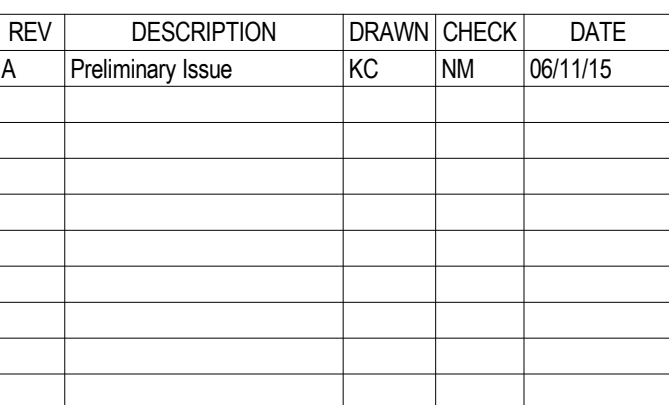




190mm wide Australite block with ENCASED RHS steel stiffeners				
Fire (minutes)	60	120	180	240
Block	20.01 2hr block max srl = 27.83	20.01 2hr block max srl = 26.32	20.401 4hr block max srl = 23.3	20.401 4hr block max srl = 21.17
G450 steel stiffener	125 x 75 x 6 RHS	125 x 75 x 6 RHS	100 x 50 x 6 RHS	100 x 50 x 6 RHS
Height	Max L1	Max L1	Max L1	Max L1
7.0	2.4	2.4	2.4	2.4
6.5	2.6	2.6	2.8	2.8
6.0	2.6	2.6	2.8	2.8
5.5	2.6	2.6	2.8	2.8
5.0	2.8	2.8	3.0	3.0
4.5	2.8	2.8	3.2	3.2
4.0	3.0	3.0	3.4	3.4
3.5	3.0	3.0	3.6	3.6
3.0	3.4	3.4	4.0	4.0

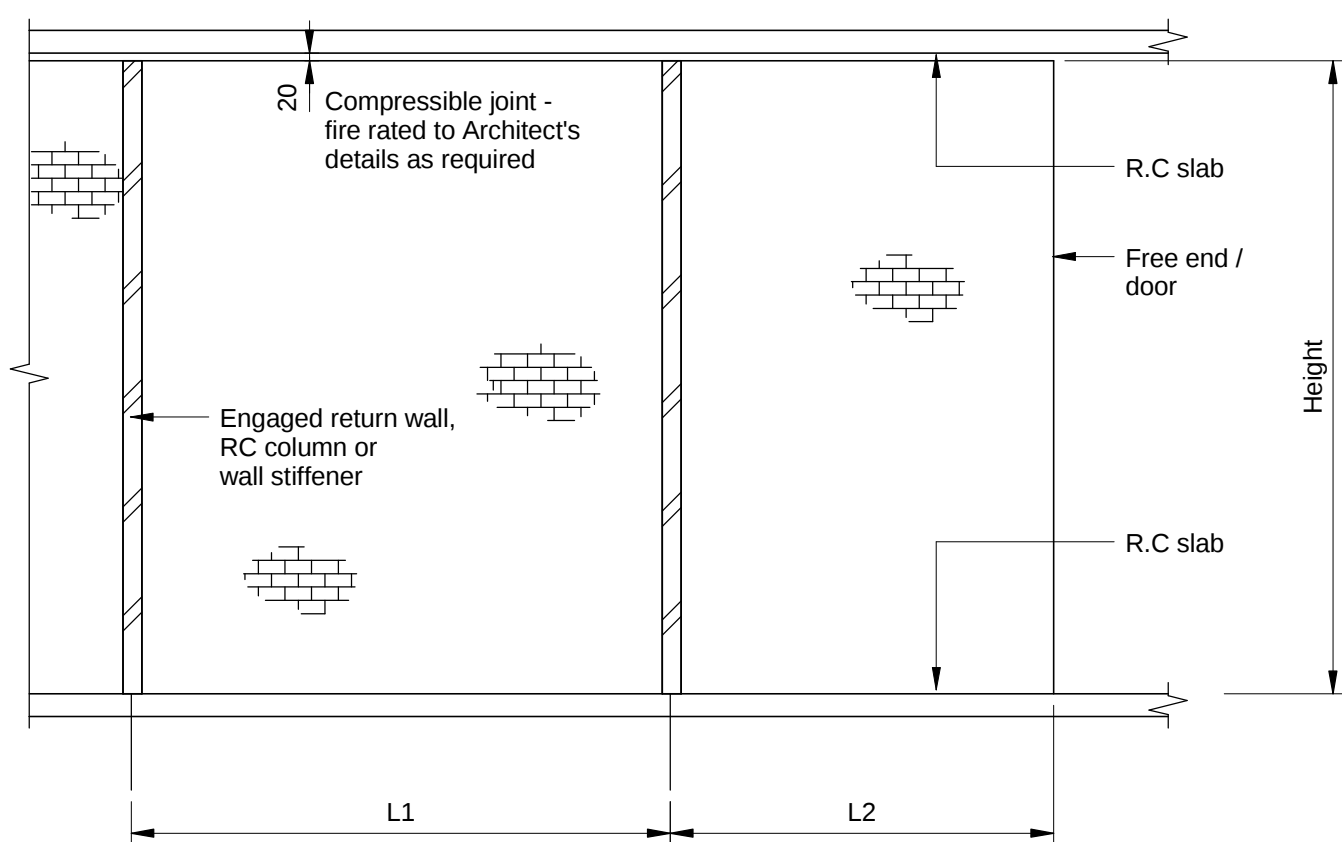
140mm wide Australite block with ENCASED RHS steel stiffeners			
Fire (minutes)	60	120	Any
Block	15.01 2hr block max srf = 27.83	15.01 2hr block max srf = 26.32	Any
G450 steel stiffener	100 x 50 x 6 RHS	100 x 50 x 6 RHS	
Height	Max L1	Max L1	Max L2
7.0	1.2	1.2	N/A
6.5	1.6	1.6	N/A
6.0	2.2	2.2	N/A
5.5	2.4	2.4	N/A
5.0	2.4	2.4	N/A
4.5	2.6	2.6	N/A
4.0	2.8	2.8	N/A
3.5	3.4	3.4	N/A
3.0	3.6	3.6	N/A

190mm wide Australite block with ENCASED RHS steel stiffeners					
Fire (minutes)	60	120	180	240	Any
Block	20.01 2hr block max srl = 27.83	20.01 2hr block max srl = 26.32	20.401 4hr block max srl = 23.3	20.401 4hr block max srl = 21.17	Any
G450 steel stiffener	125 x 75 x 6 RHS	125 x 75 x 6 RHS	100 x 50 x 6 RHS	100 x 50 x 6 RHS	
Height	Max L1	Max L1	Max L1	Max L1	Max L2
7.0	3.0	3.0	3.0	3.0	N/A
6.5	3.2	3.2	3.8	3.8	N/A
6.0	3.4	3.4	4.0	4.0	N/A
5.5	3.6	3.6	4.4	4.4	N/A
5.0	3.8	3.8	5.0	5.0	N/A
4.5	4.2	4.2	5.2	5.2	N/A
4.0	4.6	4.6	5.4	5.4	N/A
3.5	4.8	4.8	6.0	6.0	N/A
3.0	5.2	5.2	6.6	6.6	1.8

140mm wide Generic block with EXPOSED RHS steel stiffeners				
Fire (minutes)	180	240	Any	
Block	Concrete unit (basalt > 45%)			
	max srf = 18	max srf = 17		
G450 steel stiffener	100 x 100 x 9 SHS	100 x 100 x 9 SHS		
Height	Max L1	Max L1	Max L2	
7.0	2.4	2.2	N/A	
6.5	2.6	2.2	N/A	
6.0	2.8	2.4	N/A	
5.5	3.0	2.8	N/A	
5.0	3.4	3.0	N/A	
G450 steel stiffener	100 x 50 x 4 RHS	100 x 50 x 4 RHS		
4.5	3.8	3.4	N/A	
4.0	4.2	3.8	N/A	
3.5	4.8	4.4	N/A	
3.0	5.2	5.2	N/A	

190mm wide Generic block with ENCASED RHS steel stiffeners					
Fire (minutes)	60	120	180	240	Any
Block	Concrete unit (basalt > 45%)				
G450 steel stiffener	max srf = 22.5	max srf = 20	max srf = 18	max srf = 17	
	125 x 75 x 6 RHS	125 x 75 x 6 RHS	100 x 50 x 6 RHS	100 x 50 x 6 RHS	
Height	Max L1	Max L1	Max L1	Max L1	Max L2
7.0	3.0	3.0	3.0	3.0	N/A
6.5	3.2	3.2	3.8	3.8	N/A
6.0	3.4	3.4	4.0	4.0	N/A
5.5	3.6	3.6	4.4	4.4	N/A
5.0	3.8	3.8	5.0	5.0	N/A
4.5	4.2	4.2	5.2	5.2	N/A
4.0	4.6	4.6	5.4	5.4	N/A
3.5	4.8	4.8	6.0	6.0	N/A
3.0	5.2	5.2	6.6	6.6	1.8

SCALE: 1:1	DOHS NUMBER: 5335	CHECKED: NM
PROJECT NUMBER: 2236482	DRAWING NUMBER: MSC-ARP-ST-DG-0018	ISSUE: A



Internal Walls - Bottom & Sides Restrained (3 Edges Restrained)

Australite Blocks

140mm wide Australite block with ENCASED RHS steel stiffeners		
Fire (minutes)	60	120
Block	15.01 2hr block max srf = 27.83	15.01 2hr block max srf = 26.32
G450 steel stiffener	100 x 50 x 6 RHS	100 x 50 x 6 RHS
Height (m)	Max L1	Max L1
7.0	1.0	1.0
6.5	1.2	1.2
6.0	1.4	1.4
5.5	2.0	2.0
5.0	2.8	2.8
4.5	3.8	3.6
4.0	3.8	3.6
3.5	4.4	3.8
3.0	5.0	4.6

140mm thick Australite block with EXPOSED RHS steel stiffeners		
Fire (minutes)	180	240
Block	15.401 4hr block max srf = 23.3	15.401 4hr block max srf = 21.17
G450 steel stiffener	100 x 100 x 9 SHS	100 x 100 x 9 SHS
Height (m)	Max L1	Max L1
7.0	2.2	2.2
6.5	2.6	2.6
6.0	3.2	2.8
5.5	3.2	2.8
5.0	3.2	2.8
G450 steel stiffener	100 x 50 x 5 RHS	100 x 50 x 4 RHS
4.5	3.2	2.8
4.0	3.2	2.8
3.5	3.2	2.8
3.0	3.6	2.8

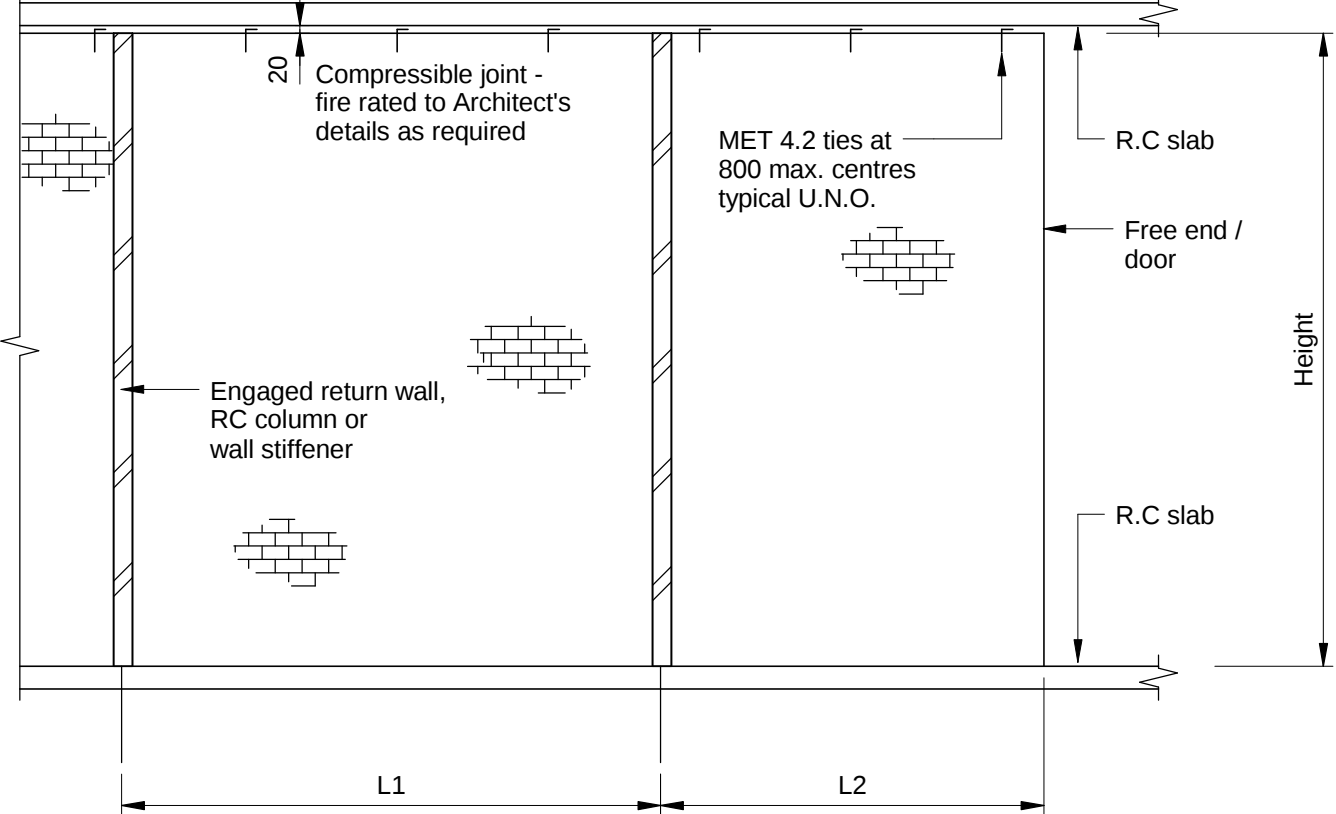
190mm wide Australite block with ENCASED RHS steel stiffeners				
Fire (minutes)	60	120	180	240
Block	20.01 2hr block max srf = 27.83	20.01 4hr block max srf = 26.32	20.401 4hr block max srf = 23.3	20.401 4hr block max srf = 21.17
G450 steel stiffener	125 x 75 x 6 RHS	125 x 75 x 6 RHS	100 x 50 x 6 RHS	100 x 50 x 6 RHS
Height (m)	Max L1	Max L1	Max L1	Max L1
7.0	3.4	3.4	2.4	2.4
6.5	4.4	4.4	3.2	3.2
6.0	5.2	5.0	4.2	4.0
5.5	5.2	5.0	4.4	4.0
5.0	5.6	5.0	4.4	4.0
4.5	6.0	5.6	4.4	4.0
4.0	6.0	6.0	5.0	4.0
3.5	6.0	6.0	5.6	4.6
3.0	6.0	6.0	6.0	5.4

Generic Block Complying With AS3700

140mm wide Generic block with ENCASED RHS steel stiffeners		
Fire (minutes)	60	120
Block	Concrete unit (basalt > 45%) max srf = 22.5 15.01	
G450 steel stiffener	100 x 50 x 6 RHS	100 x 50 x 6 RHS
Height (m)	Max L1	Max L1
7.0	1.0	1.0
6.5	1.2	1.2
6.0	1.4	1.4
5.5	2.0	2.0
5.0	2.8	2.8
4.5	3.0	2.8
4.0	3.0	2.8
3.5	3.0	2.8
3.0	3.2	2.8

140mm thick Generic block with EXPOSED SHS steel stiffeners		
Fire (minutes)	180	240
Block	Concrete unit (basalt > 45%) max srf = 18 15.01	
G450 steel stiffener	100 x 100 x 9 SHS	100 x 100 x 9 SHS
Height (m)	Max L1	Max L1
7.0	2.2	2.2
6.5	2.4	2.2
6.0	2.4	2.2
5.5	2.4	2.2
5.0	2.4	2.2
G450 steel stiffener	100 x 50 x 5 RHS	100 x 50 x 4 RHS
4.5	2.4	2.2
4.0	2.4	2.2
3.5	2.4	2.2
3.0	2.4	2.2

190mm wide Generic block with ENCASED RHS steel stiffeners				
Fire (minutes)	60	120	180	240
Block	Concrete unit (basalt > 45%) max srf = 22.5 20.01			
G450 steel stiffener	125 x 75 x 6 RHS	125 x 75 x 6 RHS	100 x 50 x 6 RHS	100 x 50 x 6 RHS
Height (m)	Max L1	Max L1	Max L1	Max L1
7.0	3.4	3.4	2.5	2.5
6.5	4.2	3.8	3.2	3.2
6.0	4.2	3.8	3.4	3.2
5.5	4.2	3.8	3.4	3.2
5.0	4.2	3.8	3.4	3.2
4.5	4.2	3.8	3.4	3.2
4.0	4.6	3.8	3.4	3.2
3.5	5.2	4.2	3.4	3.2
3.0	6.0	4.8	4.0	3.5



Internal Walls - Top, Bottom & Sides Restrained (4 Edges Restrained)

Australite Blocks

140mm wide Australite block with ENCASED RHS steel stiffeners			
Fire (minutes)	60	120	Any
Block	15.01 2hr block max srf = 27.83	15.01 2hr block max srf = 26.32	Any
G450 steel stiffener	100 x 50 x 6 RHS	100 x 50 x 6 RHS	
Height	Max L1	Max L1	Max L2
7.0	1.2	1.2	N/A
6.5	1.6	1.6	1.0
6.0	2.2	2.2	1.6
5.5	3.2	3.2	2.6
5.0	4.8	4.8	2.8
4.5	6.0	6.0	3.2
4.0	6.0	6.0	3.6
3.5	6.0	6.0	4.2
3.0	6.0	6.0	4.8

