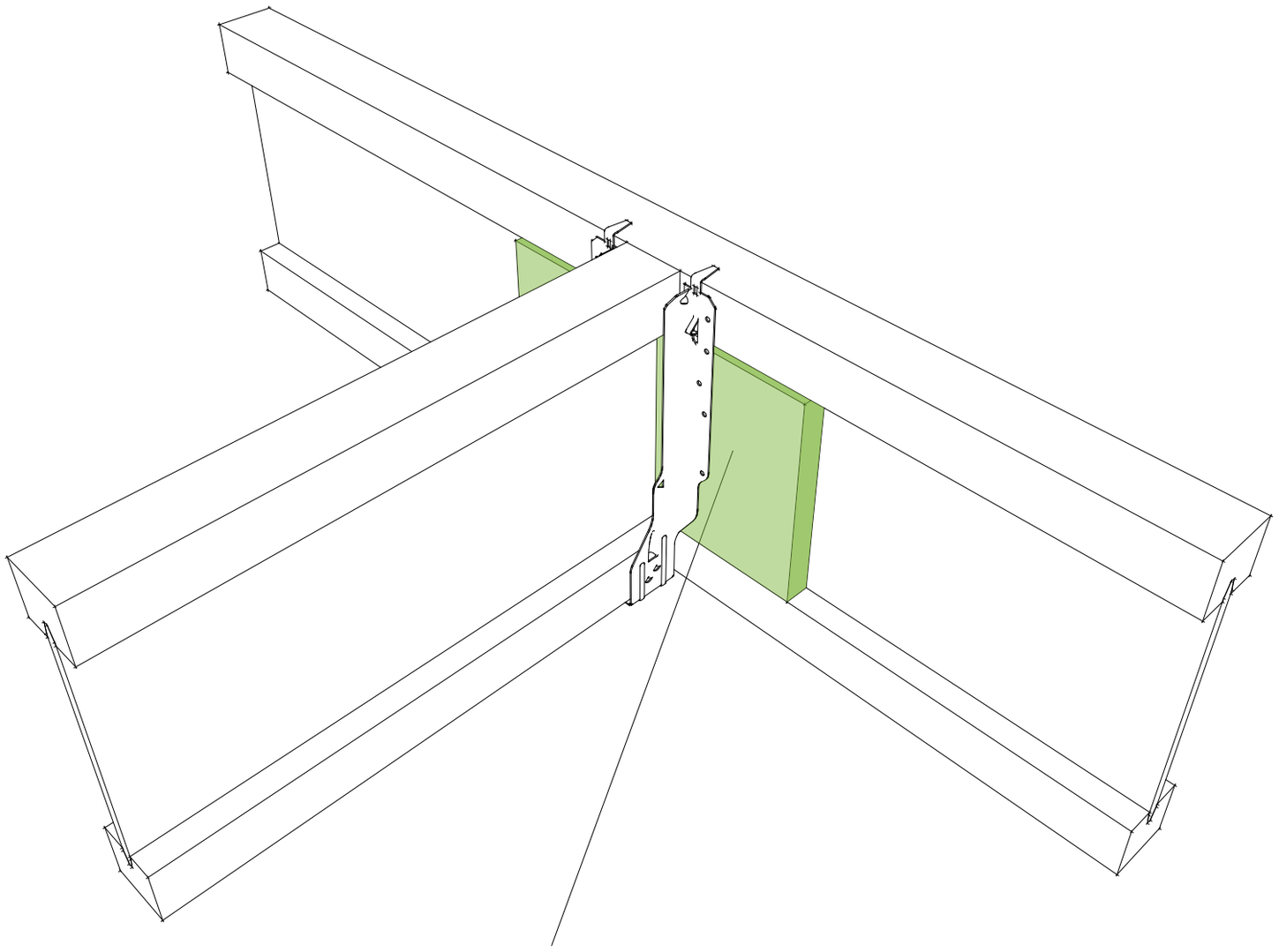


No Backer blocks required.

G4b STEICO*joist* to STEICO*joist* connection

Backer blocks to be fitted as detail G7.

Joist hanger installed in line with manufacturers guidance.

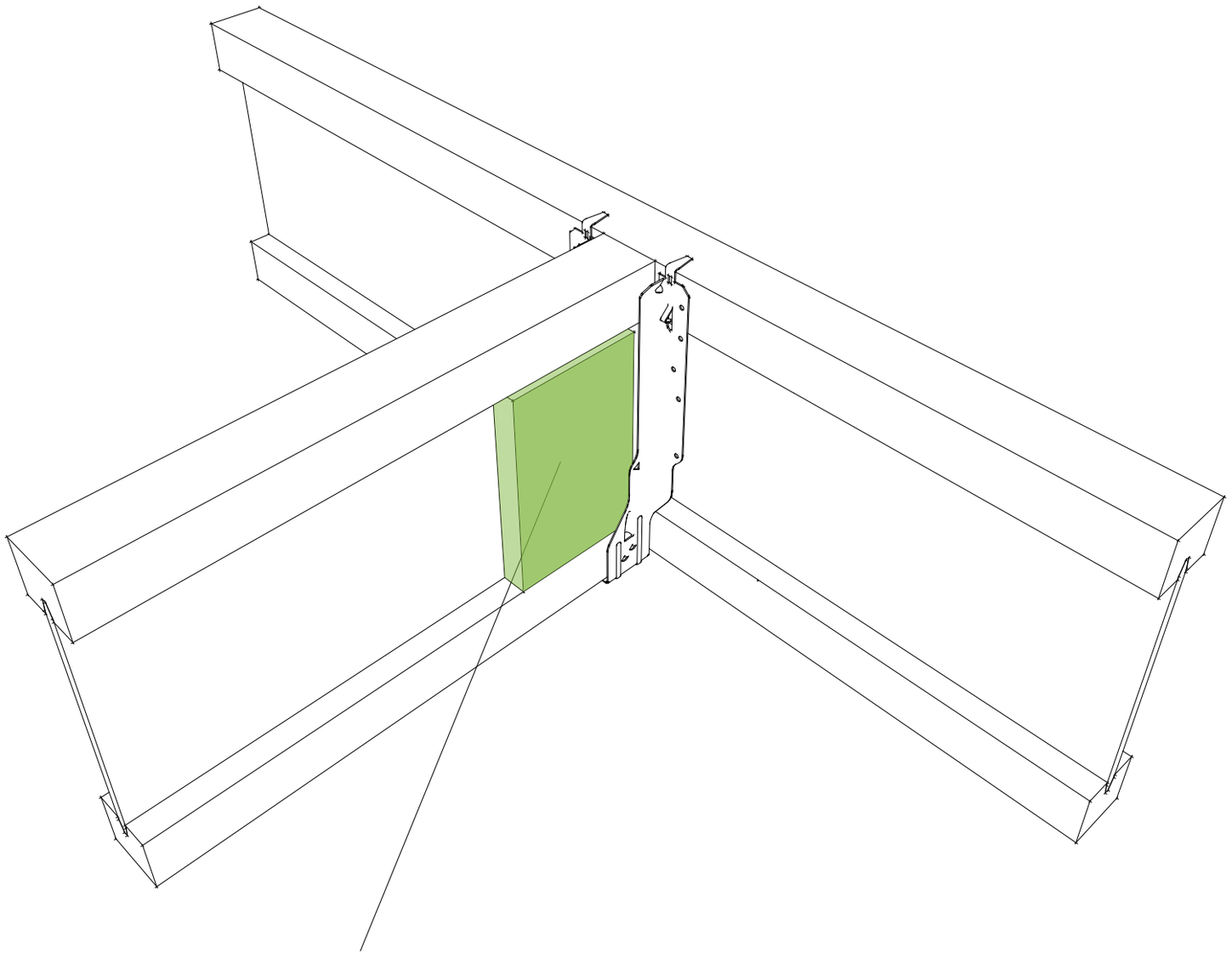


Backer blocks required.

G4c STEICO*joist* to STEICO*joist* connection

Web Stiffeners to be fitted as detail G6.

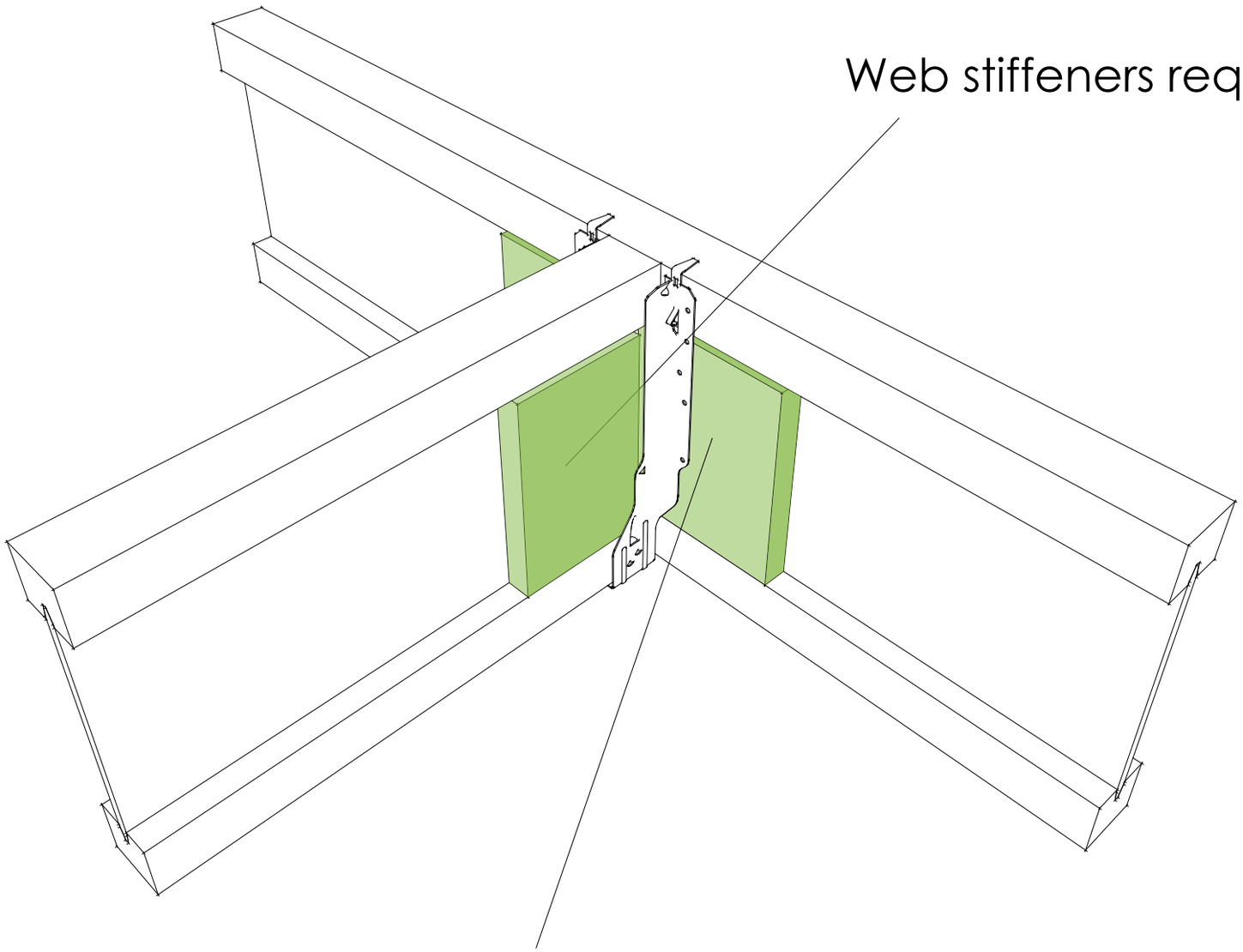
Joist hanger installed in line with manufacturers guidance.



Web stiffeners required.

G4d STEICO*joist* to STEICO*joist* connection

Backer blocks to be fitted as detail G7.
Web stiffeners to be fitted as detail G6.
Joist hanger installed in line with manufacturers guidance.

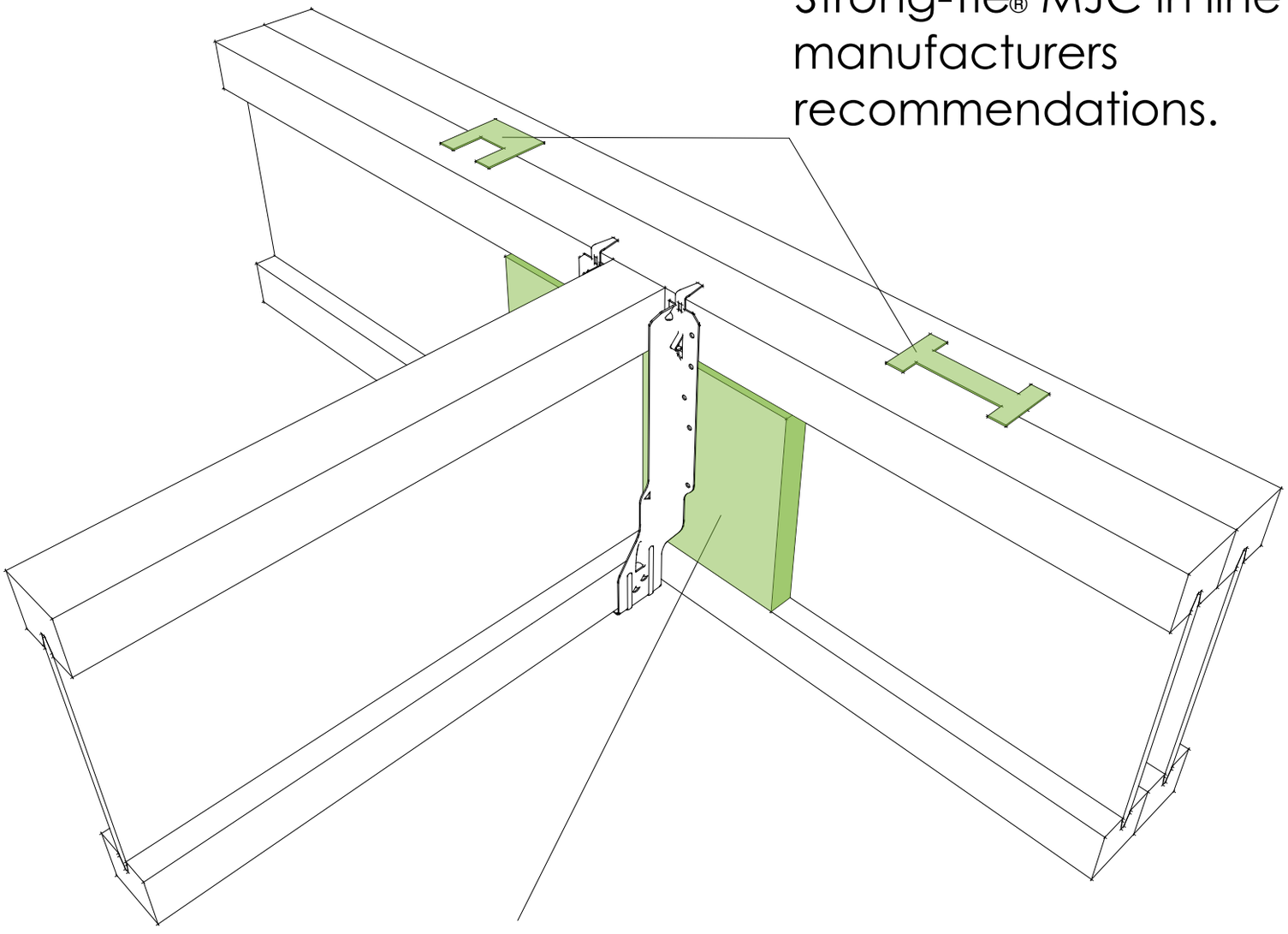


G5a STEICO*joist* to STEICO*joist* connection (2 Ply)

Backer blocks to be fitted as detail G7.

Joist hanger installed in line with manufacturers guidance.

2 Ply i-joist connected using Cullen® I-Clips or Simpson Strong-Tie® MJC in line with manufacturers recommendations.



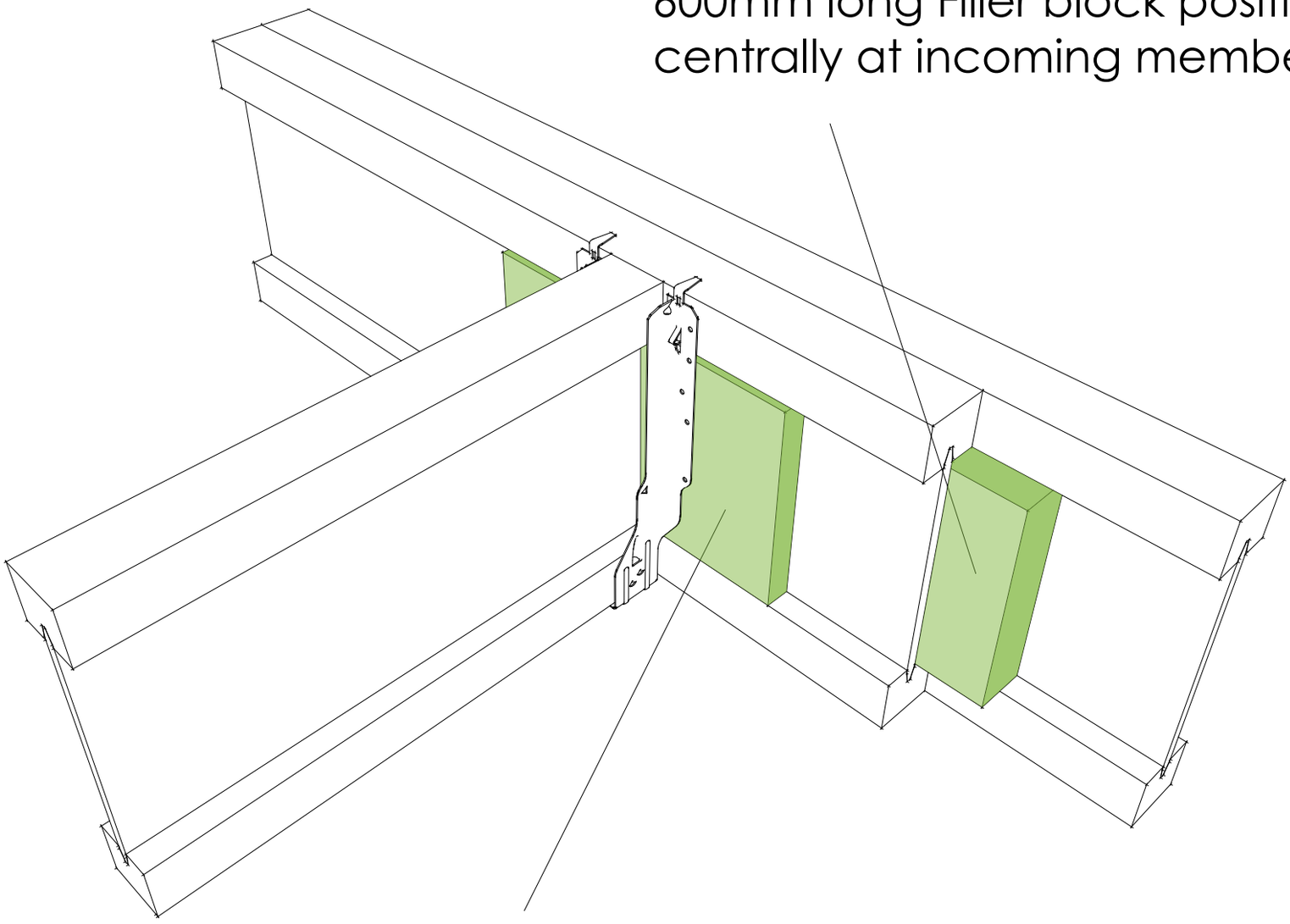
Backer blocks required.

G5b STEICO*joist* to STEICO*joist* connection (2 Ply)

Filler block to be fitted as detail G8.
Backer blocks to be fitted as detail G7.

Joist hanger installed in line with manufacturers guidance.

2 Ply i-joist connected using min. 600mm long Filler block positioned centrally at incoming member.



Backer blocks required.

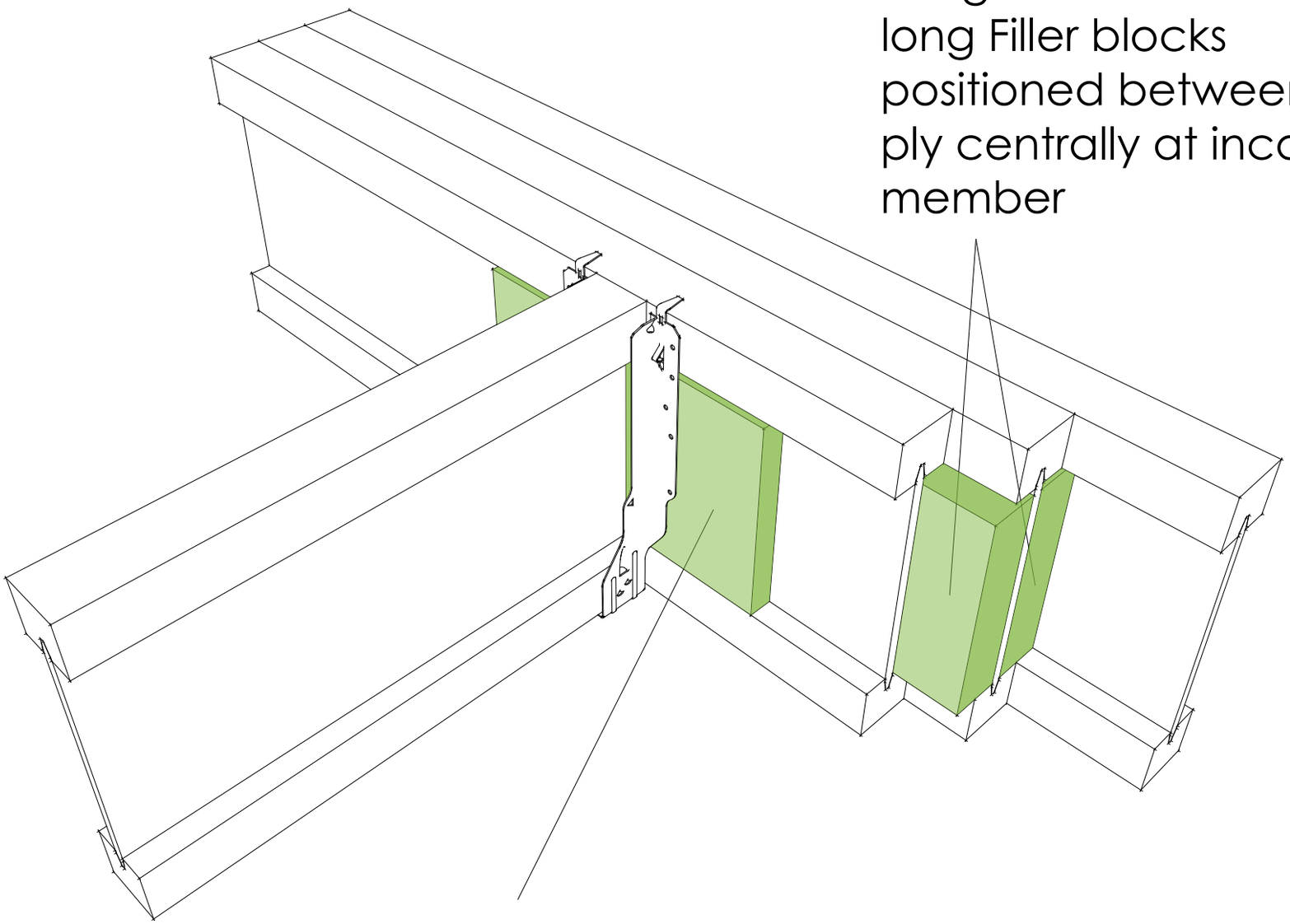
G5c

STEICO*joist* to STEICO*joist* connection (3 Ply)

Filler block to be fitted as detail G8
Backer blocks to be fitted as detail G7.

Joist hanger installed in line with manufacturers guidance.

3 Ply i-joist connected using 2 no. min.600mm long Filler blocks positioned between each ply centrally at incoming member

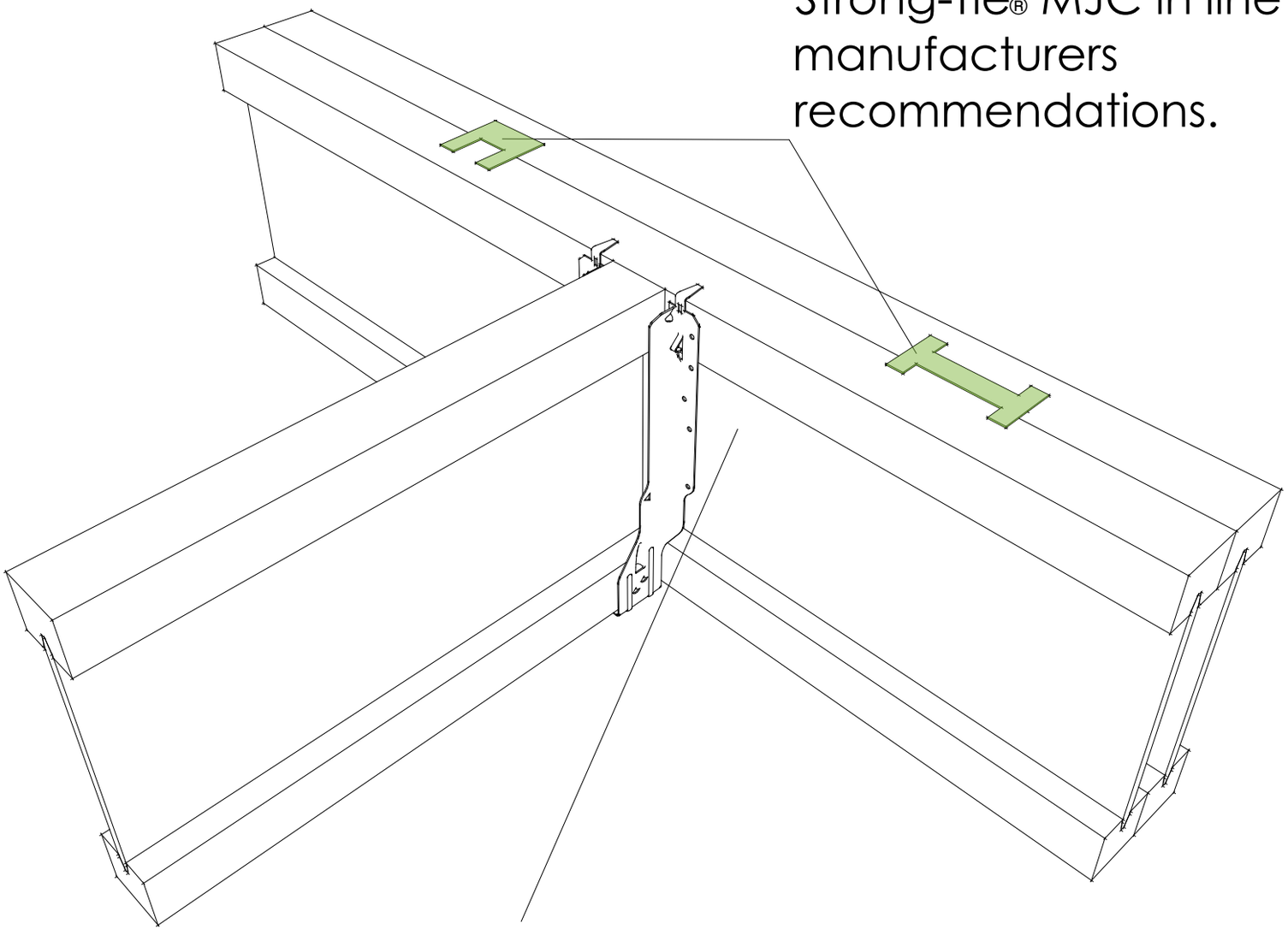


Backer blocks required.

G5d STEICO*joist* to STEICO*joist* connection (2 Ply)

Backerless hanger should be installed in line with manufacturers guidance.

2 Ply i-joist connected using Cullen® I-Clips or Simpson Strong-Tie® MJC in line with manufacturers recommendations.



No Backer blocks required.

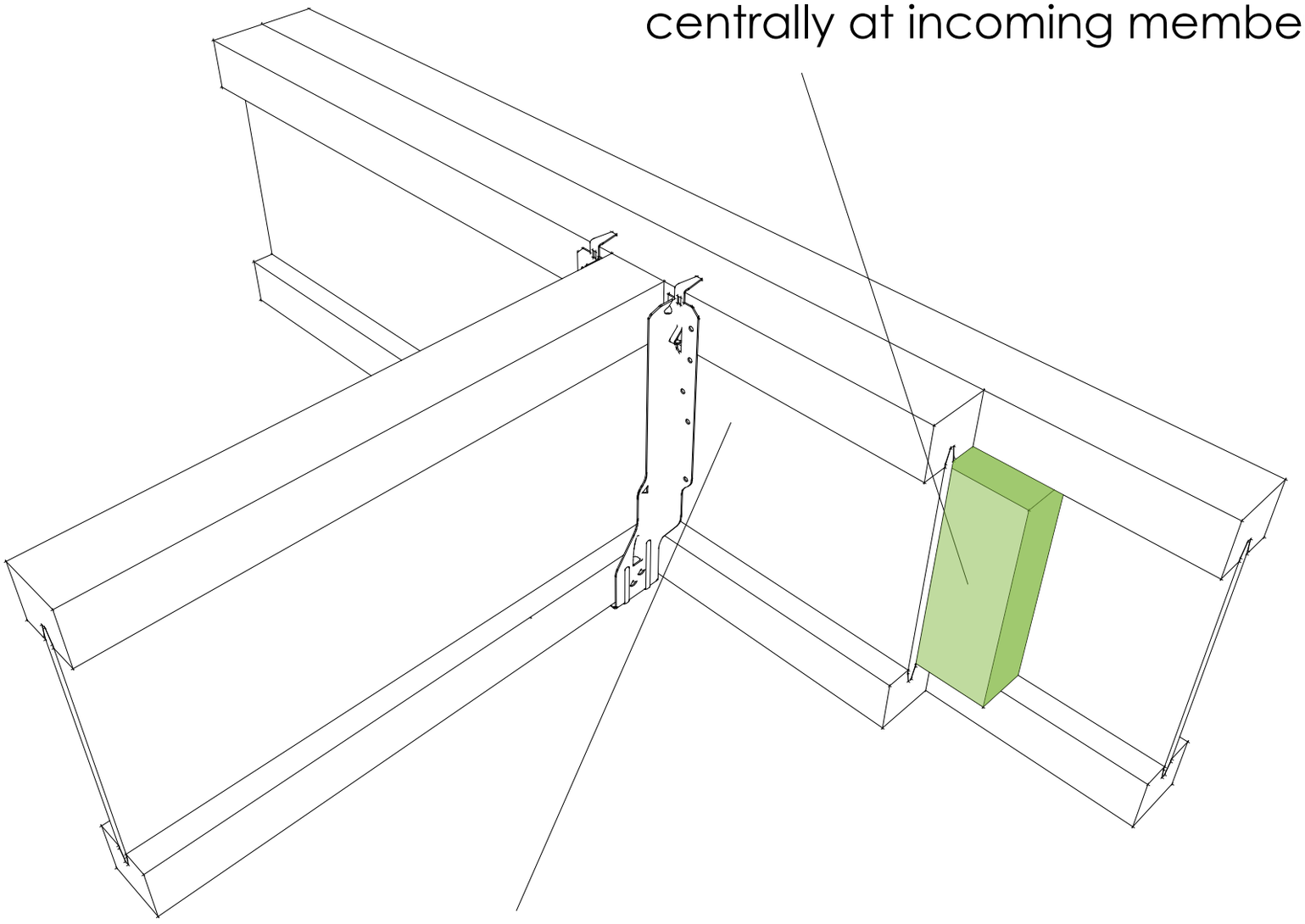
G5e

STEICO*joist* to STEICO*joist* connection (2 Ply)

Filler block to be fitted as detail G8

Backerless hanger should be installed in line with manufacturers guidance.

2 Ply i-joist connected using min. 600mm long Filler block positioned centrally at incoming member.



No Backer blocks required.

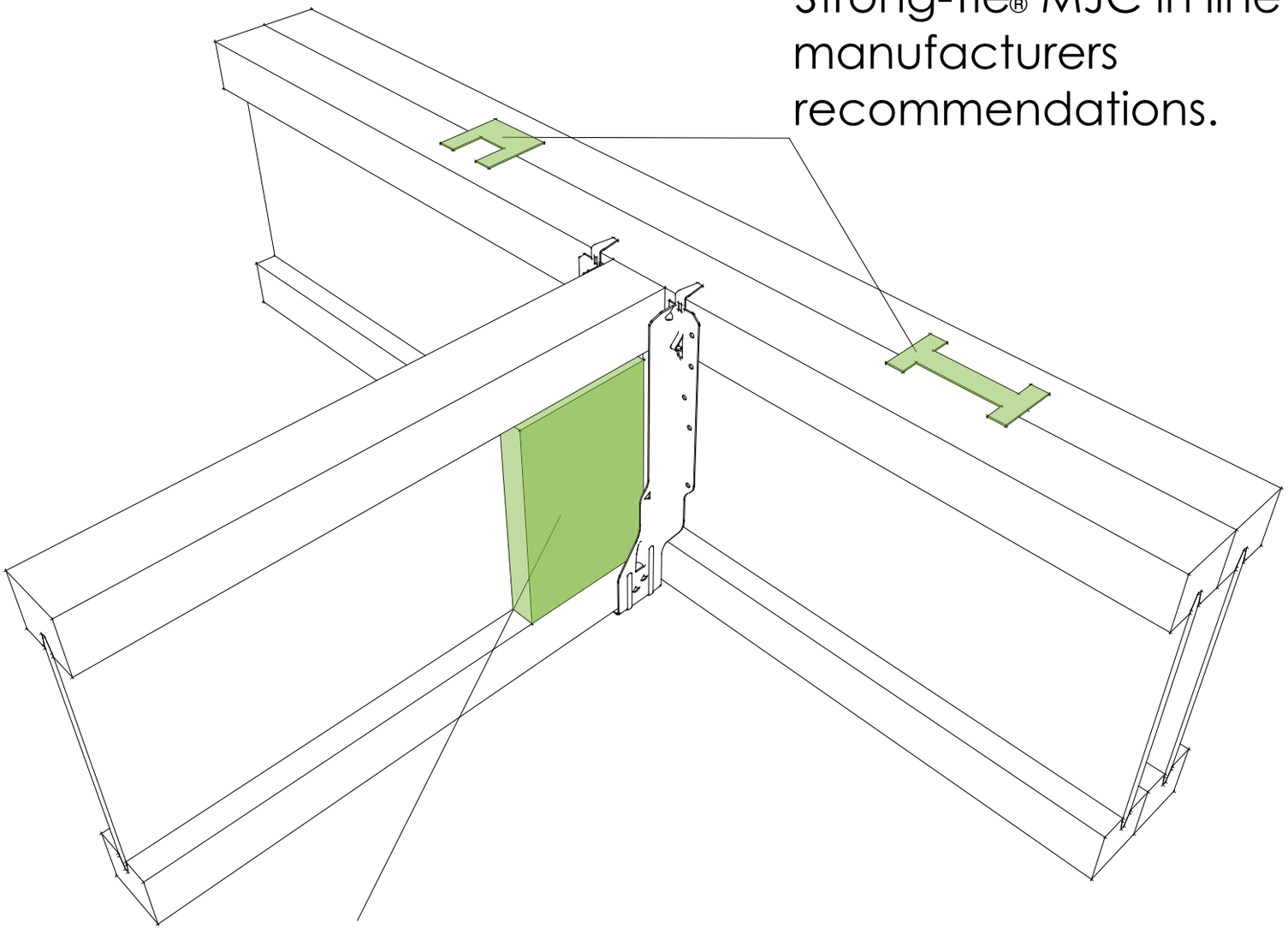
G5f

STEICO*joist* to STEICO*joist* connection (2 Ply)

Web stiffeners to be fitted as detail G6.

