

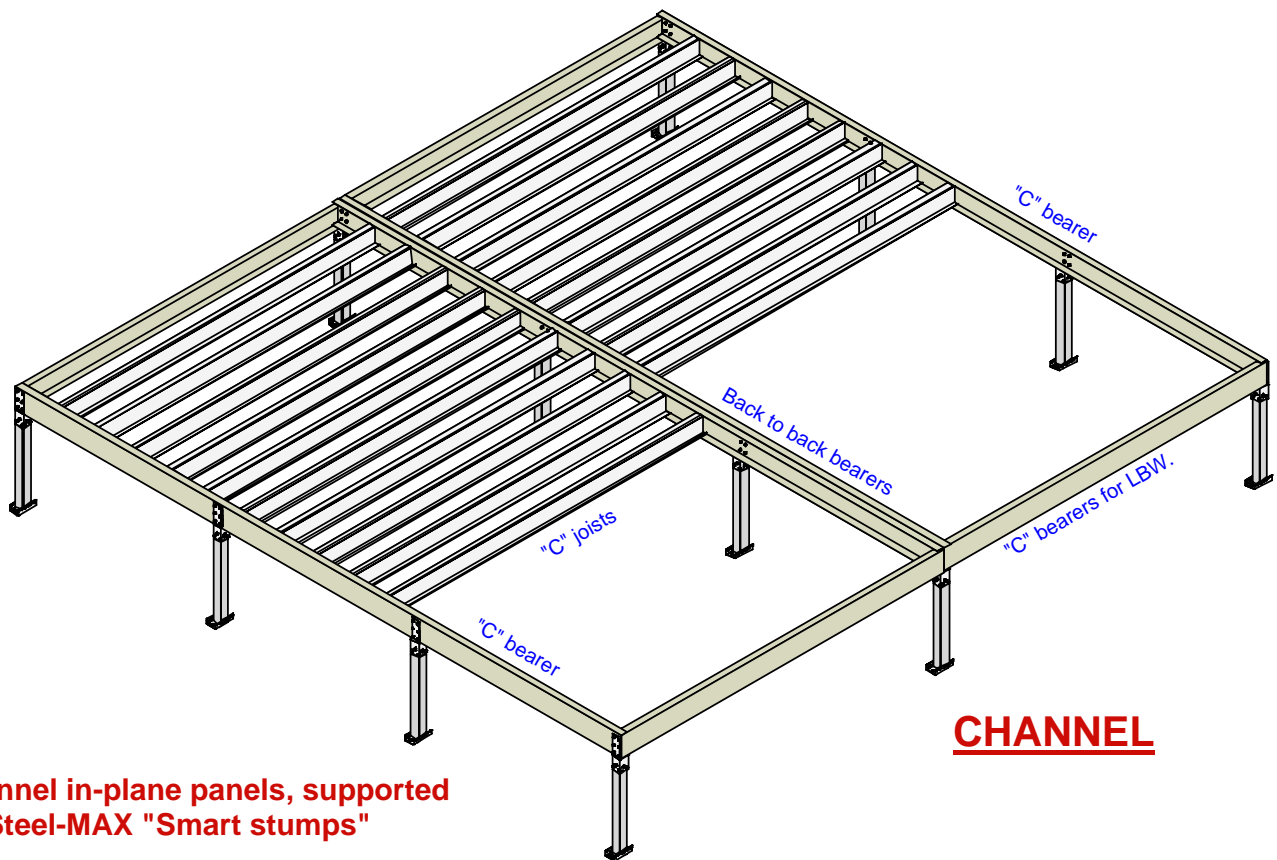
# Steel - **MAX**

Building Systems  
[www.steelmax.com.au](http://www.steelmax.com.au)

**"The right choice"**

## CHANNEL FLOORS

Designed for cold rolled "C" channel  
bearers & lipped channel joists.  
( such as Stramit "C" sections or similar )



**Channel in-plane panels, supported  
on Steel-MAX "Smart stumps"**

### Contents :-

1. STUMPS
2. BRACING
3. CONNECTORS
4. DURABILITY
5. TECHNICAL SUPPORT
6. ENGINEERING & CERTIFICATION
7. JOB DESIGN
8. FIXINGS
9. AVAILABILITY
10. APPLICATION DETAILS

## Steel - **MAX**

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# Steel - MAX

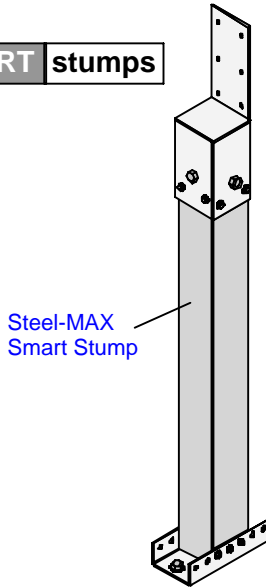
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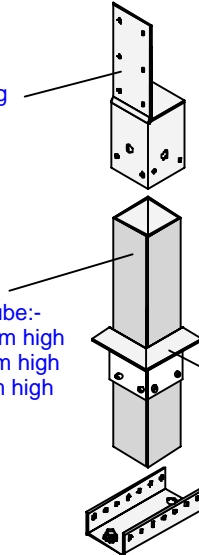
## SMART stumps



Steel-MAX  
Smart Stump

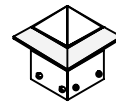
75x75 SHS Stump tube:-  
use 2.0mm up to 1.8m high  
2.5mm up to 2.5m high  
4.0mm up to 3.4m high