140mm thick Australite block with EXPOSED RHS steel stiffeners			
Fire (minutes)	180	240	Any
Block	15.401 4hr block max srf = 23.3	15.401 4hr block max srf = 21.17	Any
G450 steel stiffener	100 x 100 x 9 SHS	100 x 100 x 9 SHS	
Height	Max L1	Max L1	Max L2
7.0	2.8	2.8	1.2
6.5	4.0	3.6	1.4
6.0	4.8	3.8	1.4
5.5	5.2	4.2	1.6
5.0	5.6	4.6	1.8
G450 steel stiffener	100 x 50 x 5 RHS	100 x 50 x 5 RHS	
4.5	6.0	5.2	2.0
4.0	6.0	5.8	2.2
3.5	6.0	6.0	6.0
3.0	6.0	6.0	6.0

190mm wide Australite block with ENCASED RHS steel stiffeners					
Fire (minutes)	60	120	180	240	Any
Block	20.01 2hr block max srf = 27.83	20.01 2hr block max srf = 26.32	20.401 4hr block max srf = 23.3	20.401 4hr block max srf = 21.17	Any
G450 steel stiffener	125 x 75 x 6 RHS	125 x 75 x 6 RHS	100 x 50 x 6 RHS	100 x 50 x 6 RHS	
Height	Max L1	Max L1	Max L1	Max L1	Max L2
7.0	5.2	5.2	3.0	3.0	2.4
6.5	6.0	6.0	4.2	4.2	2.6
6.0	6.0	6.0	5.8	5.8	2.8
5.5	6.0	6.0	6.0	6.0	3.2
5.0	6.0	6.0	6.0	6.0	5.0
4.5	6.0	6.0	6.0	6.0	5.6
4.0	6.0	6.0	6.0	6.0	6.0
3.5	6.0	6.0	6.0	6.0	6.0
3.0	6.0	6.0	6.0	6.0	6.0

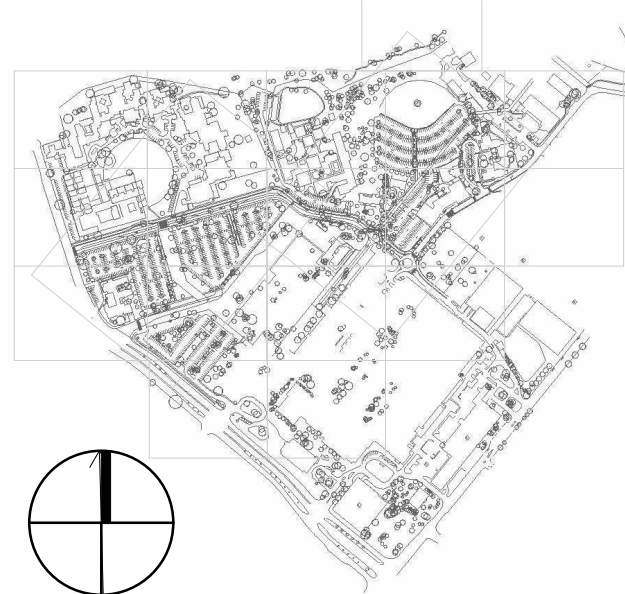
Generic Block Complying With AS3700

140mm wide generic block with ENCASED RHS steel stiffeners			
Fire (minutes)	60	120.0	Any
Block	Concrete unit (basalt > 45%) max srf = 22.5 15.01		
G450 steel stiffener	100 x 50 x 6 RHS	100 x 50 x 6 RHS	
Height	Max L1	Max L1	Max L2
7.0	1.2	1.2	N/A
6.5	1.6	1.6	1.0
6.0	2.2	2.2	1.4
5.5	3.2	3.2	1.4
5.0	4.8	4.2	1.6
4.5	6.0	4.6	1.8
4.0	6.0	5.2	2.0
3.5	6.0	6.0	4.2
3.0	6.0	6.0	4.8

140mm thick generic block with EXPOSED RHS steel stiffeners			
Fire (minutes)	180	240	Any
Block	Concrete unit (basalt > 45%) max srf = 18 15.401		
G450 steel stiffener	100 x 100 x 9 SHS	100 x 100 x 9 SHS	
Height	Max L1	Max L1	Max L2
7.0	2.4	2.2	N/A
6.5	2.6	2.2	N/A
6.0	2.8	2.4	1.0
5.5	3.0	2.8	1.0
5.0	3.4	3.0	1.2
G450 steel stiffener	100 x 50 x 4 RHS	100 x 50 x 4 RHS	
4.5	3.8	3.4	1.2
4.0	4.2	3.8	1.4
3.5	4.8	4.4	1.6
3.0	6.0	6.0	6.0

190mm wide generic block with ENCASED RHS steel stiffeners					
Fire (minutes)	60	120	180	240	Any
Block	Concrete unit (basalt > 45%) max srf = 22.5 20.01				
G450 steel stiffener	125 x 75 x 6 RHS	125 x 75 x 6 RHS	125 x 125 x 5 SHS	125 x 125 x 5 SHS	
Height	Max L1	Max L1	Max L1	Max L1	Max L2
7.0	5.2	5.2	4.4	4.0	1.6
6.5	6.0	6.0	4.8	4.4	1.6
6.0	6.0	6.0	5.2	4.6	1.8
5.5	6.0	6.0	5.8	5.2	2.0
5.0	6.0	6.0	6.0	5.6	2.2
4.5	6.0	6.0	6.0	6.0	2.4
4.0	6.0	6.0	6.0	6.0	6.0
3.5	6.0	6.0	6.0	6.0	6.0
3.0	6.0	6.0	6.0	6.0	6.0

Key Plan:



REV	DESCRIPTION	DRAWN	CHECK	DATE
A	Preliminary Issue	KC	NM	06/11/15

Project Status
FOR TENDER

CLIENT:
Health Infrastructure  Health Infrastructure

Level 6, 77 Pacific Highway
North Sydney NSW 2060

P: (02) 9878 5427
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www.health.nsw.gov.au

PROJECT MANAGER:



Darling Park Tower 2
201 Sussex St
Sydney NSW 2000

P: (02) 8266 0000
F: (02) 8266 9999
www.pwc.com.au

LEAD ARCHITECT:

HDR | RD + MSJ

Lvl 1, 110 Walker Street
North Sydney NSW 2060

P: (02) 9656 2666
F: (02) 9659 3015
askhldr@hdrincollins.com

ARUP

Level 10, 201 Kent Street,
Sydney NSW 2000
www.arup.com

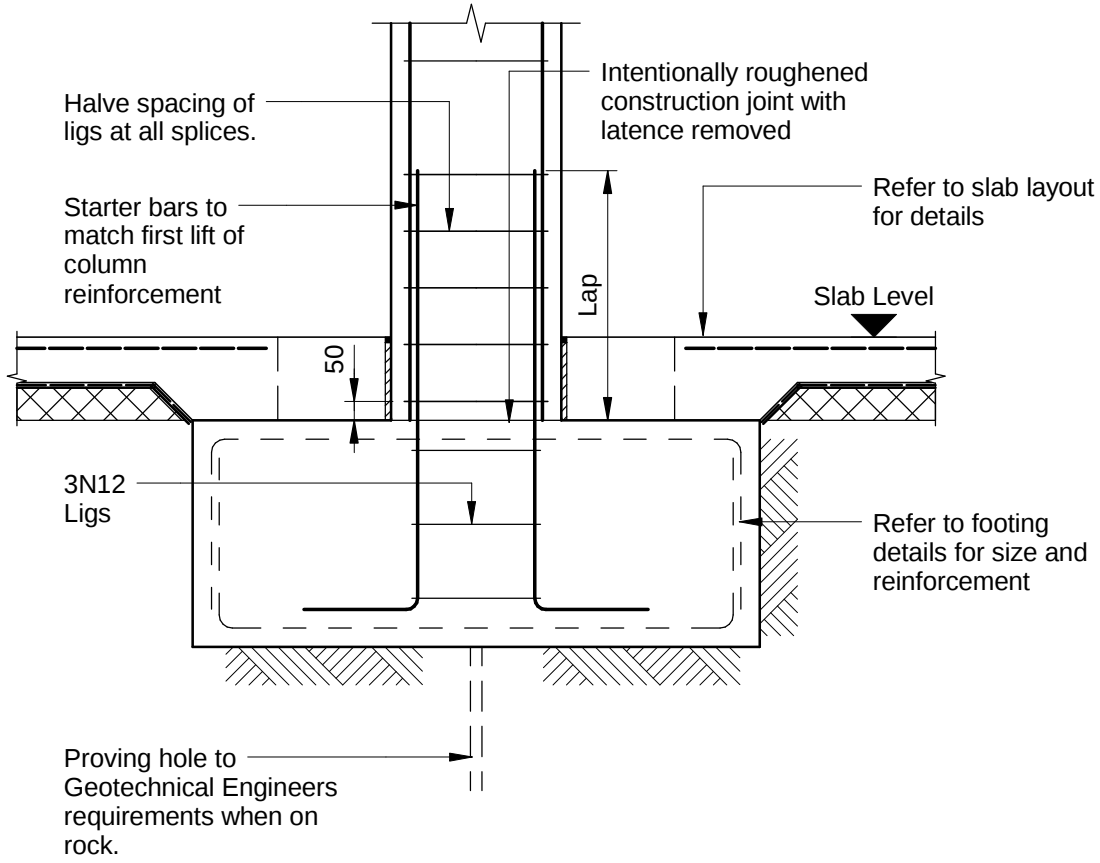
WESTMEAD MULTI DECK CARPARK
Cnr Hawkesbury Road and Darcy Road
Westmead NSW 2145



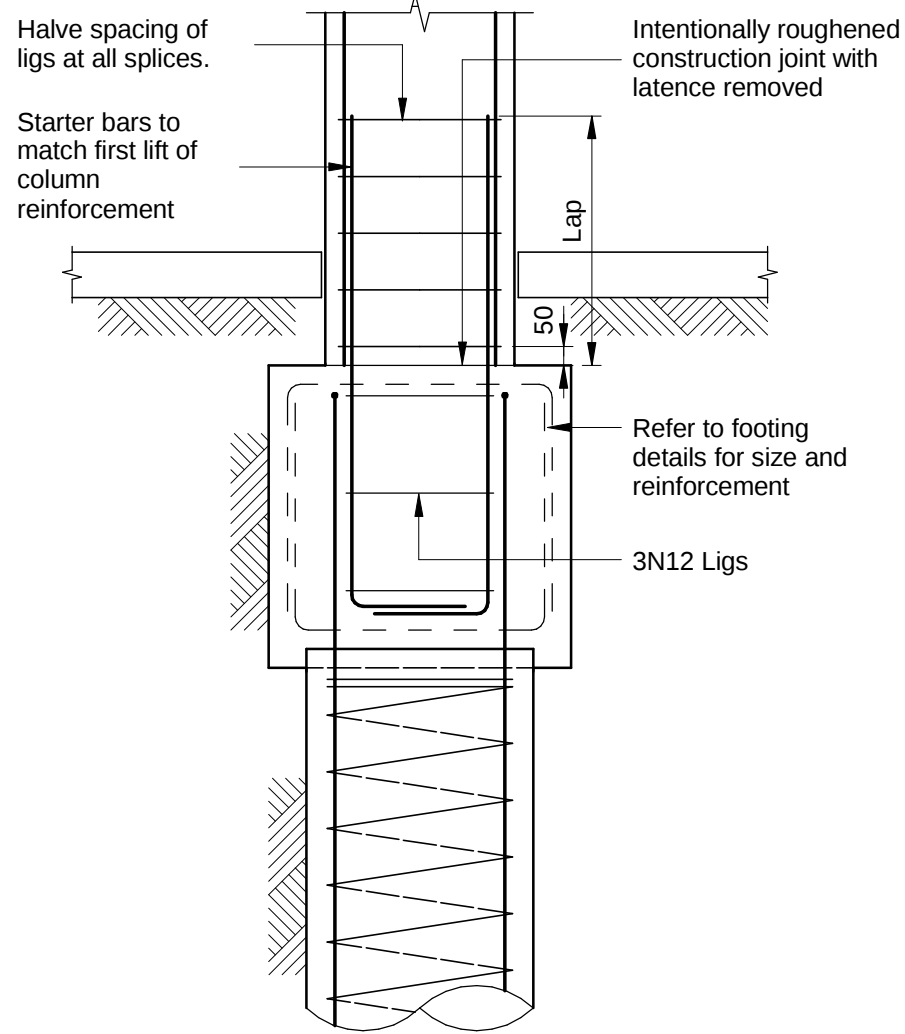
DRAWING TITLE:
Typical Blockwork Details - Sheet 3

SCALE: 1:1	DOHS NUMBER: 5335	CHECKED: NM
PROJECT NUMBER: 236482	DRAWING NUMBER: MSC-ARP-ST-DG-0019 A	ISSUE:

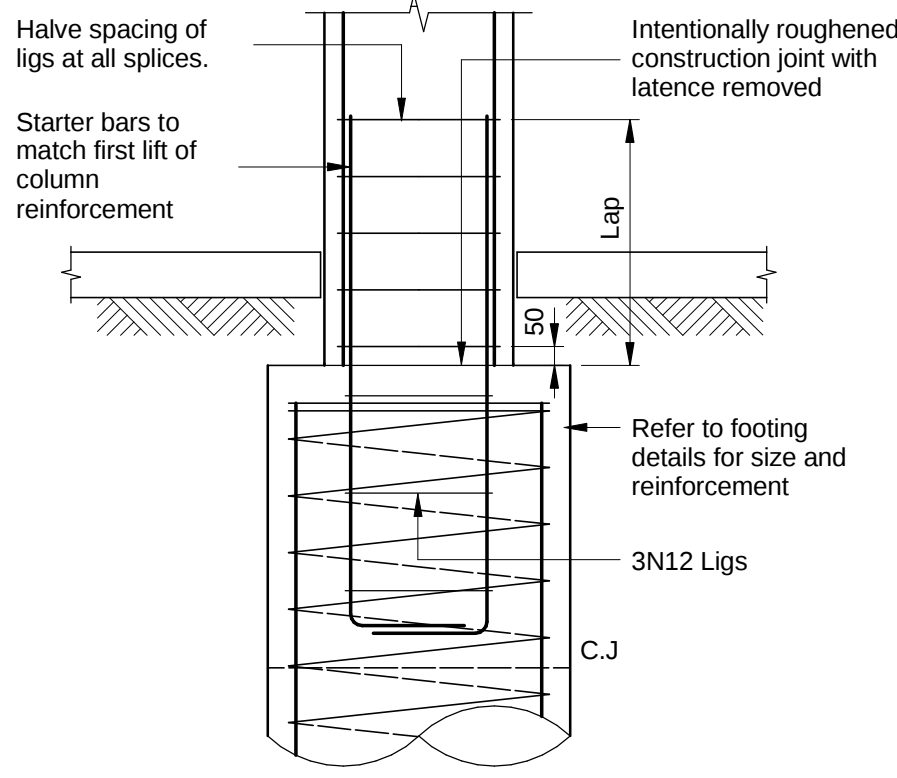
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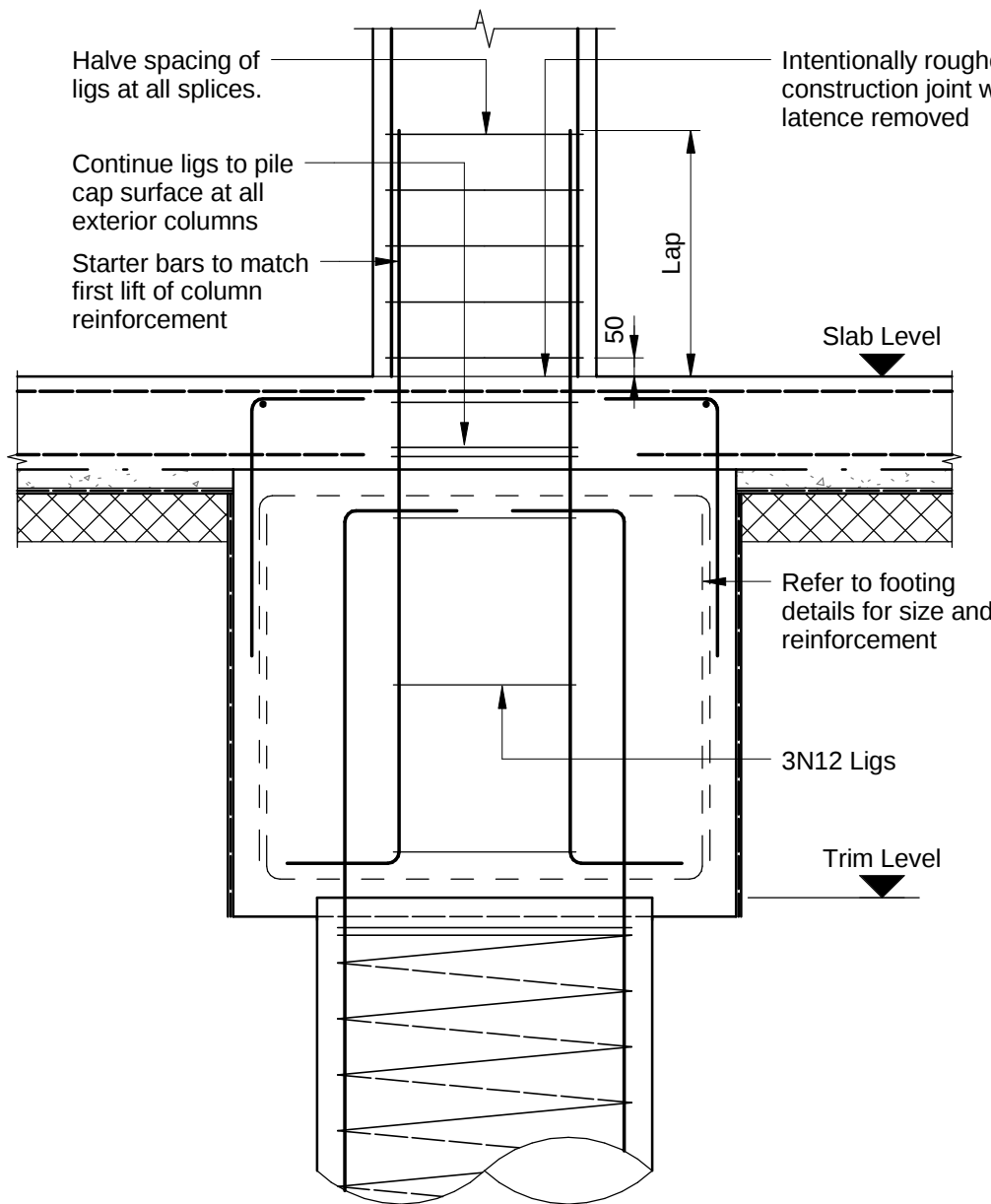
Column to Pad Footing Detail
Scale 1 : 20