Joist hanger installed in line with manufacturers guidance.

2 Ply i-joist connected using Cullen® I-Clips or Simpson Strong-Tie® MJC in line with manufacturers recommendations.



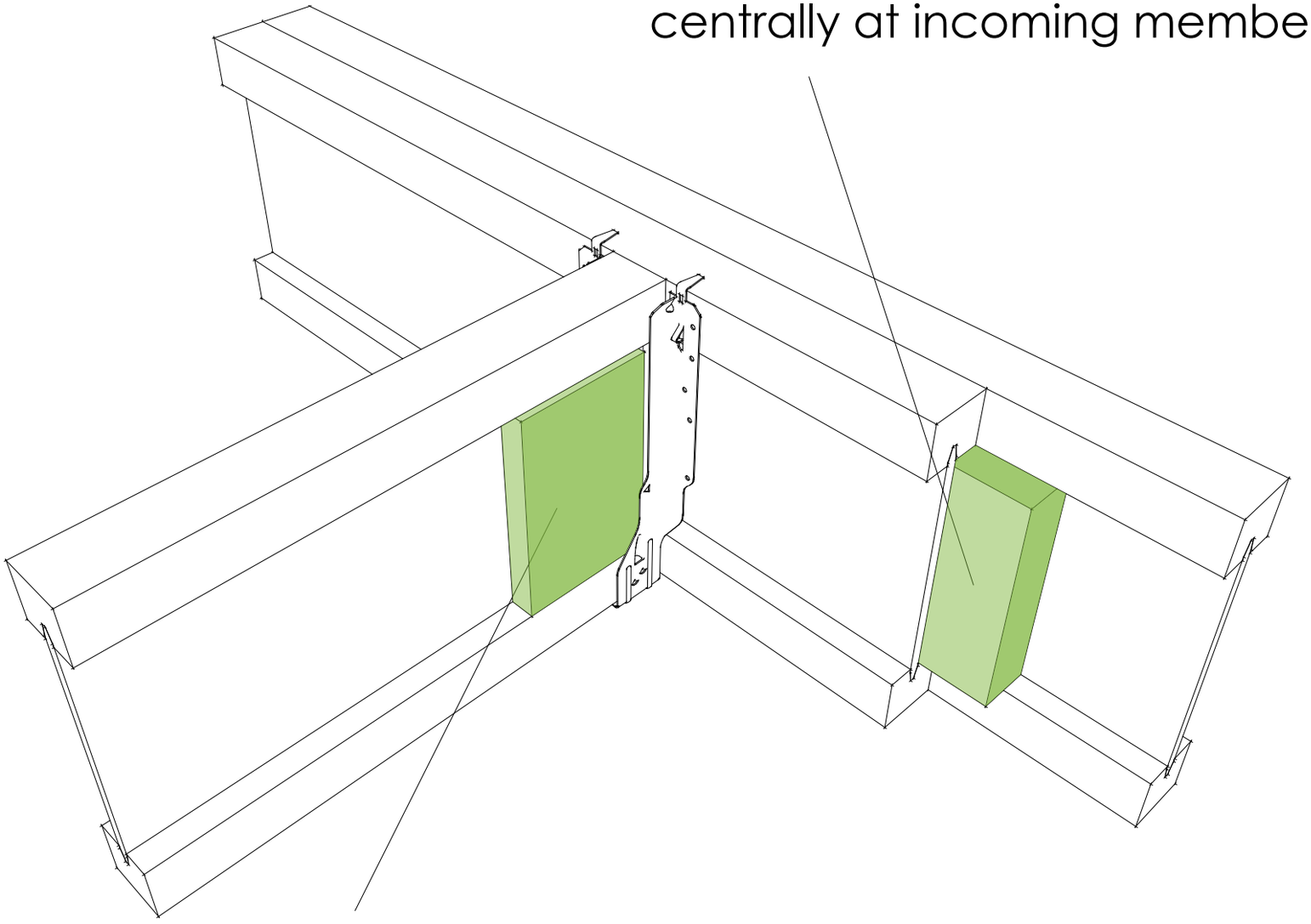
Web stiffeners required.

G5g STEICO*joist* to STEICO*joist* connection (2 Ply)

Filler block to be fitted as detail G8.
Web stiffeners to be fitted as detail G6.

Joist hanger installed in line with manufacturers guidance.

2 Ply i-joist connected using min. 600mm long Filler block positioned centrally at incoming member.

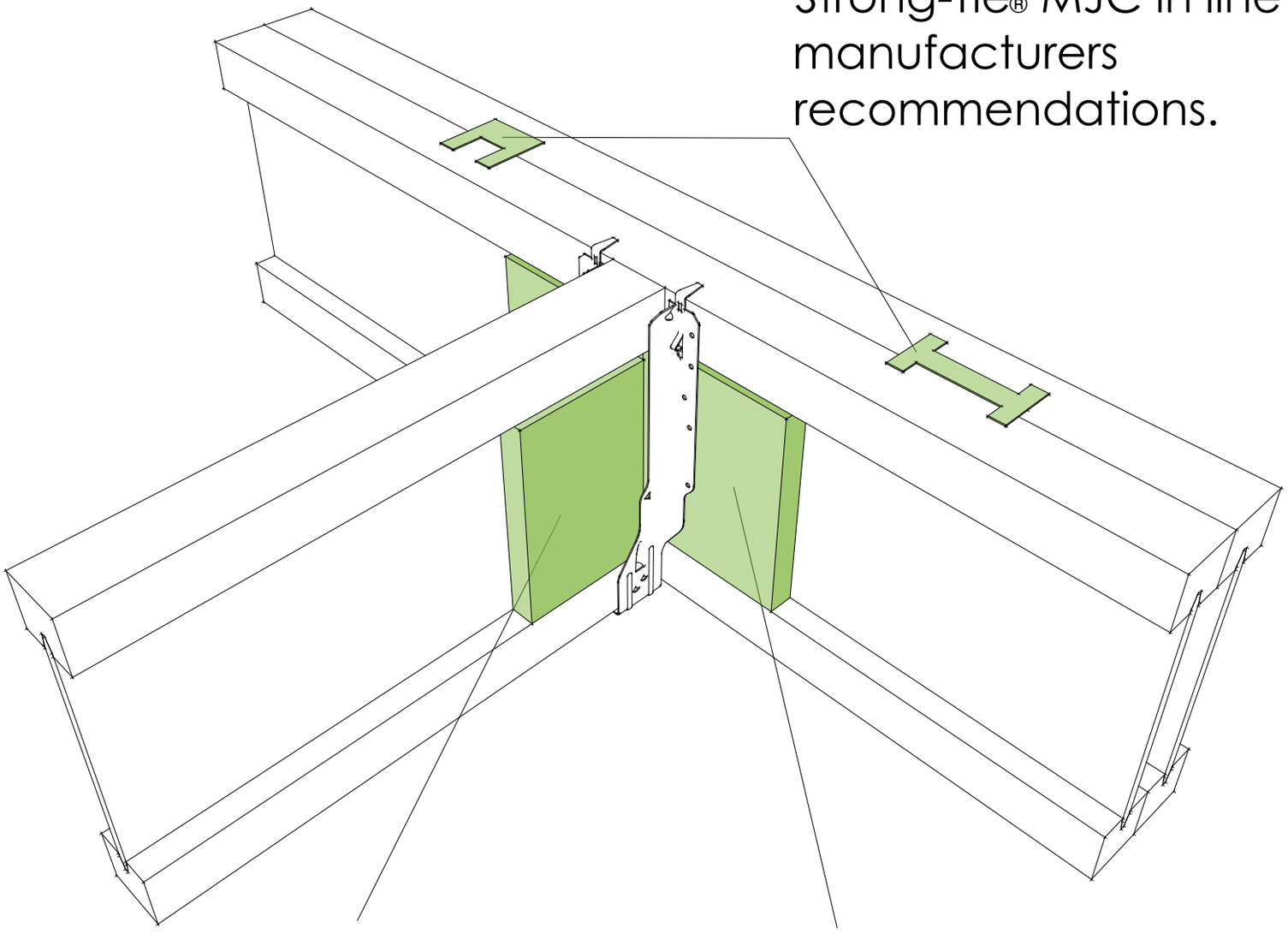


Web stiffeners required.

G5h STEICO*joist* to STEICO*joist* connection (2 Ply)

Backer blocks to be fitted as detail G7.
Web stiffeners to be fitted as detail G6.
Joist hanger installed in line with manufacturers guidance.

2 Ply i-joist connected using Cullen® I-Clips or Simpson Strong-Tie® MJC in line with manufacturers recommendations.



Web stiffeners required.

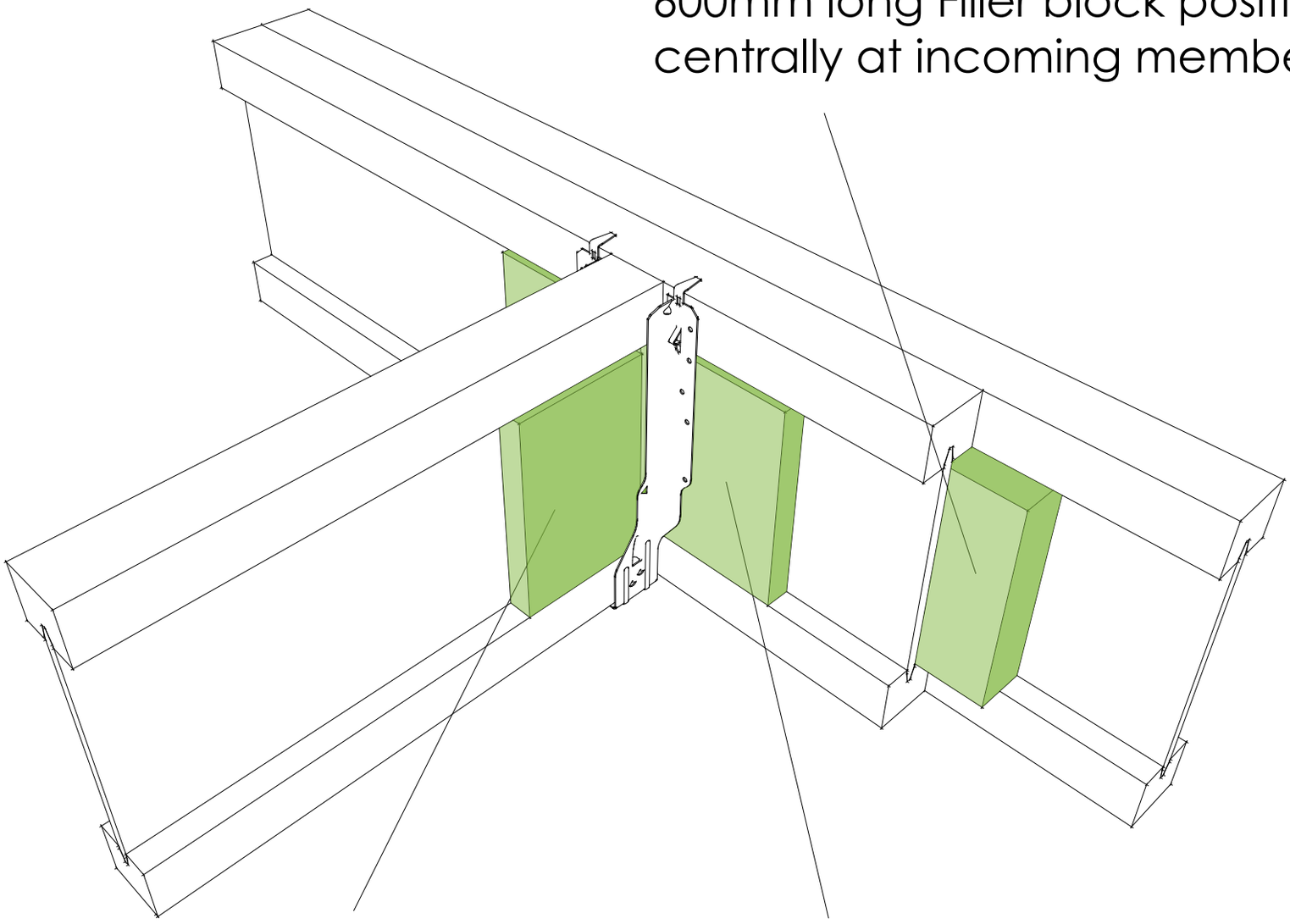
Backer blocks required.

G5i

STEICO*joist* to STEICO*joist* connection (2 Ply)

Filler block to be fitted as detail G8
Backer blocks to be fitted as detail G7.
Web stiffeners to be fitted as detail G6.
Joist hanger installed in line with manufacturers guidance.

2 Ply i-joist connected using min. 600mm long Filler block positioned centrally at incoming member.



Web stiffeners required.

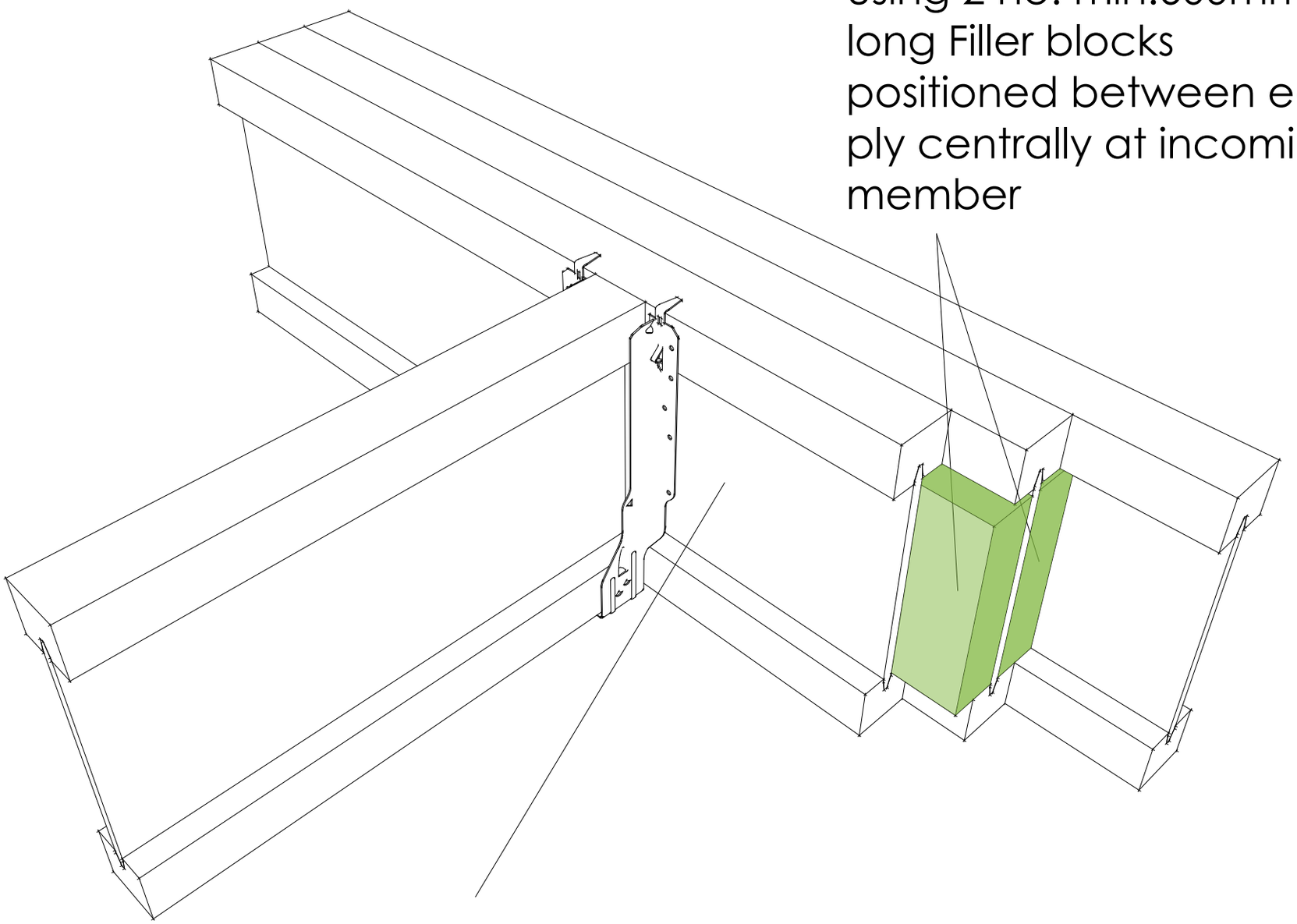
Backer blocks required.

G5j

STEICO*joist* to STEICO*joist* connection (3 Ply)

Filler Blocks to be fitted as detail G8.
Backerless hanger should be installed in line with manufacturers guidance.

3 Ply i-joist connected using 2 no. min.600mm long Filler blocks positioned between each ply centrally at incoming member



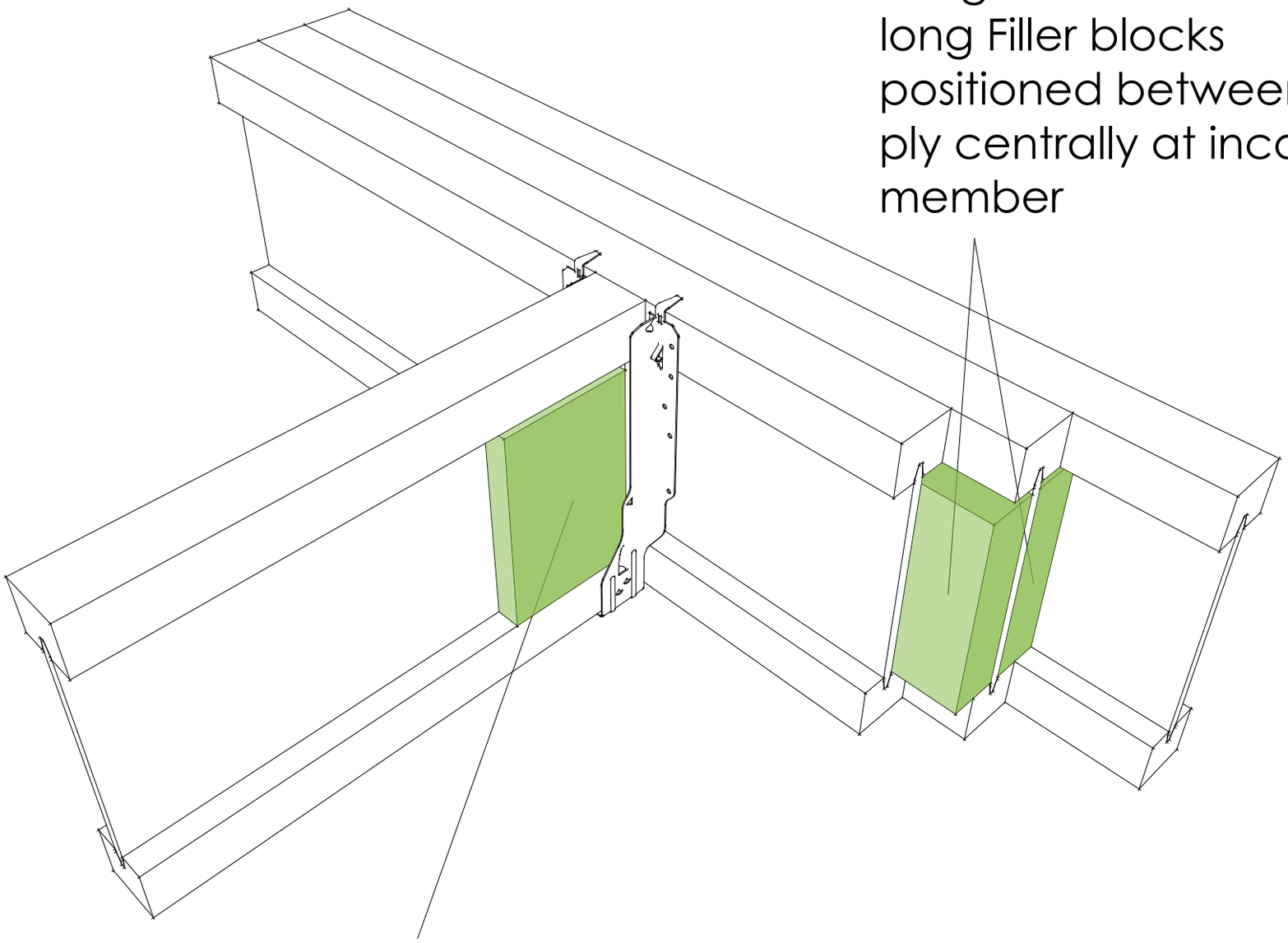
No Backer blocks required.

G5k

STEICO*joist* to STEICO*joist* connection (3 Ply)

Filler Blocks to be fitted as detail G8.
Web stiffeners to be fitted as detail G6.
Joist hanger installed in line with manufacturers guidance.

3 Ply i-joist connected using 2 no. min.600mm long Filler blocks positioned between each ply centrally at incoming member



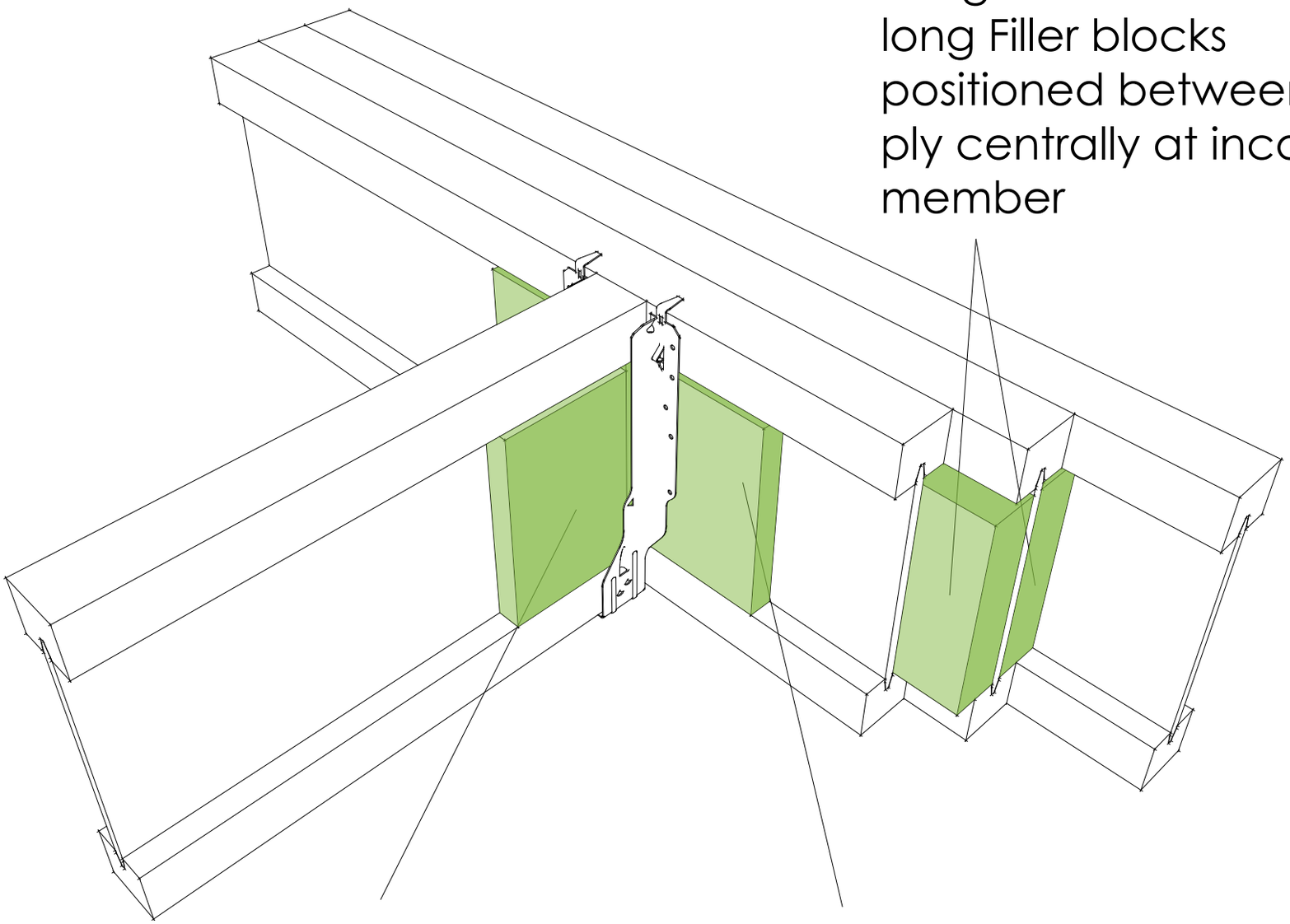
Web stiffeners required.

G5m

STEICO*joist* to STEICO*joist* connection (3 Ply)

Filler block to be fitted as detail G8
Backer blocks to be fitted as detail G7.
Web stiffeners to be fitted as detail G6.
Joist hanger installed in line with manufacturers guidance.

3 Ply i-joist connected using 2 no. min.600mm long Filler blocks positioned between each ply centrally at incoming member



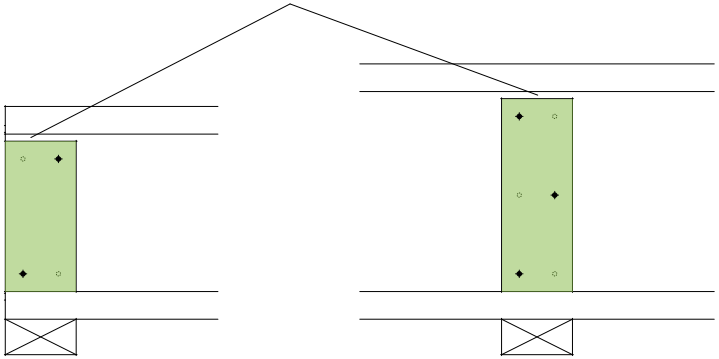
Web stiffeners required.

Backer blocks required.

G6

Web stiffener - End and Intermediate bearing

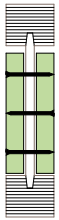
5 - 10mm gap
Where load comes in from above
the gap should be at the bottom



4 fixings for joists < 300mm
2 from each side

6 fixings for joists > 300mm
3 from each side

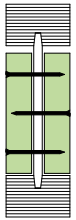
STEICOjoist SJL45



18mm
Ply / OSB

4.5 x 45mm
Screws

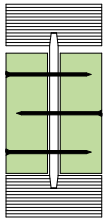
STEICOjoist SJL60



25mm
Ply / OSB

5.0 x 55mm
Screws

STEICOjoist SJL90

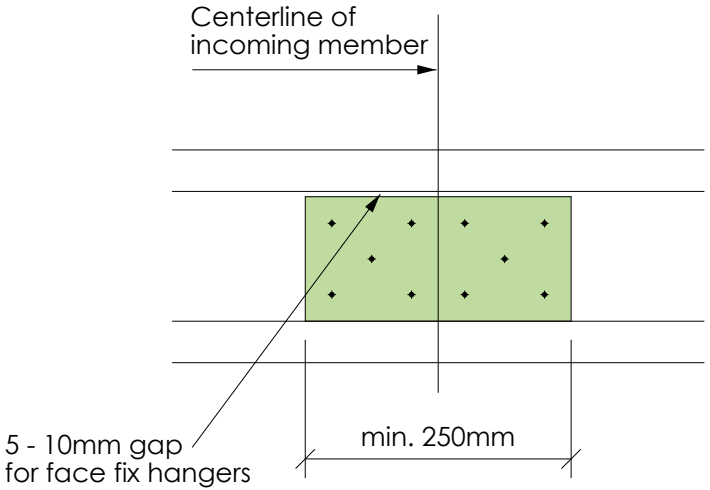


38mm
Timber

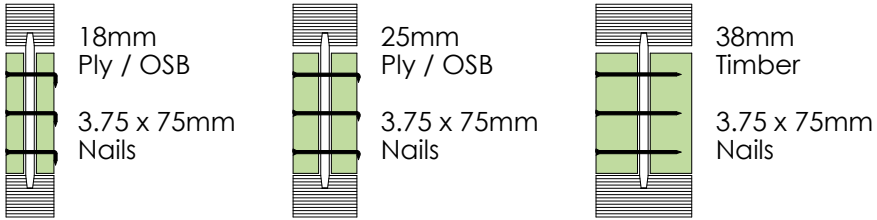
5.5 x 80mm
Screws

	Joist depth (mm)					
Web Stiffener	200	220	240	300	360	400
Height (mm)	115	135	155	215	275	315
Width (mm)	≥ 100					
no. of screws	4	4	4	4	6	6

G7 Backer Blocks



For top fix hangers the
gap should be at the bottom

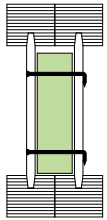


	Joist depth (mm)					
Backer Block	200	220	240	300	360	400
Height (mm)	115	135	155	215	275	315
Width (mm)	≥ 250					
no. of nails	10	10	10	10	10	10

All nails should be clenched where possible

Filler Blocks

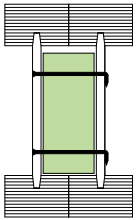
2 x STEICOjoist SJL45



38mm Timber

3.75 x 75mm Nails

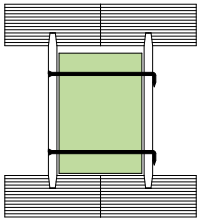
2 x STEICOjoist SJL60



50mm Timber

3.75 x 75mm Nails

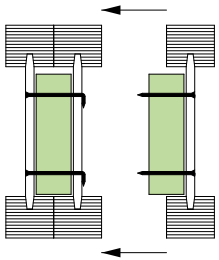
2 x STEICOjoist SJL90

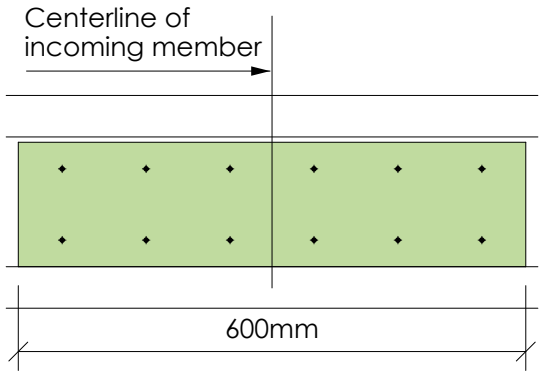


75mm (2 x 38mm) Timber

3.75 x 100mm Nails

For 3 ply members the second Filler block should be attached from the rear





	Joist depth (mm)					
Filler Block	200	220	240	300	360	400
Height (mm)	115	135	155	215	275	315
Width (mm)	≥ 600					
no. of nails	12	12	12	12	12	12

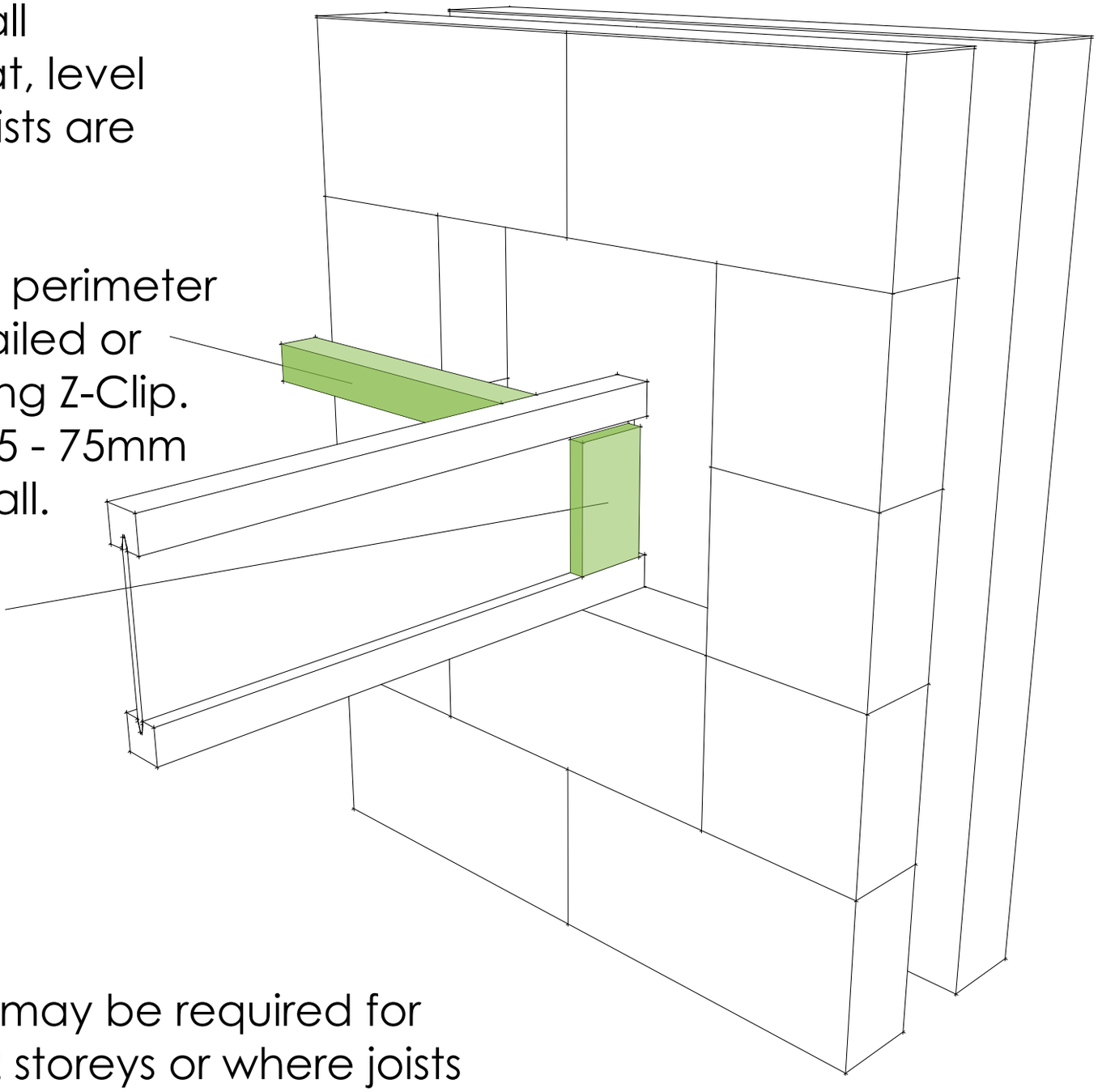
All nails should be clenched where possible

M1 Bearing into blockwork cavity wall

All joists to have a minimum bearing of 90mm. Ensure all bearings are flat, level and that the joists are vertical.