Top fitting

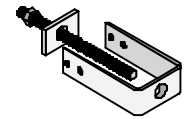


Stump base fitting

## System components

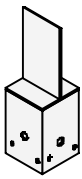


Post sleeve

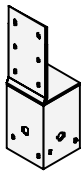


Bracing bracket

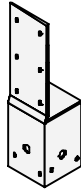
## STUMP TOPS



CT-75 / 180



T-75 / 180



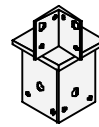
T-75 / 230



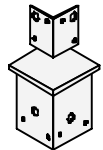
T-75 / 280



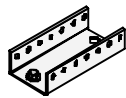
Screw tops



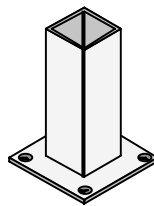
Mult-tops



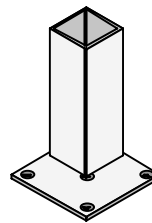
## STUMP BASES



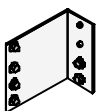
Stump base fitting



Moment base plates



## CONNECTOR BRACKETS



"L" bracket



"H" hinge bracket



Joist connector  
40x40x200



Joist connector  
50x50x295

### 1. SMART STUMPS

Steel-MAX has designed a special range of stumps specifically to suit "C" channel bearers.

- **STUMP TUBE:-**

The stump tube is 75x75 Gal. SHS and will vary in wall thickness to suit load requirements.

- **STUMP BASES:-**

Stump bases are in the form of a "U" shaped bracket, for multi-position and multi-angle connection to footings. Special "Moment Base plates" are available for mezzanine floors and where maximum bracing stability is required.

- **STUMP TOPS:-**

**Stump tops** fit any wall thickness tube and are telescopically height adjustable up to 75mm.

They have vertical "fin plates" to suit B180, B240 & B280 "C" bearers.

They provide maximum support and hold-down, through the bearer's web and are also designed to keep perimeter bearers as close to the outside of the building as possible.

Special screw adjustable tops are also available and are particularly useful for reactive soil conditions.

**Centre-fin tops** support back-to-back bearers so that the centre line of the stumps matches the centre of the abutting bearers.

**Multi-top stumps** are also available for some applications where bearers can be joined at "T" intersections and 90 deg corners.

- **POST SLEEVES:-**

Post sleeves may be used to carry bearers which need to be fixed to the face of a verandah post, or a higher stump which continues up to support a different level floor, such as in split levels.

### 2. BRACING:-

"U" shaped bracing brackets are connected to stumps to carry either 12mm or 16mm threaded bracing rod, to form sub-floor cross bracing sets. They yield up to 15 kN or 22 kN capacities respectively.

### 3. CONNECTORS:-

- **"L" fixed angle brackets** may be used at 90 deg joist to bearer or bearer to bearer connections, where extra strengthening is required at the connection.

They are also useful when connecting trimmers around stair voids.

- **Hinged "H" brackets** can be used at angled connections, similar to the "L" brackets.
- **Joist connector brackets** are in the form of an angle, which are usually fixed vertically to the webs of both the bearers & joists, in a joist-on-bearer application.

They help support both members and provide good hold-down and lateral stability to joists.

They are available in 200mm and 295mm lengths.

The 200mm brackets can also be used to fix the ends of J240 & J280 "C" in-plane joists to bearers at "T" intersections when other fixing methods are difficult or impractical.

### 4. DURABILITY:-

All Steel-MAX products have corrosion protection, such as Dacrotising ( refer to web site at:- <http://www.dacro.co.kr/eng-3.htm> ) as well as Galvanizing and Galvabond finishes.

Refer to your channel manufacturer's durability selection criteria and protect all exposed members as per the Steel-MAX corrosion protection recommendations.

### 5. TECHNICAL SUPPORT:-

Contact Steel-MAX via the web site, email, phone or fax; or ask your Steel-MAX distributor.

### 6. ENGINEERING:-

Engineering design and certification is provided by H.R. Design Group P/L (Hunt Robinson Engineers) for the Steel-MAX products. H.R. Design has also produced the very useful S3R software for Stramit.

A copy of the standard letter of certification is available from the Steel-MAX web site.

Steel-MAX does not provide individual job certification, footing or sub-floor bracing designs, or certificates of compliance. These are generally site specific and should be provided by the project engineer.

### **7. JOB DESIGN:-**

When using Steel-MAX products in conjunction with Stramit sections; use the Stramit S3R design software to determine the most suitable Stramit member sizes, or ask your Stramit representative for assistance from Steel-MAX to offer a floor design solution for your project, including all necessary Steel-MAX companion products.

### **8. FIXINGS:-**

Refer to the Steel-MAX load capacity tables on page 10, (provided by the H.R. Group) and have your project engineer specify your individual job requirements. However; for uniformly loaded domestic applications, consider the following as a guide only :-

Stump bases to stump tube = 6 / 14 g hex teks ( 3 in each face )

Stump tops to stump tube = 8 / 14 g teks up to 8 m<sup>2</sup> of floor area carried by the stump, then 1 / screw per m<sup>2</sup> or 1/M12 bolt per 5 m<sup>2</sup> of area extra over the first 8 m<sup>2</sup>.

Sleeves to tube = 8 / 14 g teks per sleeve.

Bracing brackets = 4 / 14 g teks per brackets for 12mm rod and 1 / M16 bolt per bracket for 16mm rod.

"L" & "H" connector brackets = 8 / 10 g teks for joist to bearer connections and 8 / 14 g teks for bearer to bearer connections.

Joist connector brackets = use 6 / teks per brackets ( 3 in each member ) Use 10 g. teks for 200mm brackets and 14 g. teks for 295mm brackets.

### **9. AVAILABILITY:-**

All Steel-MAX products are available from Steel-MAX Distribution by calling (07) **3831 5444** or Mob: **0438 748 381**  
Fax: 07 3831 5666 email [distribution@steelmax.com.au](mailto:distribution@steelmax.com.au)

Steel-MAX "Companion products" to the Stramit Residential Flooring System are available from your participating Stramit Building Products supplier.

### **10. APPLICATION DETAILS:-**

The following diagrams are suggested methods of using Steel-MAX products with "C" channel sections and may act as "Companion products" to Stramit "C" channel sections for a restricted number of common construction applications.