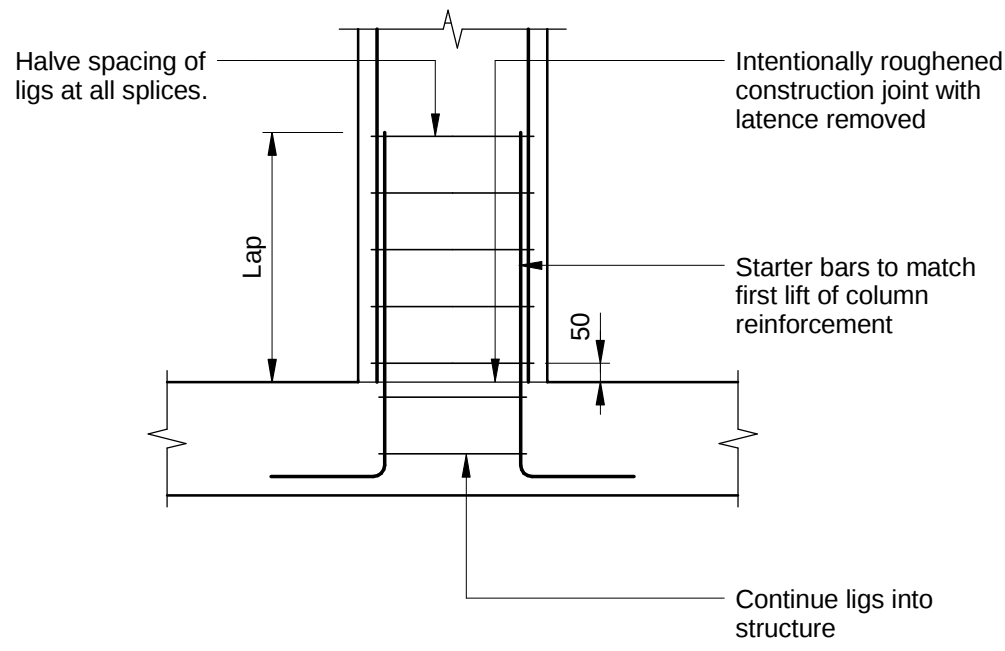
Column to Pile Cap Detail
Scale 1 : 20



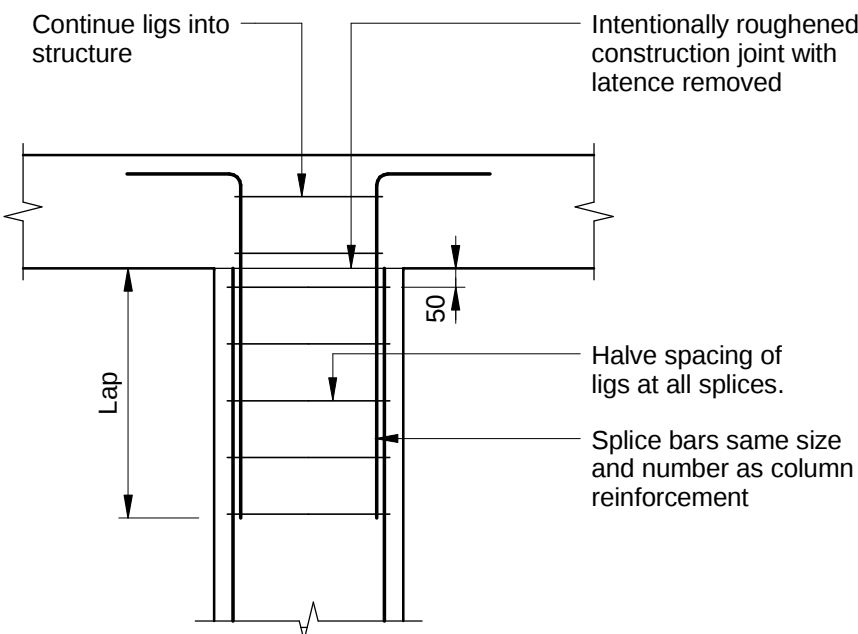
Column to Same
Size Pile Cap Detail
Scale 1 : 20



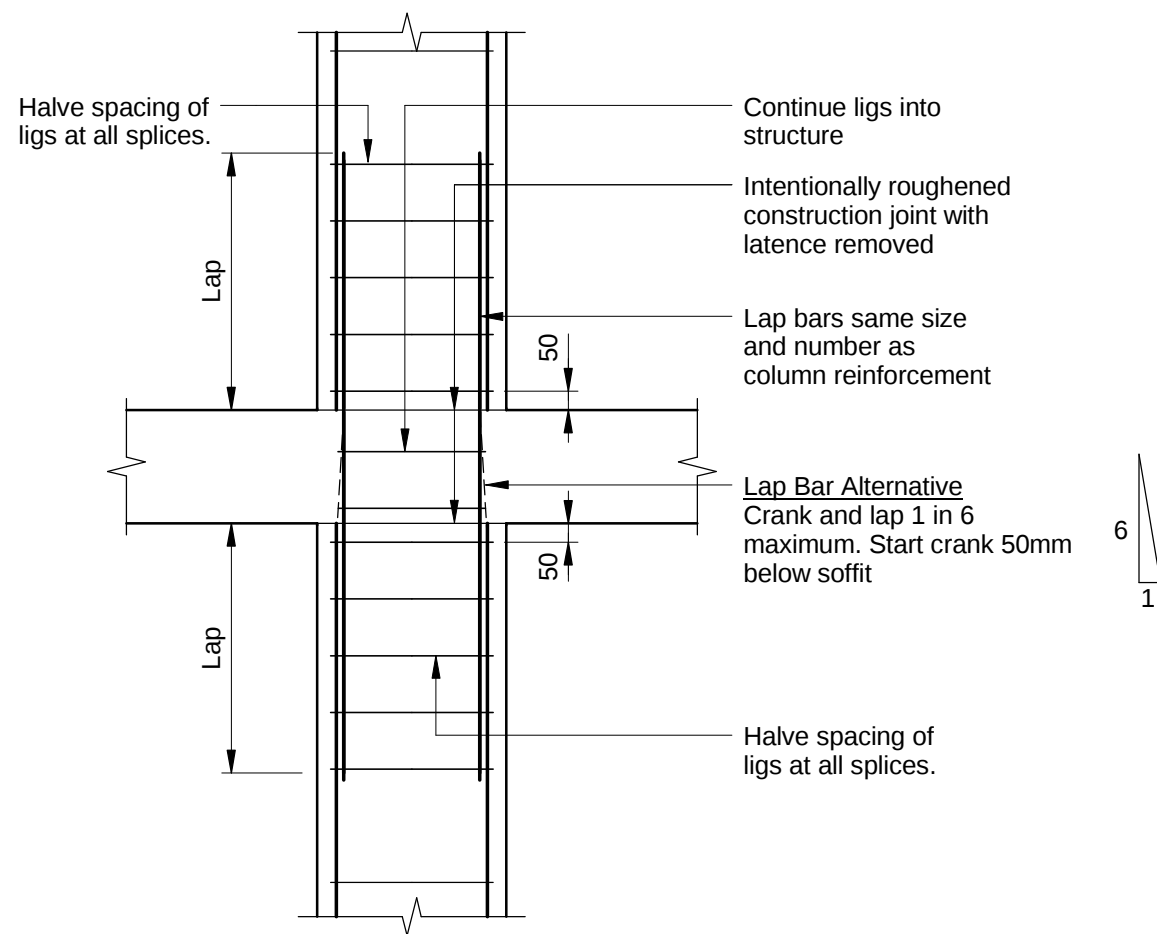
Column to
Engaged Pile Cap Detail
Scale 1 : 20



Column to
Suspended Structure Detail
Scale 1 : 20

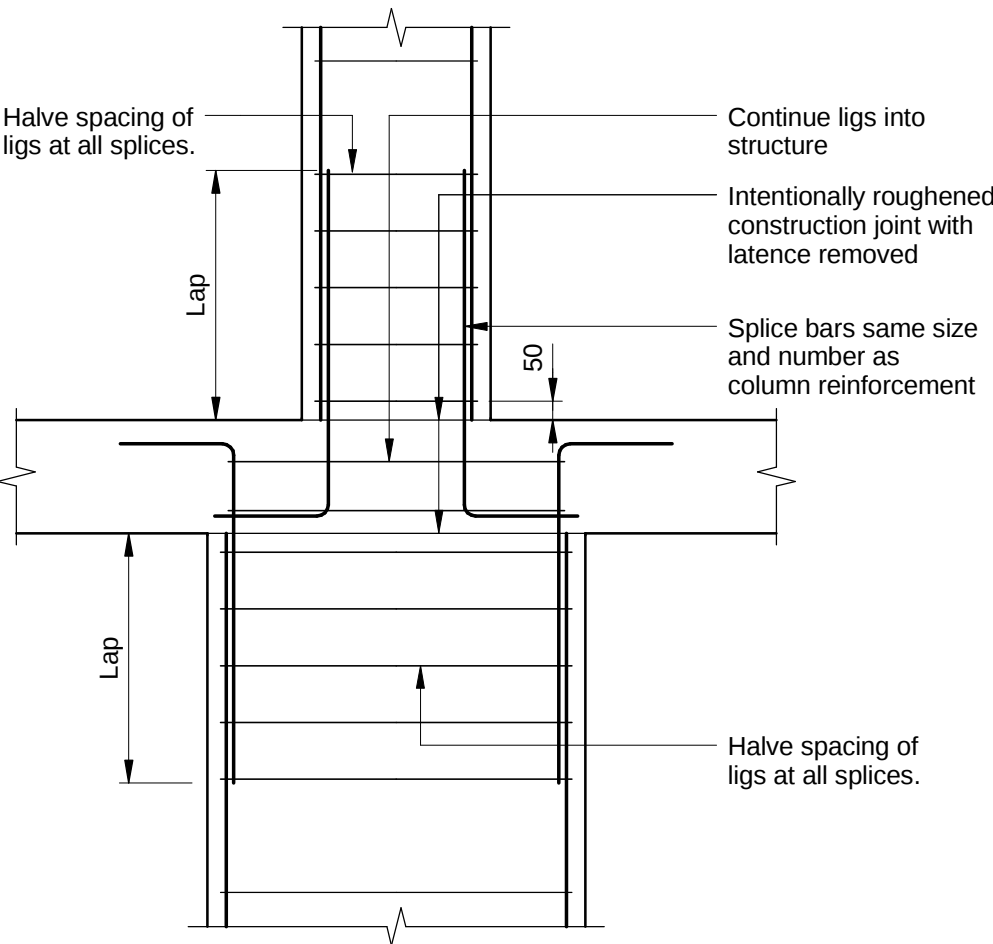


Column Terminating
at Structure Over Detail
Scale 1 : 20



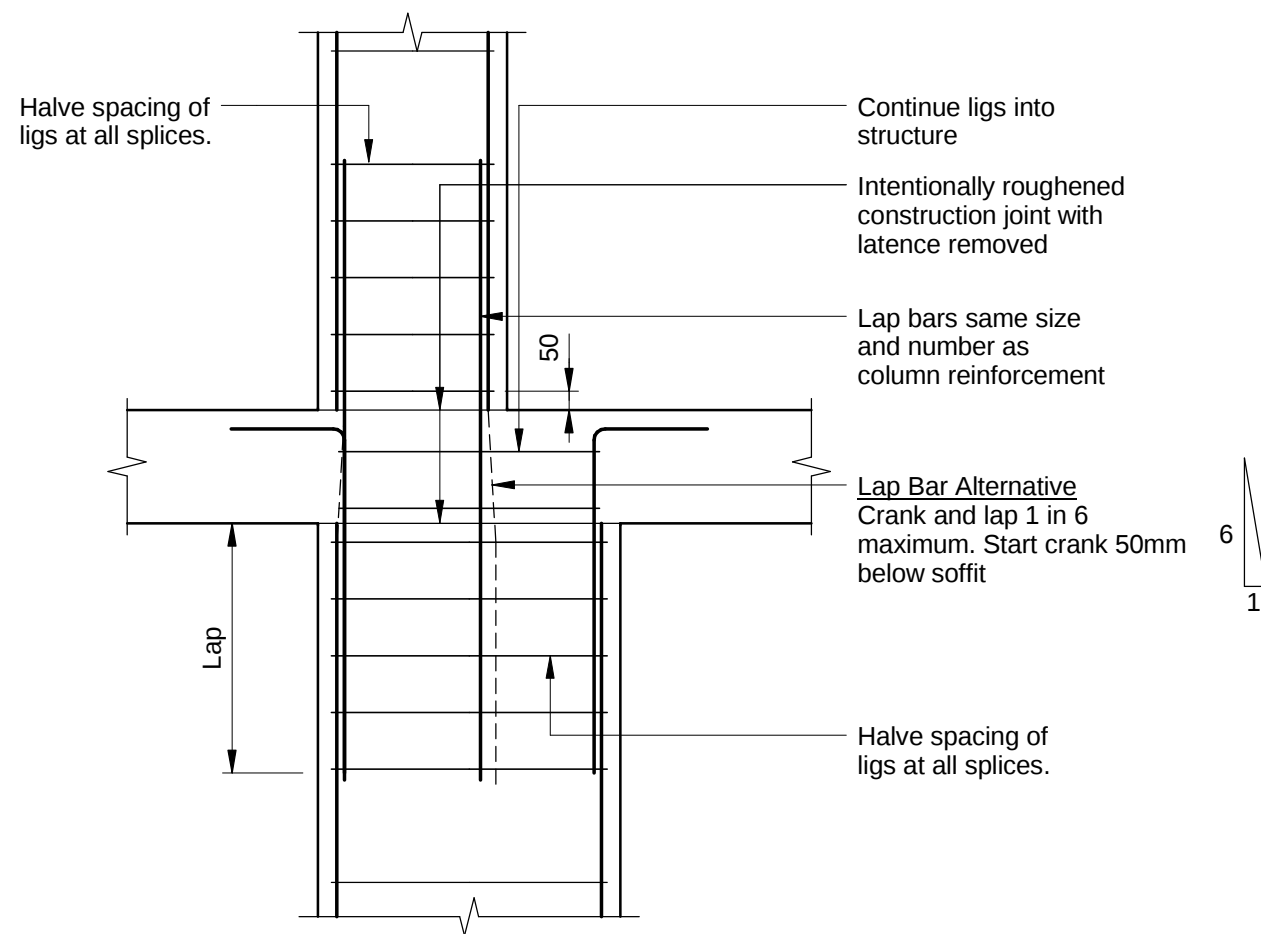
Column Transition Detail
Scale 1 : 20

Note:
Where possible, all vertical bars to be continuous through transition.



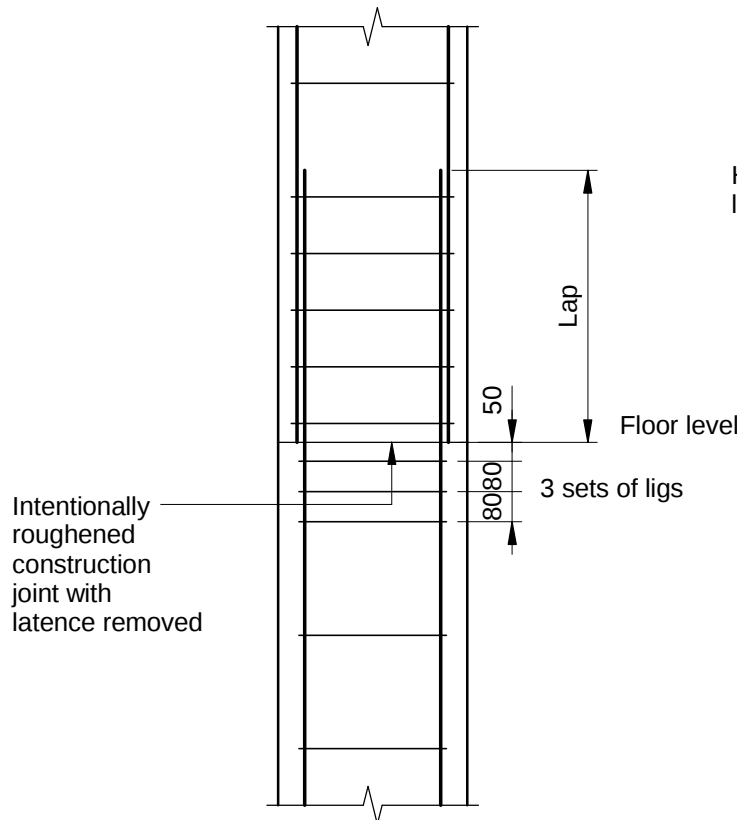
Column Change in Size and/or
Orientation Transition Detail
Scale 1 : 20

Note:
Where possible, all vertical bars to be continuous through transition.