Minimum 38*38 perimeter noggin skew nailed or fixed to joist using Z-Clip. Noggin to be 25 - 75mm from face of wall.

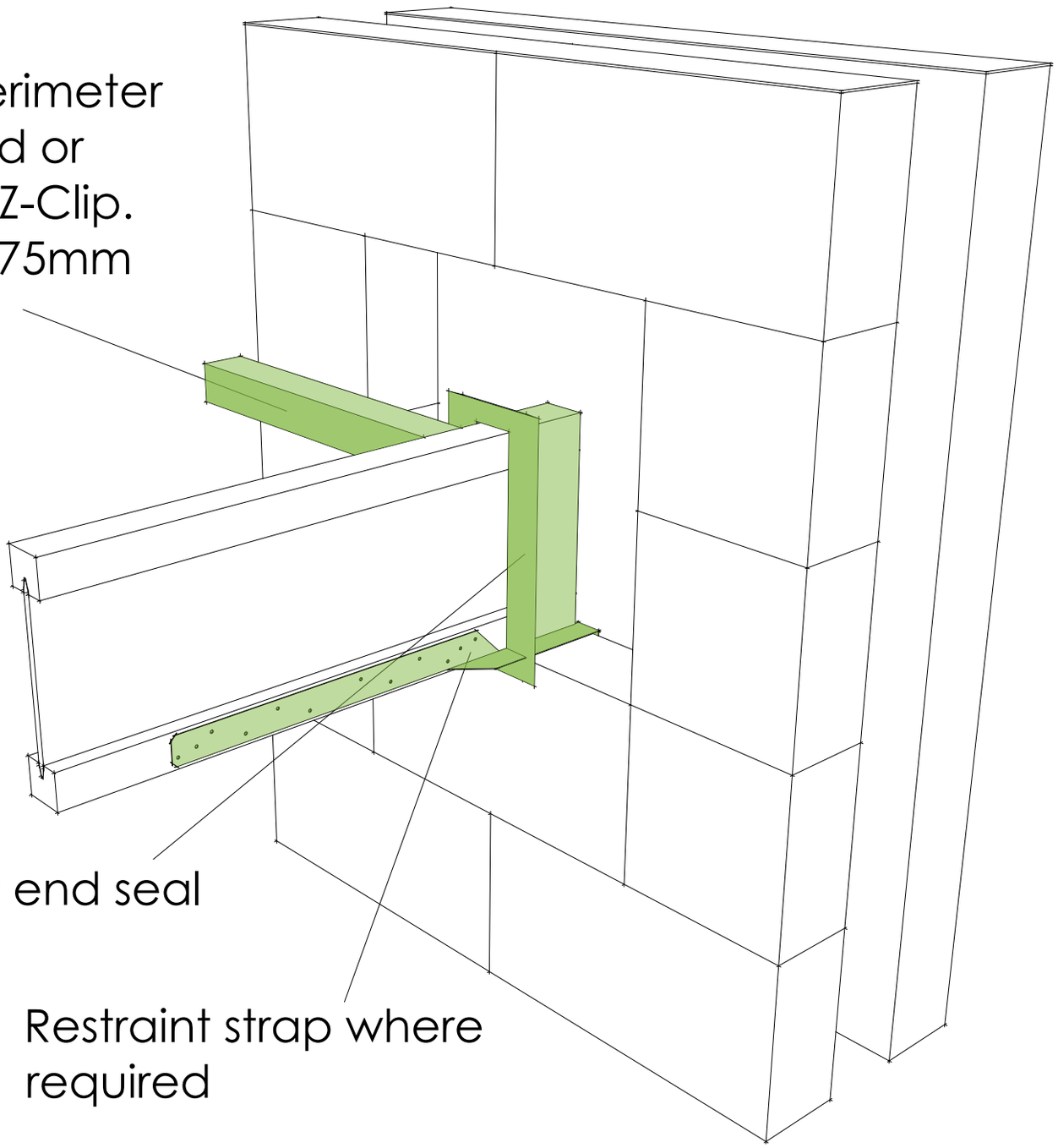
Web stiffeners fitted to end of joists. Junction between wall and joists to be sealed with silicon mastic.



Restraint straps may be required for buildings over 2 storeys or where joists have less than 90mm bearing.

M2a Bearing into blockwork cavity wall using proprietary seal

Minimum 38*38 perimeter noggin skew nailed or fixed to joist using Z-Clip. Noggin to be 25 - 75mm from face of wall.



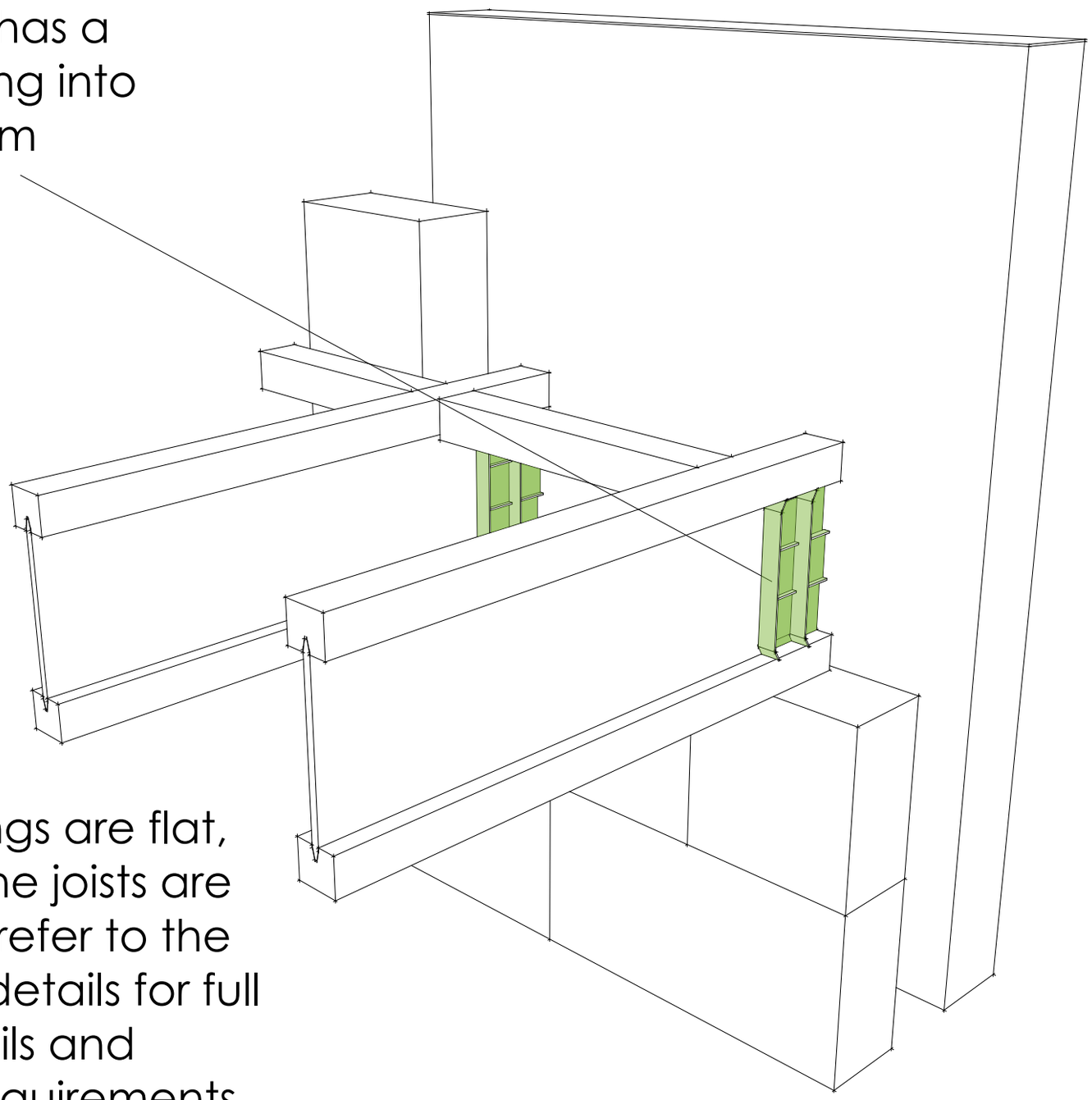
Propietary end seal

Restraint strap where required

M2b

Bearing into blockwork cavity wall using Cullen Hi-Vis Gripper

When bearing into cavity wall ensure that the STEICOjoist has a minimum bearing into the wall of 90mm

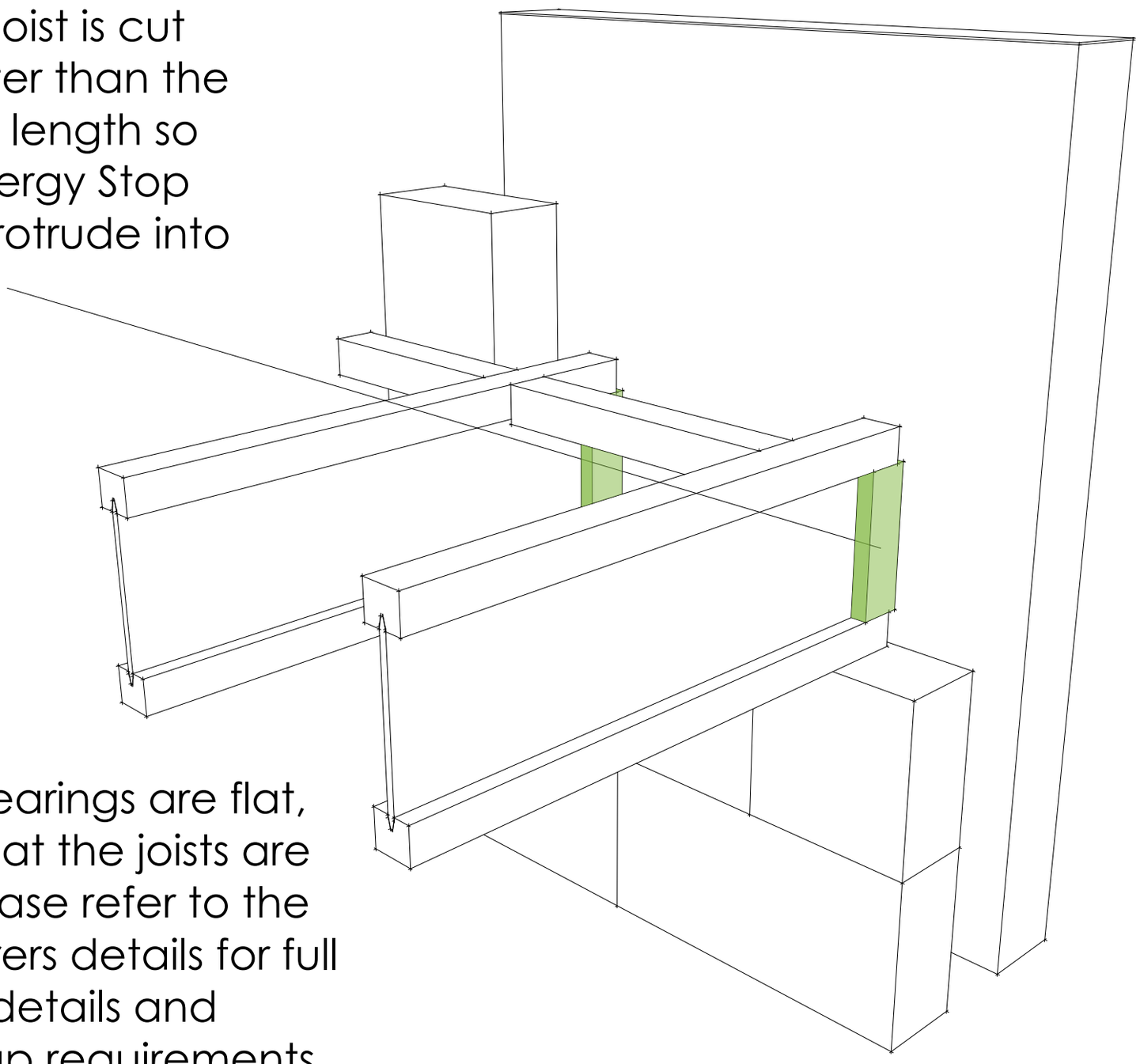


Ensure all bearings are flat, level and that the joists are vertical. Please refer to the manufacturers details for full installation details and restraint strap requirements

M2c

Bearing into blockwork cavity wall using Energy Stop

When bearing into cavity wall ensure that the STEICOjoist is cut 10mm shorter than the full bearing length so that the Energy Stop does not protrude into the cavity.

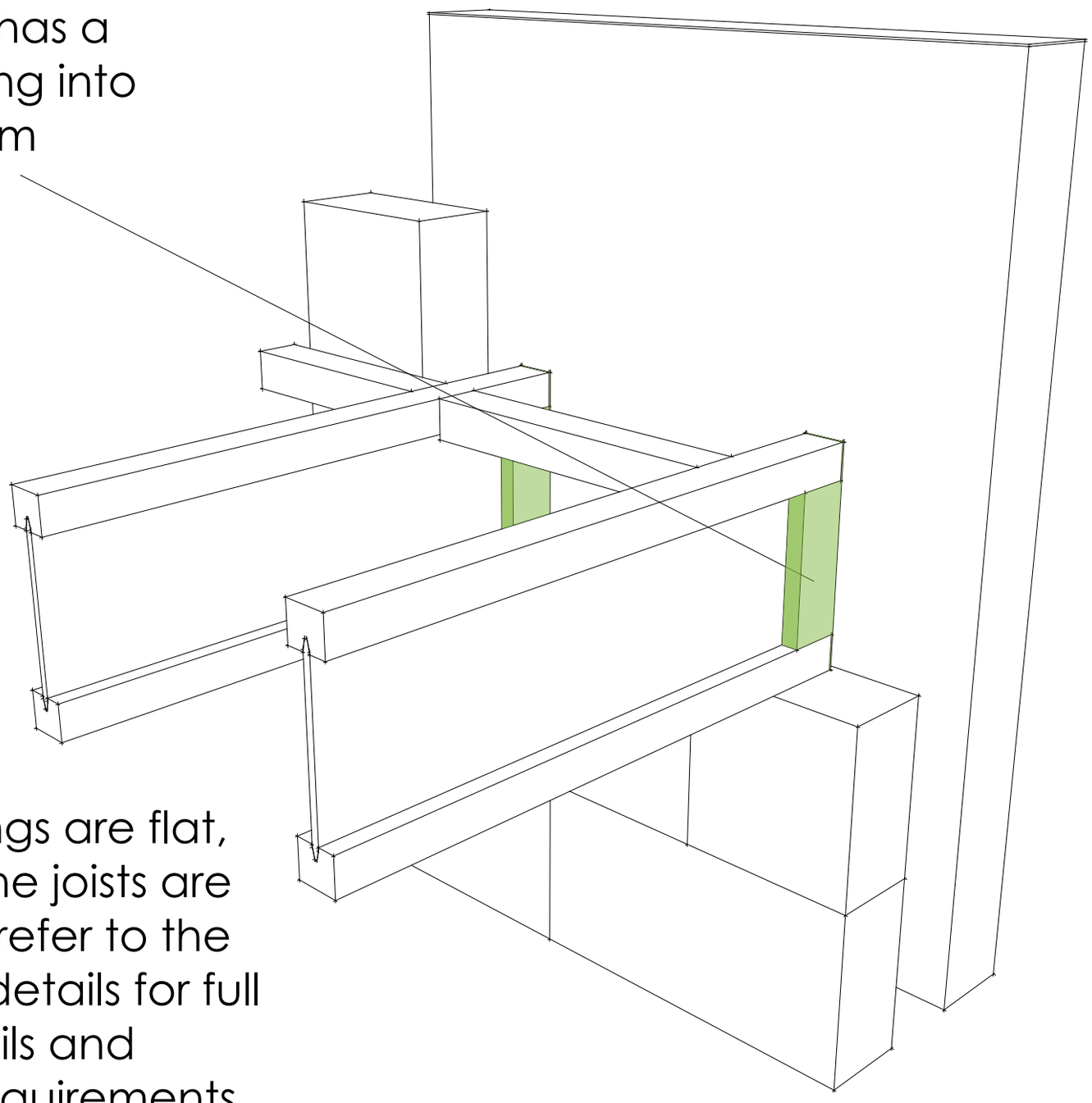


Ensure all bearings are flat, level and that the joists are vertical. Please refer to the manufacturers details for full installation details and restraint strap requirements

M2d

Bearing into blockwork cavity wall using Simpson End Seal

When bearing into cavity wall ensure that the STEICOjoist has a minimum bearing into the wall of 90mm

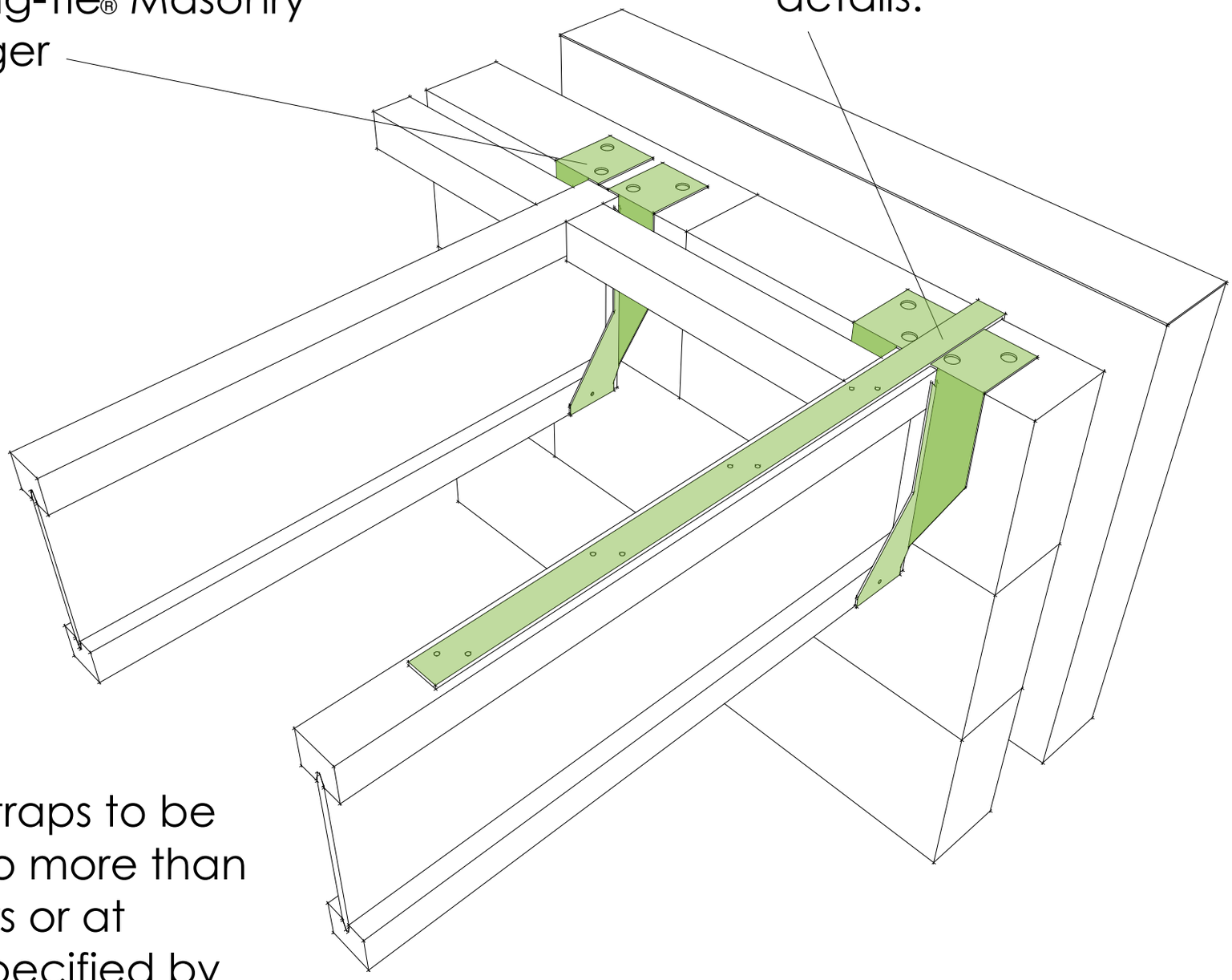


Ensure all bearings are flat, level and that the joists are vertical. Please refer to the manufacturers details for full installation details and restraint strap requirements

M3a Masonry Hanger

Cullen® or Simpson Strong-Tie® Masonry hanger

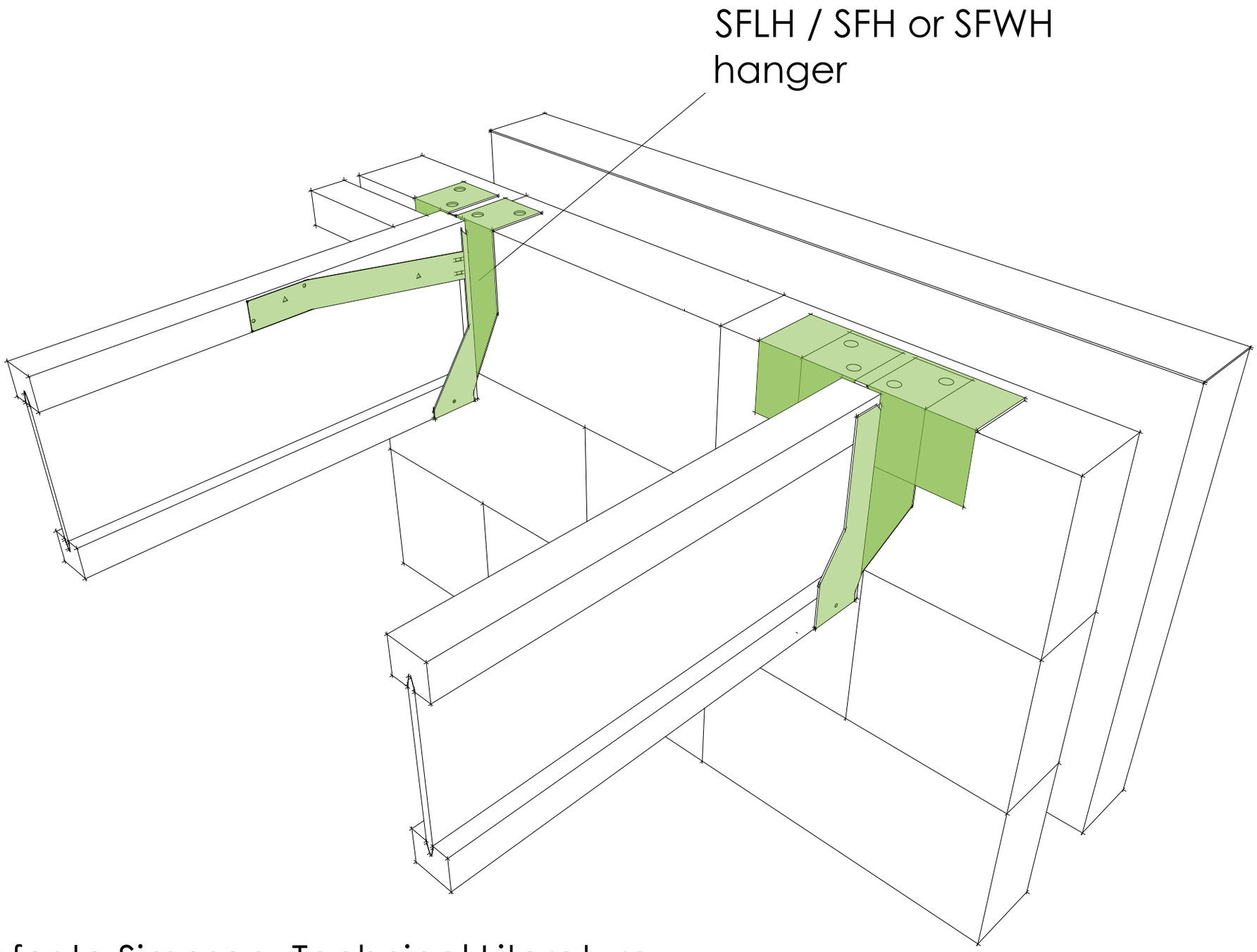
Restraint Straps fitted as manufacturers details.



Restraint straps to be fitted at no more than 2m centers or at spacing specified by the building designer

M3b

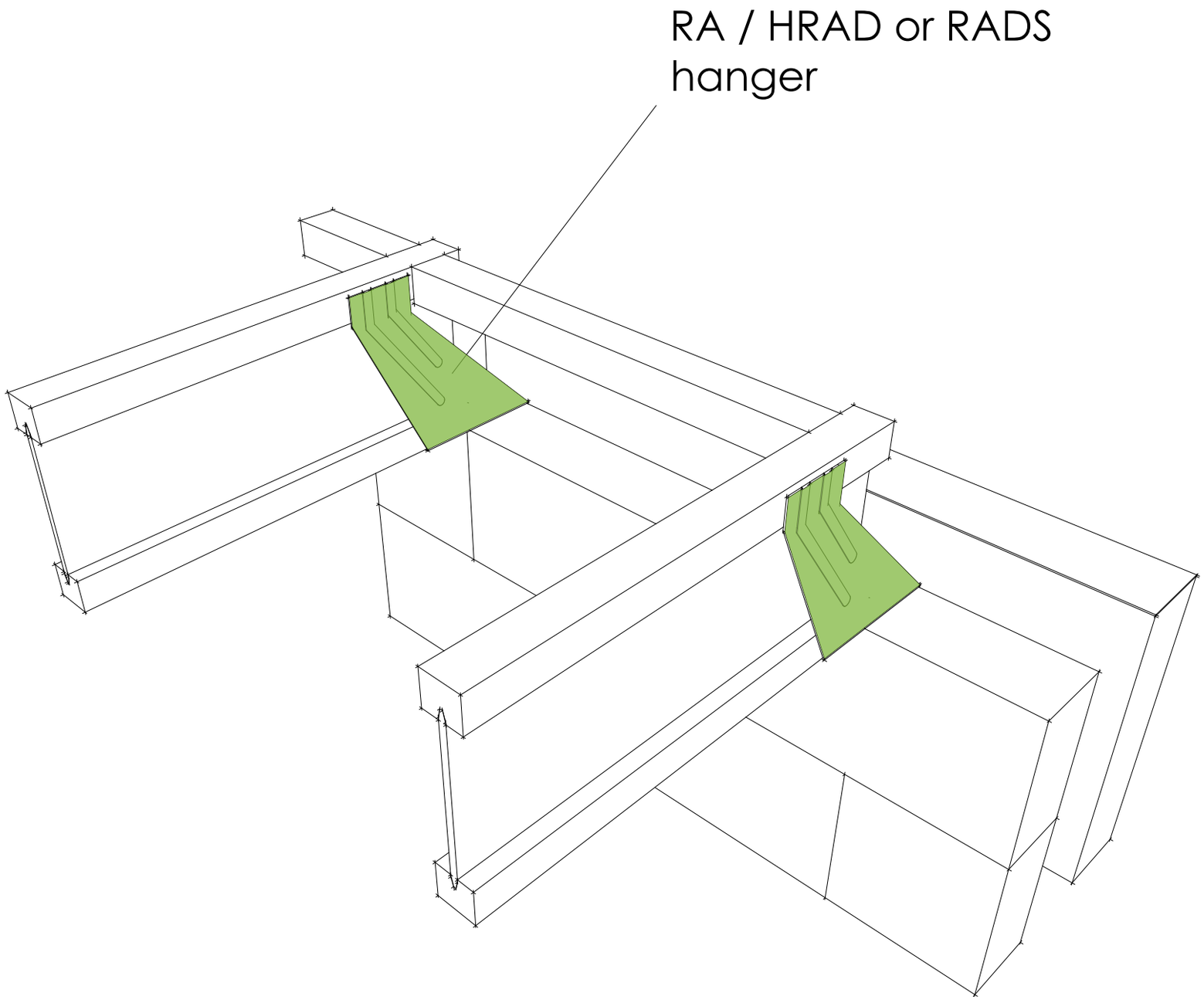
Restraint type hanger (Simpson Strong_Tie®)



Refer to Simpson® Technical Literature
for specification and installation details

M3C

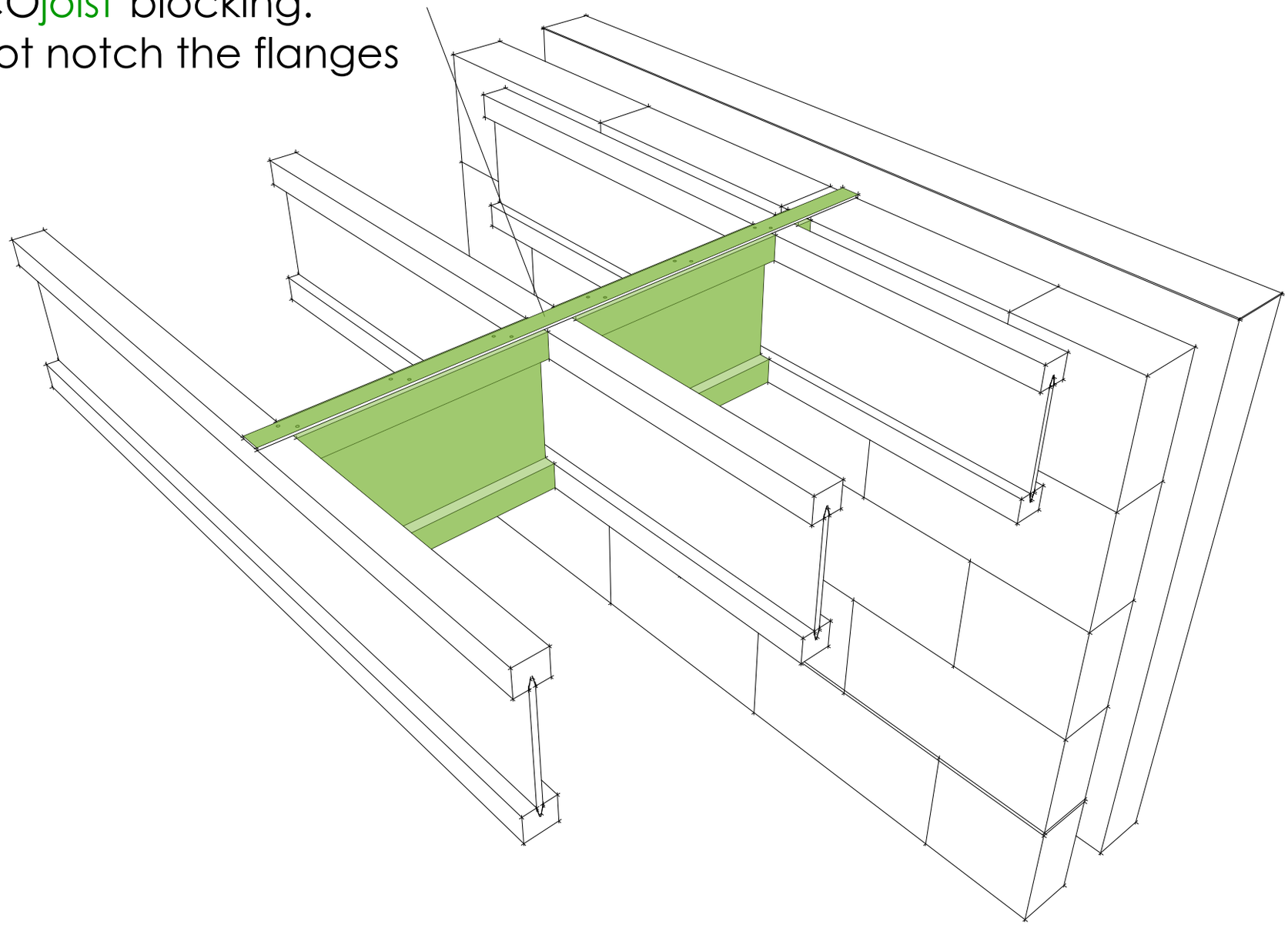
Restraint type hanger (Cullen®)