The information contained within this document or any other provided by Steel-MAX, does not represent, form or replace any other system requirements specified for any other floor framing system.

All information shown, enclosed and contained within this and associated documents represent suggested methods of using Steel-MAX components in conjunction with "C" channel sections, such as Stramit "C" sections or similar and may not suit your particular job requirements and application.

We offer design solutions as a suggestion, for the consideration of the customer and his project engineer.

It is imperative that the customer's project engineer looks at the suggested details and either incorporates them into his whole job structural design, or alters them to suit his requirements.

It is always possible that there could be influencing elements within the structure, that we are not aware of, which could effect and alter the following suggested details and information.

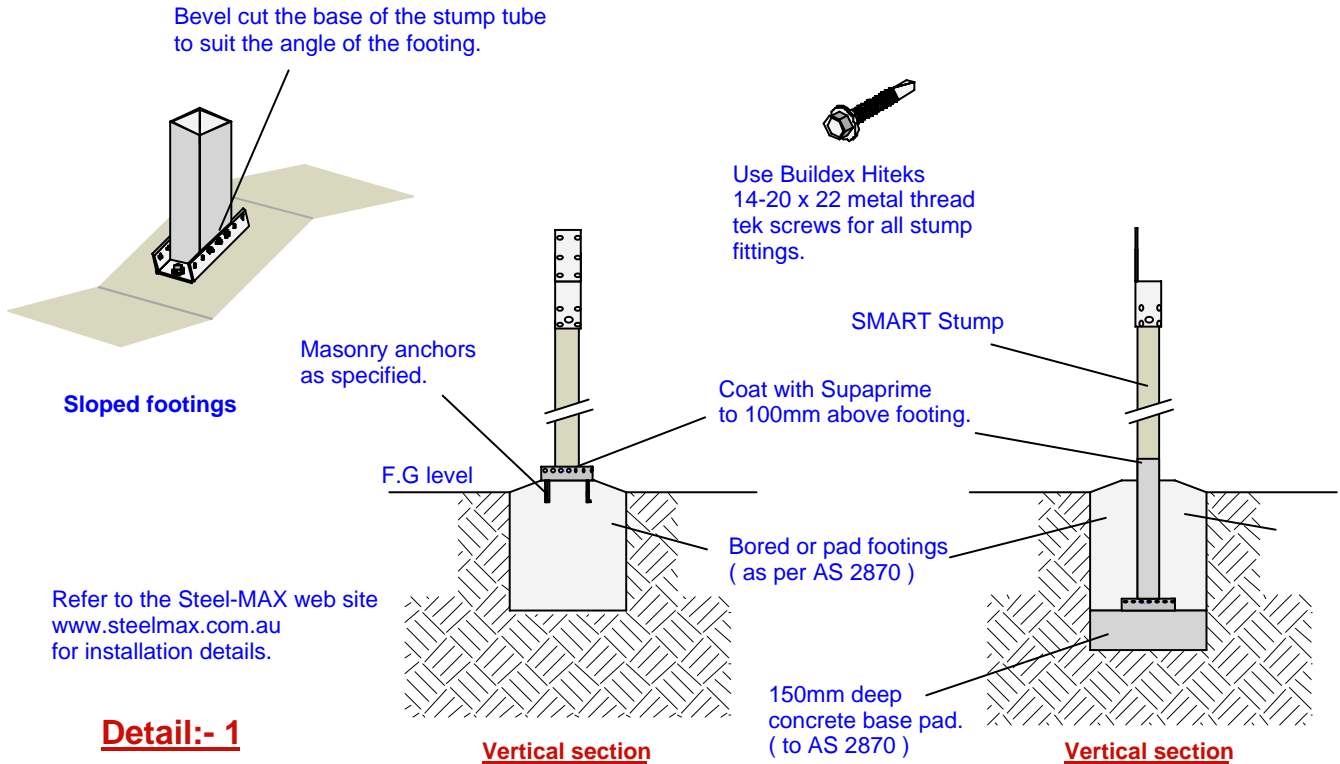
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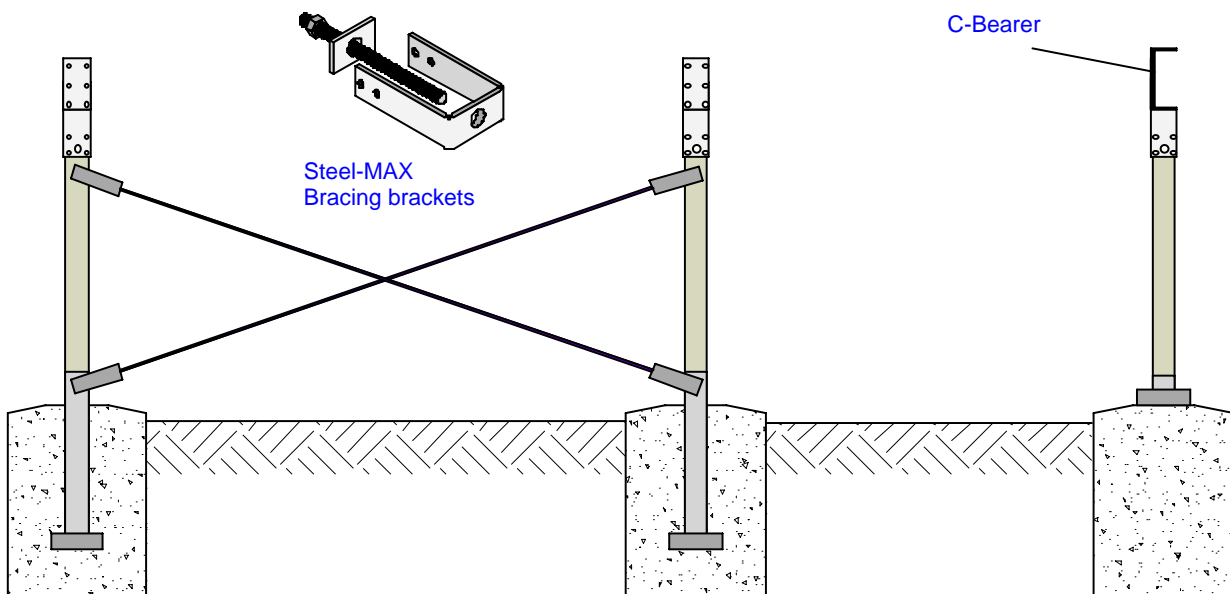


Refer to the Steel-MAX web site  
[www.steelmax.com.au](http://www.steelmax.com.au)  
for installation details.