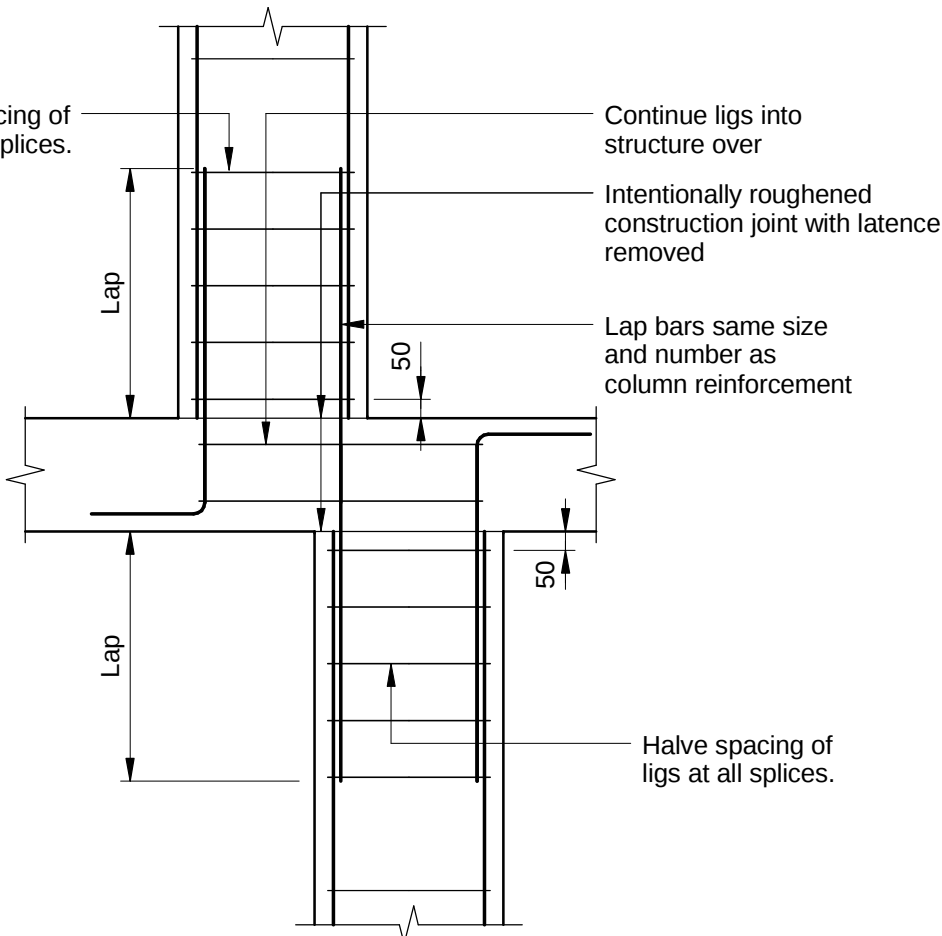


Column Transition
Change in Size detail
Scale 1 : 20

Note:
Where possible, all vertical bars to be continuous through transition.

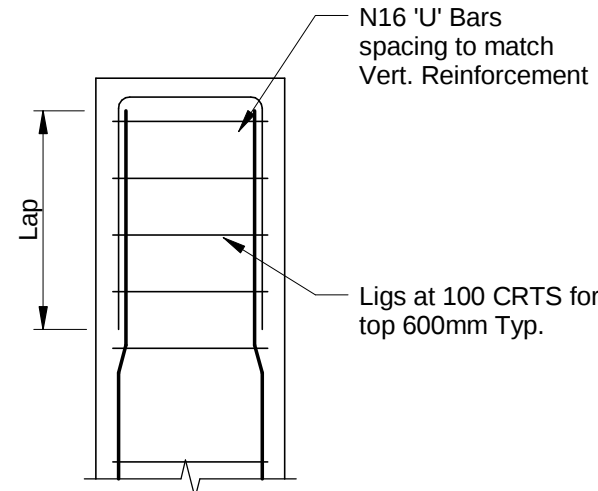


Column Transition No Floor
Scale 1 : 20

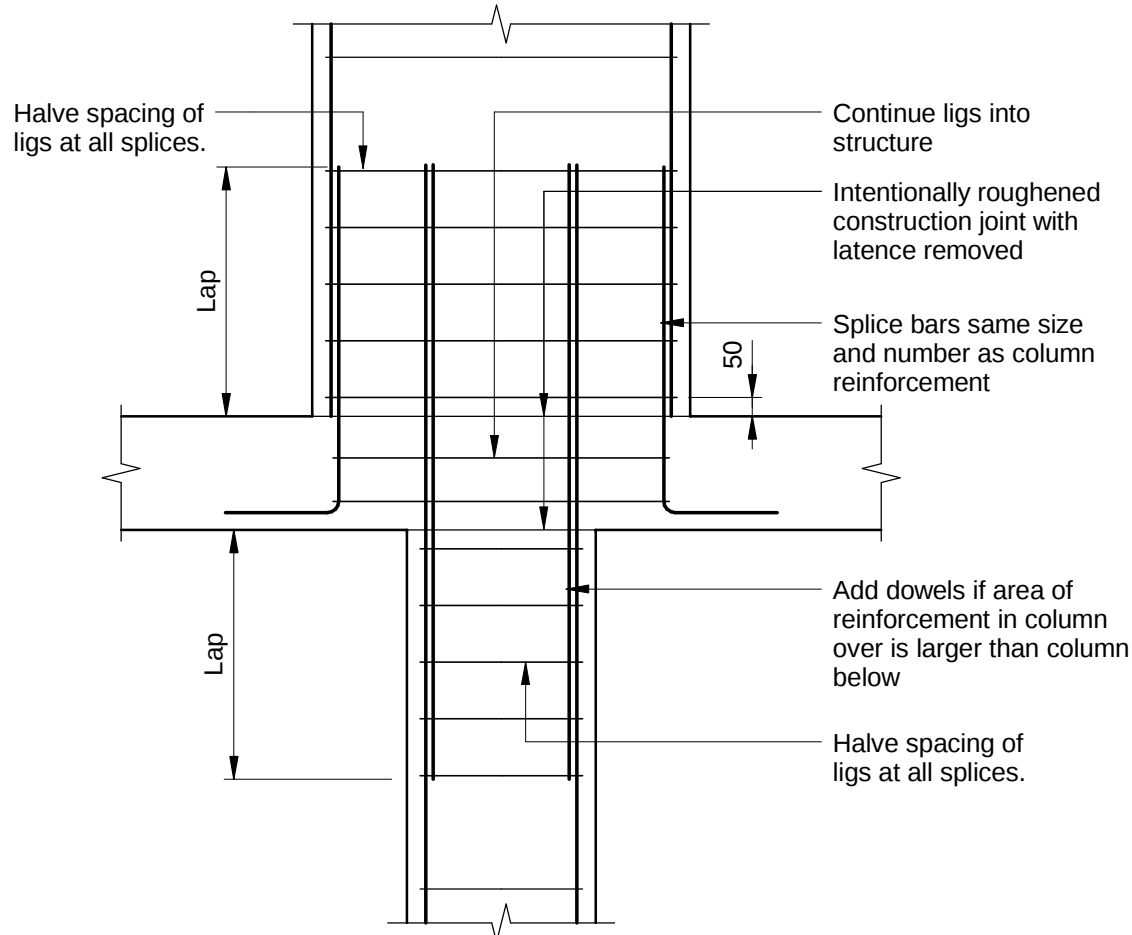


Column Transition Detail
Scale 1 : 20

Note:
Where possible, all vertical bars to be continuous through transition.

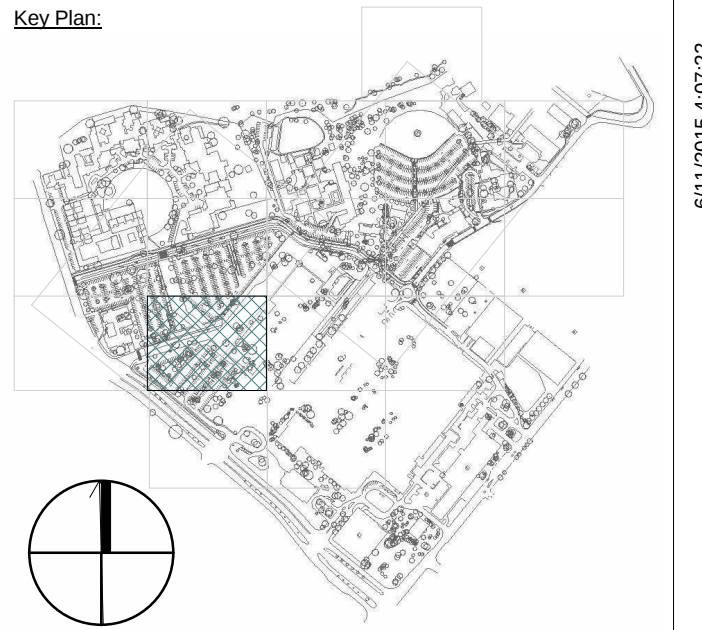


Column Connection Not
Terminating at Slab or Beam
Scale 1 : 20



Column Change in Size and/or
Orientation Transition Detail
Scale 1 : 20

Note:
Where possible, all vertical bars to be continuous through transition.



REV	DESCRIPTION	DRAWN	CHECK	DATE
A	Preliminary Issue	KC	NM	06/11/15

Project Status

FOR TENDER

CLIENT:
Health Infrastructure
Level 6, 77 Pacific Highway
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P: (02) 9678 5427
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PROJECT MANAGER:
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Darling Park Tower 2
201 Sussex St
Sydney NSW 2000
P: (02) 8266 0000
F: (02) 8266 9999
www.pwc.com.au

LEAD ARCHITECT:
HDR | RD + MSJ
Lvl 1, 110 Walker Street
North Sydney NSW 2060
P: (02) 9556 2666
F: (02) 9559 3015
askhldr@hdrincollins.com

ARUP
Level 10, 201 Kent Street,
Sydney NSW 2000
www.arup.com

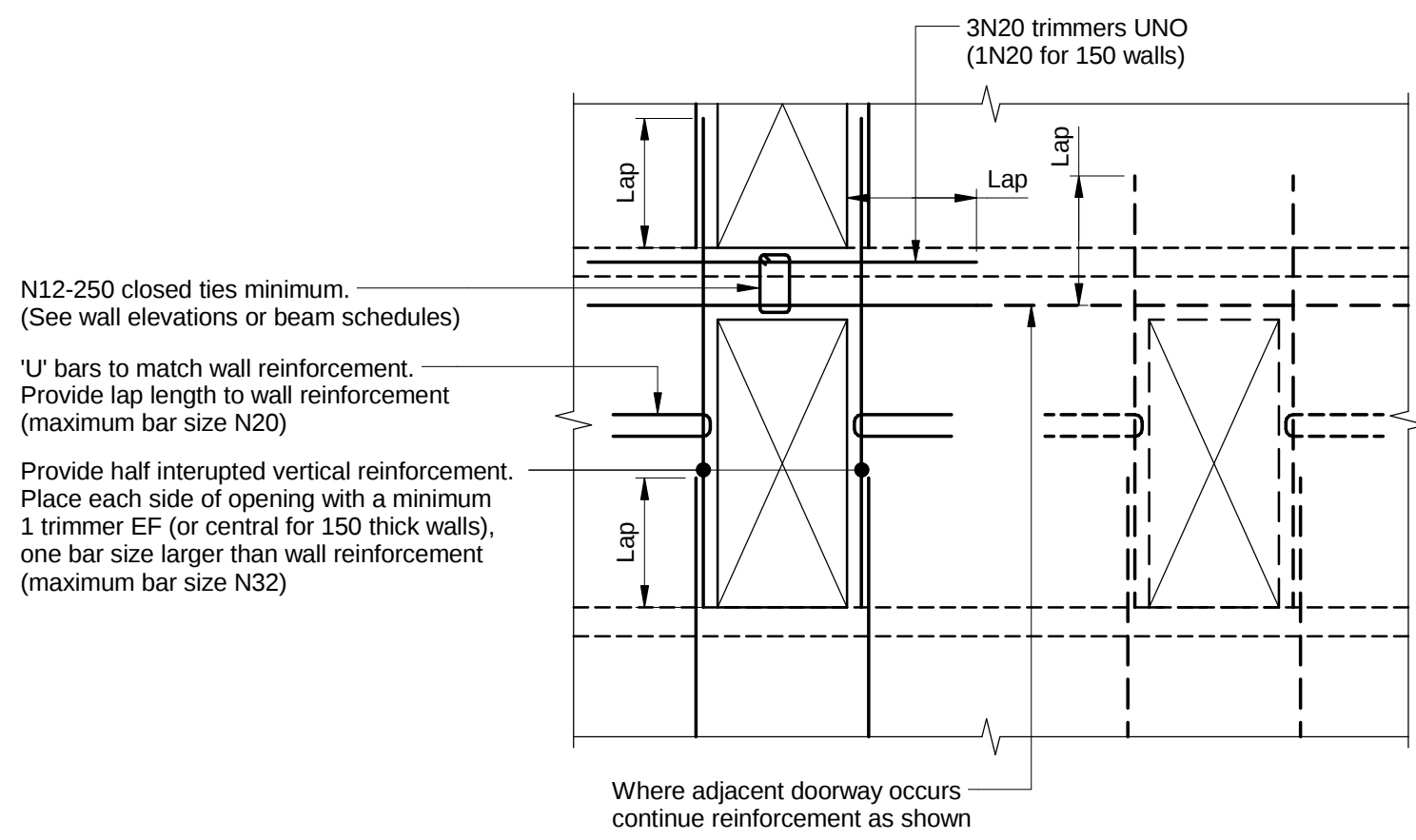
WESTMEAD MULTI DECK CARPARK
Cnr Hawkesbury Road and Darcy Road
Westmead NSW 2145

WESTMEAD HOSPITAL REDEVELOPMENT
Building health. Transforming lives.

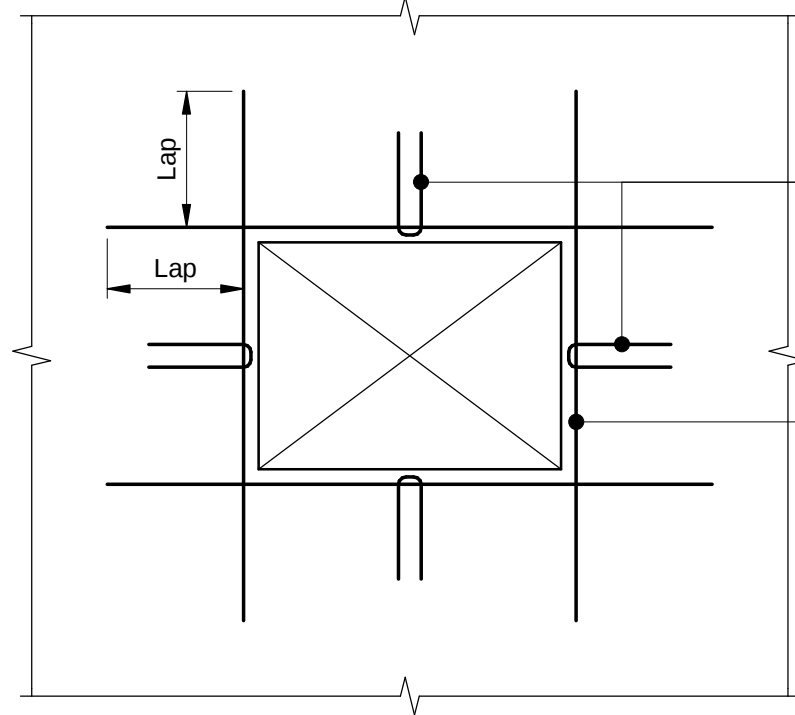
DRAWING TITLE:
Typical Column Details

SCALE: 1 : 20
PROJECT NUMBER: 236482
DOWNS NUMBER: 5335
DRAWING NUMBER: MSC-ARP-ST-DG-0020 A
CHECKED: NM
ISSUE:

C:\Users\chris.bonita\Documents\236482_Westmead_Carpark_F14_chris.bonita.rvt
6/11/2015 4:07:24 PM



Typical Door Opening



Typical Reinforcement for Wall Opening

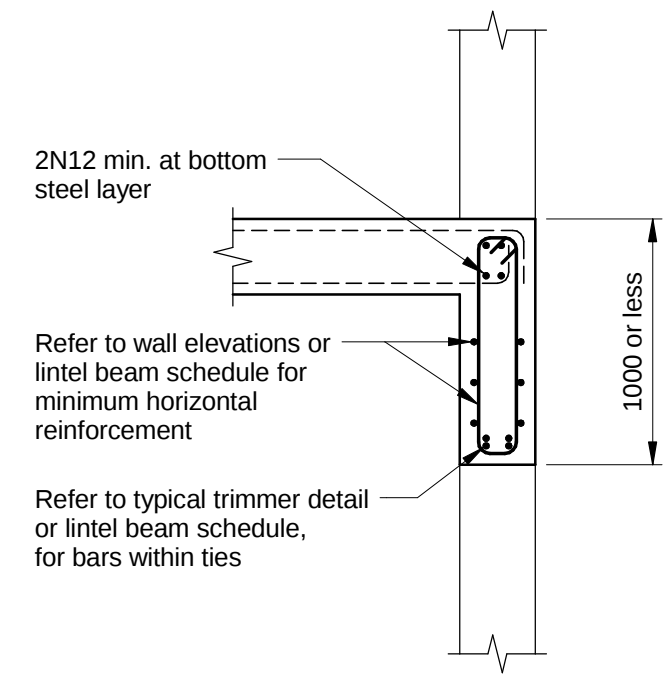
'U' bars to match wall reinforcement.
Provide lap length to wall reinforcement
(maximum bar size N20)

Provide half interrupted vertical reinforcement.
Place each side of opening with a minimum
1 trimmer EF (or central for 150 thick walls),
one bar size larger than wall reinforcement
(maximum bar size N32)

Refer to wall elevations or
intel beam schedule for
minimum horizontal
reinforcement