Refer to Cullen® Technical Literature for specification and installation details

M4a Masonry wall restraint

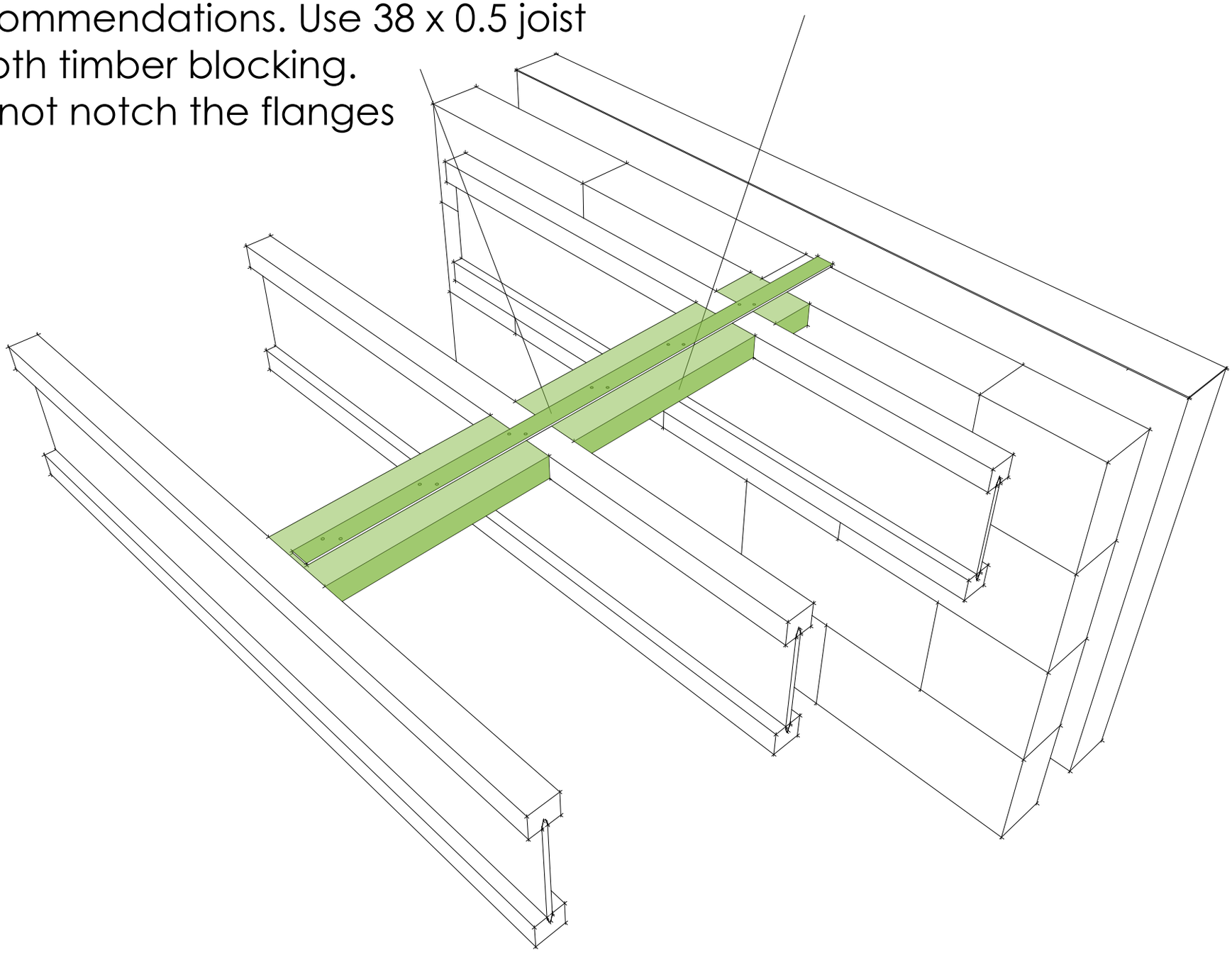
Galvanised masonry restraint strap fixed to minimum 3 joists in accordance with manufacturers recommendations. Use full depth STEICOjoist blocking.
Do not notch the flanges



M4b Masonry wall restraint

Galvanised masonry restraint strap fixed to minimum 3 joists in accordance with manufacturers recommendations. Use 38 x 0.5 joist depth timber blocking.
Do not notch the flanges

Timber noggin fixed horizontally between joist flanges

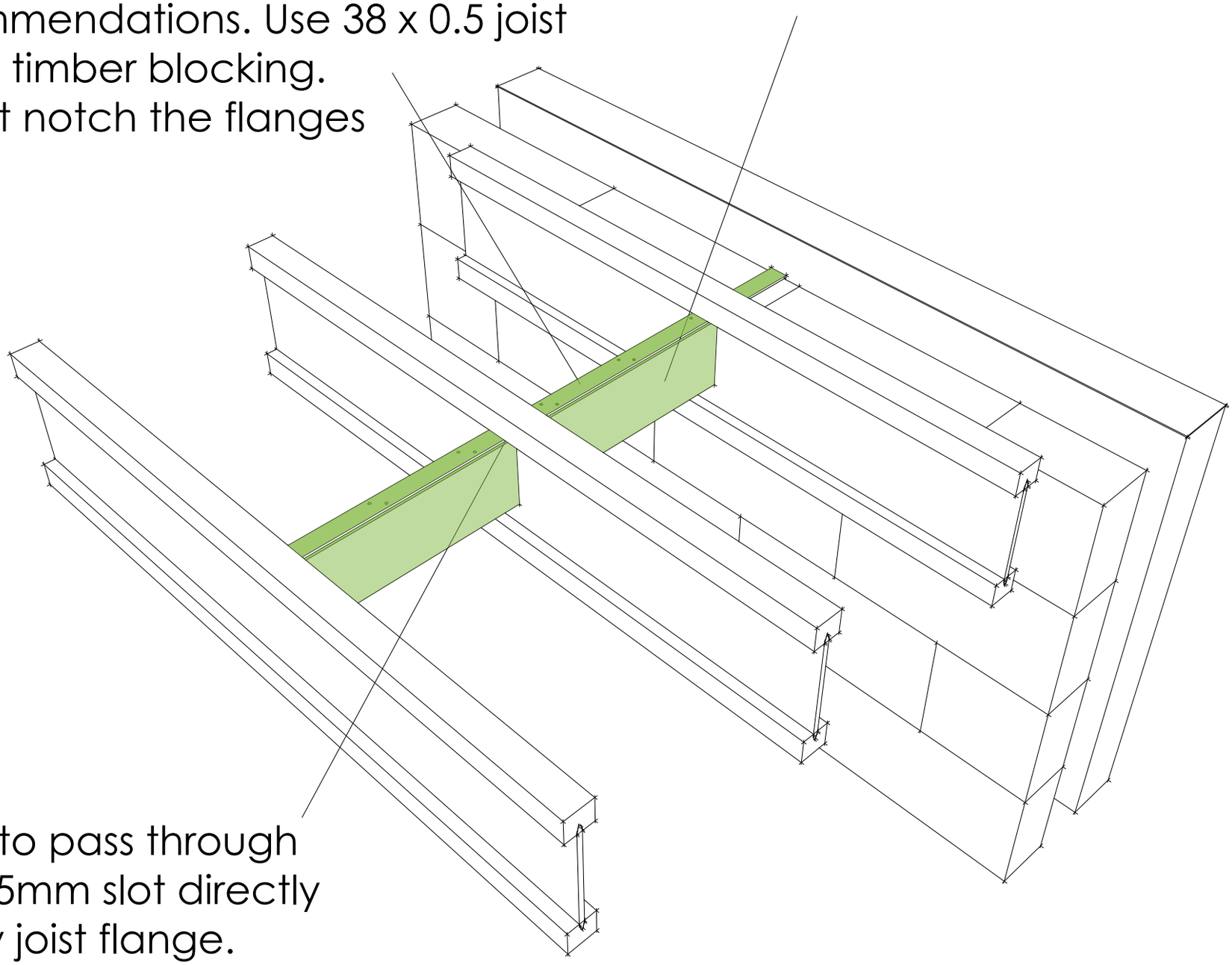


M4c

Masonry wall restraint

Galvanised masonry restraint strap fixed to minimum 3 joists in accordance with manufacturers recommendations. Use 38 x 0.5 joist depth timber blocking.
Do not notch the flanges

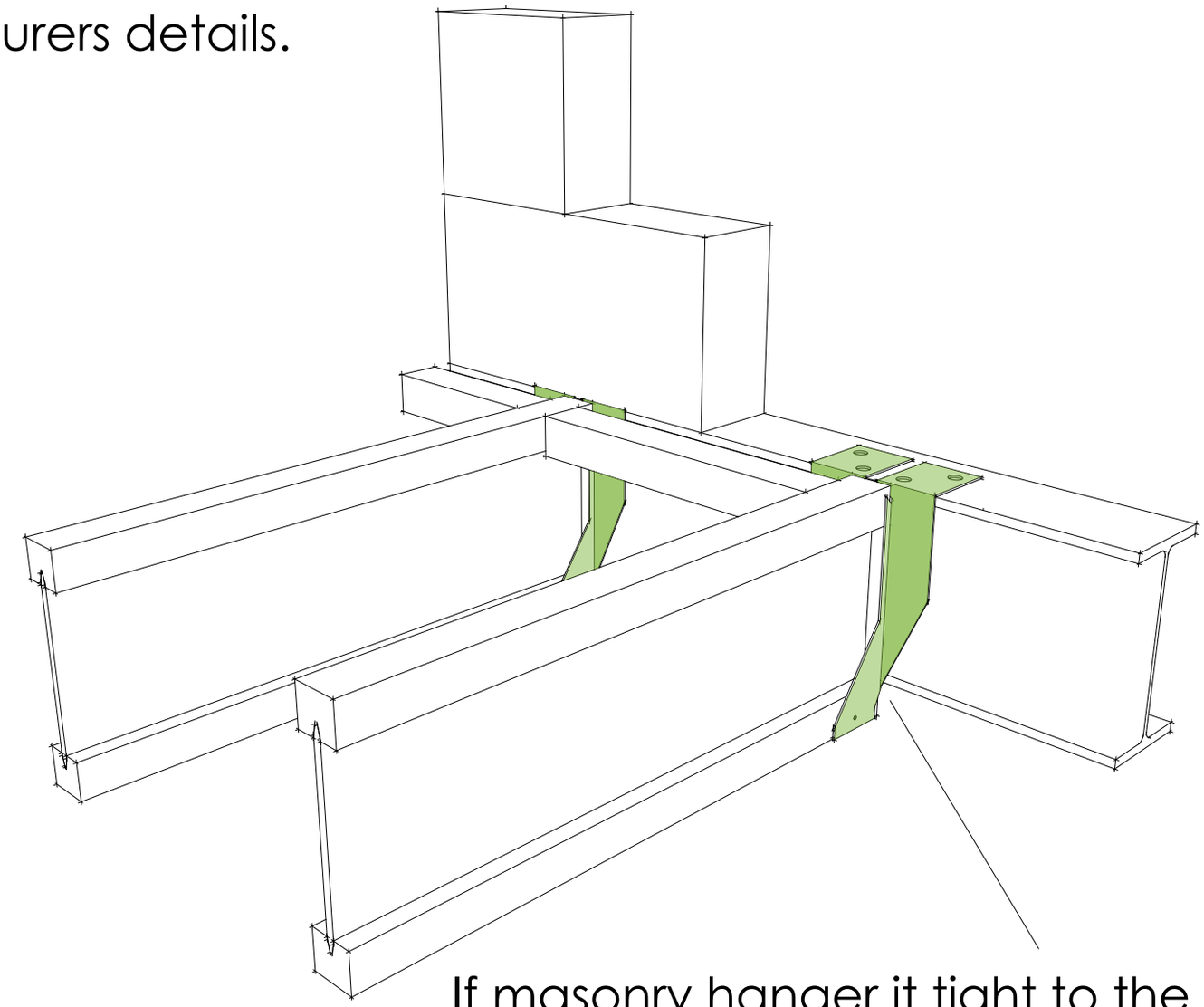
Timber noggin fixed vertically between joist webs



Strap to pass through 40 x 15mm slot directly below joist flange.

M5a Steel beam masonry above

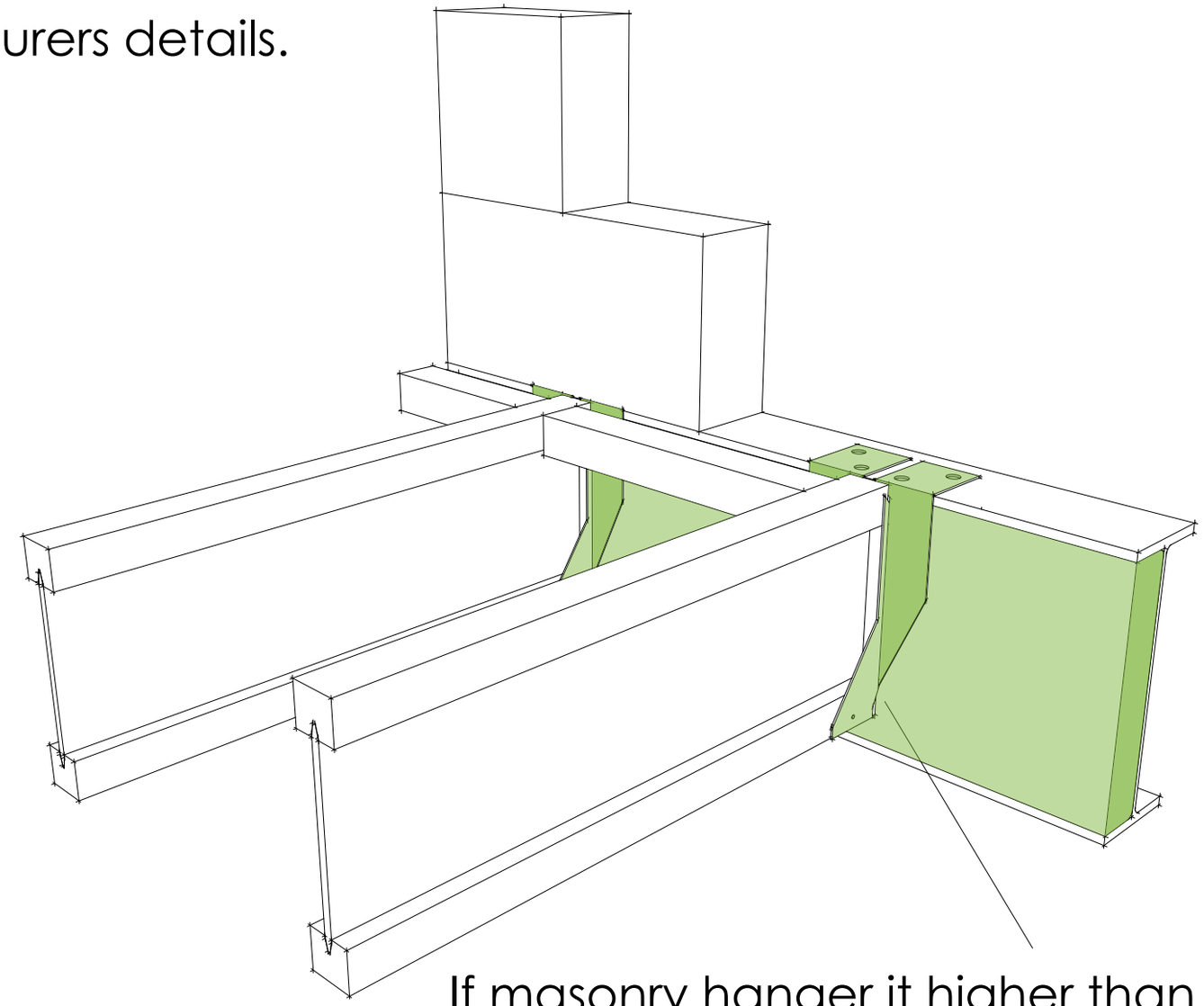
Masonry hanger embedded in mortar joints. Refer to manufacturers details.



If masonry hanger it tight to the bottom flange of the Steel, and also drops lower, then no timber packer is required in the Steel

M5b Steel beam masonry above

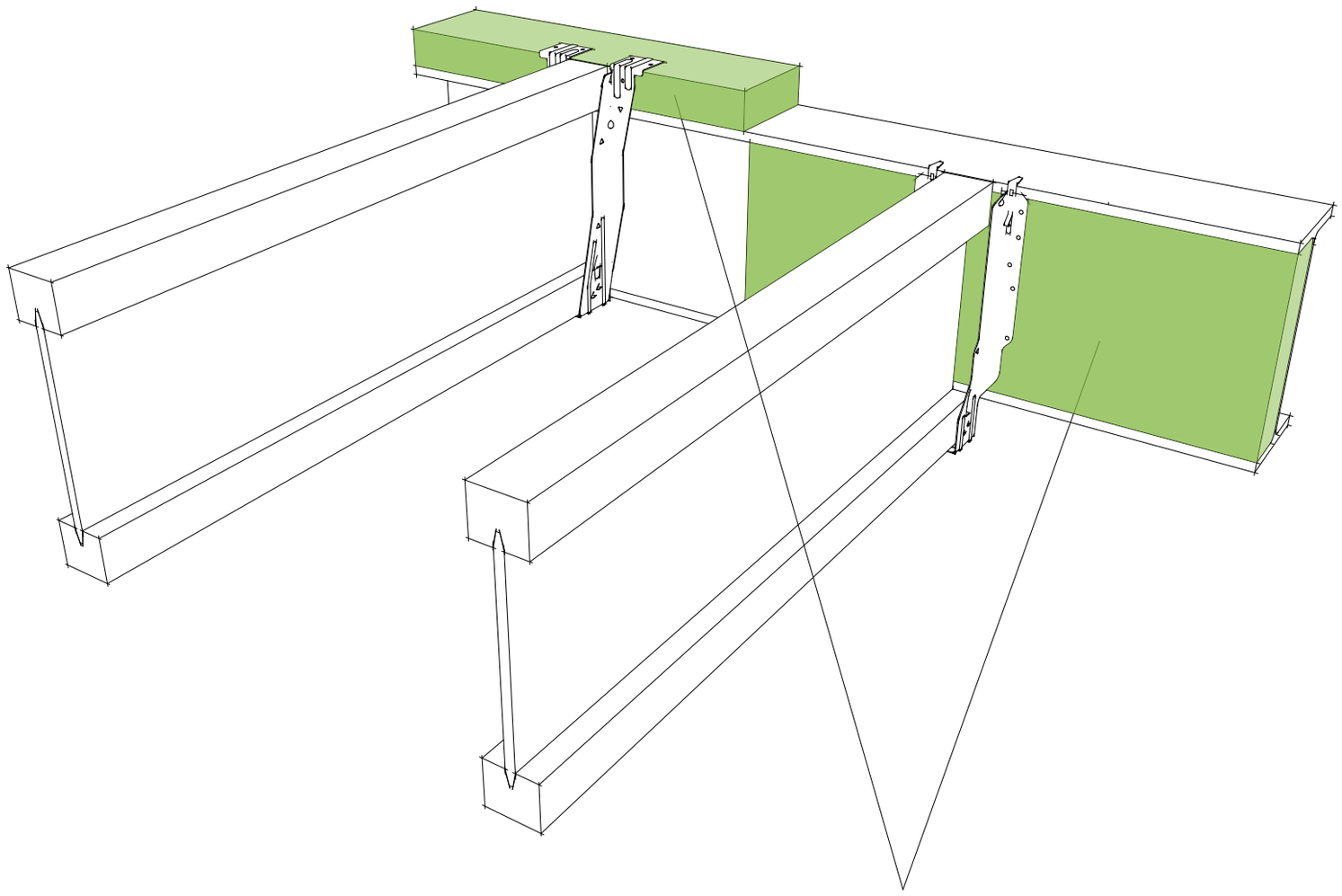
Masonry hanger embedded in mortar joints. Refer to manufacturers details.



If masonry hanger it higher than the bottom flange of the Steel then a timber packer is required within the depth of the Steel

M5c Steel beam no masonry above

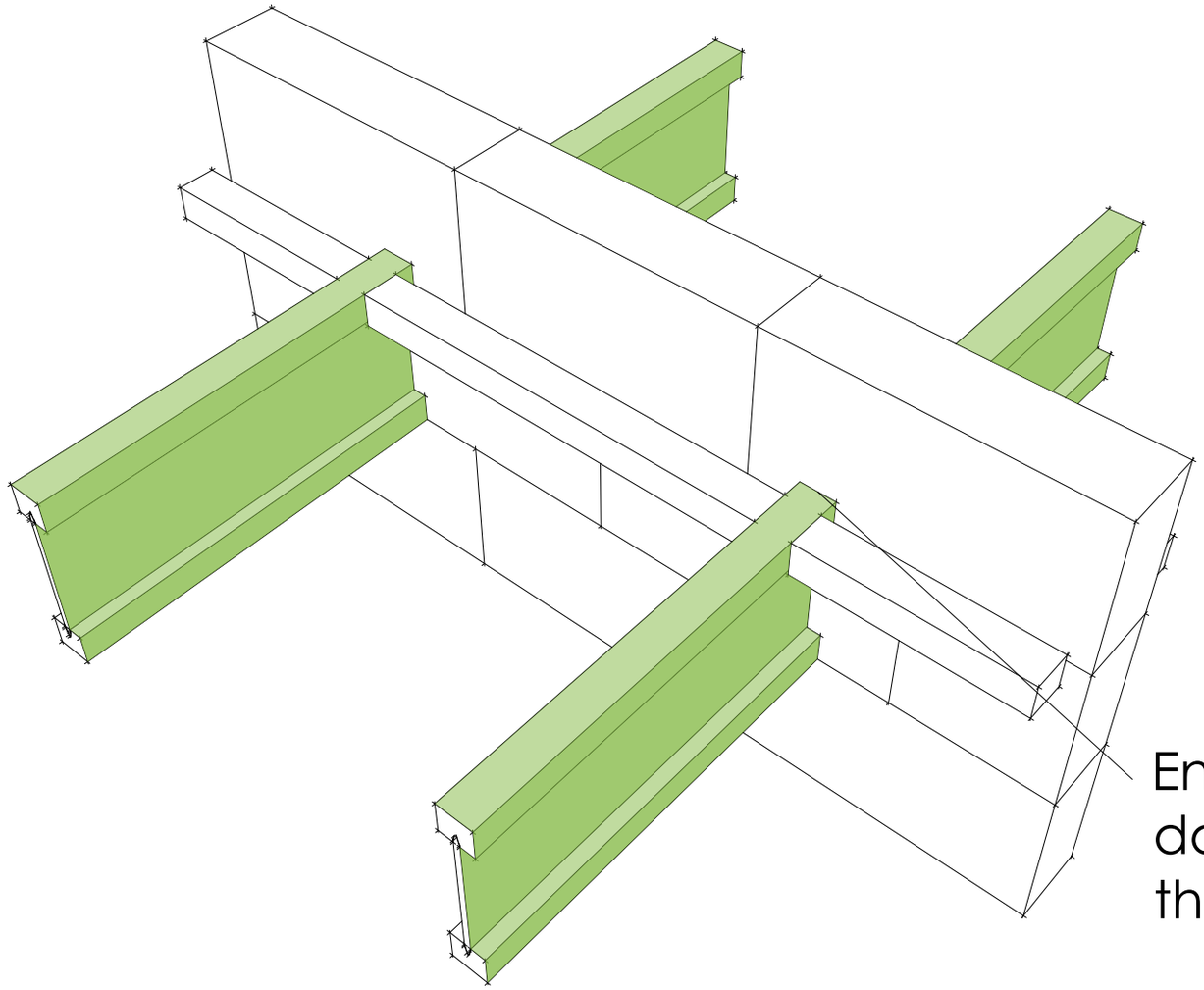
Timber hangers to face of timber packer in Steel or on top mounted timber plate



Timber packers and plates to Steel beam designers specification

M6 Internal wall built around joists

Minimum 38*38 perimeter noggin skew nailed or fixed to joist using proprietry clip. Noggin to be fixed 25-75mm from face of wall.



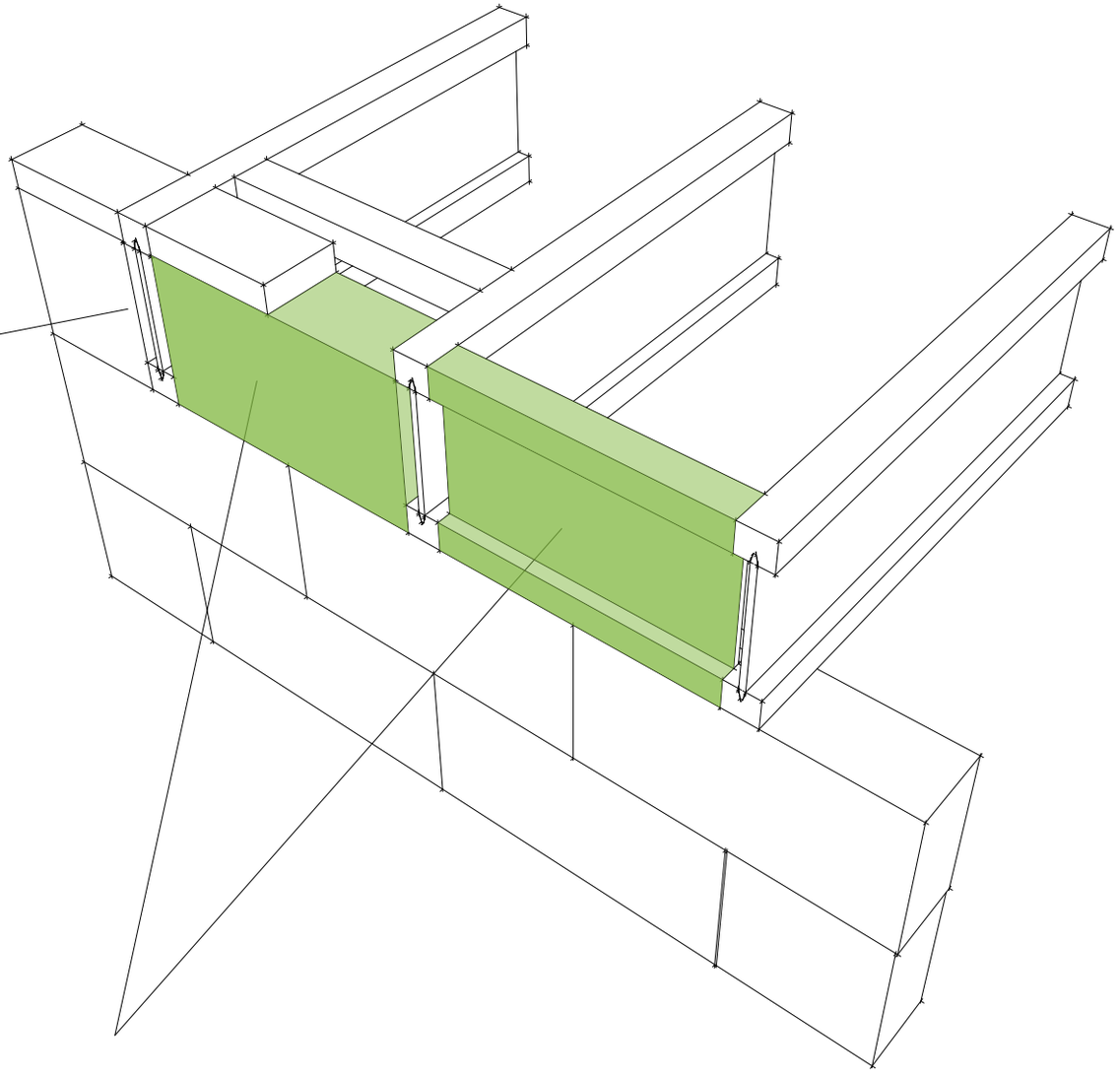
Ensure blockwork does not contact the top of the joists

89mm minimum bearing for continuous joists.
Ensure discontinuous joists have a minimum 45mm bearing. Joists may be lapped for a full bearing

M7 Joists ending on internal wall

Minimum 38*38 perimeter noggin skew nailed or fixed to joist using proprietry clip. Noggin to be fixed 25-75mm from face of wall.

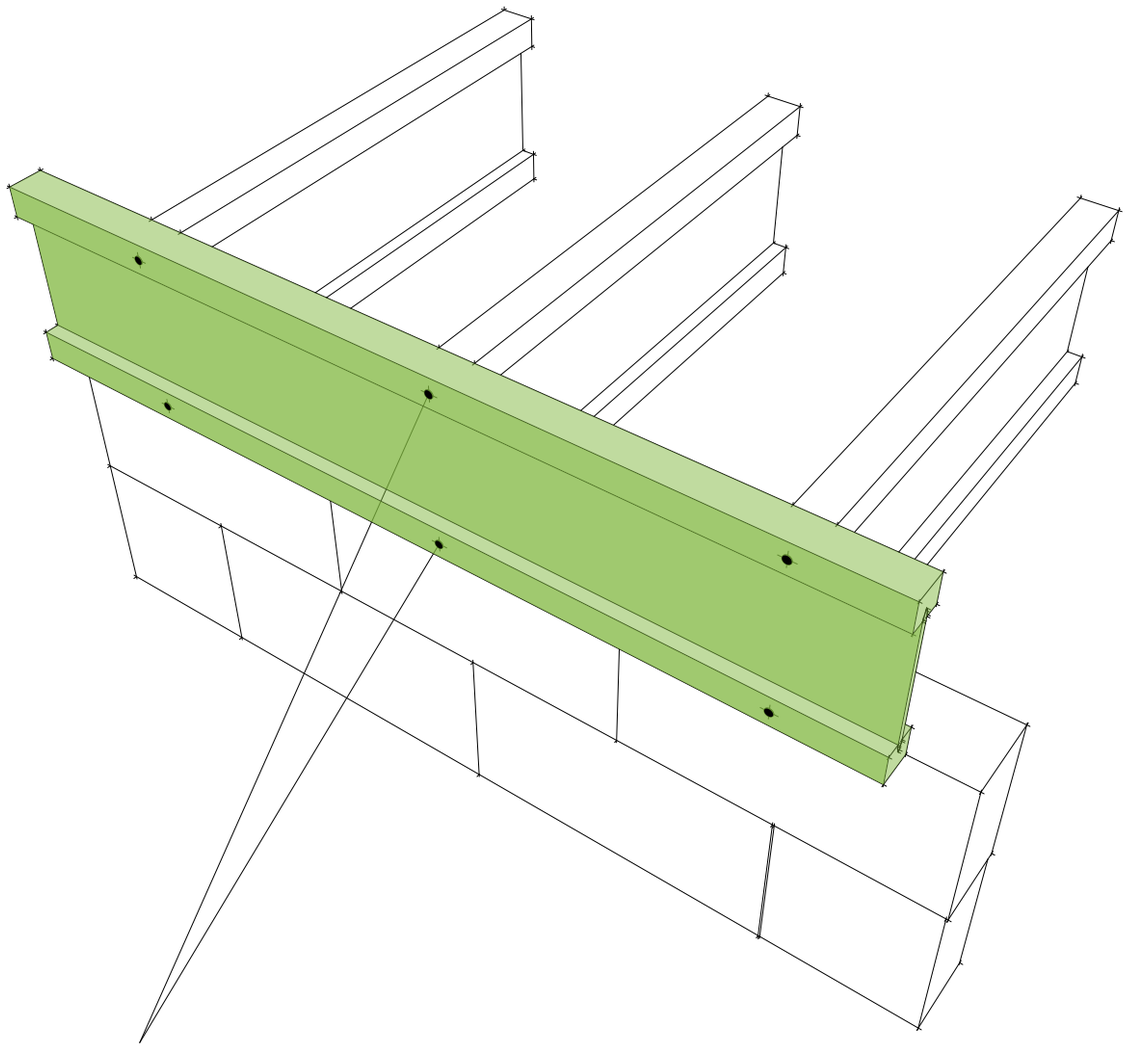
Mortar fill may be required



Blockwork may be built up around i-joists or blocking pieces used to restrain the end of the joists

M7a Joists bearing on internal wall

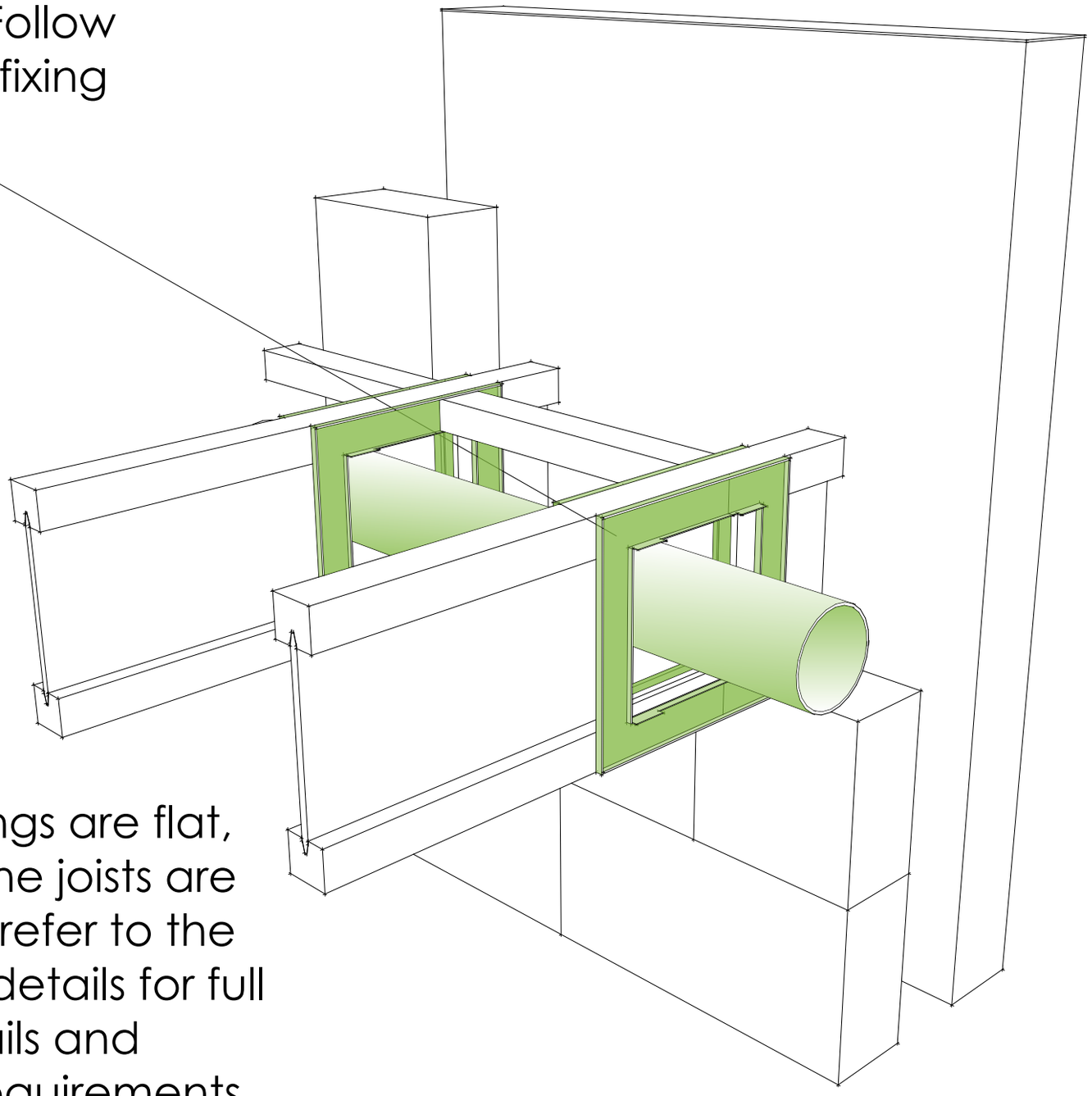
Where joists end on internal load bearing walls the lateral stability to the joists can be provided via a mechanical fix to a STEICOjoist running perpendicular in the adjoining joist zone.