### **Detail:- 1**

### **Footing connections**

Note:- optional footing designs are also available from Steel-MAX for deep reactive soil conditions.



### **Detail:- 2**

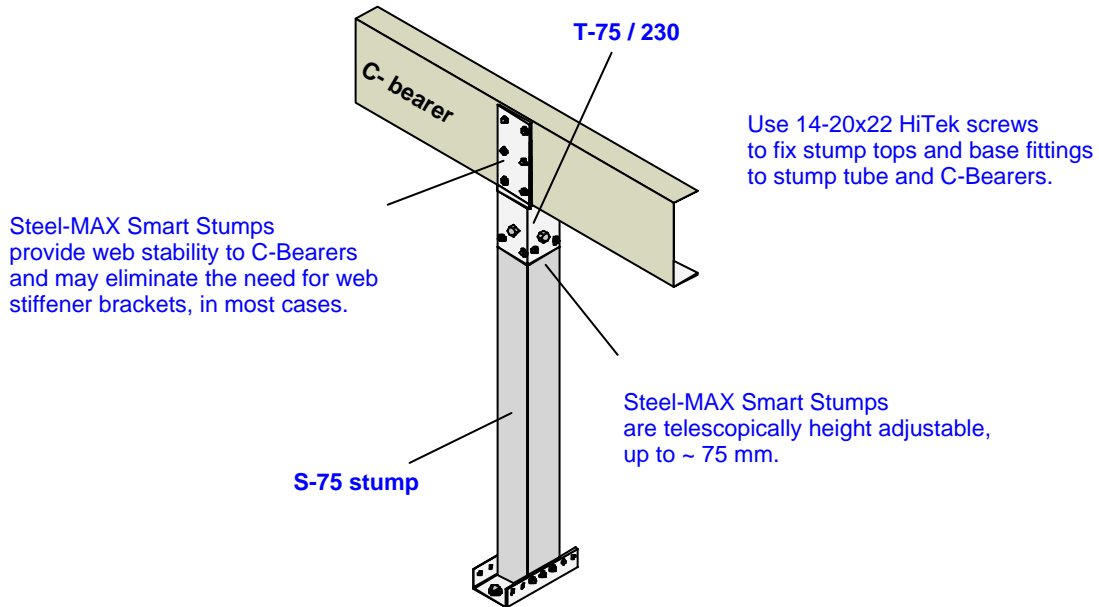
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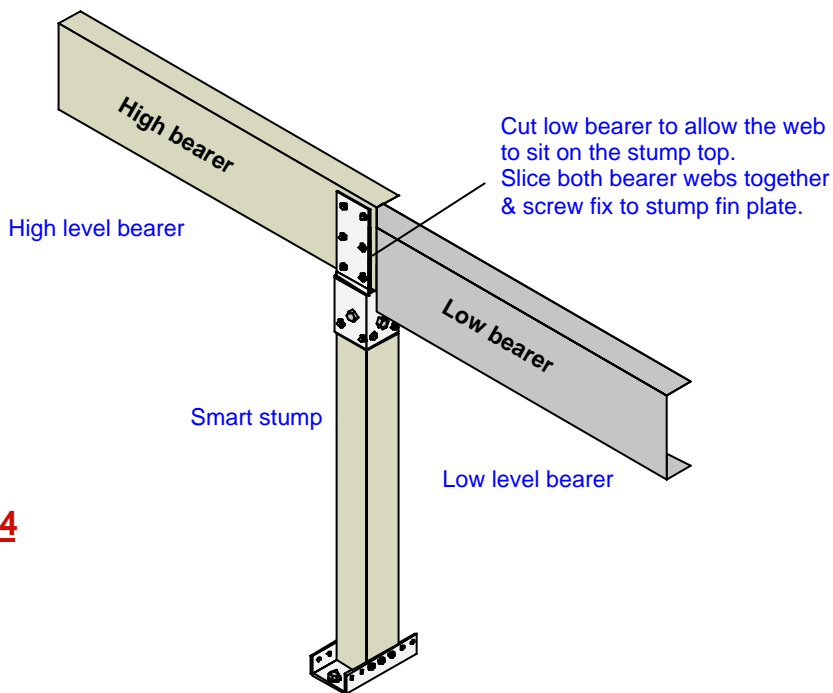
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**Detail:- 3**