Refer to typical trimmer detail
or intel beam schedule,
for bars within ties

Wall Lintel Detail



Wall Lintel Detail 1000 or Less

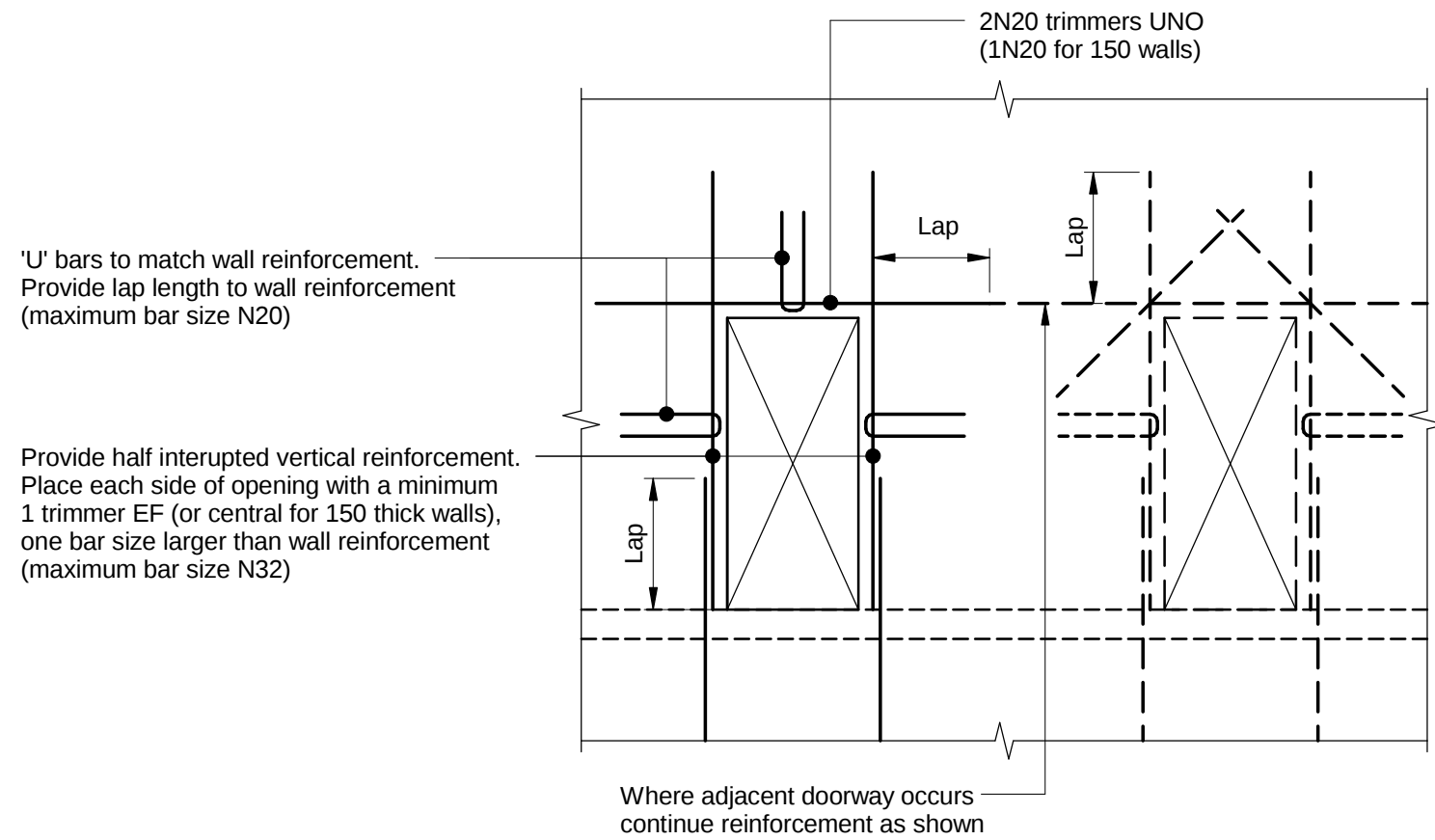
'U' bars to match vert. wall reinf't
typical NSOE

Refer to wall elevations or
intel beam schedule for
minimum horizontal
reinforcement

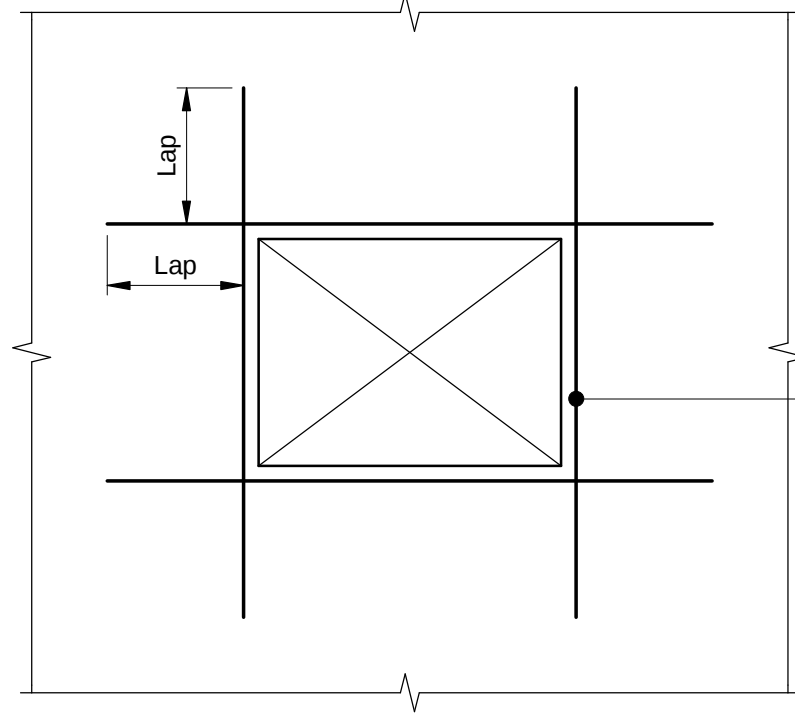
'U' bars to match vert. wall reinf't
typical NSOE

Refer to typical trimmer detail
or intel beam schedule,
for bars within 'U' bar

Wall Lintel Detail Greater Than 1650



Typical Door Opening



Typical Hall Lantern / Hall Button Detail

Provide 1N12 trimmer all round, each face.
Displace wall reinforcement around penetration

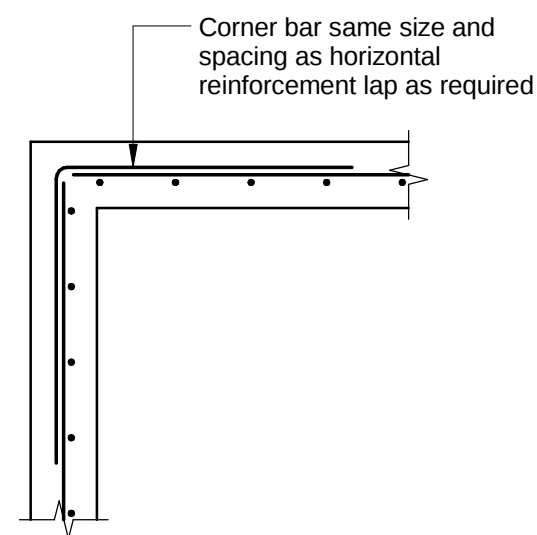
Refer to wall elevations or
intel beam schedule for
minimum horizontal
reinforcement

Refer to typical trimmer detail
or intel beam schedule,
for bars within 'U' bar

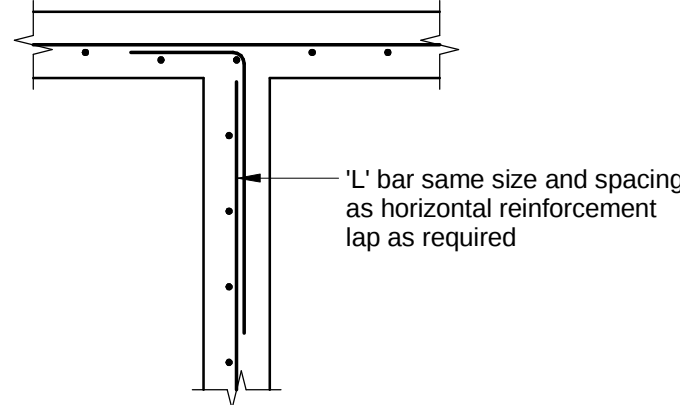
Wall Lintel Detail Greater Than 1000 to 1650

Typical Penetration Details

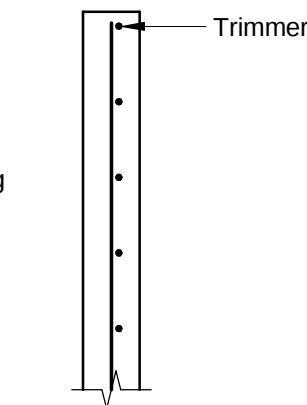
Scale : NTS



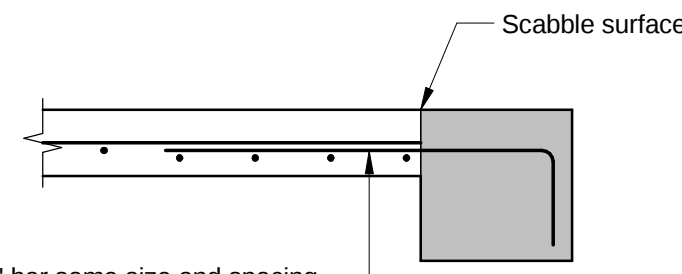
Corner



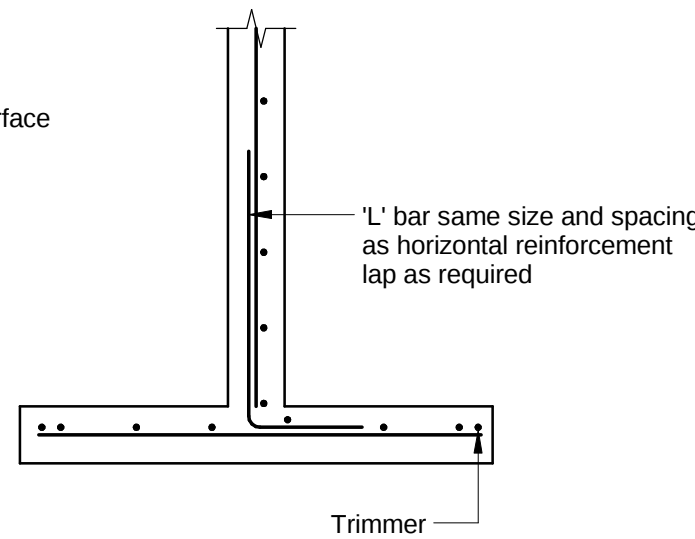
Junction



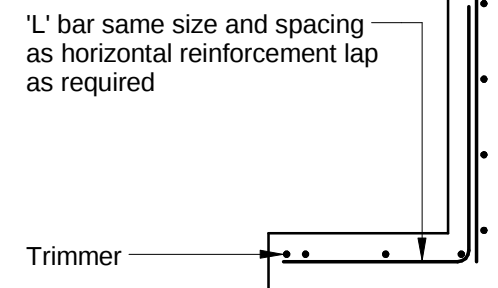
End of Wall



Wall to Column



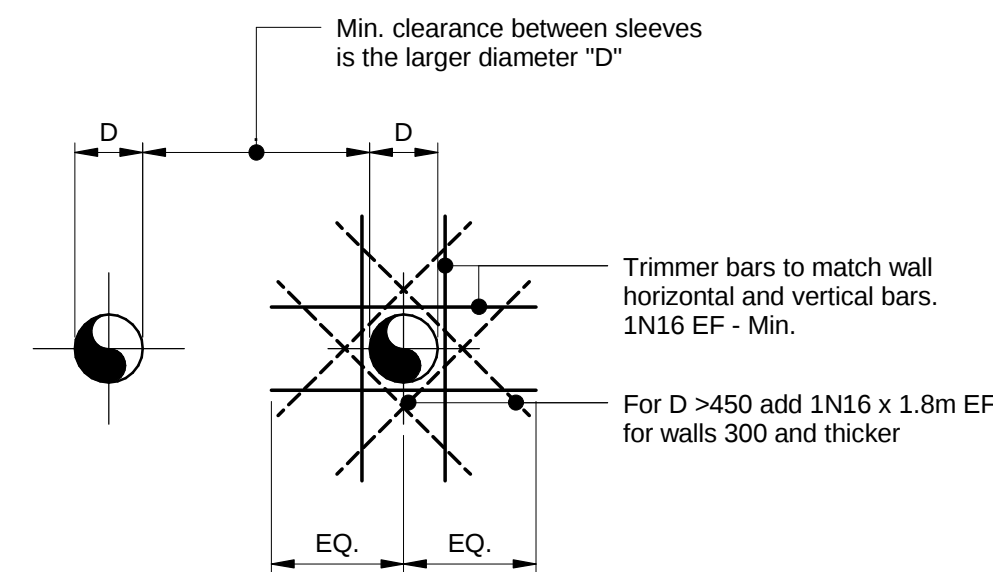
Between Doorways



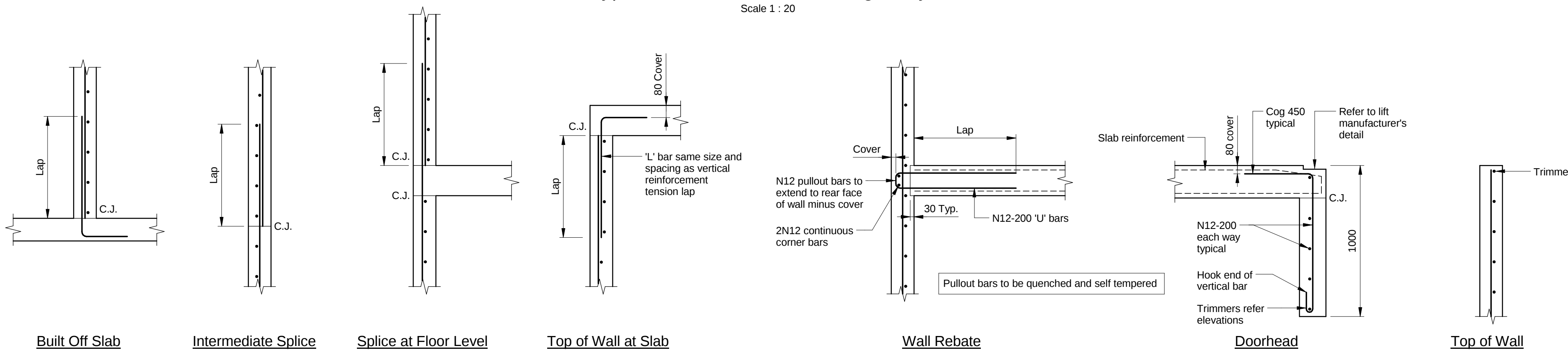
Short Corner

Typical Wall Lintel Details

Scale 1 : 20



Circular Opening



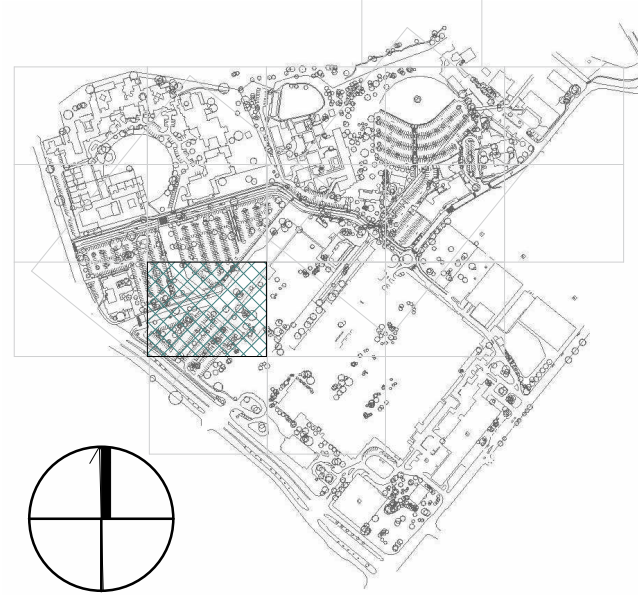
Typical Wall Sections - Single Layer

Scale 1 : 20

Minimum Wall Reinforcing Schedule		
Wall Thickness	Vertical Reinforcement	Horizontal Reinforcement
200	N12-300	N12-300
225	N12-300	N12-300
250	N12-300	N12-300
300	N12-300	N12-300
350	N12-250	N12-250
400	N16-350	N12-225
450	N16-300	N16-300

Minimum Wall Reinforcing Schedule

Key Plan:



REV	DESCRIPTION	DRAWN	CHECK	DATE
A	Preliminary Issue	KC	NM	06/11/15

Project Status

FOR TENDER

CLIENT:
Health Infrastructure  **Health Infrastructure**

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ARUP

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WESTMEAD MULTI DECK CARPARK
Cnr Hawkesbury Road and Darcy Road
Westmead NSW 2145

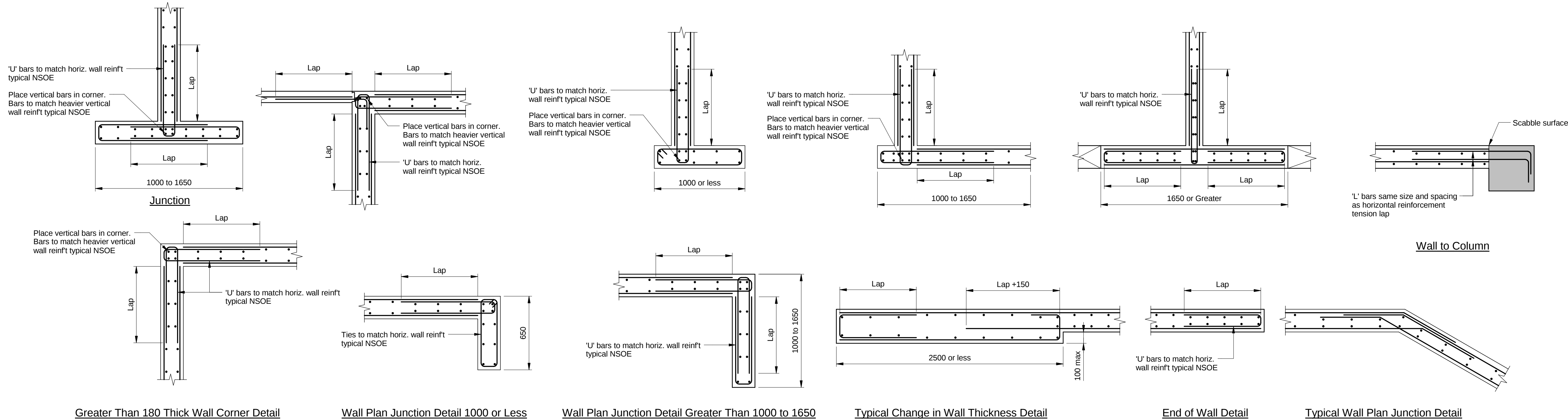
 **WESTMEAD HOSPITAL REDEVELOPMENT**
Building health. Transforming lives.