1 No 3.75 nail per flange. Nail length to ensure minimum 35mm embedment depth.

M8 Hole reinforcement at bearing

Use Simpson IHS or Cullen SHI both sides of STEICOjoist. Follow manufacturers fixing instructions



Ensure all bearings are flat, level and that the joists are vertical. Please refer to the manufacturers details for full installation details and restraint strap requirements

N1

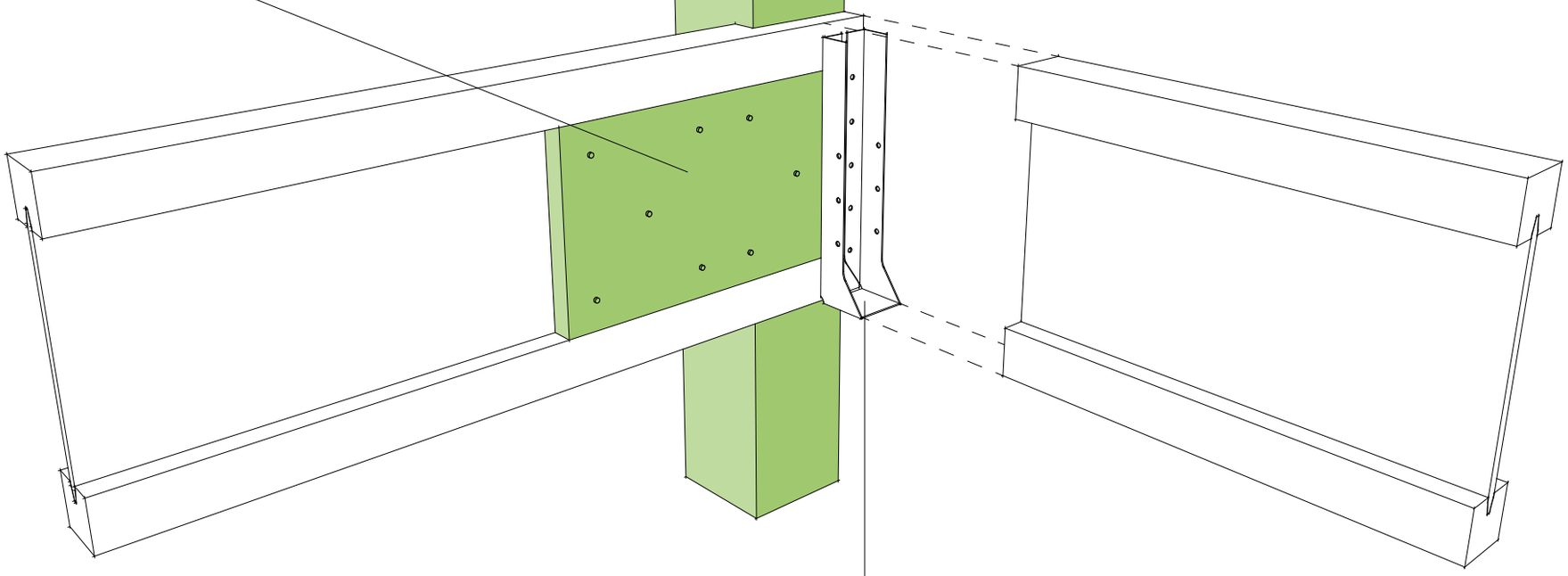
Newel Post connection

Notched Newel Post

Detail based on minimum Newel post size of 75mm x 75mm.

Backer Block fixed in line with with G7 detail or use solid section STEICO LVL

Exact newel post requirement in line with staircase manufacturers recommendations



Simpson StrongTie or Cullen ITW concealed flange face fix joist hanger

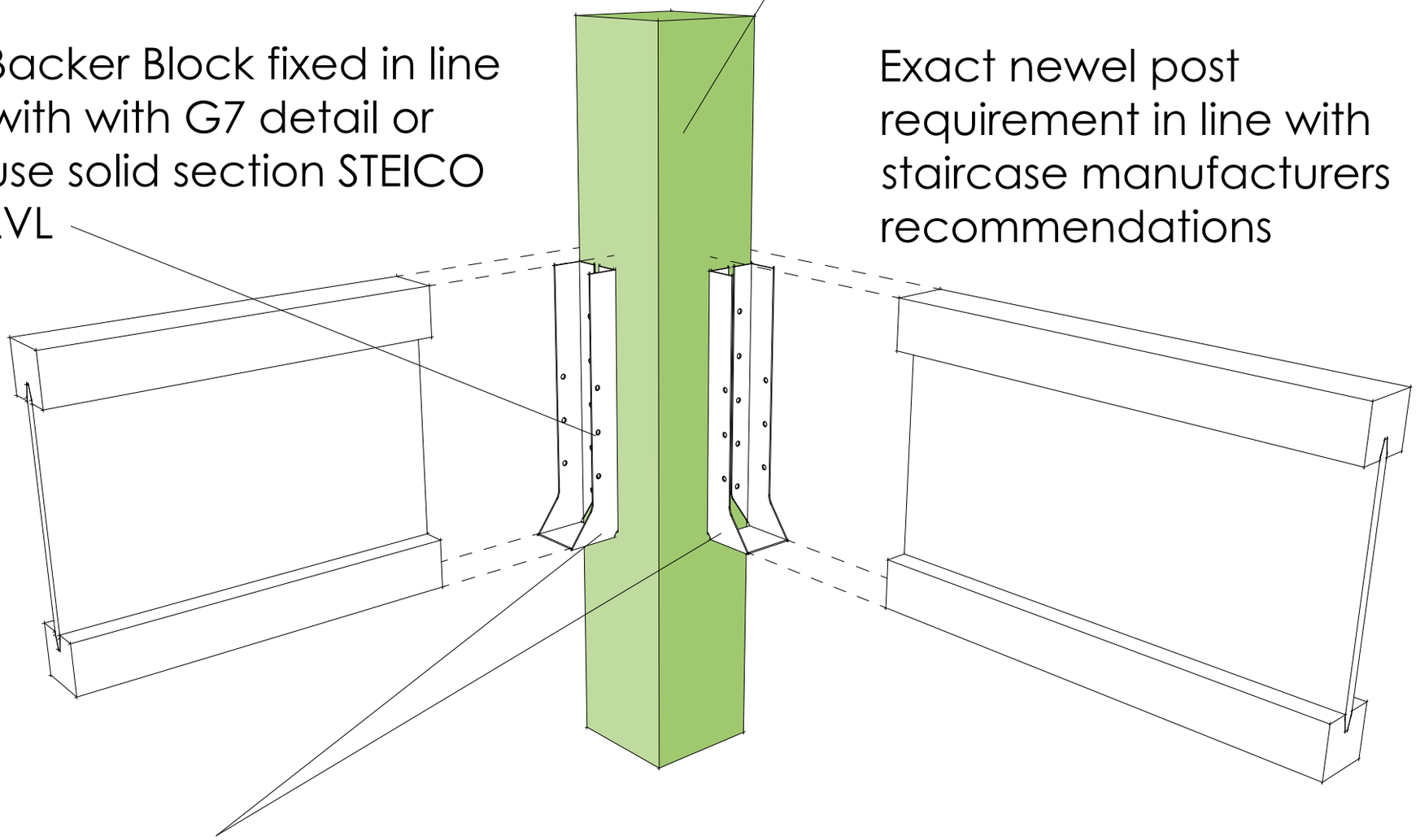
N2 Newel Post connection

Newel Post - Hangered connection

Detail based on minimum Newel post size of 75mm x 75mm.

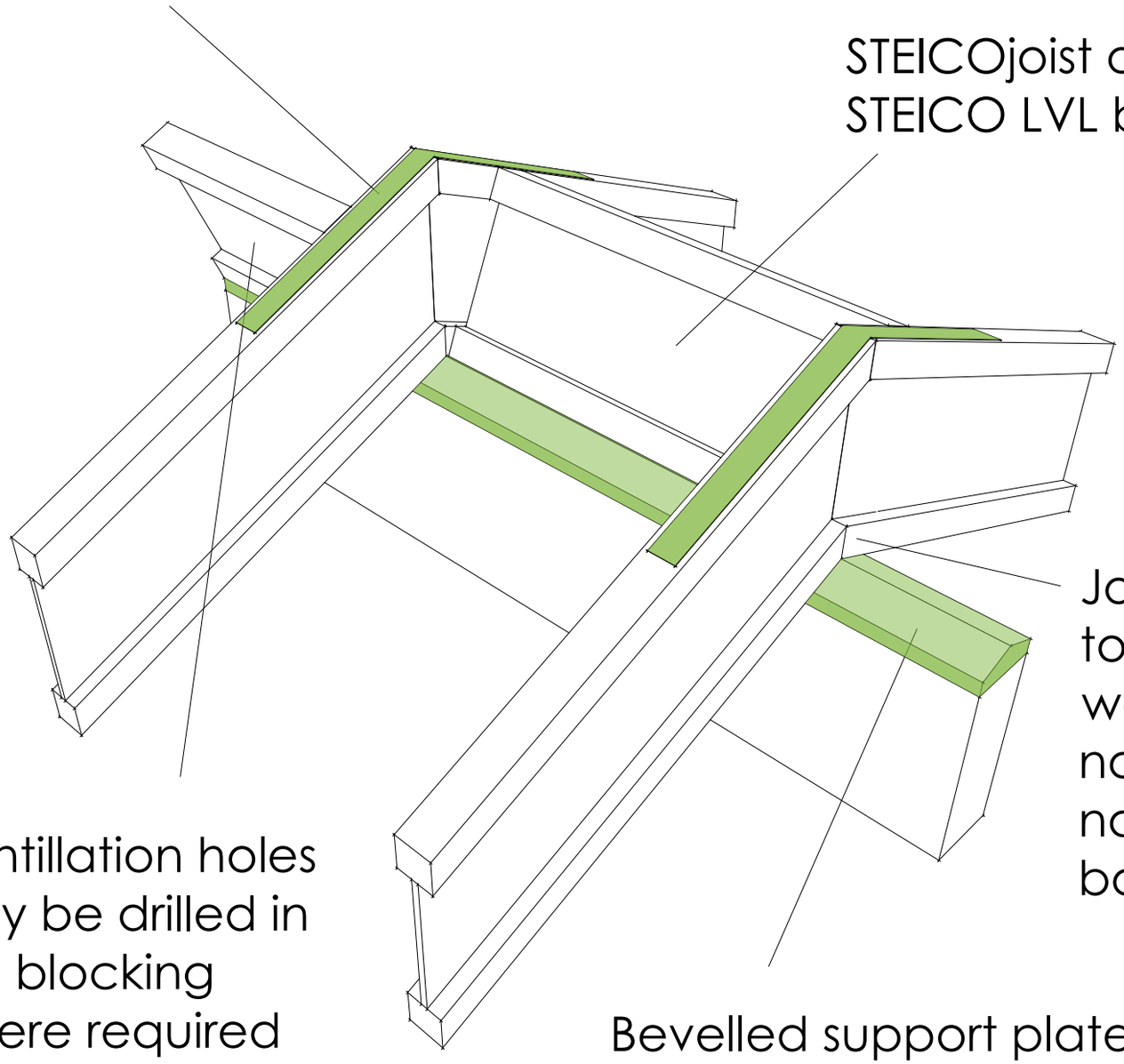
Backer Block fixed in line with with G7 detail or use solid section STEICO LVL

Exact newel post requirement in line with staircase manufacturers recommendations



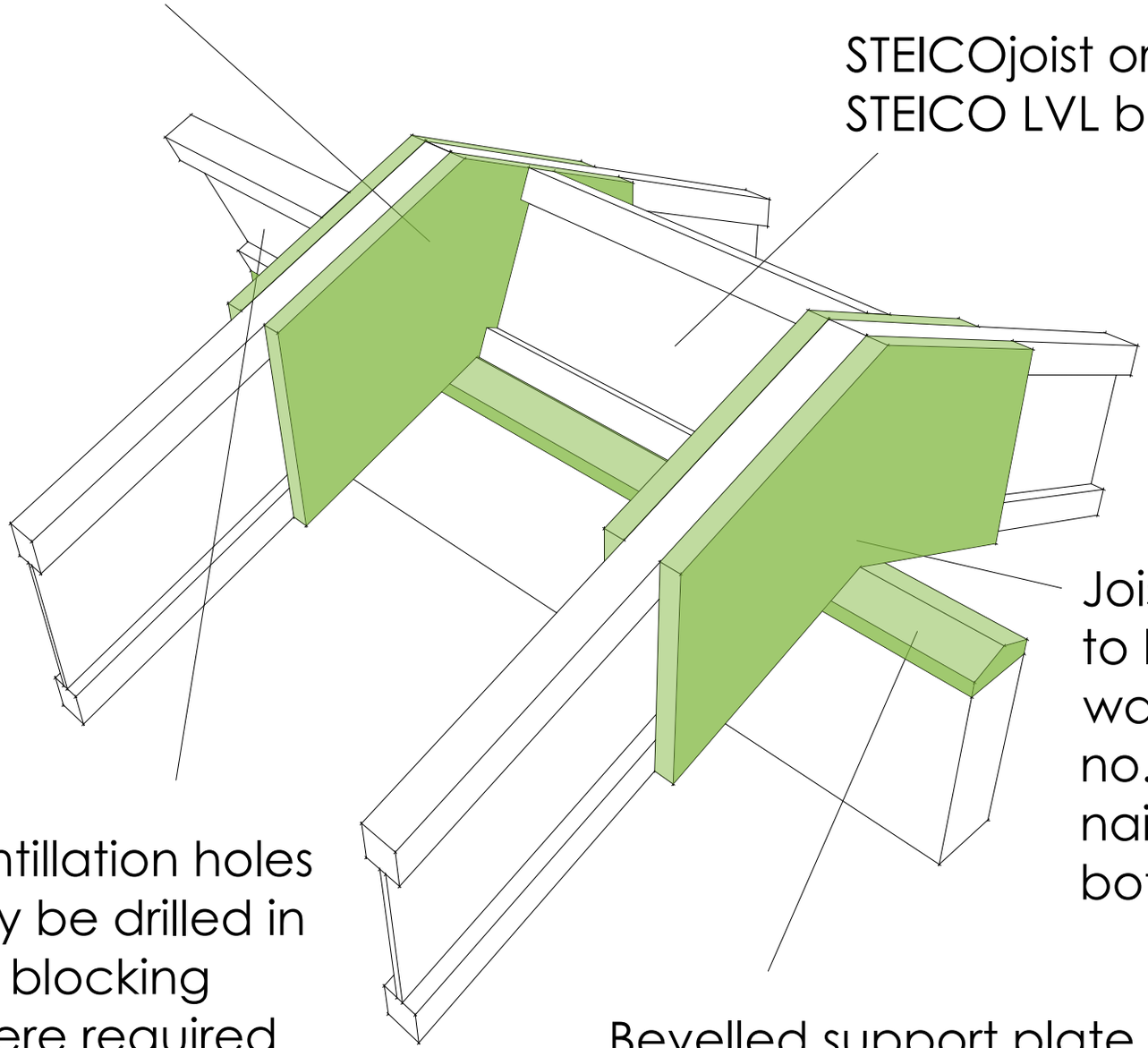
Simpson StrongTie or Cullen ITW concealed flange face fix joist hanger. Hanger can be positioned anywhere horizontally along the newel post to allow for staircase specific requirements

R1a Ridge beam with bevelled plate



R1b Ridge beam with bevelled plate

18*600mm structural ply or OSB with
8 no. 3.35*65mm nails each side to
be checked by an engineer



STEICOjoist or
STEICO LVL blocking

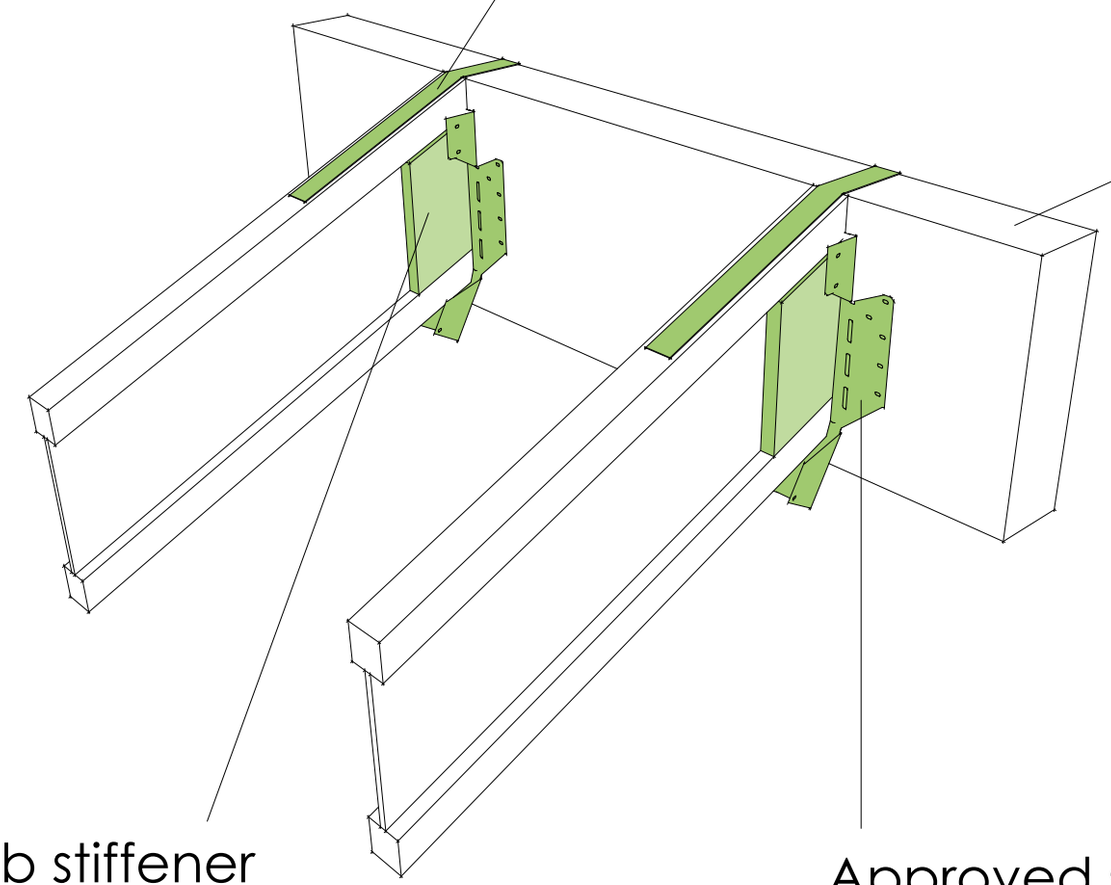
Joist connected
to bevelled
wallplate using 2
no. 3.35*90mm
nails through each
bottom flange

Ventillation holes
may be drilled in
the blocking
where required

Bevelled support plate nailed to
ridge beam or support wall

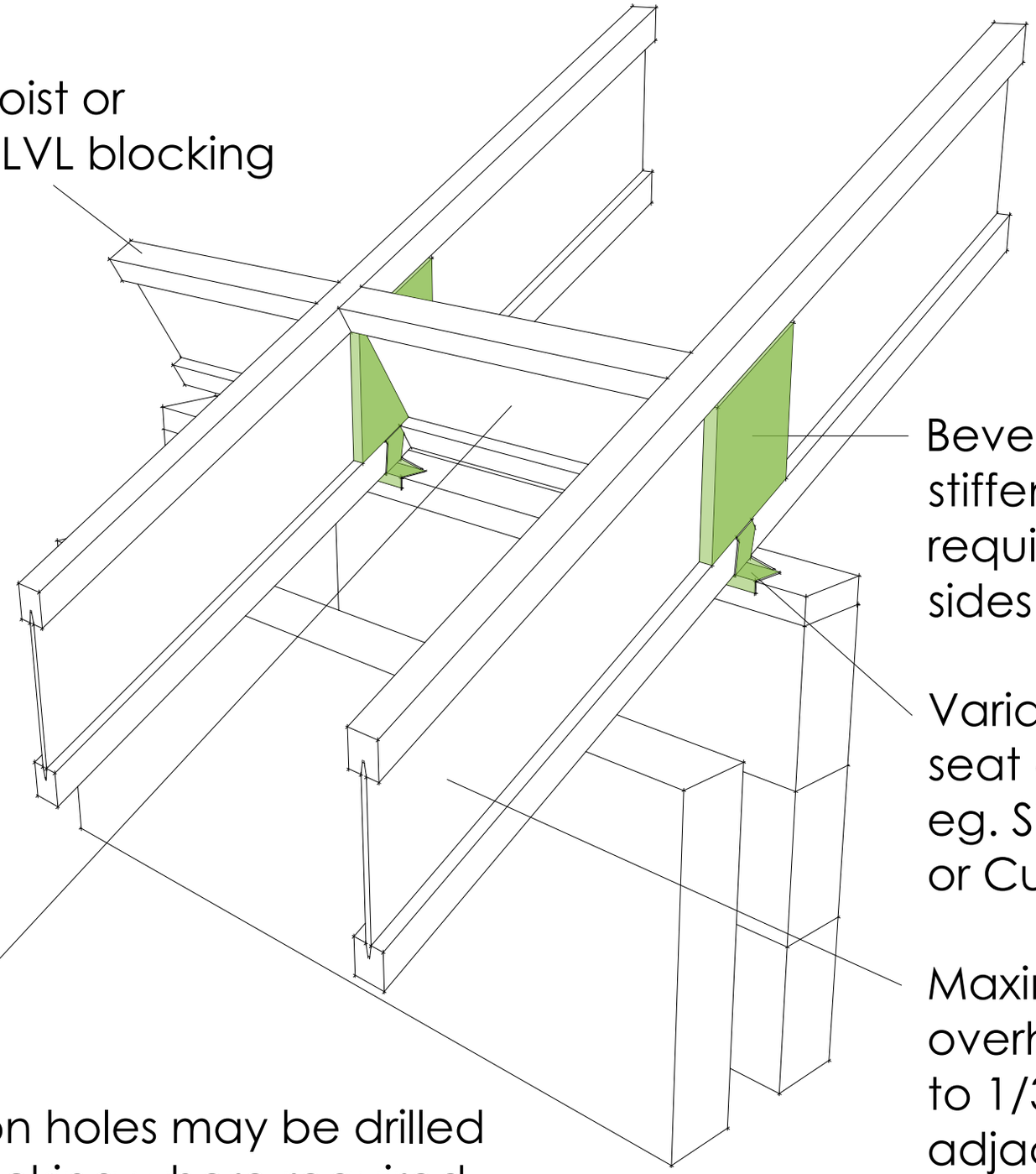
R3

Mono pitched ridge beam with sloped hangers



R4a

Mono pitched ridge beam with sloped hangers



STEICOjoist or
STEICO LVL blocking

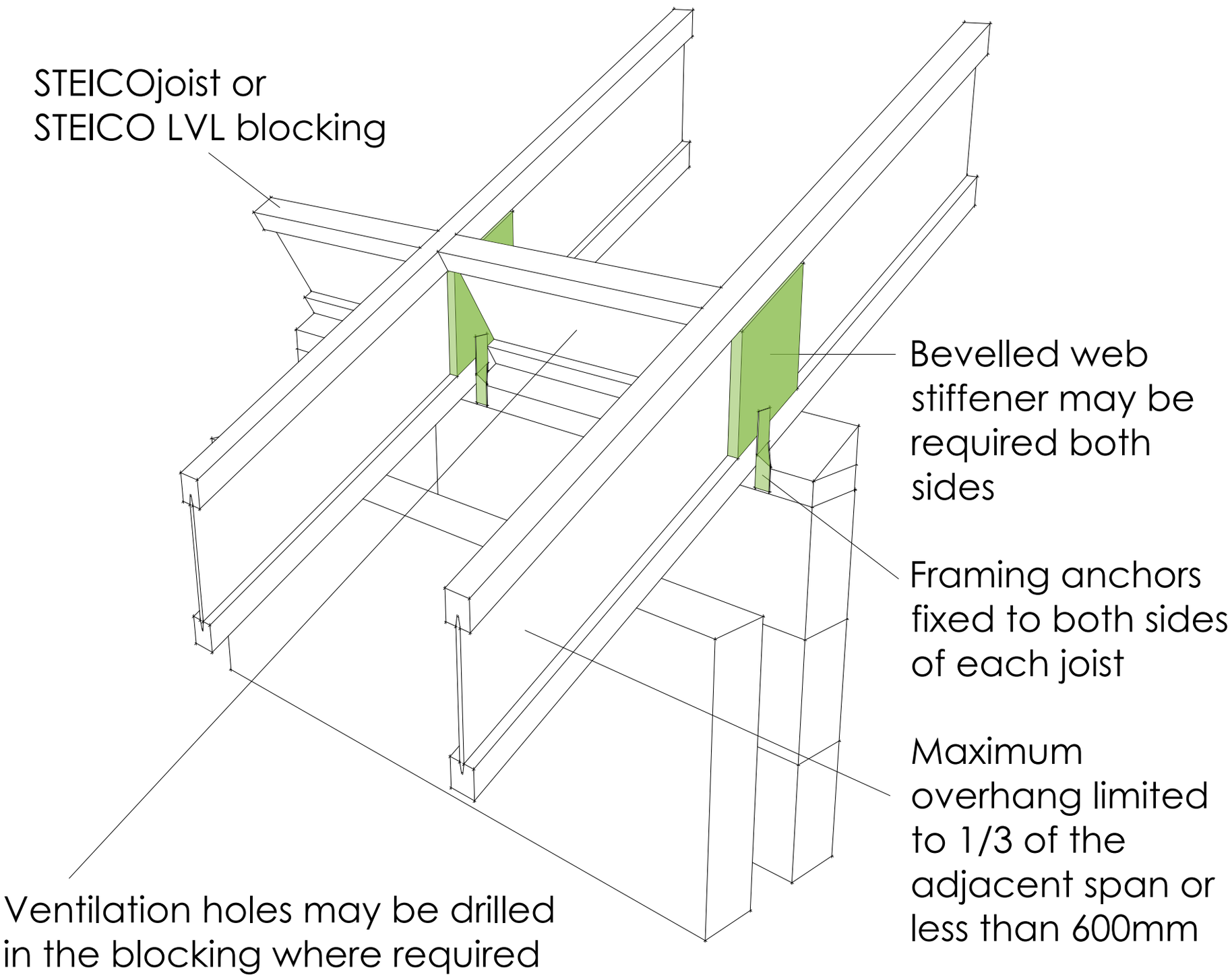
Bevelled web stiffener may be required both sides

Variable pitch seat connector eg. Simpson VPA or Cullen ACE

Maximum overhang limited to 1/3 of the adjacent span or less than 600mm

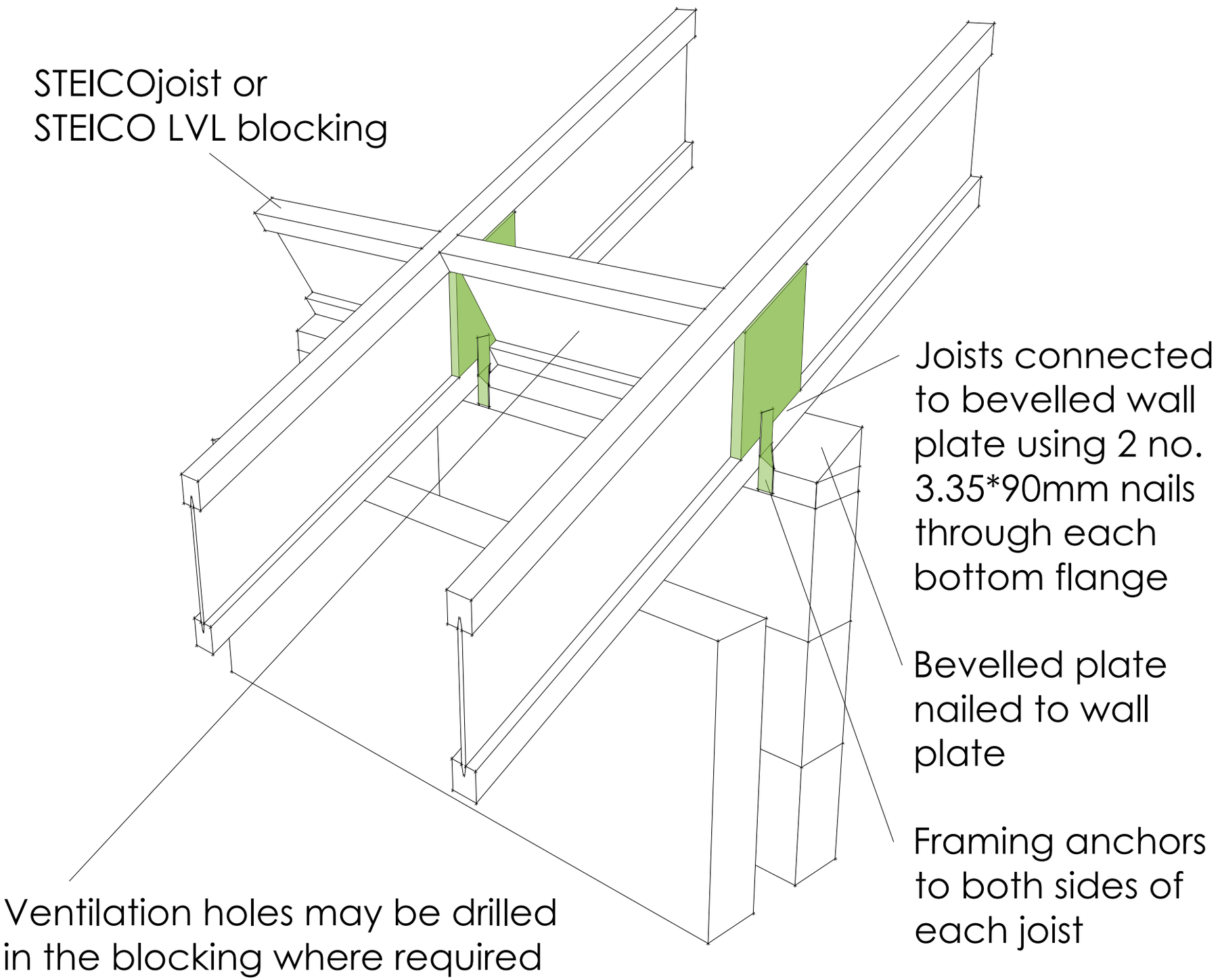
Ventilation holes may be drilled in the blocking where required