**STUMP - BEARER connection**



**Detail:- 4**

**Bearer step-down at stump.**

# Steel -MAX

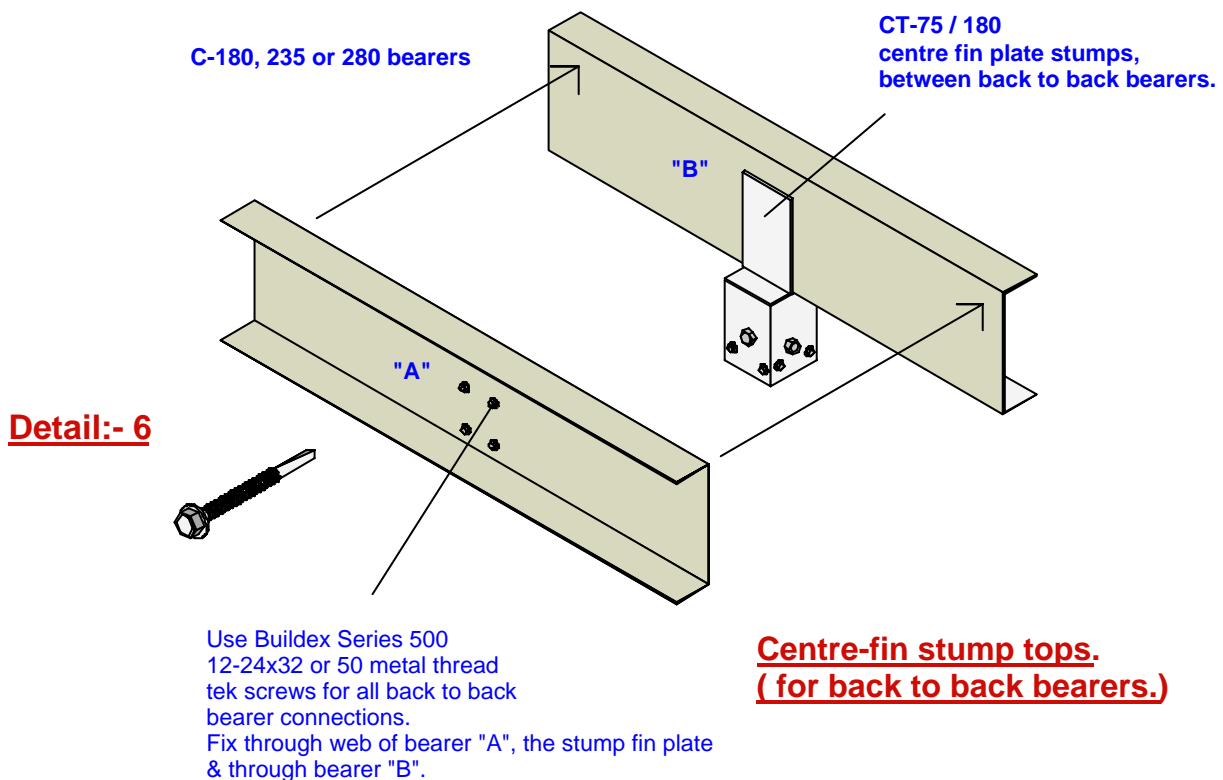
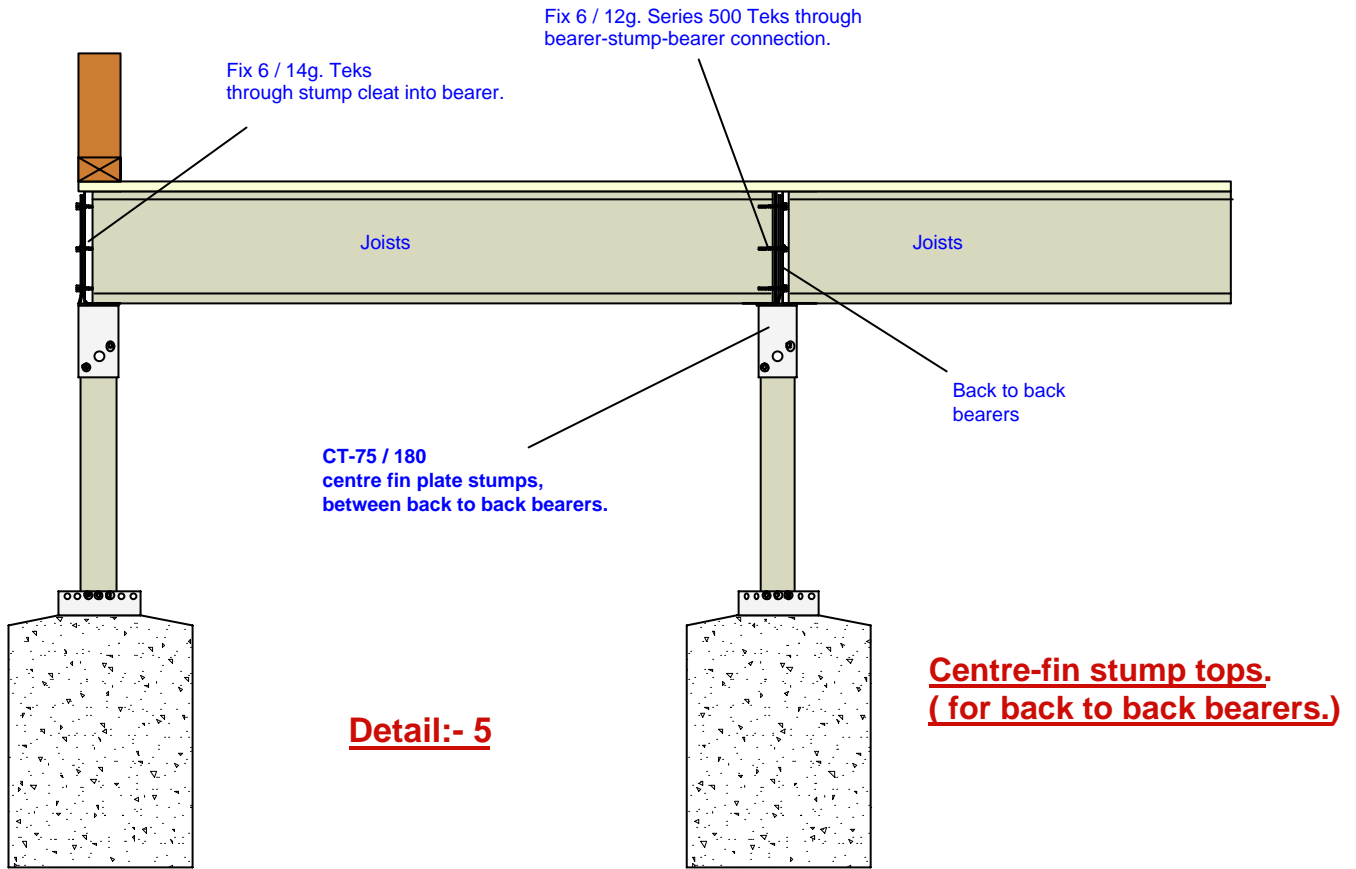
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