DRAWING TITLE:
Typical Wall Details - Sheet 1

SCALE: As indicated	DOCS NUMBER: 5335	CHECKED: NM
PROJECT NUMBER: 236482	DRAWING NUMBER: MSC-ARP-ST-DG-0021 A	ISSUE:

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6/11/2015 4:08:15 PM



Greater Than 180 Thick Wall Corner Detail

Wall Plan Junction Detail 1000 or Less

Wall Plan Junction Detail Greater Than 1000 to 1650

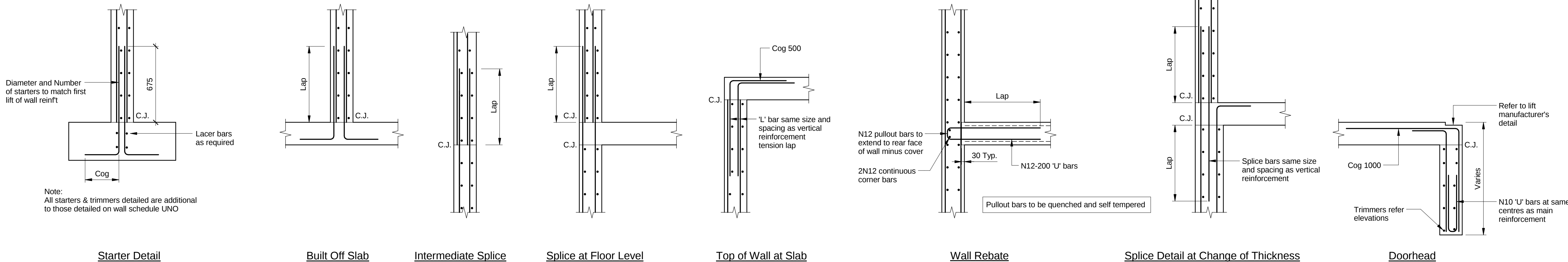
Typical Change in Wall Thickness Detail

End of Wall Detail

Typical Wall Plan Junction Detail

Typical Wall Plan Details - Double Layer

Scale 1 : 20



Starter Detail

Built Off Slab

Intermediate Splice

Splice at Floor Level

Top of Wall at Slab

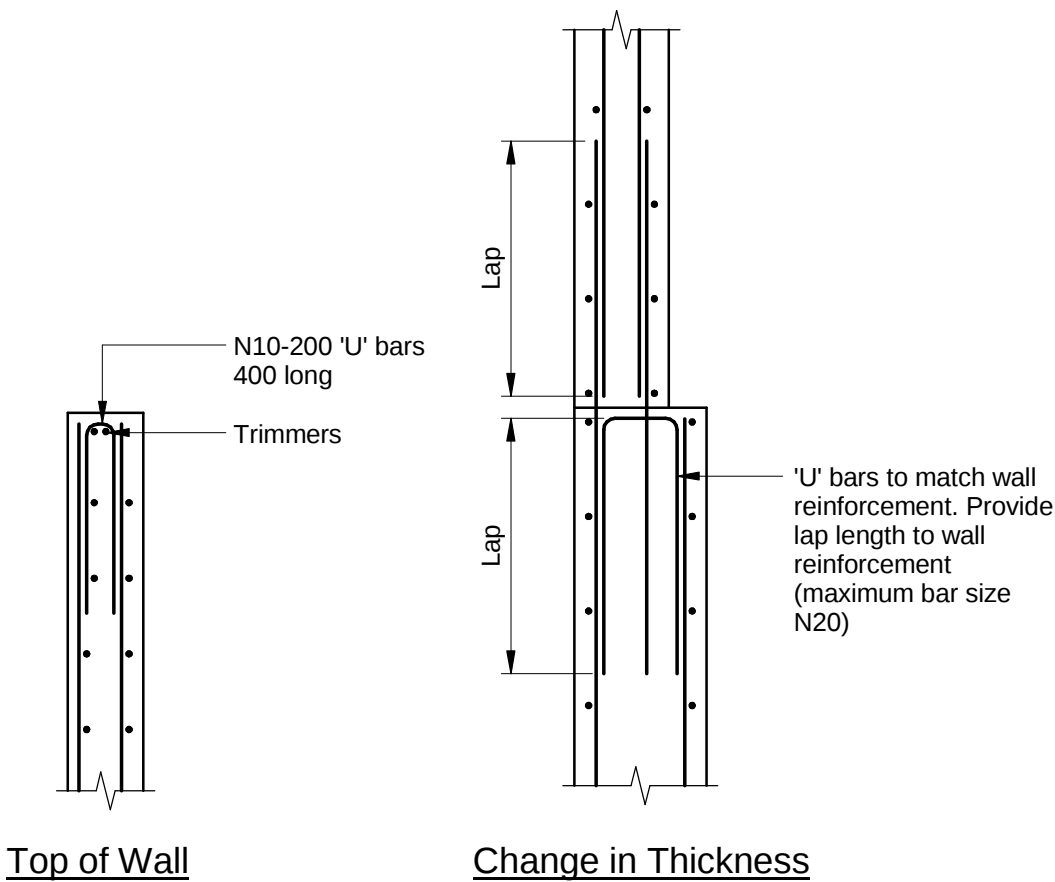
Wall Rebate

Splice Detail at Change of Thickness

Doorhead

Typical Wall Sections - Double Layer

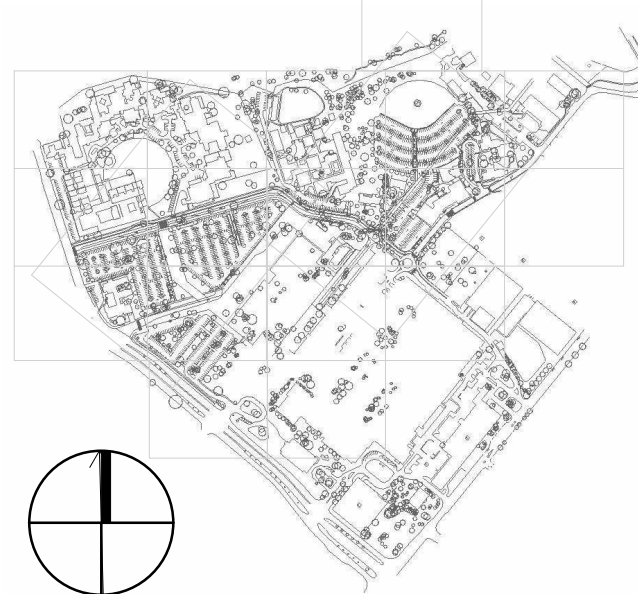
Scale 1 : 20



Top of Wall

Change in Thickness

Key Plan:



REV	DESCRIPTION	DRAWN	CHECK	DATE
A	Preliminary Issue	KC	NM	06/11/15

Project Status

FOR TENDER

CLIENT:
Health Infrastructure  **Health Infrastructure**
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WESTMEAD MULTI DECK CARPARK
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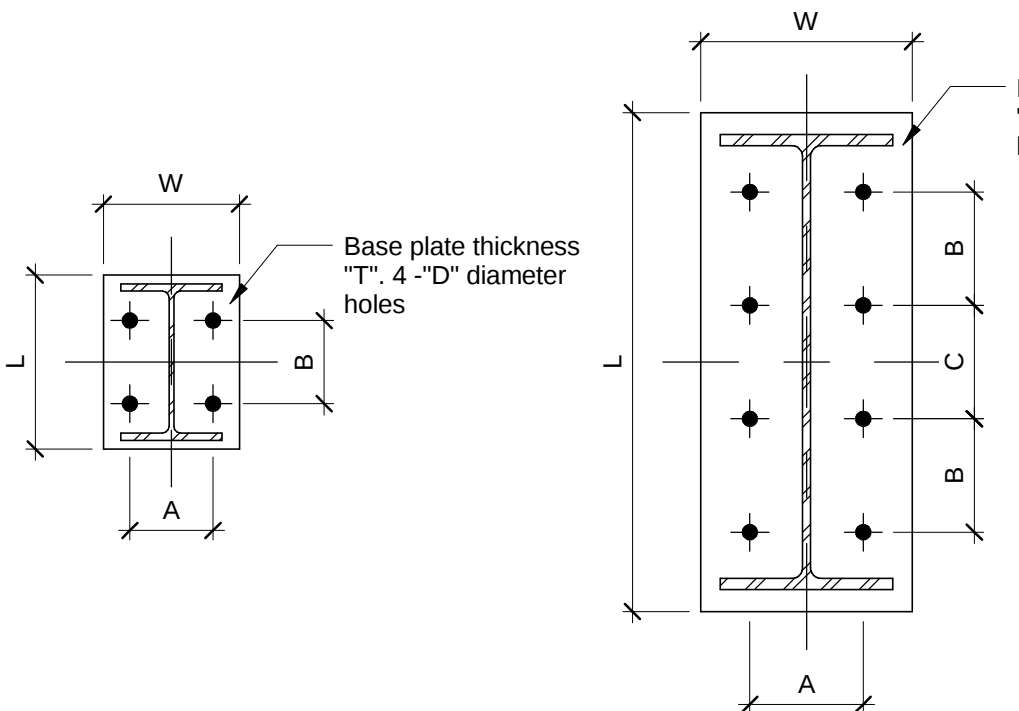
 **WESTMEAD HOSPITAL REDEVELOPMENT**
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DRAWING TITLE:
Typical Wall Details - Sheet 2

SCALE: 1 : 20
PROJECT NUMBER: 236482
DOWNS NUMBER: 5335
DRAWING NUMBER:
CHECKED: NM
ISSUE:

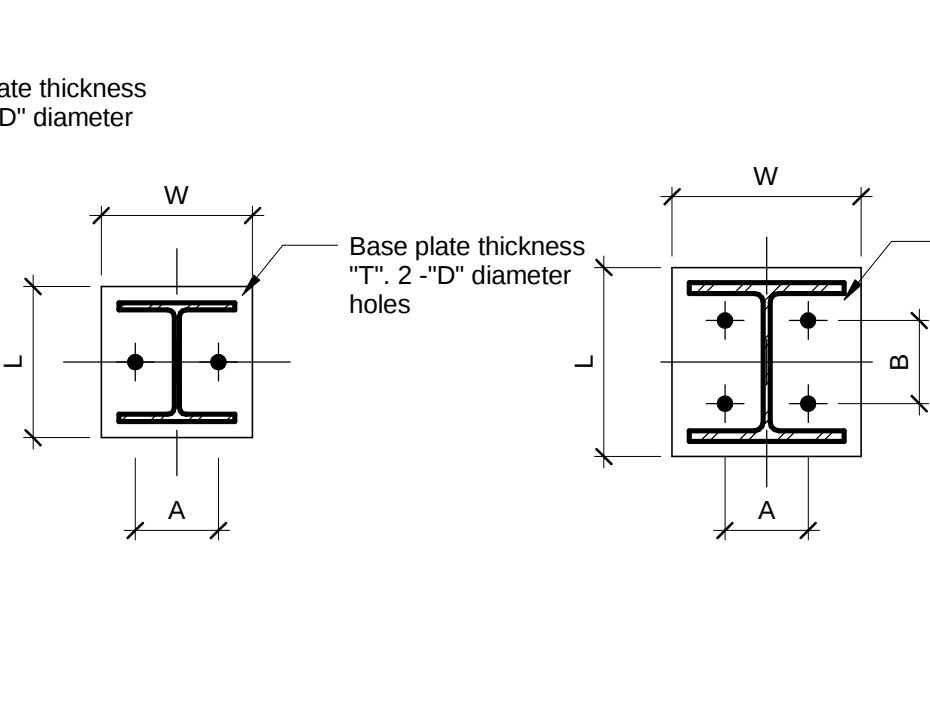
C:\Users\chris.bonita\Documents\236482_Westmead_Carpark_R14_chris.bonita.rvt
6/11/2015 4:07:32 PM

Typical Base Plate Details													
Column Size	Plate Dimensions							Bolts		Anchor Plate		Pocket	
	A	B	C	T	W	L	D	4.6/S Bolts	Length	a	t	c	b
200 UB	110	110	-	20	180	230	24	4 M20	320	70	12	75	150
250 UB	110	120	-	20	180	280	24	4 M20	320	70	12	75	150
310 UB	130	170	-	20	200	340	24	4 M20	320	70	12	75	150
360 UB	130	220	-	20	200	390	24	4 M20	320	70	12	75	150
410 UB	130	270	-	25	200	440	30	4 M24	400	80	16	75	200
460 UB	130	310	-	25	230	500	30	4 M24	400	80	16	75	200
530 UB	130	390	-	25	250	580	30	4 M24	400	80	16	75	200
610 UB	150	150	150	28	280	660	30	8 M24	400	80	16	75	200
700 WB	150	150	150	28	300	770	36	8 M30	500	110	16	100	250
800 WB	150	250	150	28	330	870	36	8 M30	500	110	16	100	250
150 UC	110	-	-	20	200	200	24	2 M20	320	70	12	75	150
200 UC	110	110	-	20	250	250	24	4 M20	320	70	12	75	150
250 UC	130	130	-	30	320	320	30	4 M24	400	80	16	75	200
310 UC	150	150	-	30	410	410	36	4 M30	500	110	16	100	250
350 WC	150	160	-	32	400	400	24	4 M20	370	70	16	75	150
400 WC	175	230	-	40	460	525	30	4 M24	400	80	16	75	200
500 WC	200	280	-	50	580	580	30	4 M24	400	80	16	75	200
75 SHS	-	150	-	12	100	210	24	Refer Detail	Refer Detail	-	-	-	-
100 SHS	-	180	-	12	130	240	24	Refer Detail	Refer Detail	-	-	-	-
250 SHS	350	180	-	28	420	280	30	4 M24	400	80	16	75	200