R4b Bevelled wallplate at eaves

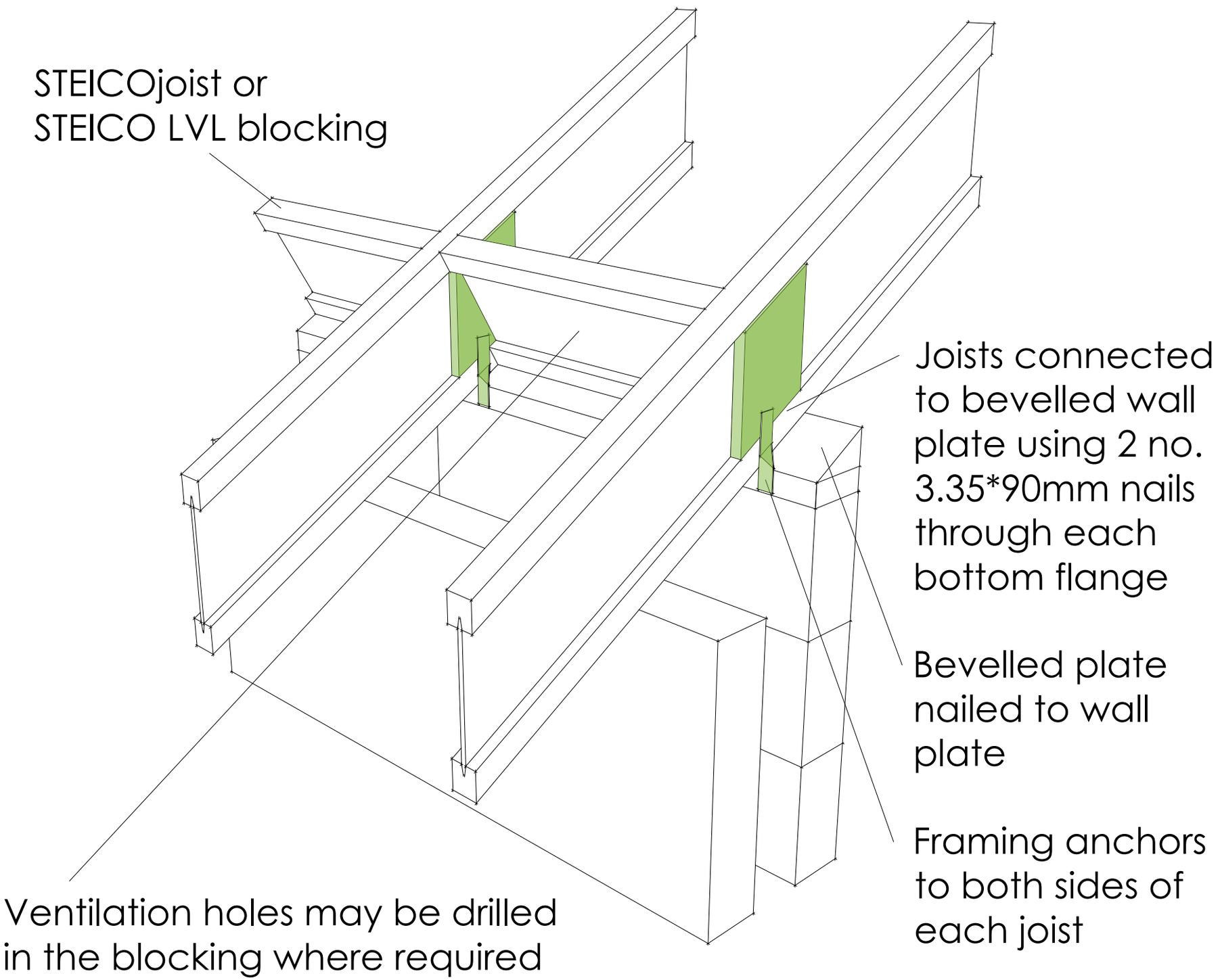


R4c

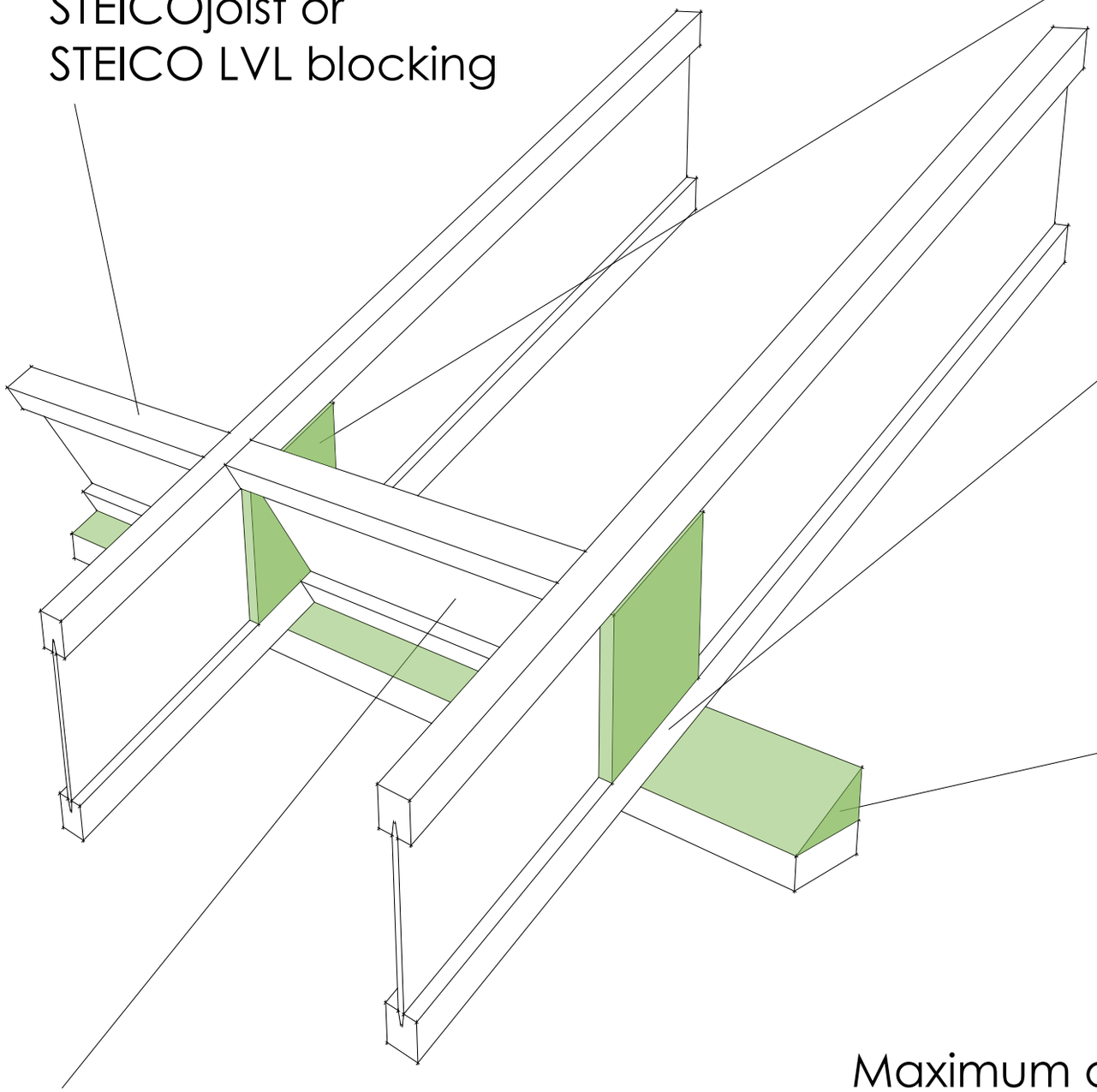
Bevelled wallplate at eaves



R5a Bevelled wallplate at eaves



R5b Bevelled wallplate at eaves



STEICOjoist or
STEICO LVL blocking

Bevelled web stiffeners may be required both sides of joist

Joists connected to bevelled wall plate using 2 no. 3.35*90mm nails through each bottom flange

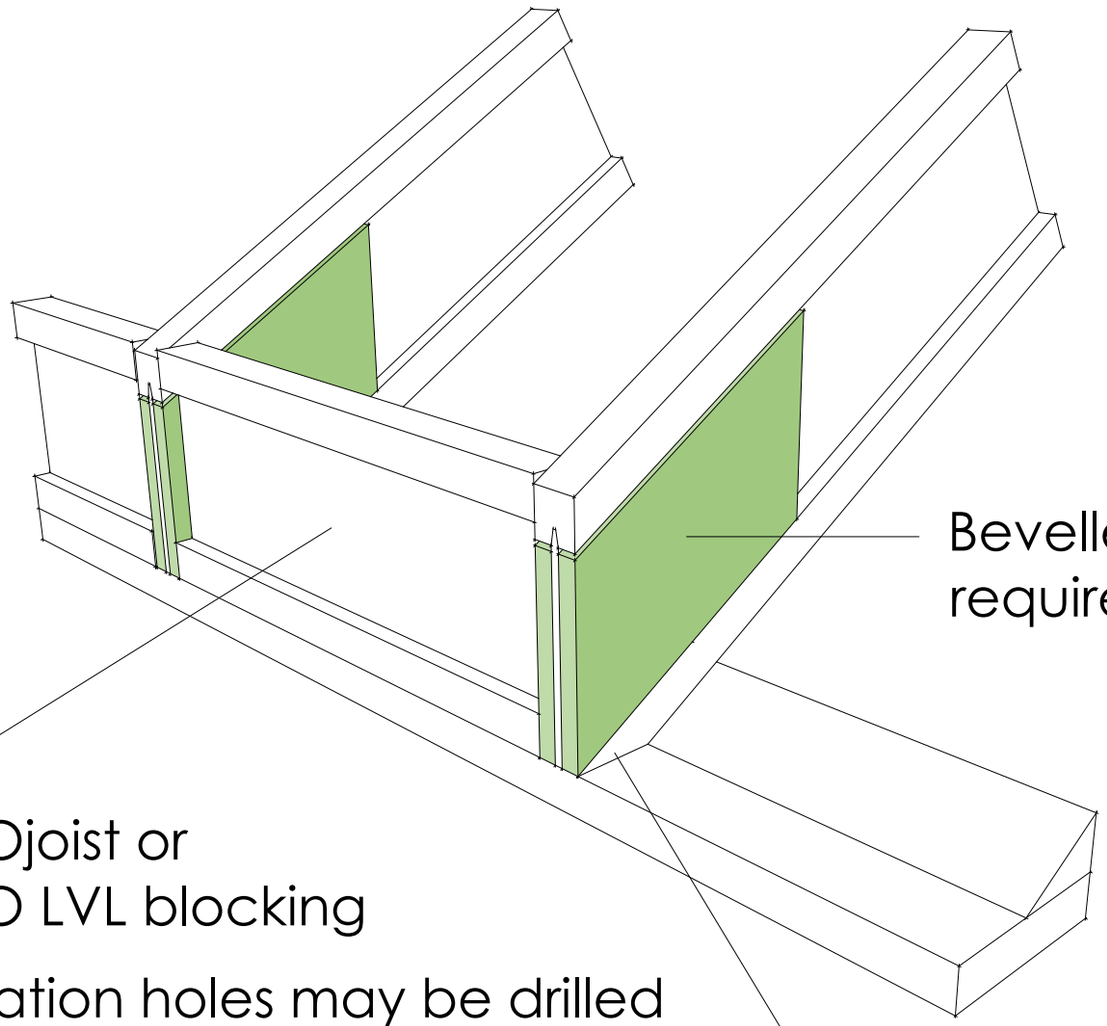
Bevelled support plate nailed to ridge beam or wall plates