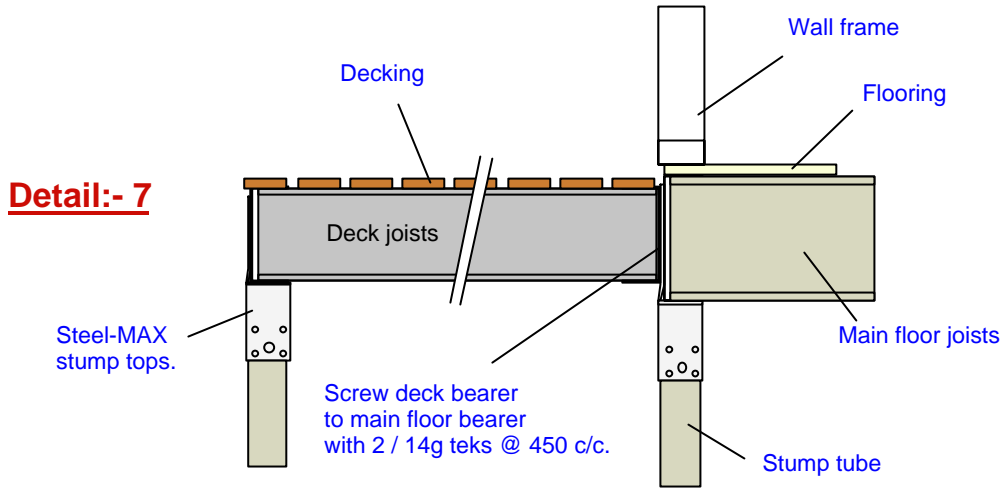
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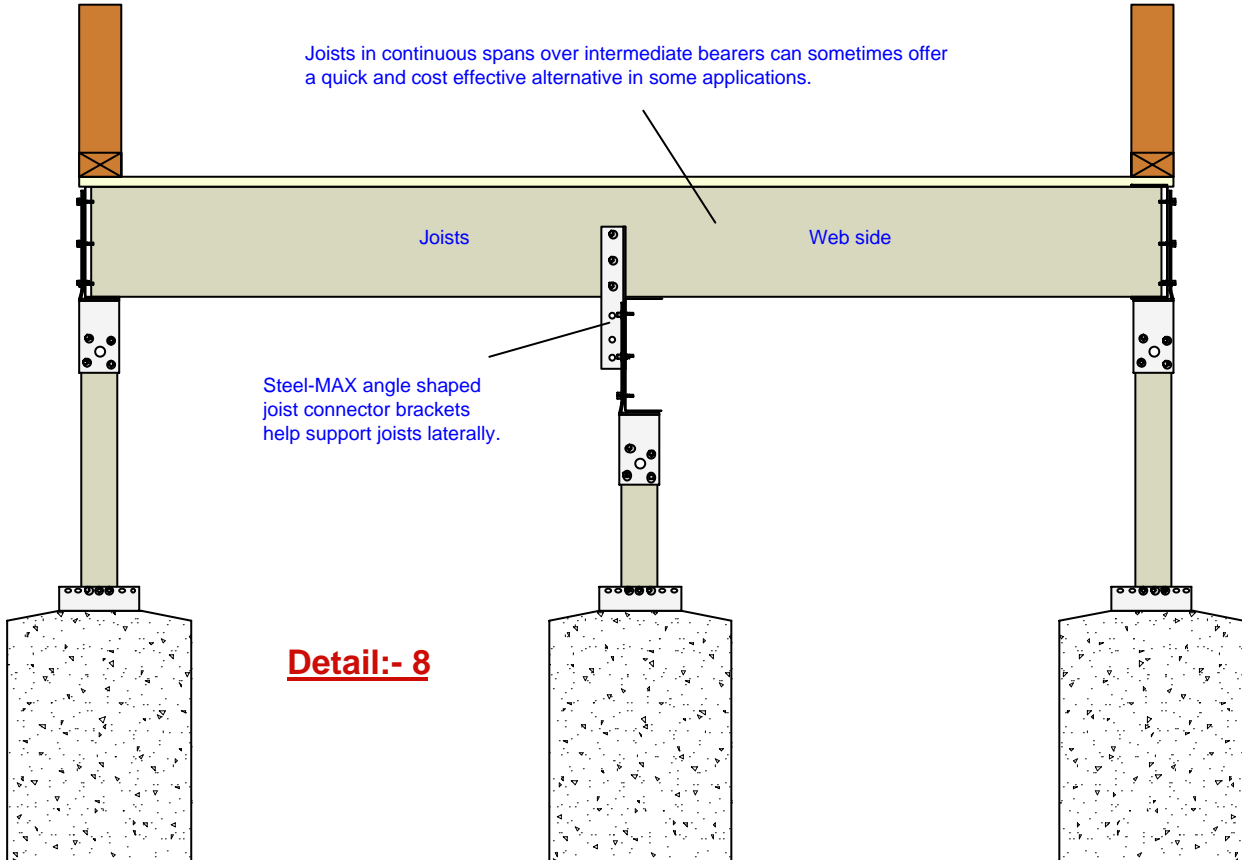
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### **Common deck to main floor connection.**