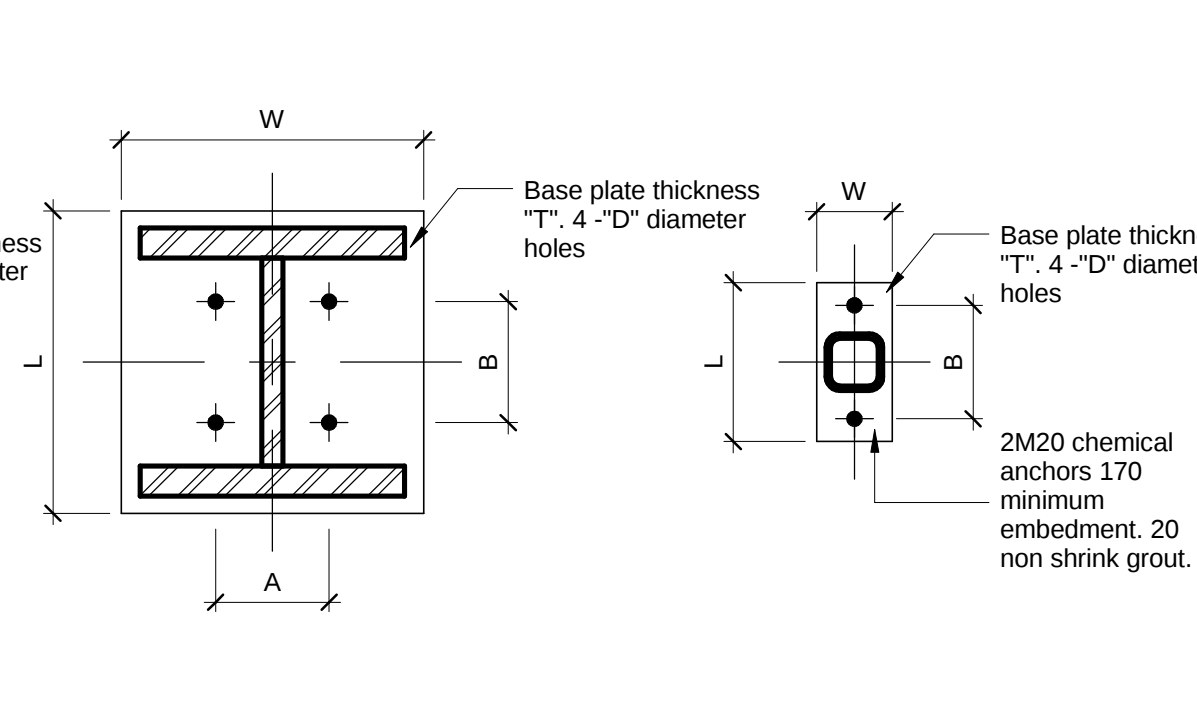
200UB to 530UB

610UB, 700WB & 800WB



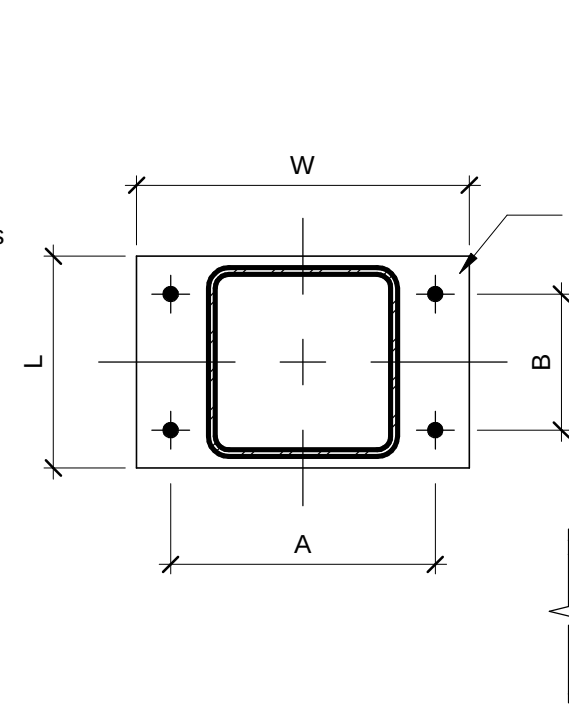
150UC

200UC to 310UC



350WC to 500WC

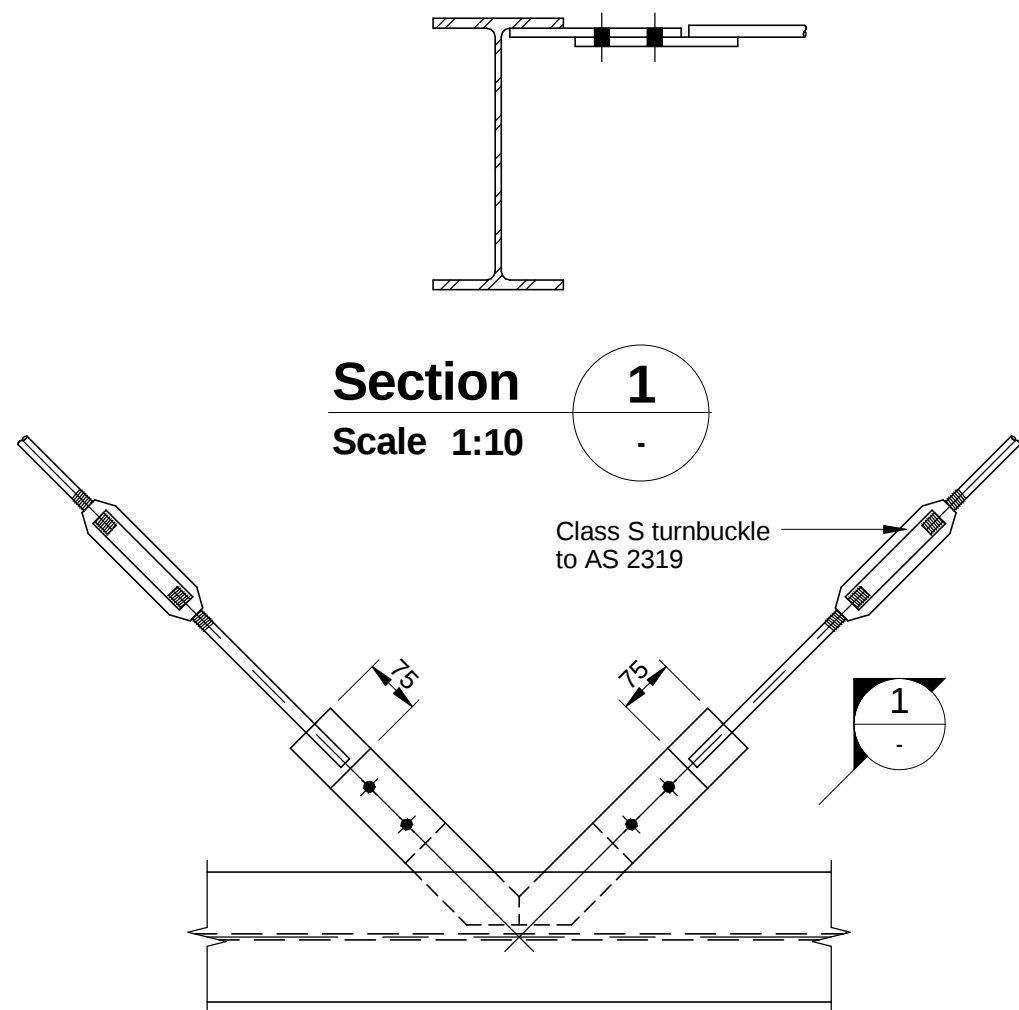
75 SHS & 100 SHS



250 SHS

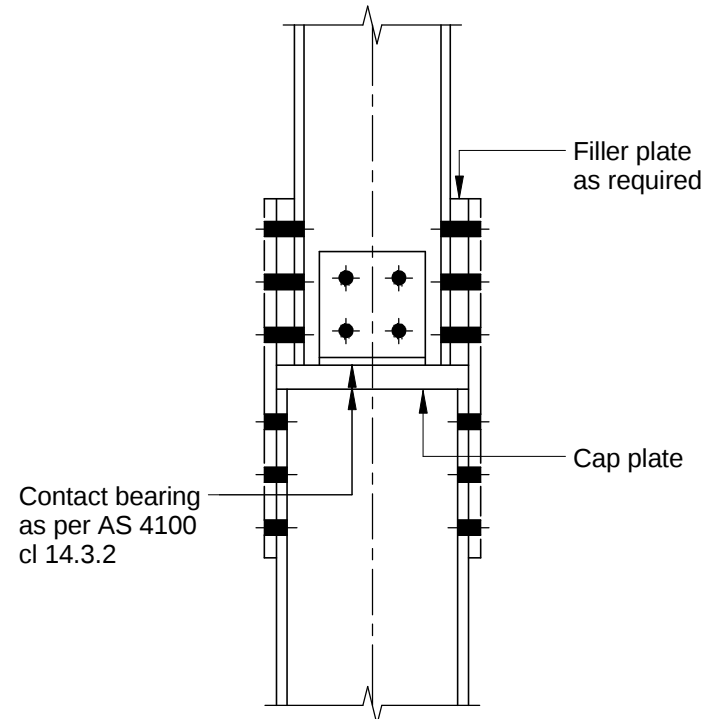
Typical Column Base Plate Connection Details

Scale 1 : 10



Typical Rod Bracing Detail

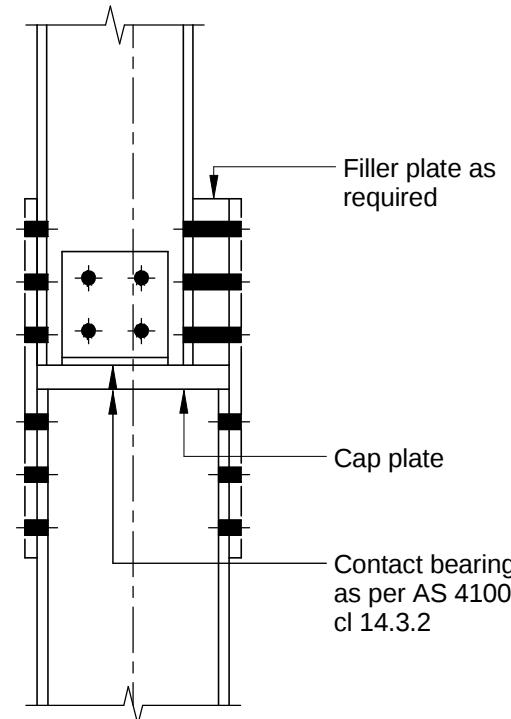
Scale 1 : 10



Typical Concentric Splice Detail for Unequal Members

Scale 1 : 10

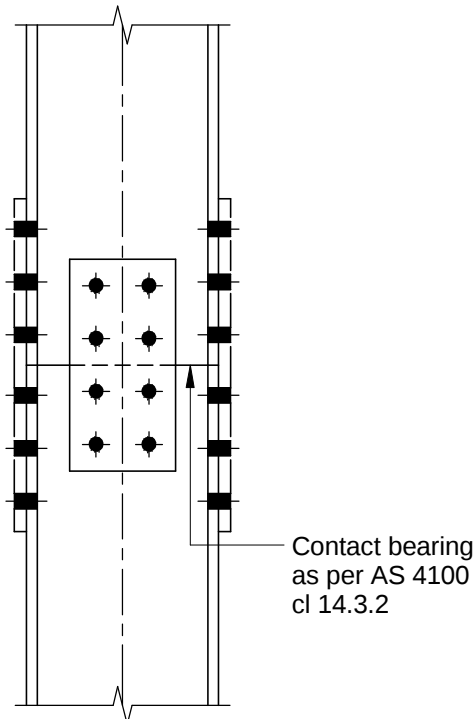
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Typical Eccentric Splice Detail for Unequal Members

Scale 1 : 10

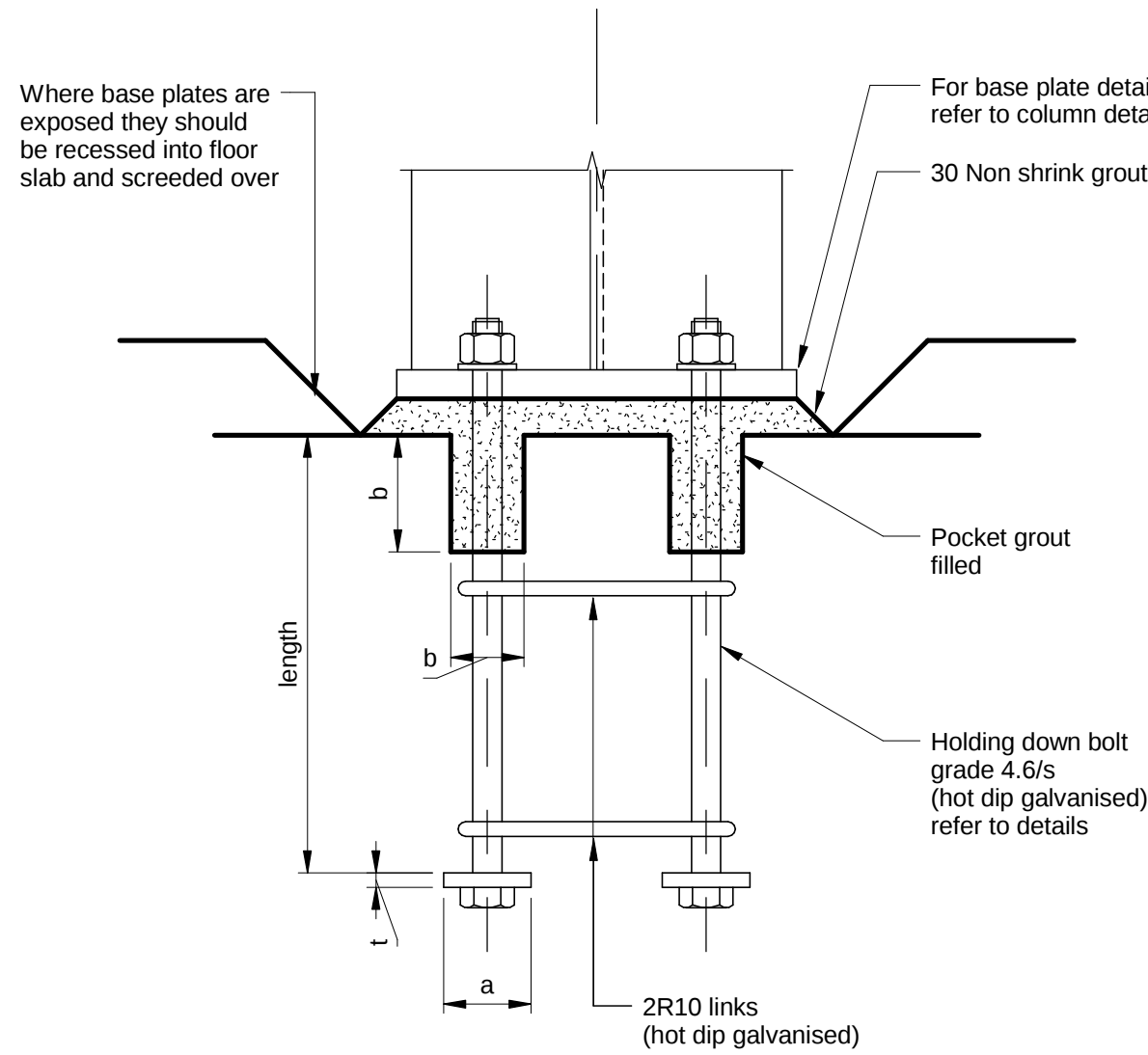
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Typical Splice Detail for Equal Members

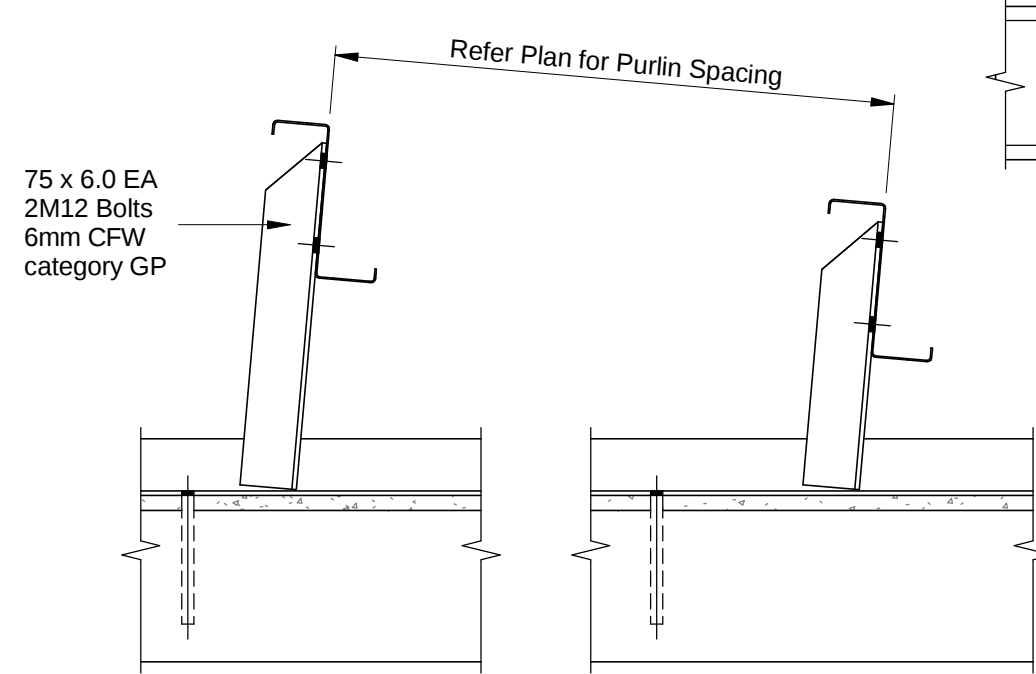
Scale 1 : 10

(Compression only)