Ventilation holes may be drilled in the blocking where required

Maximum overhang limited to 1/3 of the adjacent span or less than 600mm

R6

Birdsmouth cut at eaves



Do not cut beyond the inside face of the bearing

Bevelled web stiffener required both sides

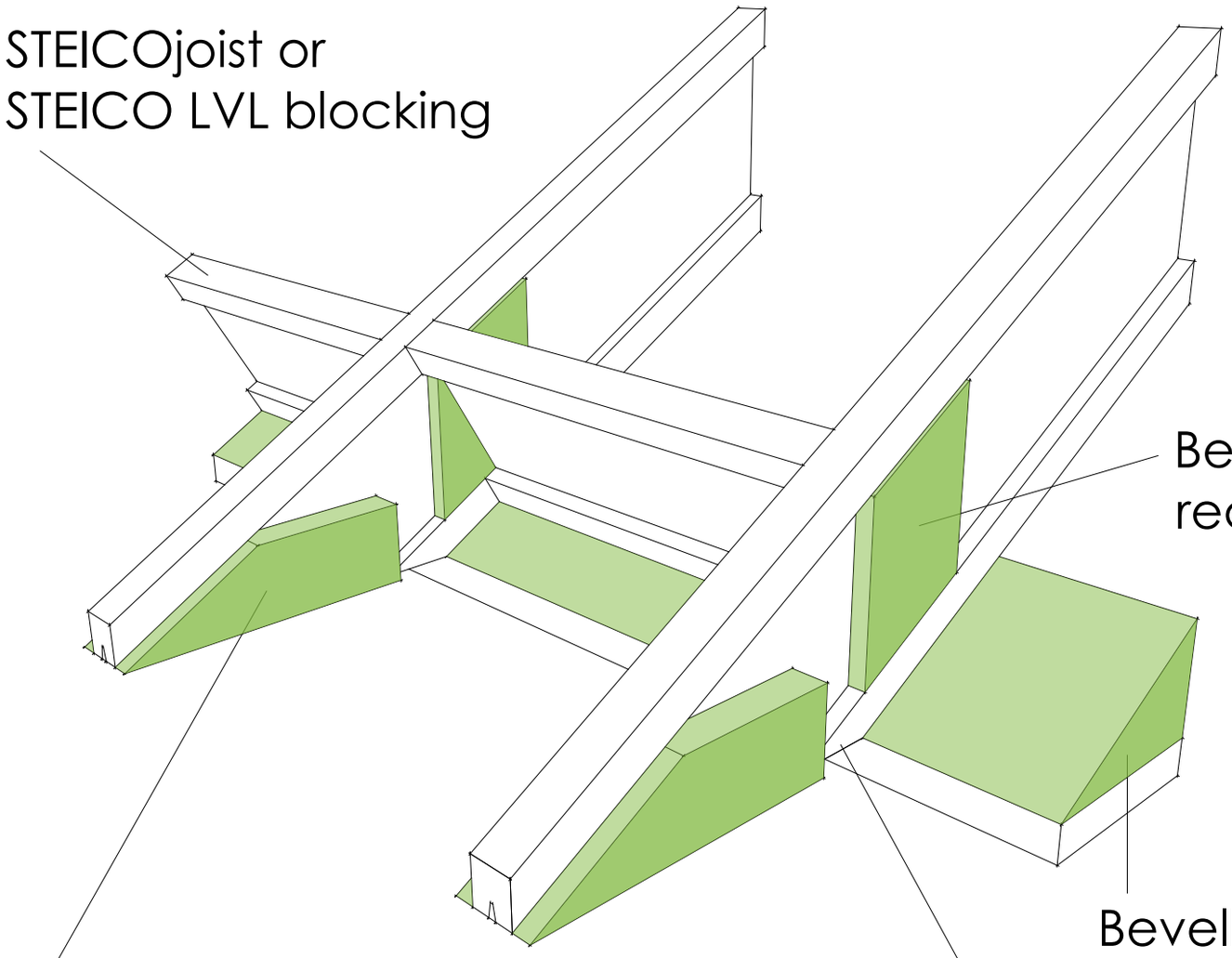
STEICOjoist or
STEICO LVL blocking

Ventilation holes may be drilled in the blocking where required

Birdsmouth cut to be checked by a qualified engineer

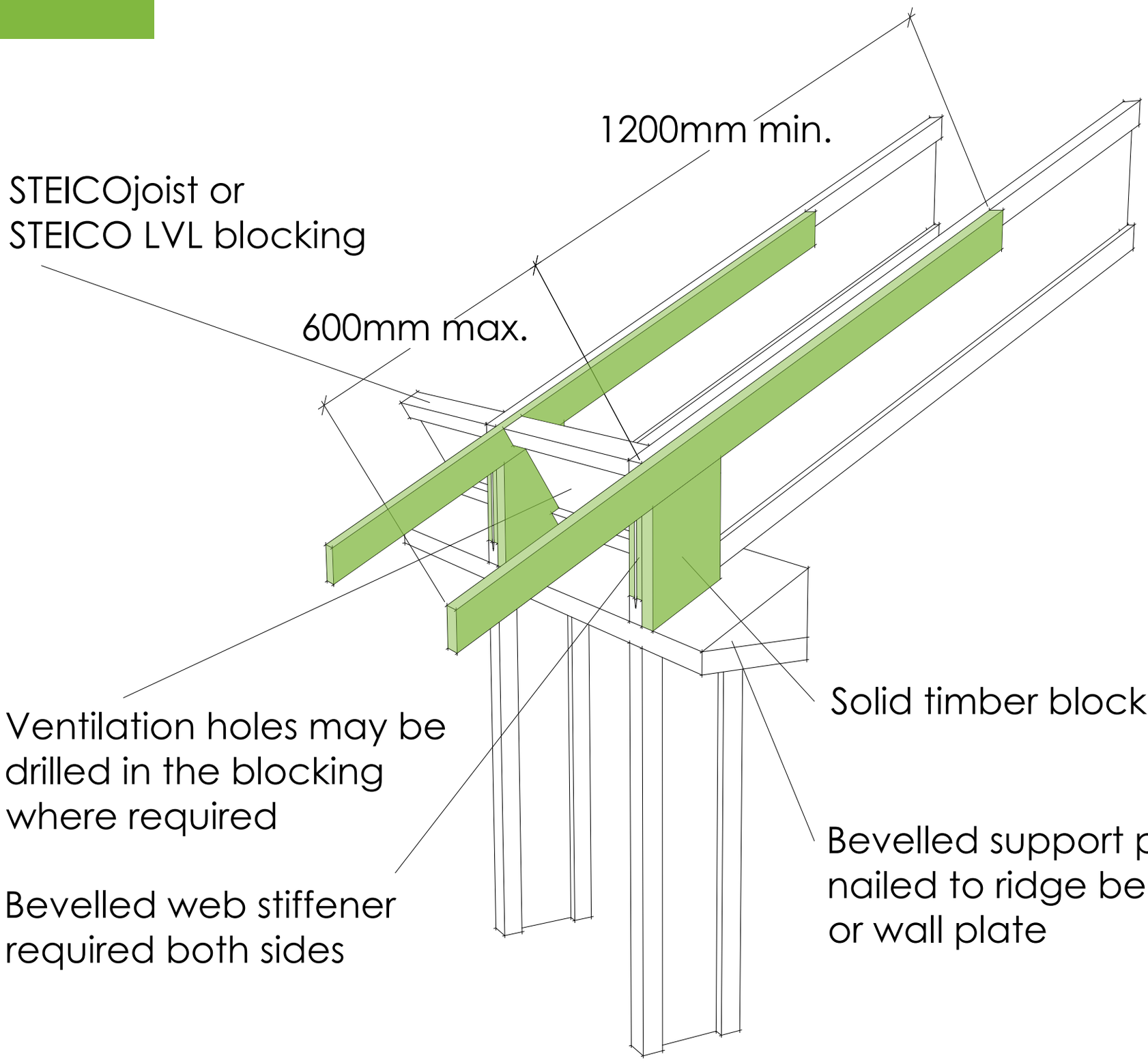
R7

STEICOjoist cut to form eaves



R8

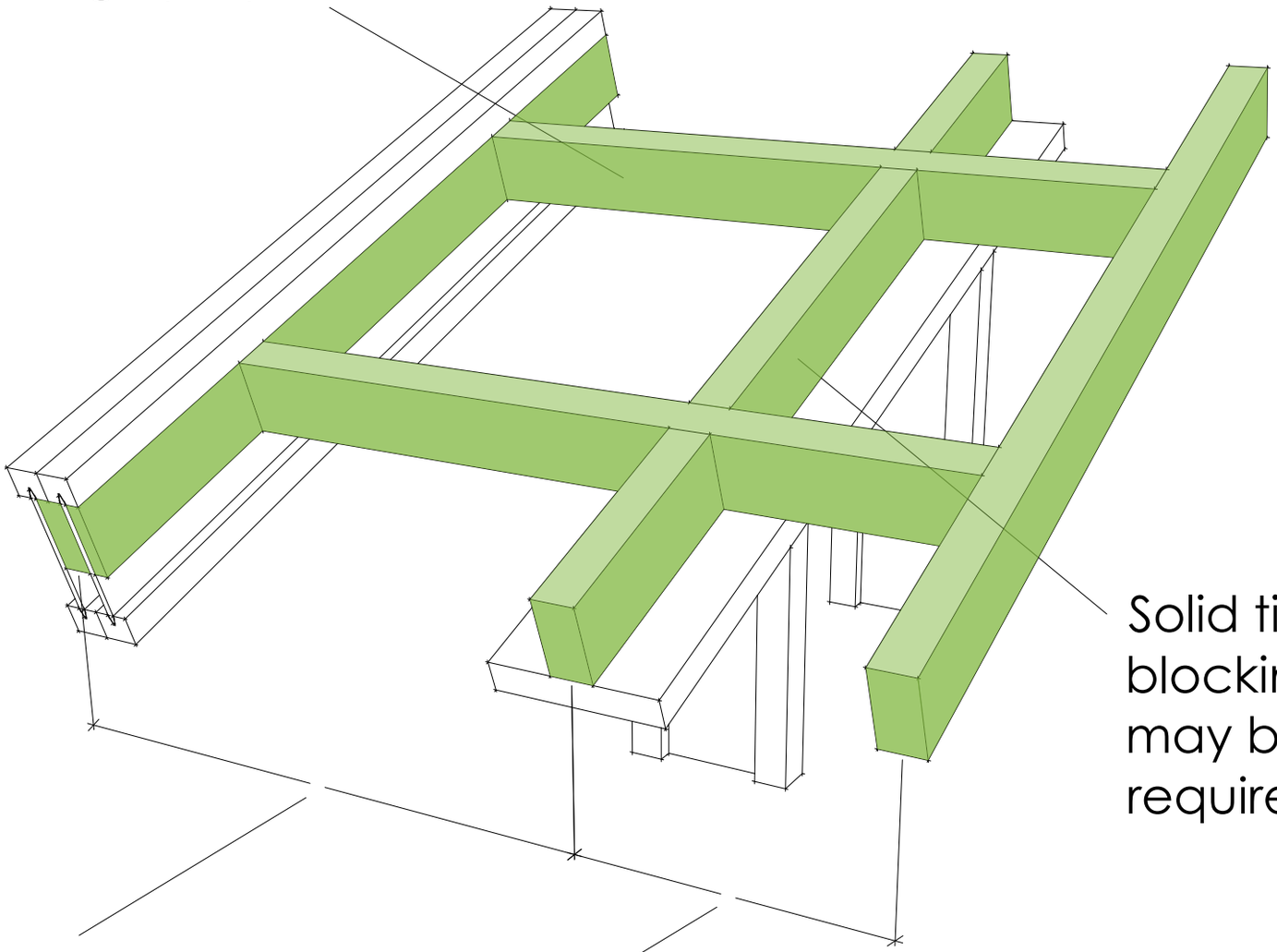
Site fitted overhangs



R9a Gable ladder

Gable ladder fixed through joist web

Ladder noggins according to design properties



Solid timber blocking pieces may be required

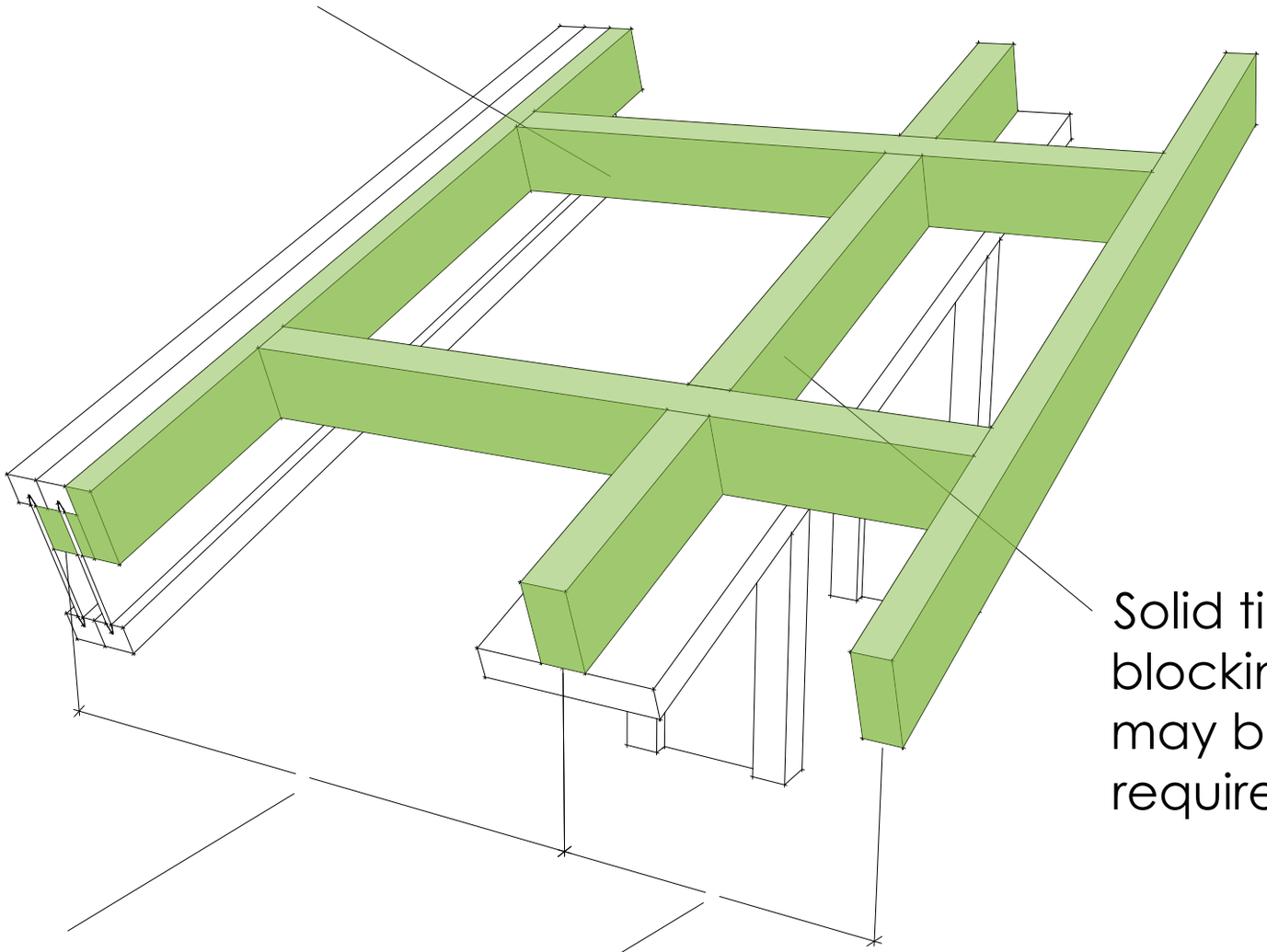
Rafter spacing

Overhang no greater than the rafter spacing or less than 600mm

R9b Gable ladder

Gable ladder fixed through joist web

Ladder noggins according to design properties



Solid timber blocking pieces may be required

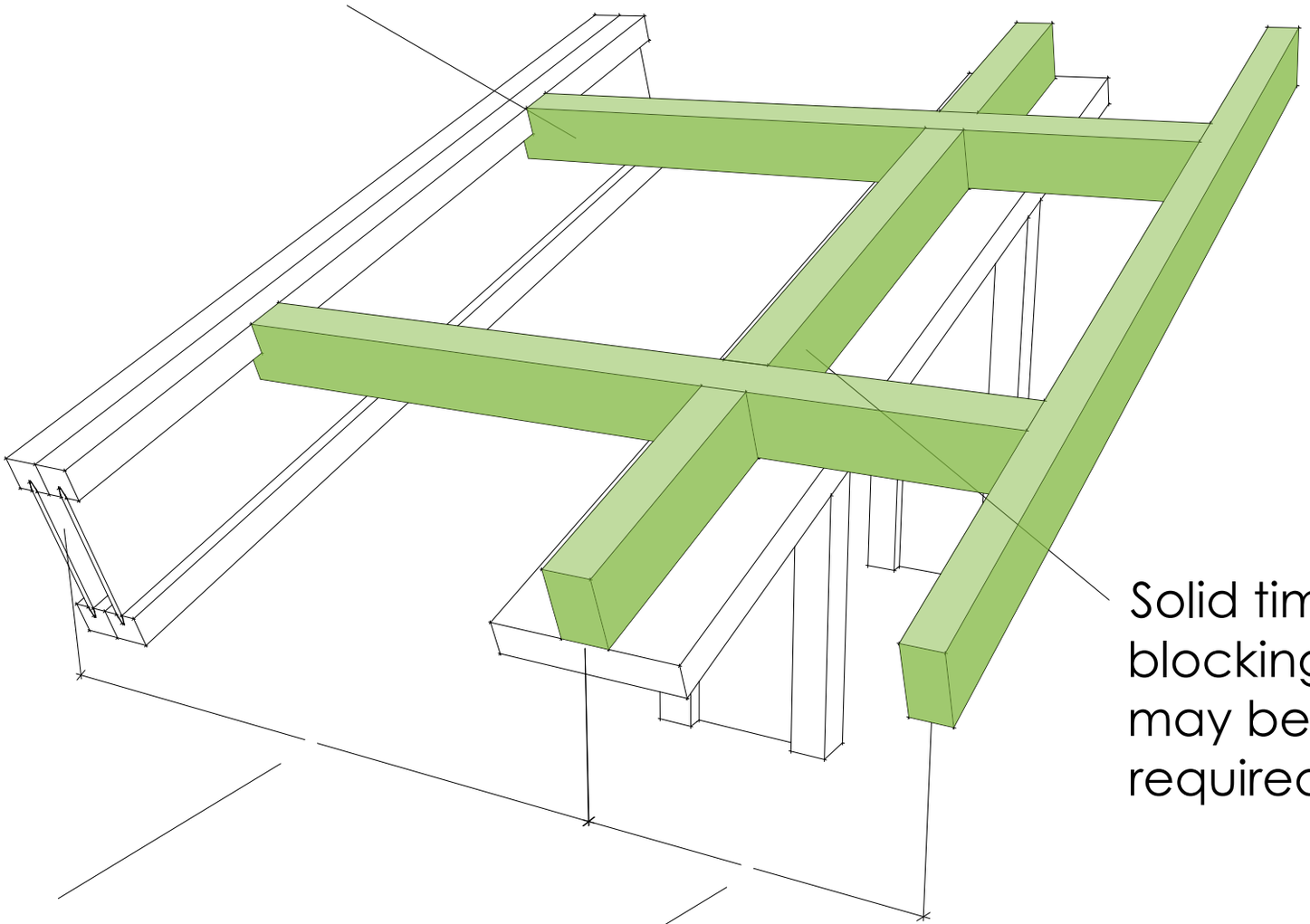
Rafter spacing

Overhang no greater than the rafter spacing or less than 600mm

R9C Gable ladder

Gable ladder notched around and fitted to top flange

Ladder noggins according to design properties



Solid timber blocking pieces may be required

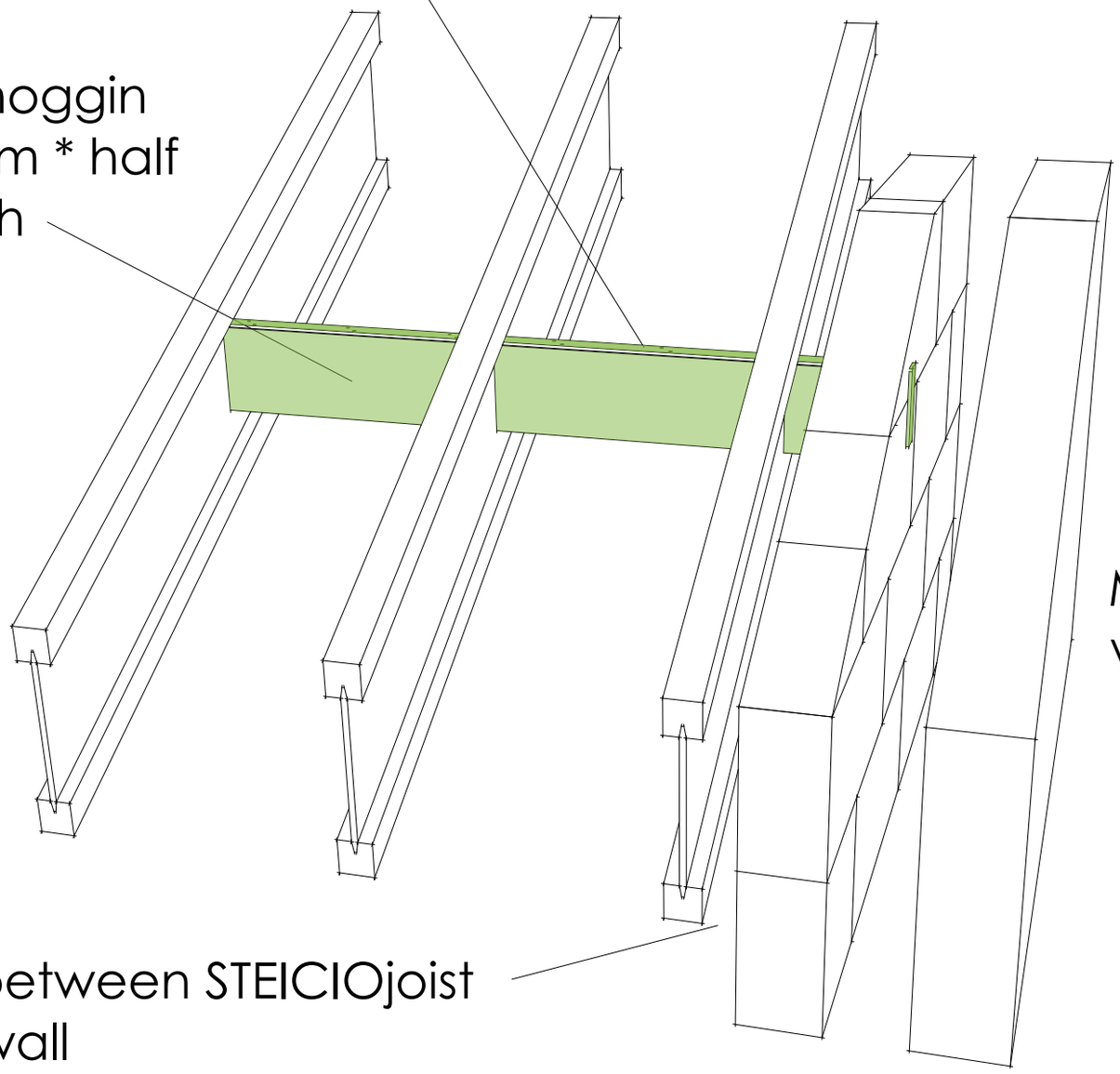
Rafter spacing

Overhang no greater than the rafter spacing or less than 600mm

R10 Restraint Strap

5*30mm galvanised steel strap through 38mm slot in the web

Solid timber noggin min. size 38mm * half the joist depth

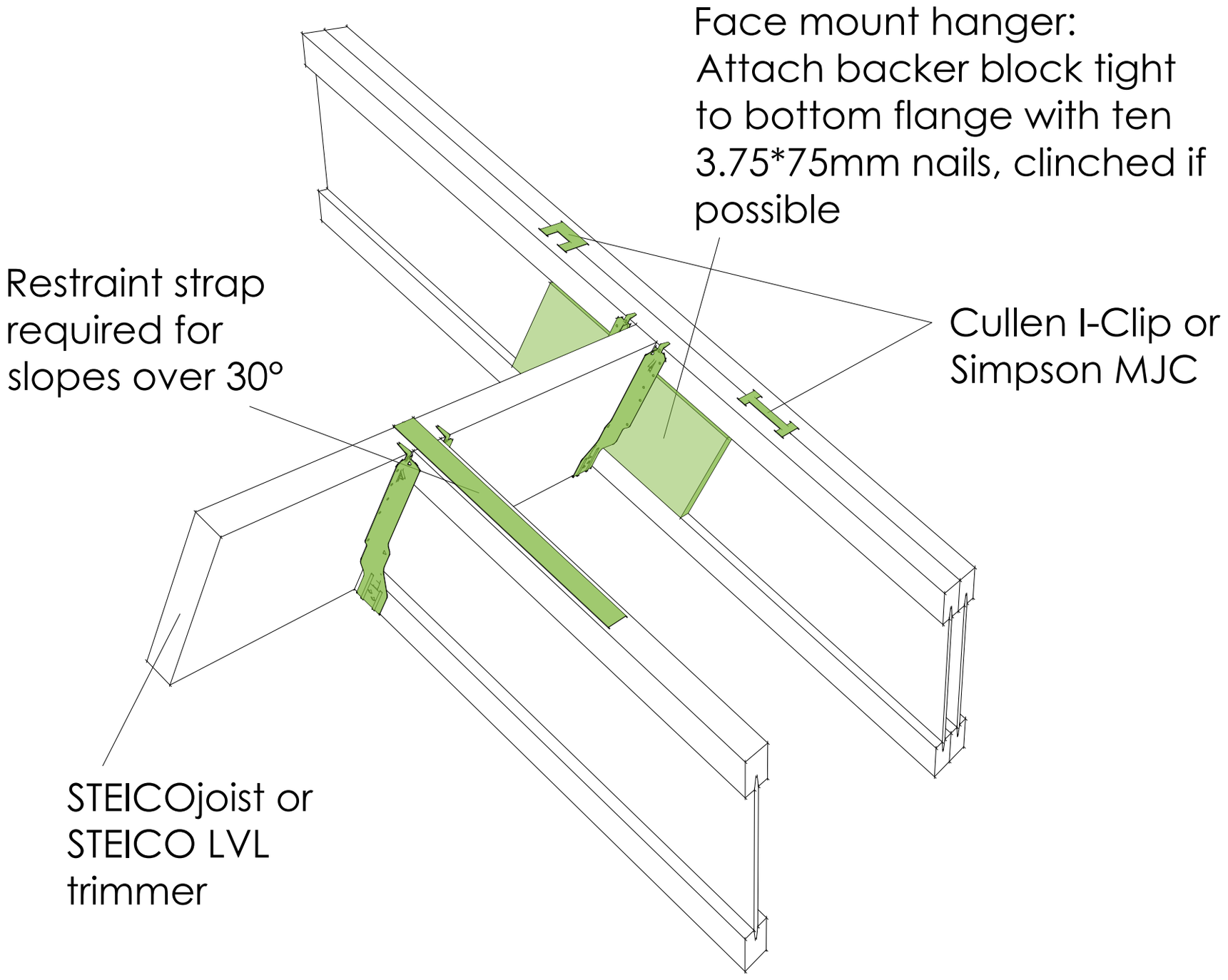


Masonry wall

25mm gap between STEICIOjoist flange and wall

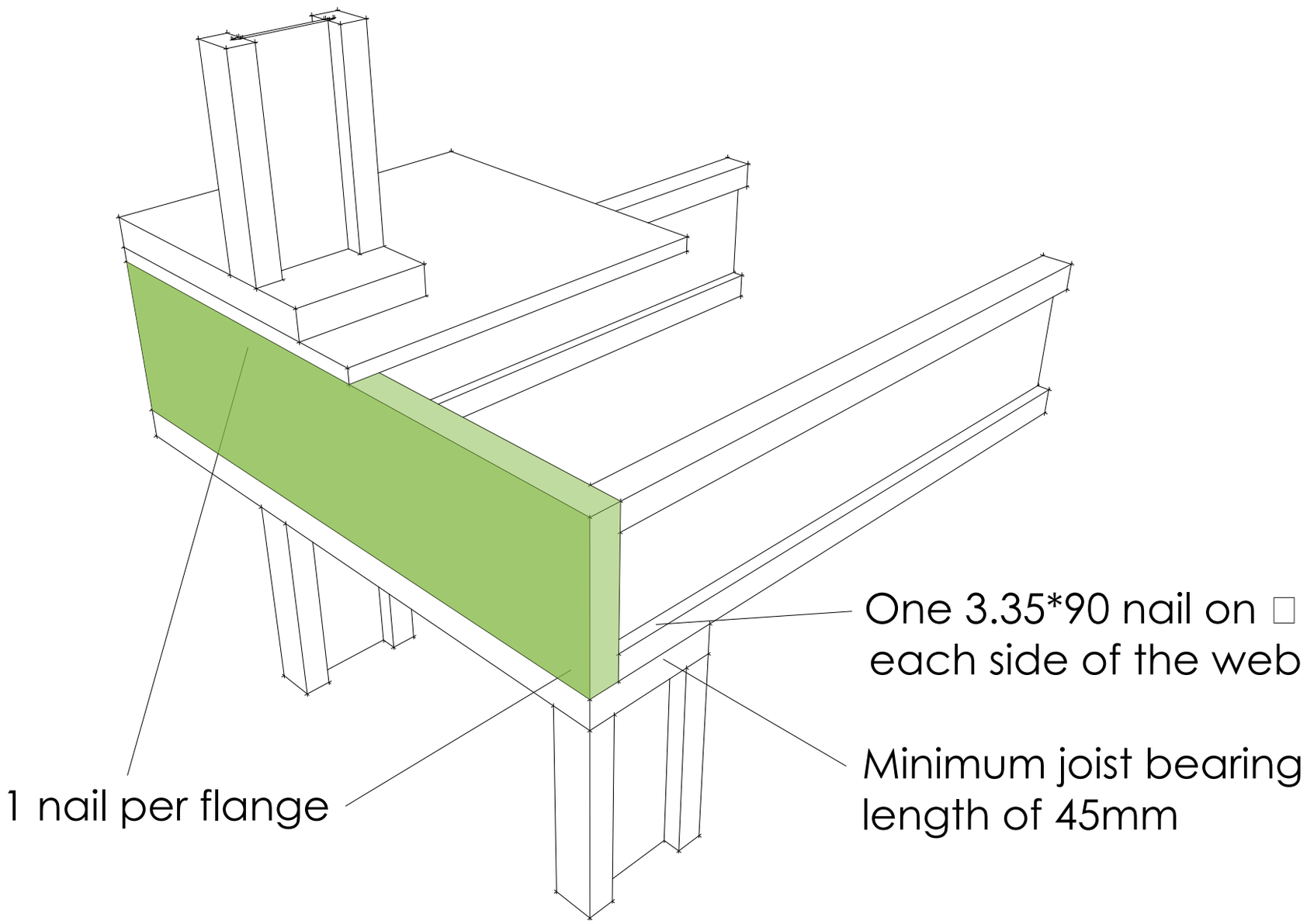
Do not cut the flange. Restraint strap from an approved connector supplier. Install as per manufacturers instructions

R11 Hanger applications



TF1

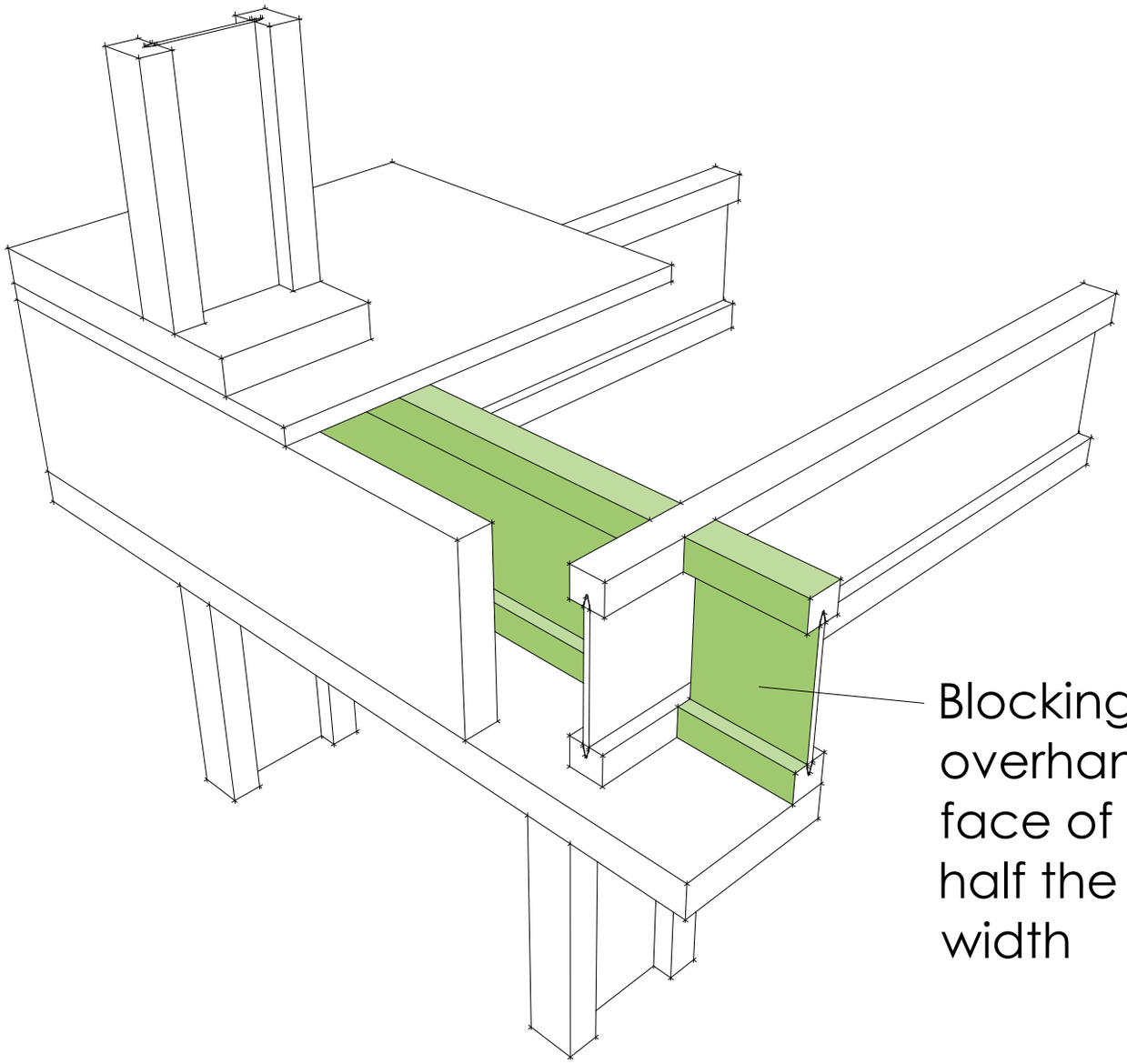
STEICO LVL Rim Board



Minimum nailing for class 1 structures to be 3.00*75 nails at 300mm centers which should be applied at each interface where lateral loads are to be transferred. Refer to STA "Design Guidance on Disproportionate Collapse" for further information

TF2

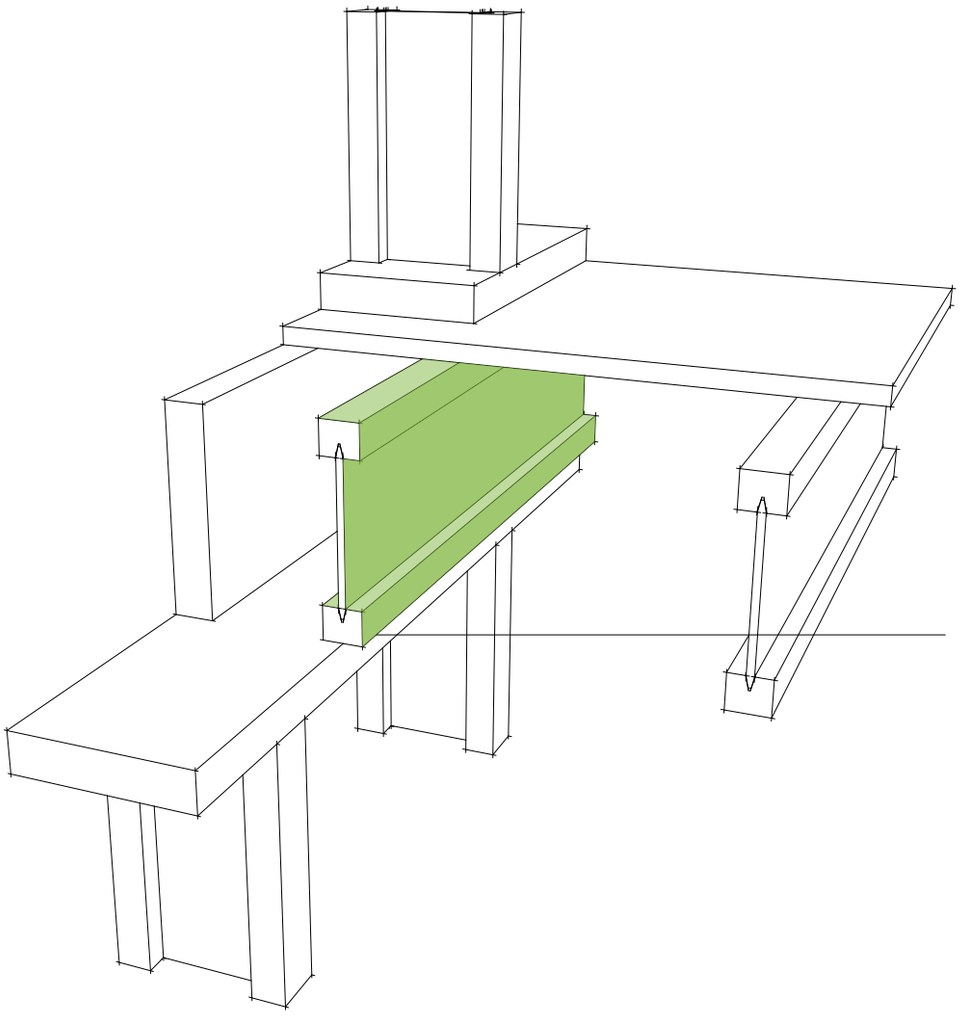
STEICO LVL Rim Board with STEICOjoist blocking



Minimum nailing for class 1 structures to be 3.00*75 nails at 300mm centers which should be applied at each interface where lateral loads are to be transferred. Refer to STA "Design Guidance on Disproportionate Collapse" for further information

TF3

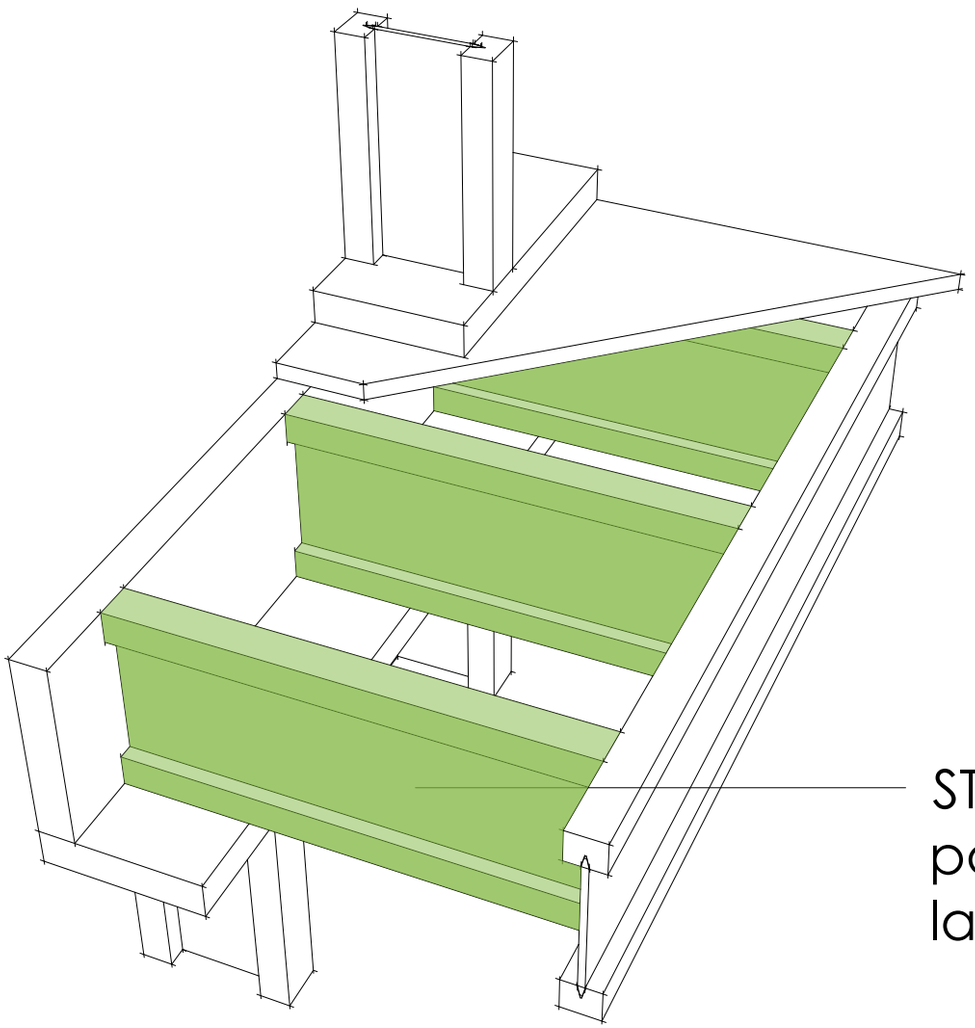
Joists parallel to external wall



Joist may overhang the inside face of the wall by half the blocking width

Minimum nailing for class 1 structures to be 3.00*75 nails at 300mm centers which should be applied at each interface where lateral loads are to be transferred. Refer to STA "Design Guidance on Disproportionate Collapse" for further information

TF3a Joists parallel to external wall



STEICOjoist blocking panels used to form ladder detail

Minimum nailing for class 1 structures to be 3.00*75 nails at 300mm centers which should be applied at each interface where lateral loads are to be transferred. Refer to STA "Design Guidance on Disproportionate Collapse" for further information

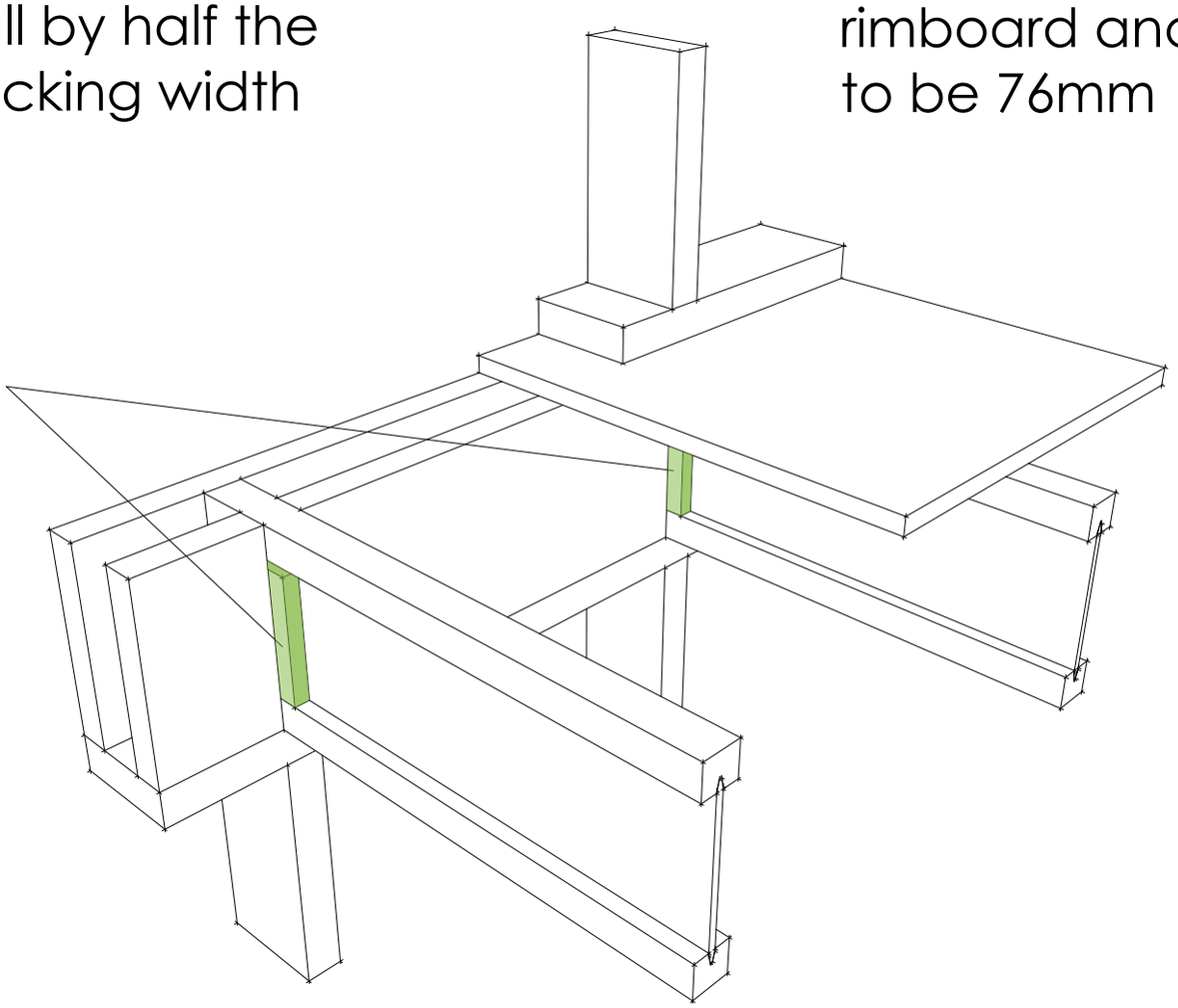
TF4

Joists bearing on party walls

Blocking may overhang the inside face of the wall by half the blocking width

Overall minimum thickness of solid rimboard and blocking to be 76mm

Timber or Plwood web stiffeners to be fitted to the end of the i-joists

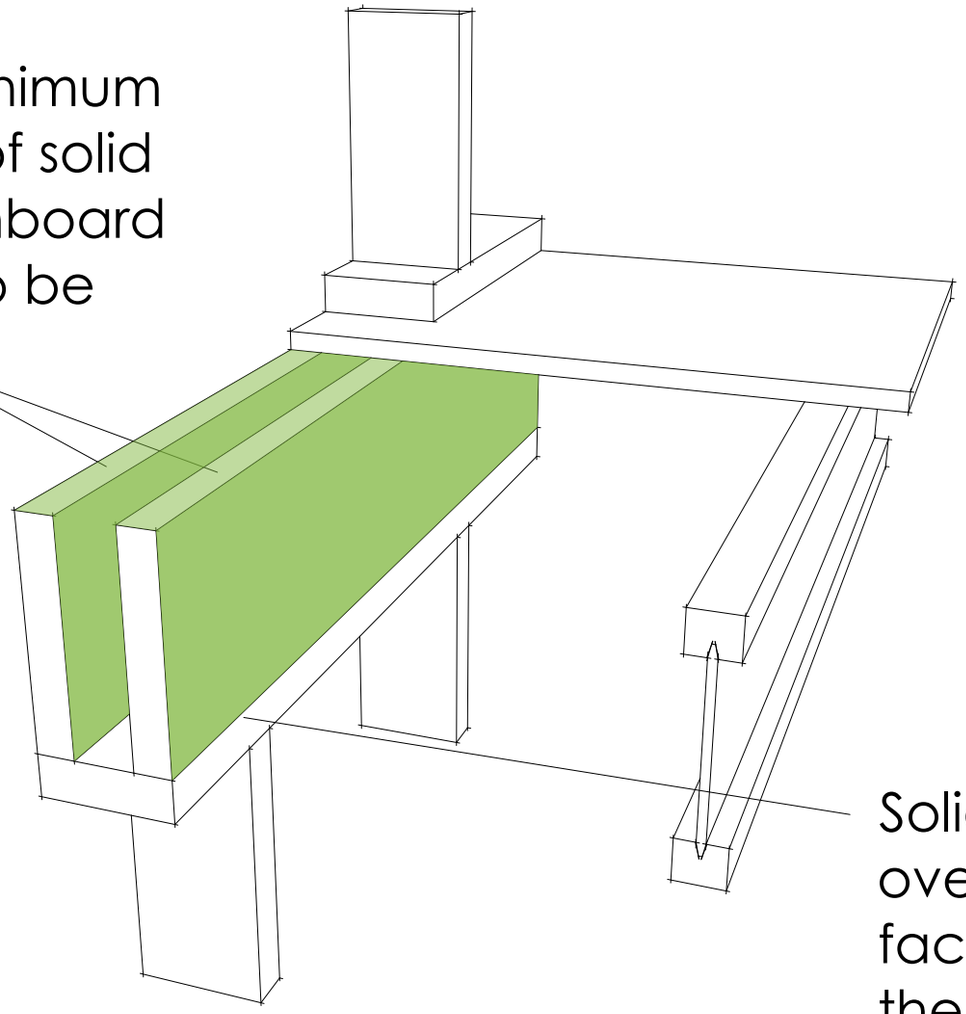


Minimum nailing for class 1 structures to be 3.00*75 nails at 300mm centers which should be applied at each interface where lateral loads are to be transferred. Refer to STA "Design Guidance on Disproportionate Collapse" for further information

TF5

Joists parallel to party wall

Overall minimum thickness of solid section rimboard and joist to be 76mm

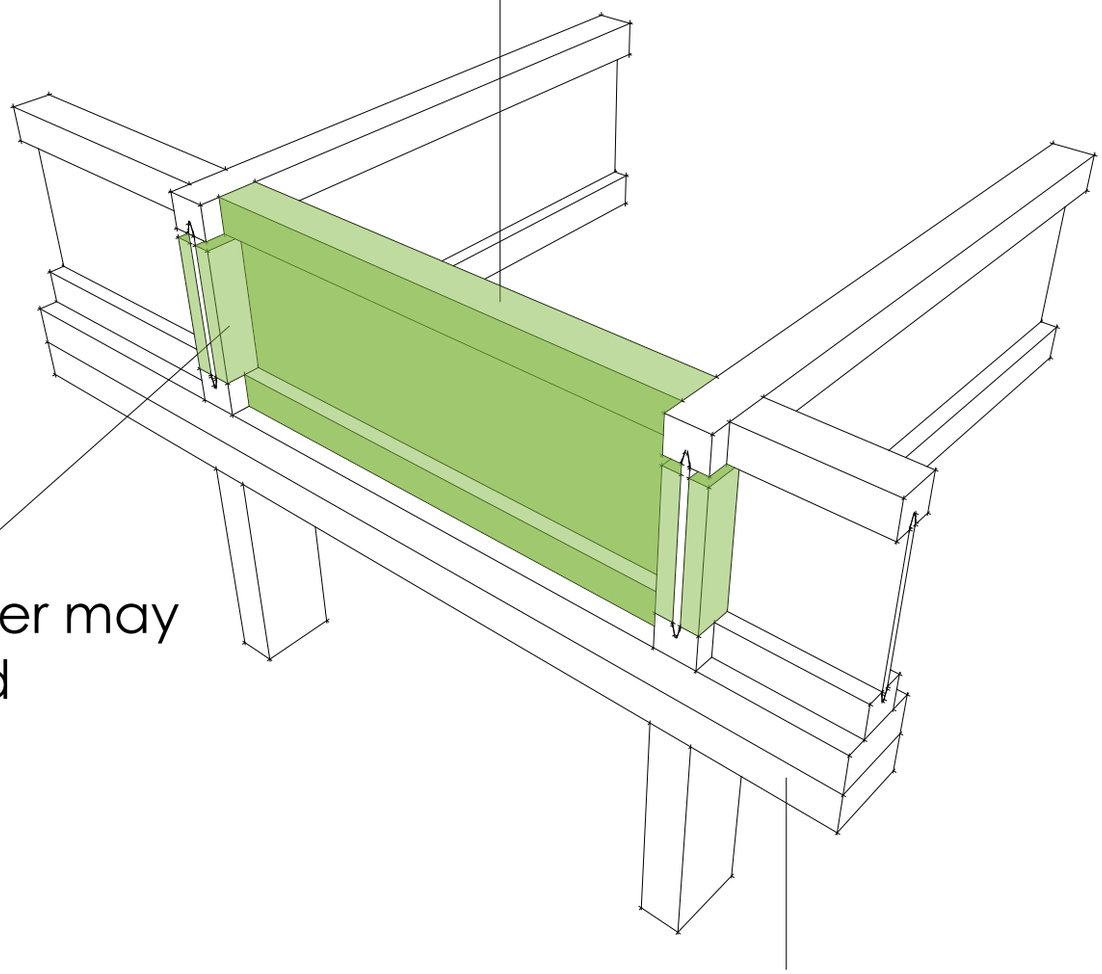


Solid section joist may overhang the inside face of the wall by half the blocking width

Minimum nailing for class 1 structures to be 3.00*75 nails at 300mm centers which should be applied at each interface where lateral loads are to be transferred. Refer to STA "Design Guidance on Disproportionate Collapse" for further information

TF6

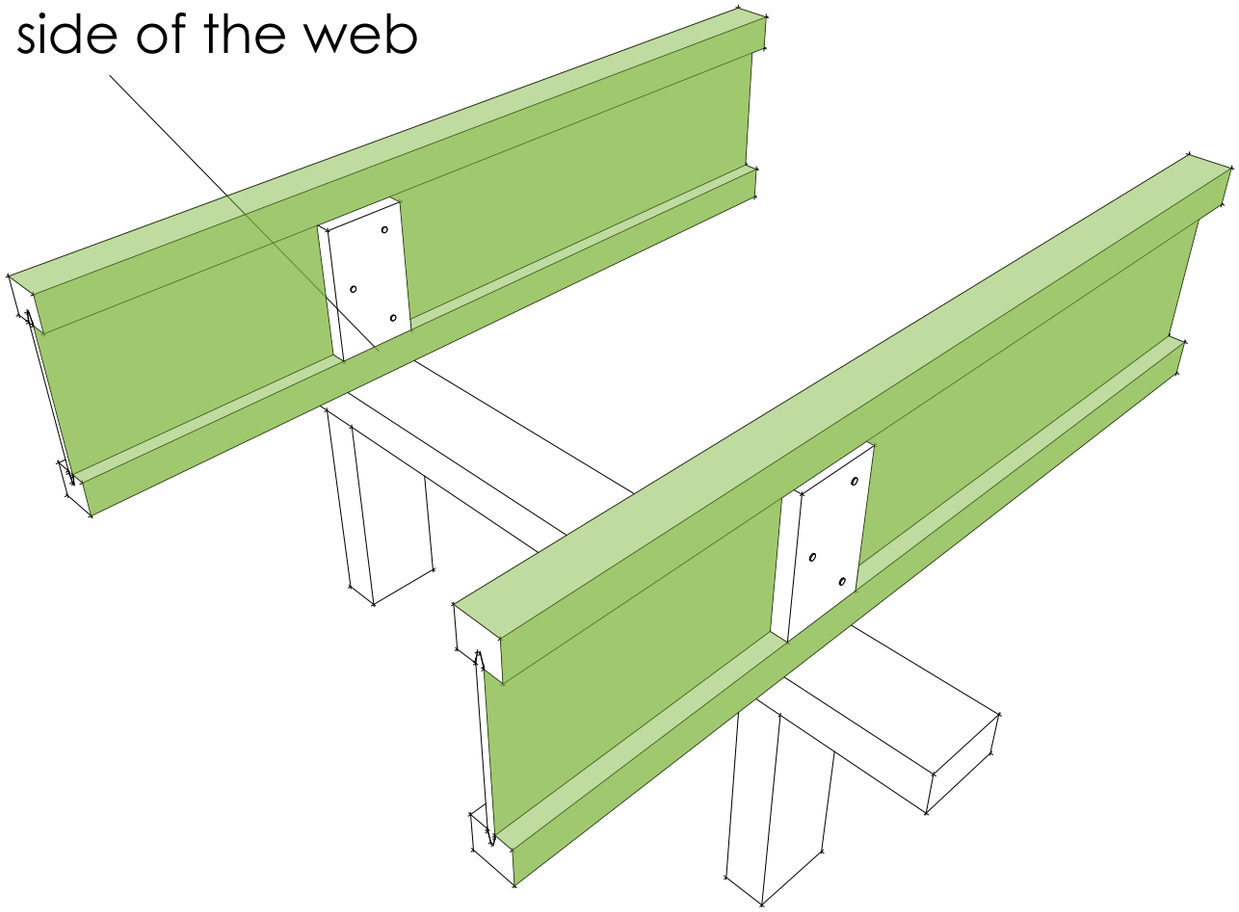
Joists ending on internal wall



TF7

Intermediate bearing with continuous joists

One 3.35*90 nail on each side of the web

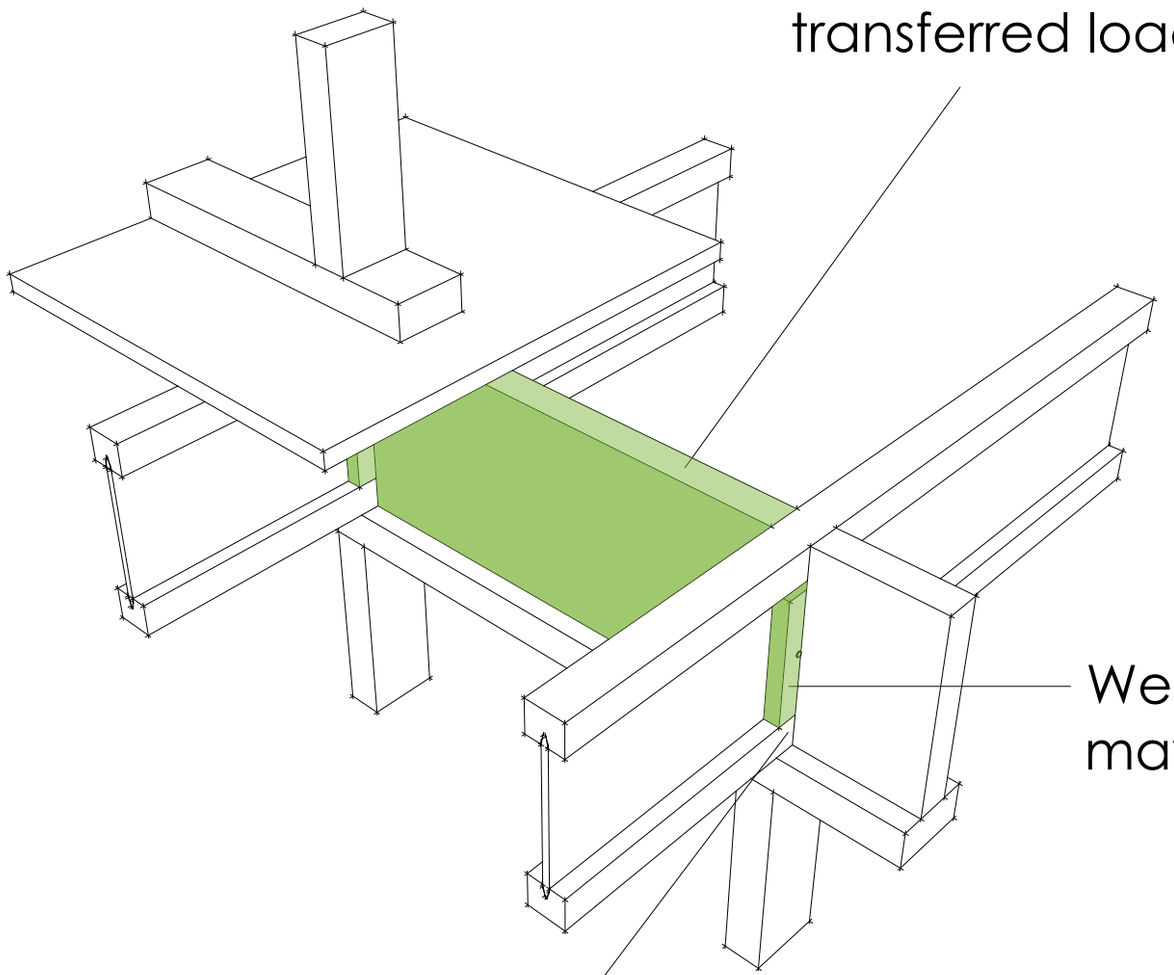


Blocking may be required for sound or fire detailing or where specified by the building designer