**Detail:- 8**

### **Optional "Joist-on-bearer" system.**

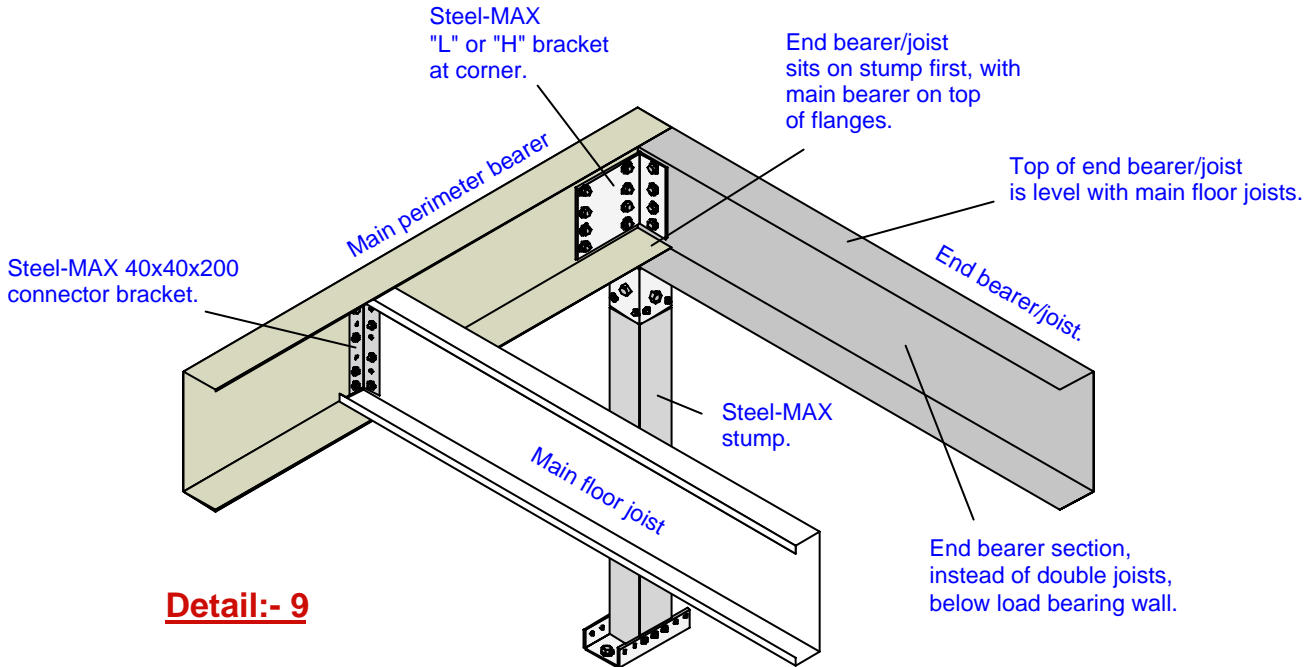
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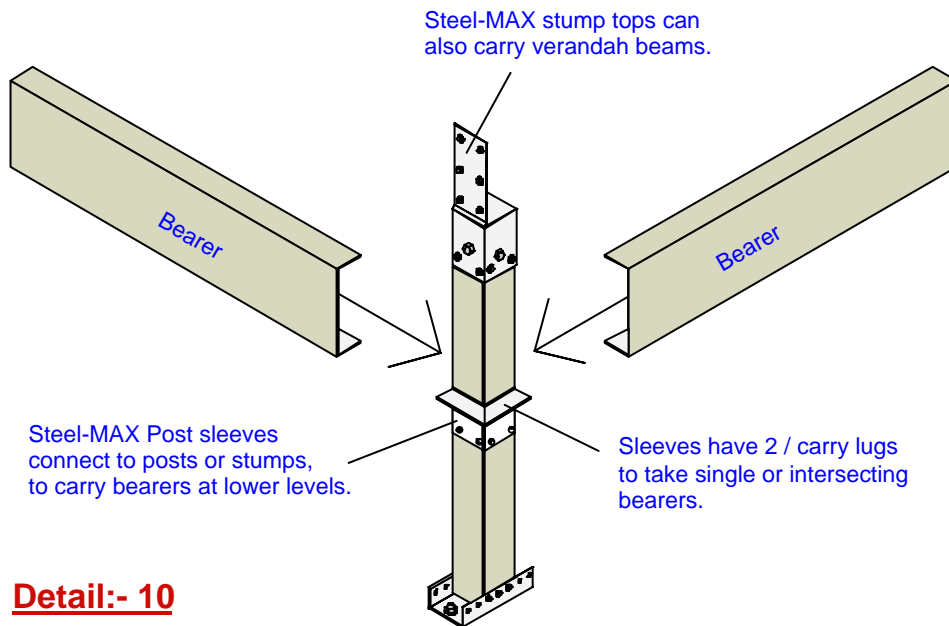
## CHANNEL FLOORS

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**Detail:- 9**

### Bearer & joist connections



**Detail:- 10**

### Post sleeves

### **Structural Load capacities for "Smart stumps" and connections.**

#### **Steel stump tube:**

( Minimum grade C350 )

SHS	Max. height
75x2.0	= 1.8m
75x2.5	= 2.5m
75x4.0	= 3.4m

#### **Stump tops to steel stump tube:**

( Minimum stump top and post Yield Stress  $f_y = 300$  MPa; Minimum bolt Yield Stress  $f_y = 400$  MPa )

Connection	Shear capacity $V_u$
2x14-20 Teks	14.7kN
4x14-20 Teks	29.4kN
8x14-20 Teks	58.8kN
16x14-20 Teks	117.6kN
20x14-20 Teks	147.0kN
1 / M12 bolt	24.2kN
2 / M12 bolts	48.4kN

Notes:-

1. All shear capacities are governed by the screw/bolt shear capacity.
2. Calculations based on a minimum post wall thickness of 2.0mm.
3. Tek screws to be installed in accordance with the manufacturer's specifications
4. Screws and bolts may be combined to achieve reduced shear capacities, using the appropriate reduction factors for each connection type.