Web stiffeners may be required by design

TF8

Intermediate bearing with load bearing wall above

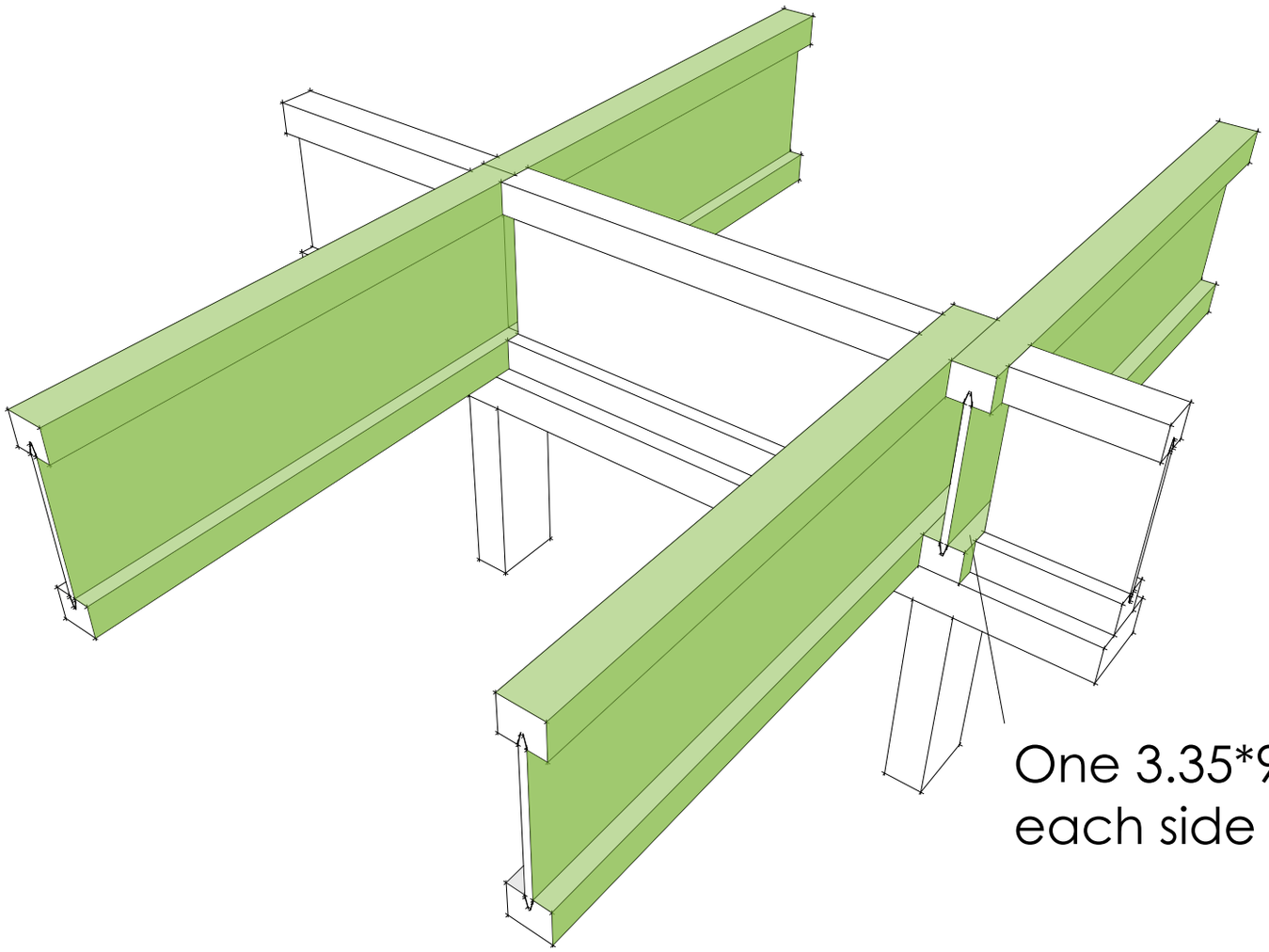


TF9

Discontinuous joists on intermediate bearing

Blocking from STEICO joist or STEICO LVL according to transferred loads

Web stiffeners may be required

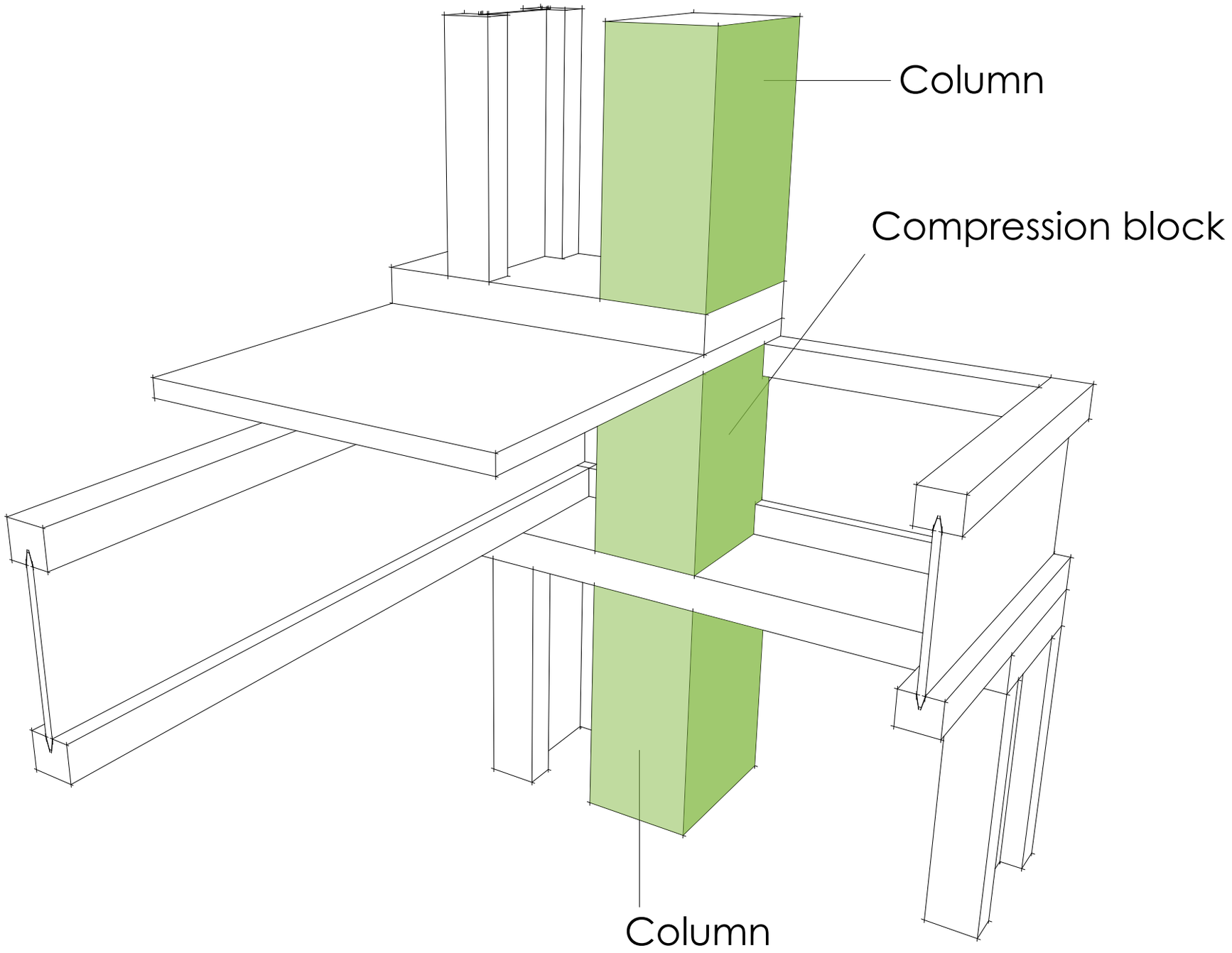


One 3.35*90 nail on each side of the web

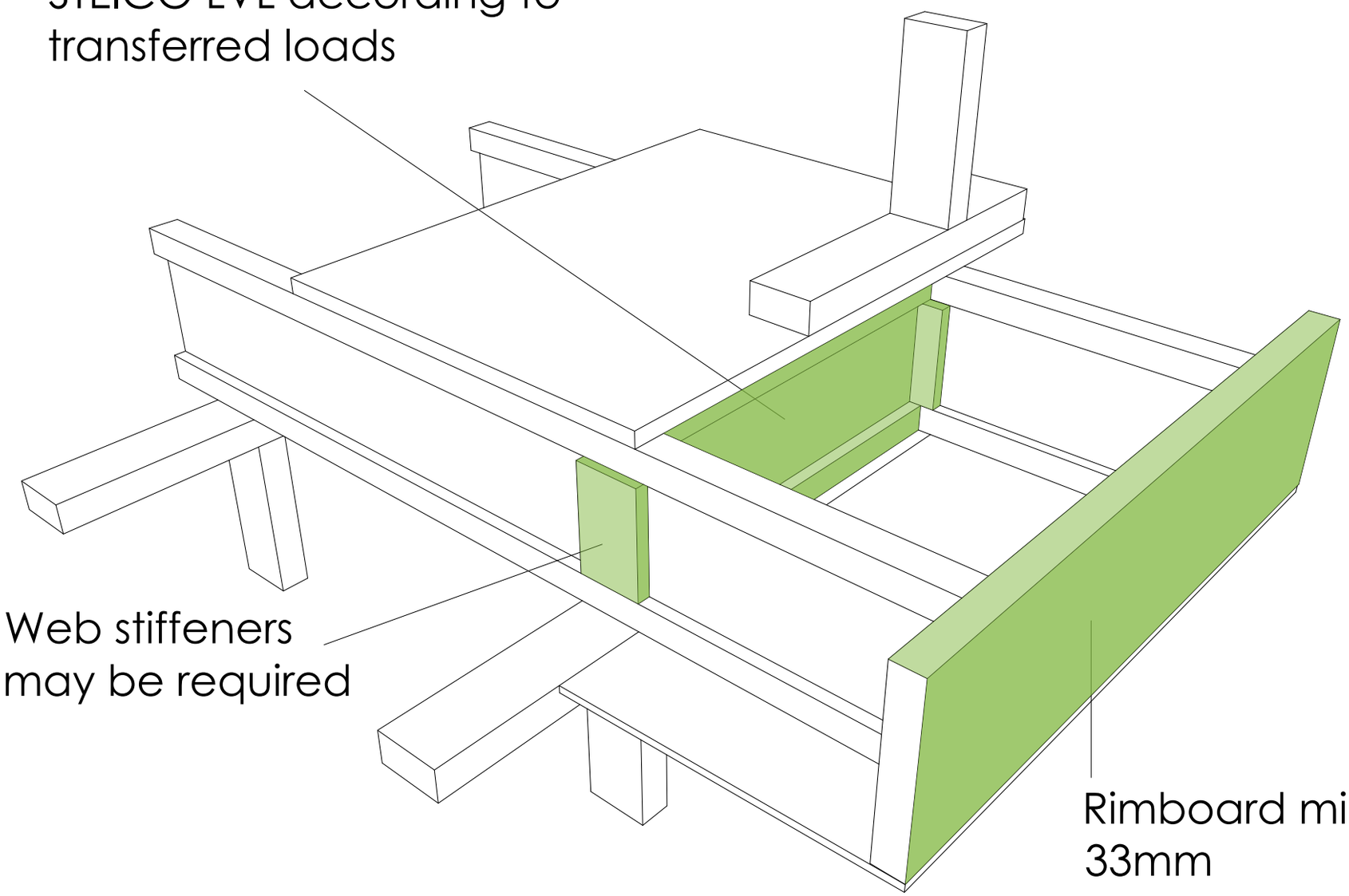
Joists may be butt jointed where there is a minimum of 45mm bearing available. If this is not possible joists are to be staggered and provided with full bearing

TF10

Transfer of high point loads

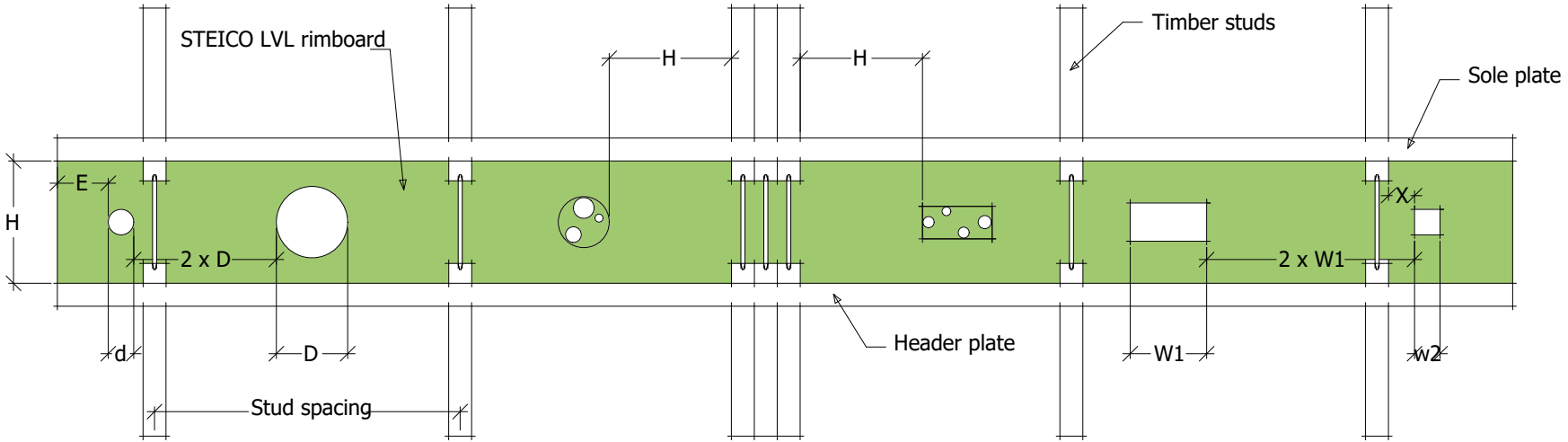


TF11 Cantilever



Care should be taken to ensure that any external areas are adequately protected aginst weathering

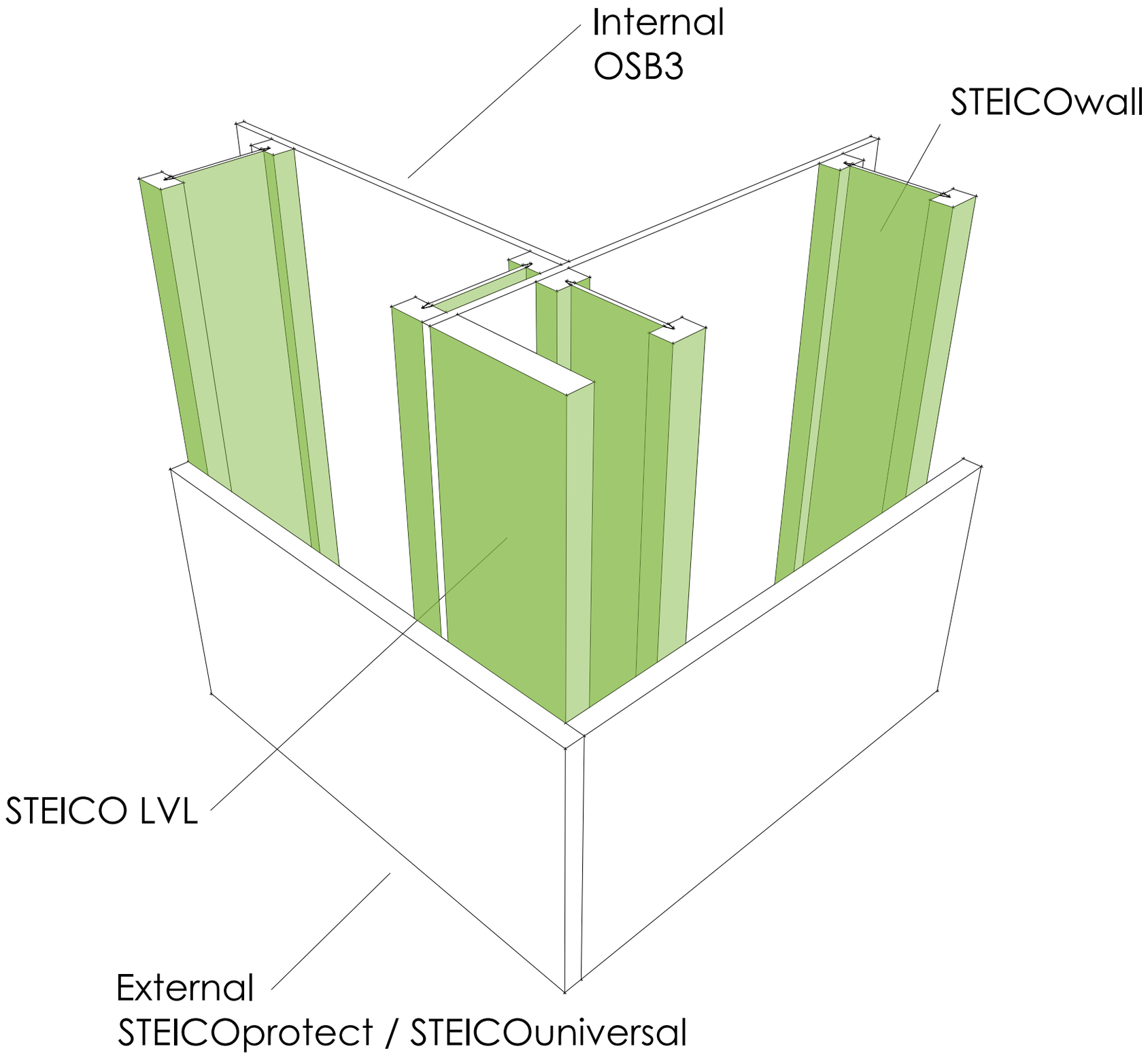
TF12 Allowable holes in STEICO LVL X Rimboard



H = Depth or Rimboard
E = 2 x D for circular holes or 3 x W for rectangular holes
X = 50mm
Max diameter of round holes = H less 100mm. Max length of rectangular holes = Stud spacing / 2
No holes can be located within the distance H of concentrated loads from above

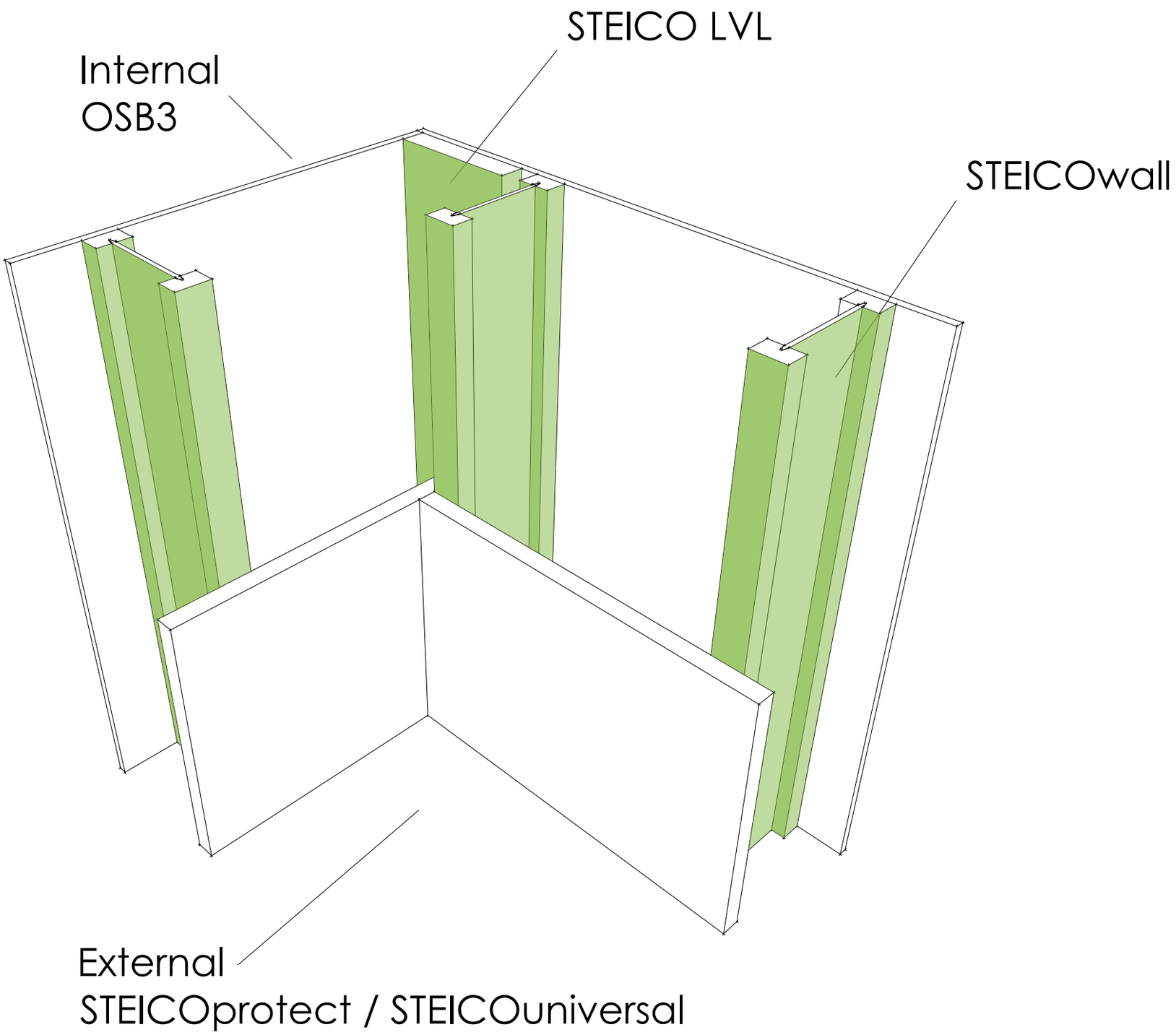
W1

External corner detail



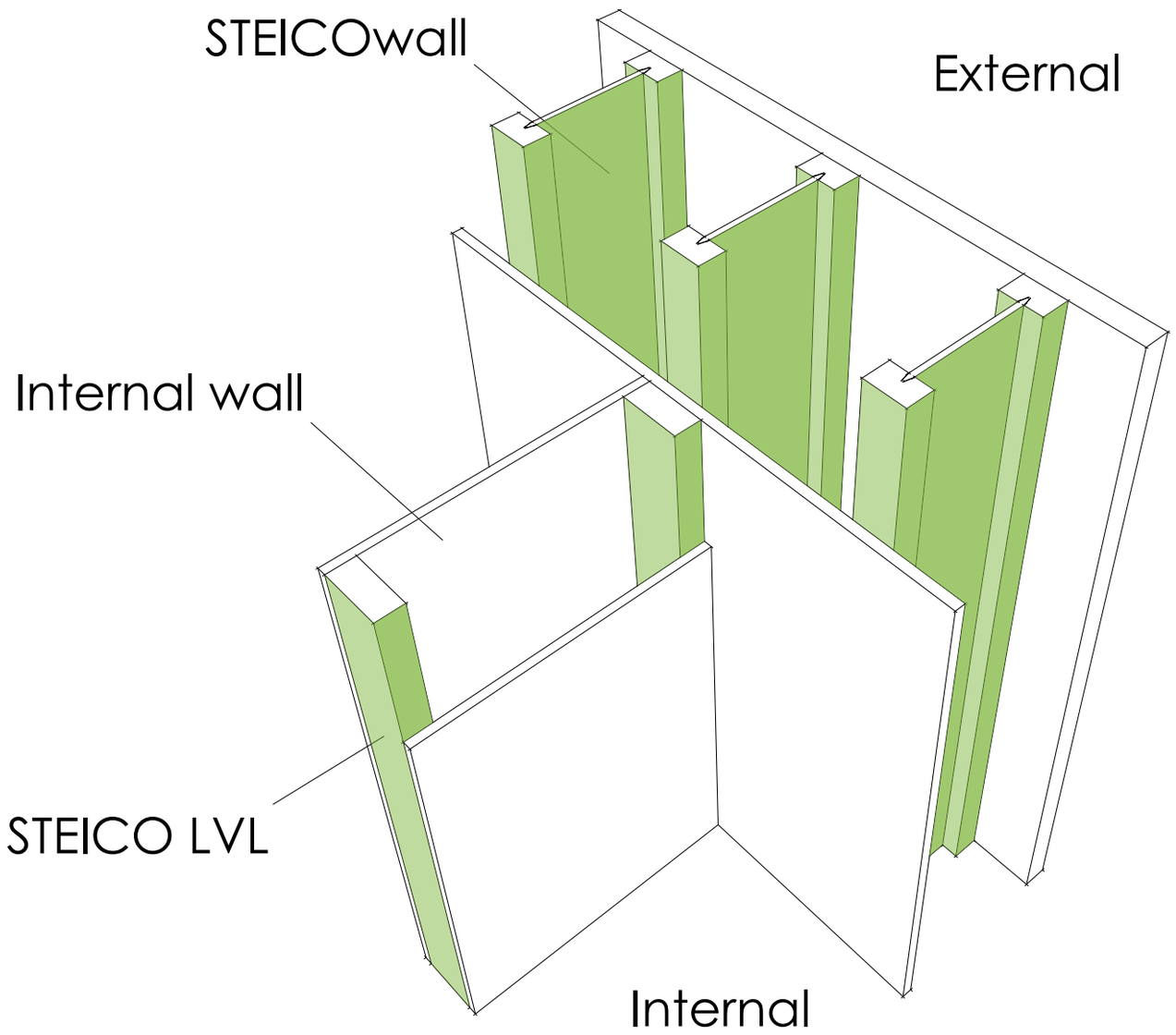
W2

Internal corner detail



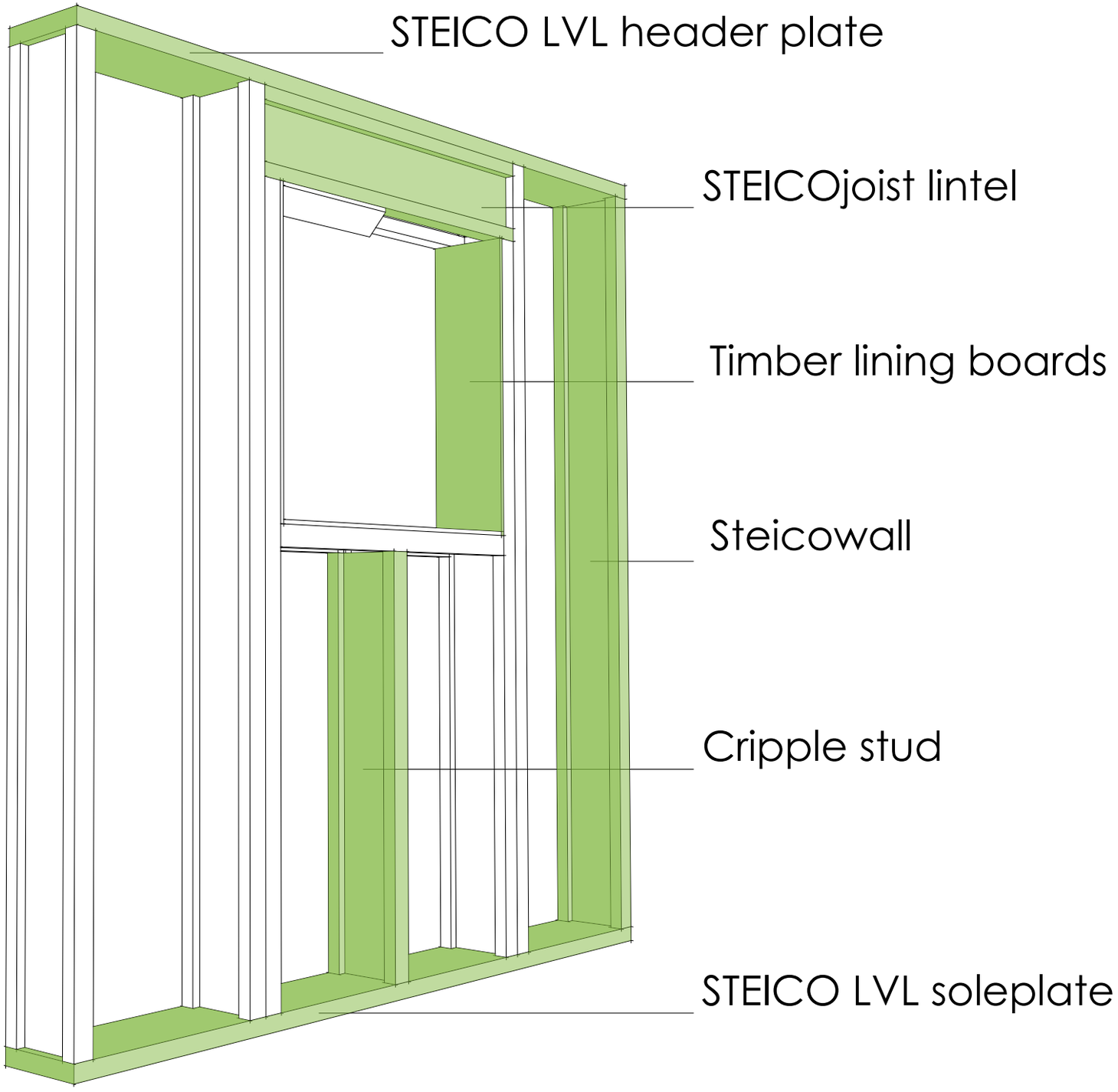
W3

External wall to Internal partition



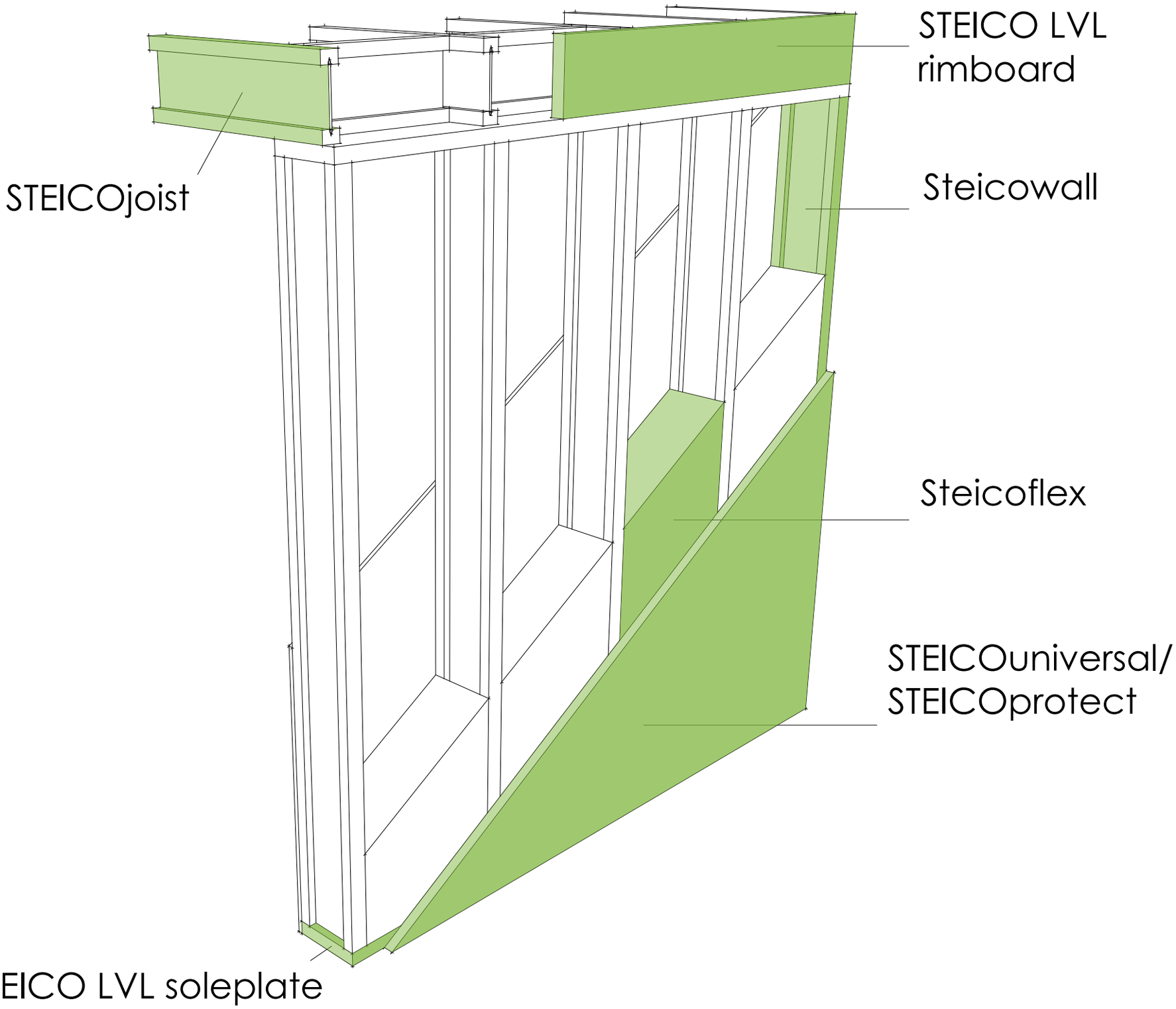
W4

Window opening



W5

Exterior wall and floor connection



W6 Connection to concrete floor