#### **Stump top to Stramit bearer connection**

( Minimum stump top, fin plate Yield Stress  $f_y = 300$  MPa; Minimum bolt Yield Stress  $f_y = 400$  MPa )

Connection	Shear capacity $V_u$
2x14-20 Teks	9.2kN
4x14-20 Teks	18.4kN
6x14-20 Teks	27.6kN
1 / M12 bolt	10.2kN
2 / M12 bolts	20.4kN

Notes:-

1. All shear capacities are governed by the hole capacity of the channel's web and not the screw/bolt shear capacity.
2. Calculations based on a minimum web thickness of 1.5mm, minimum Tensile Strength ( $f_u$ ) = 490MPa and minimum Yield Stress ( $f_y$ ) = 380MPa.
3. Tek screws to be installed in accordance with the manufacturer's specifications
4. Stramit channel members to be fully restrained against lateral displacement of both flanges and twisting about the longitudinal axis.

#### **Bracing brackets**

Connection	Bracing capacity
4x14-20 Teks	15kN ( 12mm rod )
M16 bolt	22kN ( 16mm rod )

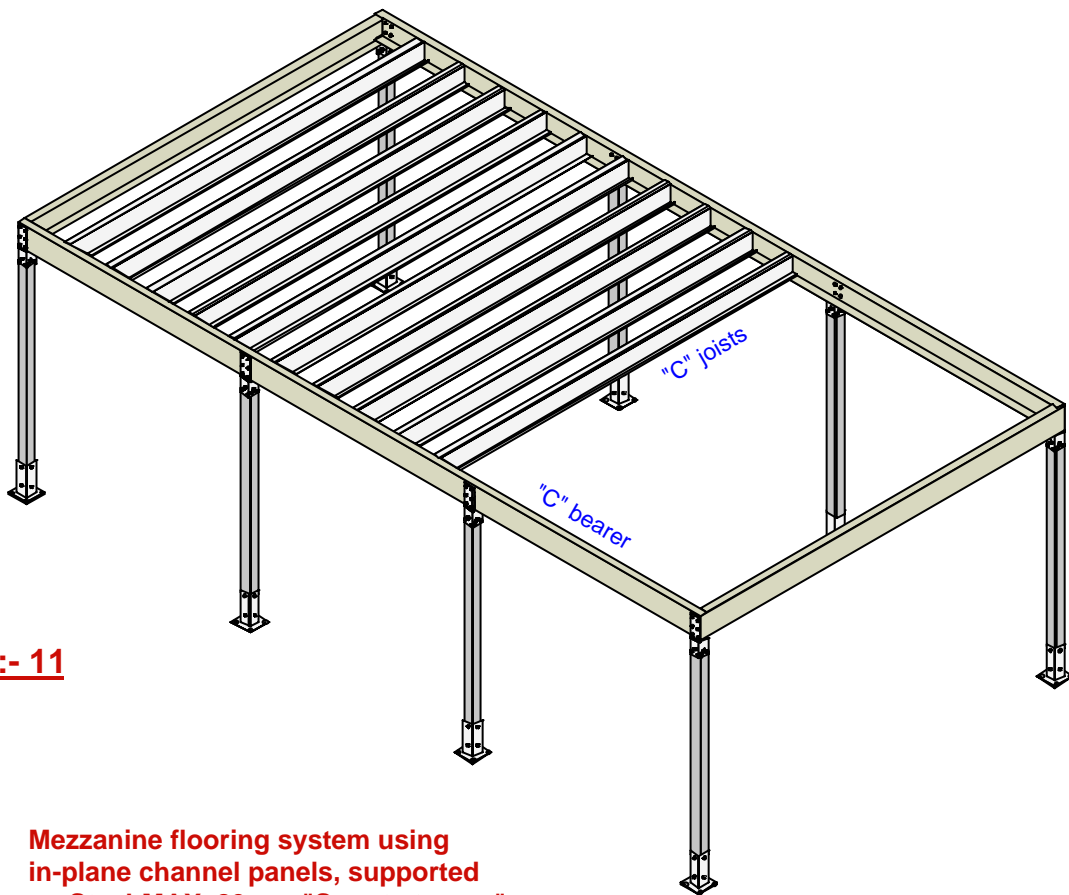
#### **Moment base plates**

Notes:-

100x100x4.0 Moment Base Plates have an ultimate bending moment capacity of 5.2kNm, subject to the following:-

1. Must be fixed to a footing or slab with a minimum compressive strength of 25MPa with 4 / M12 chemset anchors, fixed with a minimum distance between the centre of the bolt and the edge of slab of 50mm.
2. The supporting structure should be assessed by the project engineer to ensure that it is structurally capable of withstanding both the moment and vertical loads expected.
3. The Moment sleeve must be fixed to the supported post with a No.10 Tek screw in each of the four faces of the sleeve.
4. The gap between the sleeve and the supported post must be adequately sealed to prevent moisture ingress between the two members.

### Mezzanine floors



### Detail:- 11

**Mezzanine flooring system using  
in-plane channel panels, supported  
on Steel-MAX 89mm "Smart stumps"  
with Moment Base plates.**

Refer to Detail:- 9  
for Steel-MAX connector brackets  
used in heavily loaded applications.



HR DESIGN GROUP PTY LTD  
ABN 14 015 519 720

# HR Design Group Pty Ltd

ABN: 14 015 519 720

23 July 2008  
File: 08-0406

Ref: Combined documentation for Steel-MAX and Stramit brochure  
Dated: 12 June, 2008

This is a certification letter for the above-mentioned brochure, which I have inspected and checked, in conjunction with the original Steel-MAX documentation and designs carried out by our engineering staff. We are satisfied that all the details listed below, are adequate, and conform to all requirements of structural mechanics.

The design parameters for this project are: -

- Building type - Residential dwelling, commercial or industrial buildings.
- Standards used in the design - AS1170.1 & 2, AS1720.1, AS1684, AS4100, AS4600

**NOTES:**

1. All capacities listed are subject to review of final product specifications and drawings.
2. Some limitations may apply to commercial or industrial projects for timber sections using screws or bolts – see notes below the applicable tables

**Yours faithfully,**  
**HR DESIGN GROUP Pty Ltd**

**Stephen Hunt BEng (Civil), CPEng**  
(MIEAust #368737), (RPEQ #3731), NPER



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