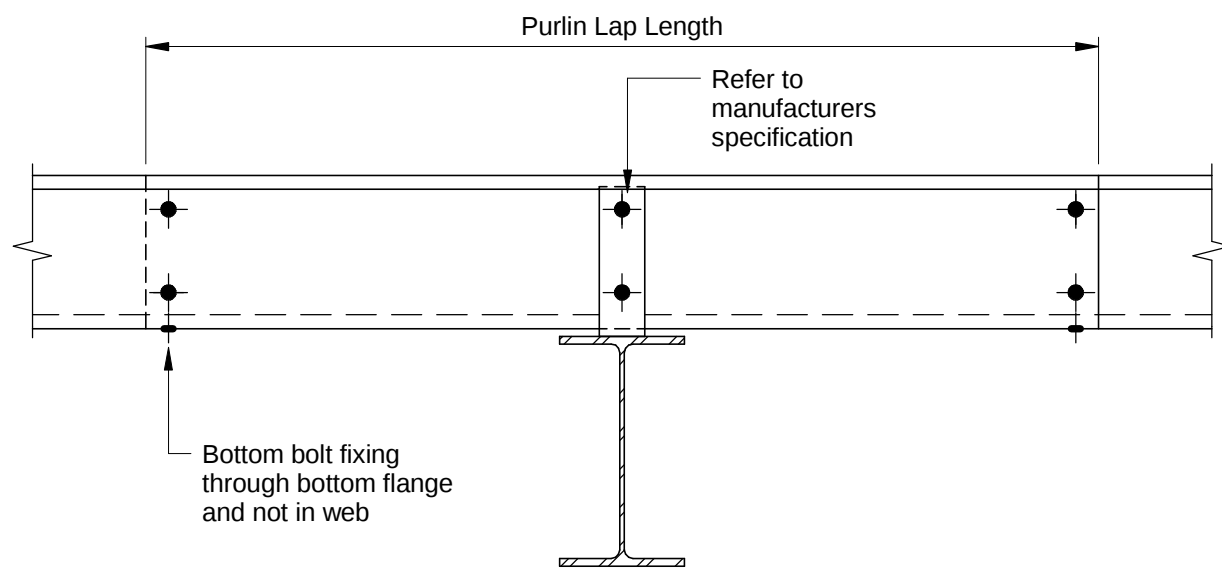
Typical Holding Down Bolt Detail

Scale 1 : 10



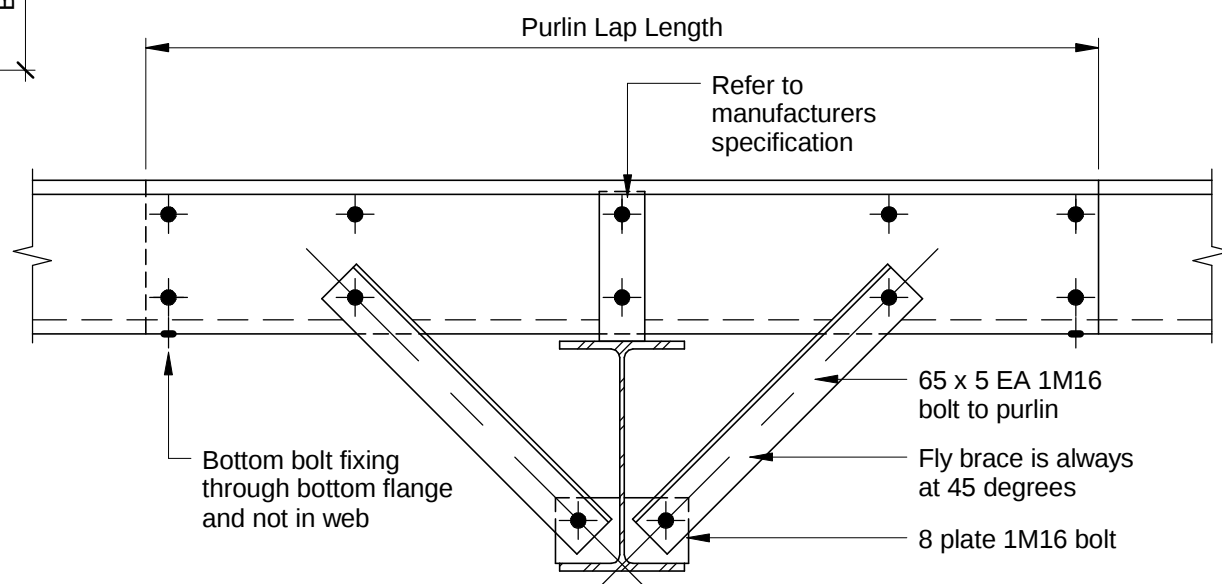
Typical Purlin to Concrete Slab Detail

Scale 1 : 10



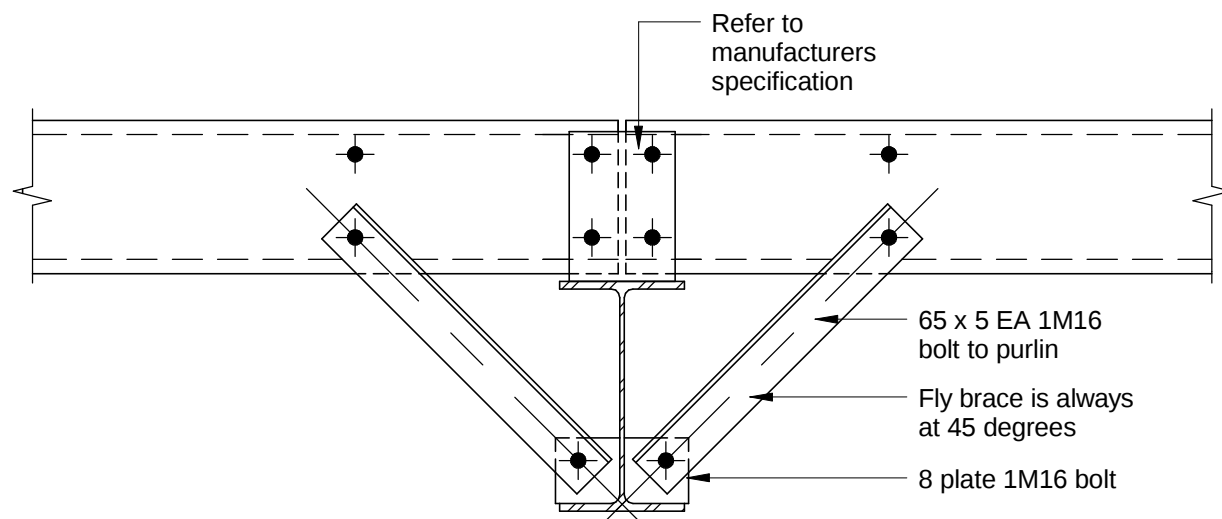
Typical Zed Purlin Lap Detail

Scale 1 : 10



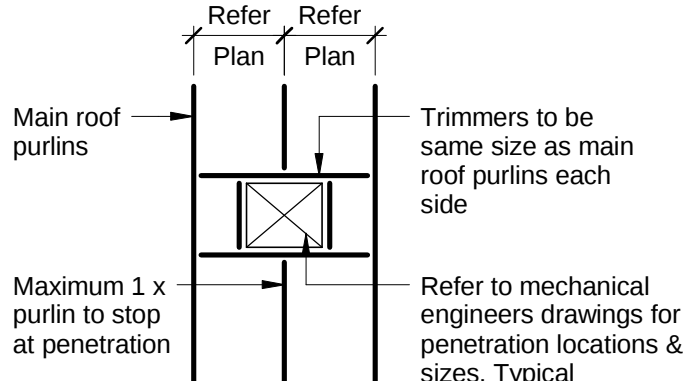
Typical Zed Purlin Fly Brace Detail

Scale 1 : 10

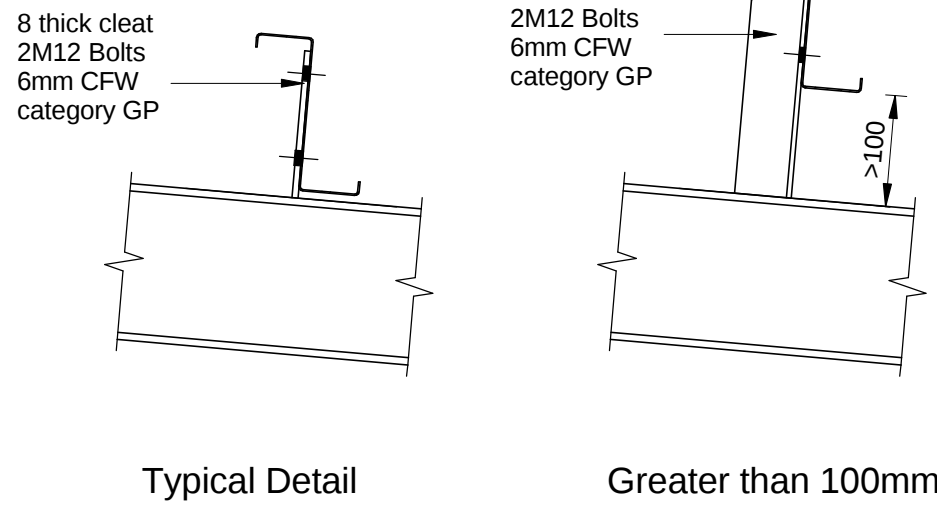


C Purlin Fly Brace Detail

Scale 1 : 10



Typical Roof Penetration Plan



Typical Detail

Greater than 100mm

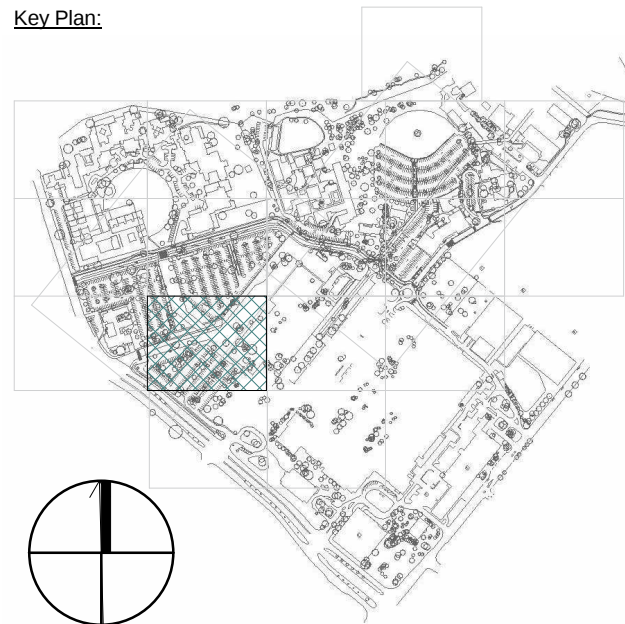
Typical Purlin/Girt Connection Details

Scale 1 : 10

Notes:

- Details of bolt holes and laps to purlins and girts to be in accordance with manufacturers recommendations
- Details of bridging to purlins and girts to be in accordance with manufacturers recommendations
- Roof pitch 20 degrees maximum

Key Plan:



REV	DESCRIPTION	DRAWN	CHECK	DATE
A	Preliminary Issue	KC	NM	06/11/15

Project Status

FOR TENDER

CLIENT:
Health Infrastructure  **Health Infrastructure**

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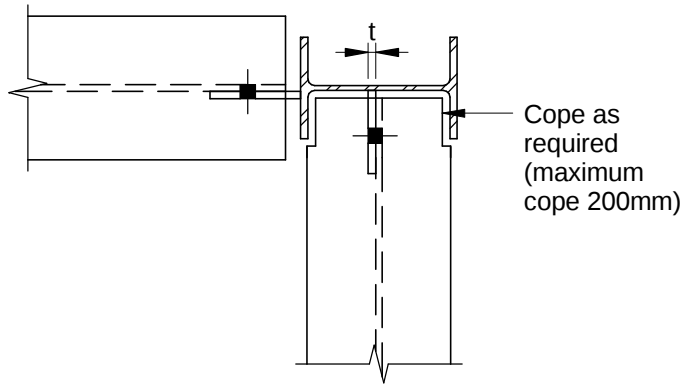
DRAWING TITLE:
Typical Steelwork Details - Sheet 1

SCALE: As indicated	DOCS NUMBER: 5335	CHECKED: NM
PROJECT NUMBER: 236482	DRAWING NUMBER: MSC-ARP-ST-DG-0023 A	ISSUE:

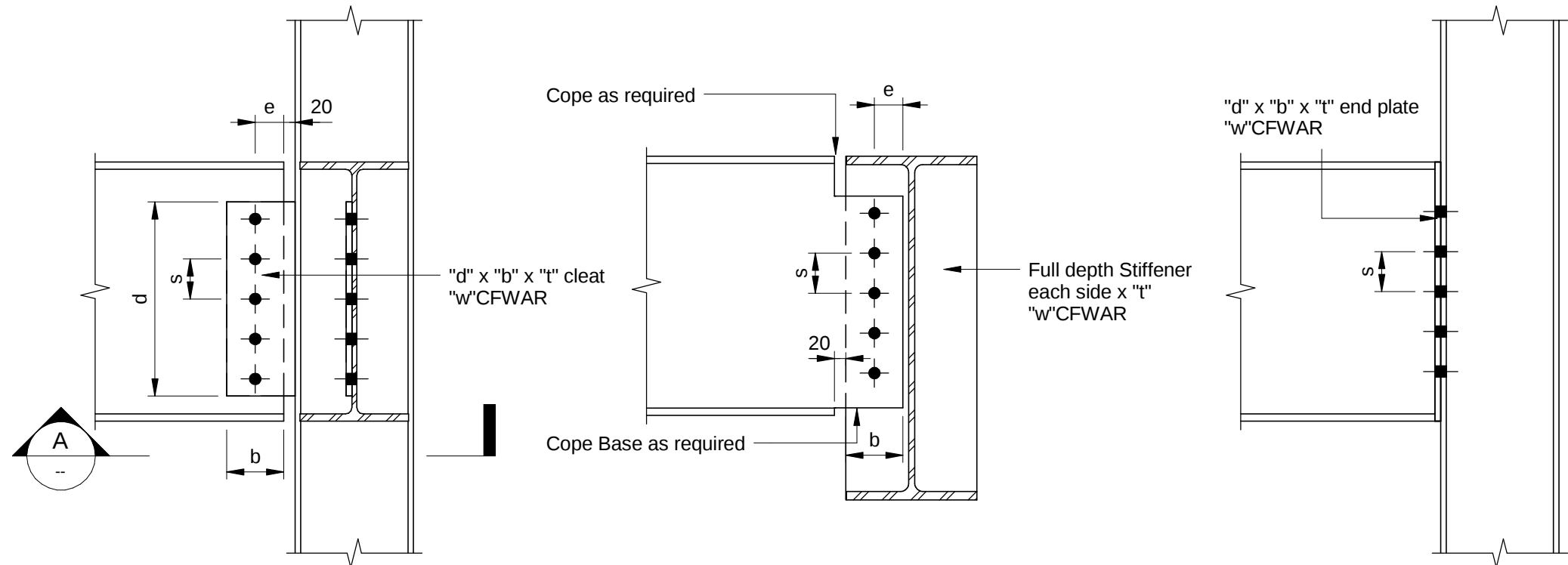
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Beam Connections - End Plate							
Beam Size	d (min)	b (min)	t	e	s	w	Grade 8.8/S
150 UB	120	160	10	30	60	6	4 M20
180 UB	150	160	10	40	70	6	4 M20
200 UB	150	160	10	40	70	6	4 M20
250 UB	150	160	10	40	70	6	4 M20
310 UB	220	160	10	40	70	6	6 M20
360 UB	220	160	10	40	70	6	6 M20
410 UB	300	160	10	45	70	6	8 M20
460 UB	360	160	10	40	70	6	10 M20
530 UB	430	160	10	40	70	6	12 M20
610 UB	500	160	10	40	70	6	14 M20
700 WB	570	160	10	40	70	6	16 M20
800 WB	650	160	10	45	70	6	18 M20
900 WB	650	160	10	50	70	6	18 M20
1000 WB	650	160	10	50	70	6	18 M20
1200 WB	720	160	12	50	70	8	20 M24

Beam Connections - Fin Plate							
Beam Size	d (min)	b (min)	t	e	s	w	Grade 8.8/S
150 UB	110	100	10	30	50	6	2 M20
180 UB	140	100	10	35	60	6	2 M20
200 UB	150	100	10	35	70	6	2 M20
250 UB	150	100	10	35	70	6	2 M20
310 UB	220	100	10	35	70	6	3 M20
360 UB	220	100	10	35	70	6	3 M20
410 UB	290	100	12	35	70	6	4 M20
460 UB	360	100	12	35	70	6	5 M20
530 UB	450	100	12	40	70	6	6 M24
610 UB	520	100	12	40	70	8	7 M24
700 WB	590	100	12	40	70	8	8 M24
800 WB	660	120	16	50	80	8	8 M30
900 WB	730	120	16	50	80	8	9 M30
1000 WB	730	120	16	50	80	8	9 M30
1200 WB	910	120	20	50	90	8	10 M30



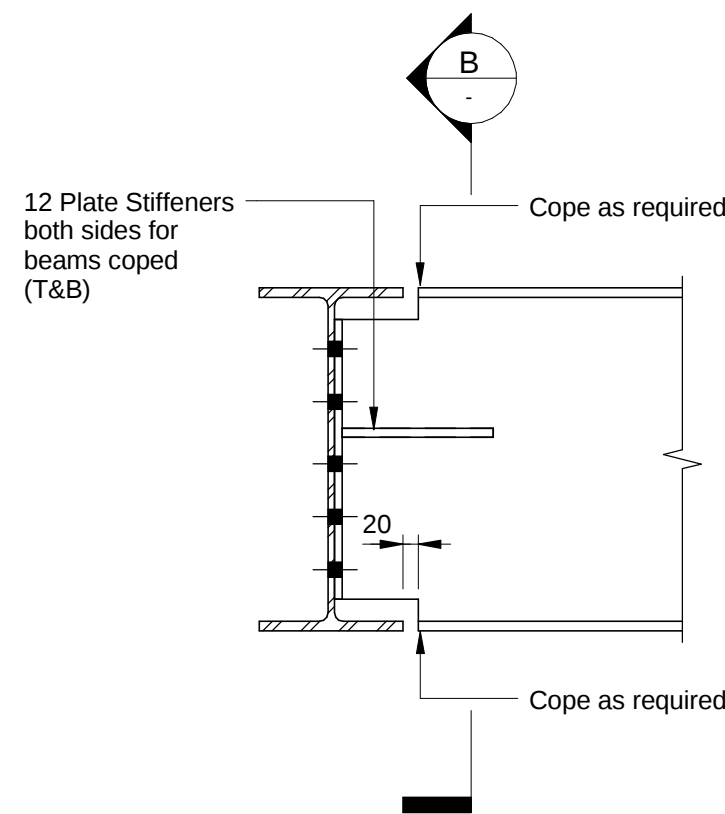
Section A
Scale 1:10



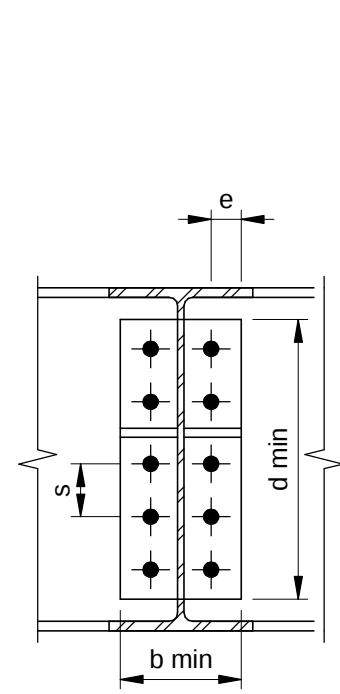
Typical Fin Plate Connection Detail
Scale 1 : 10

Typical Beam to Beam Fin Plate Connection Detail
Scale 1 : 10

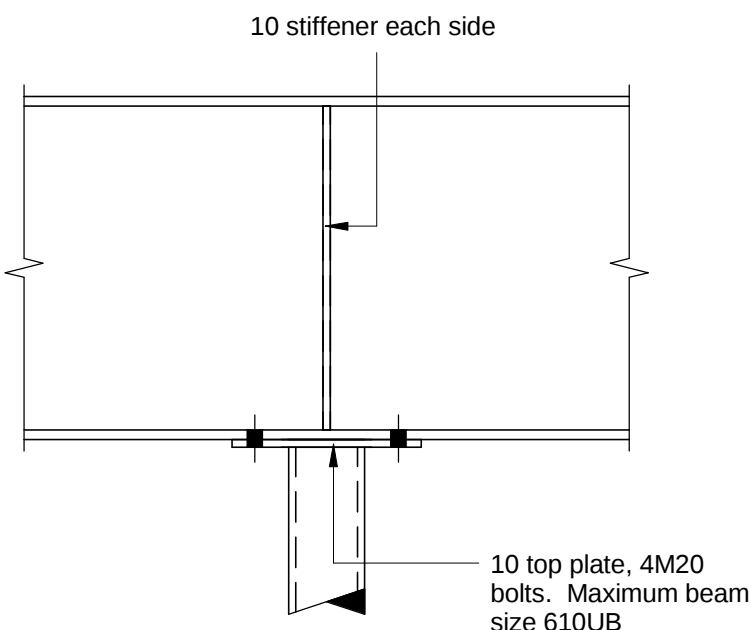
Typical End Plate Connection Detail
Scale 1 : 10



Typical Beam to Beam End Plate Connection Detail
Scale 1 : 10

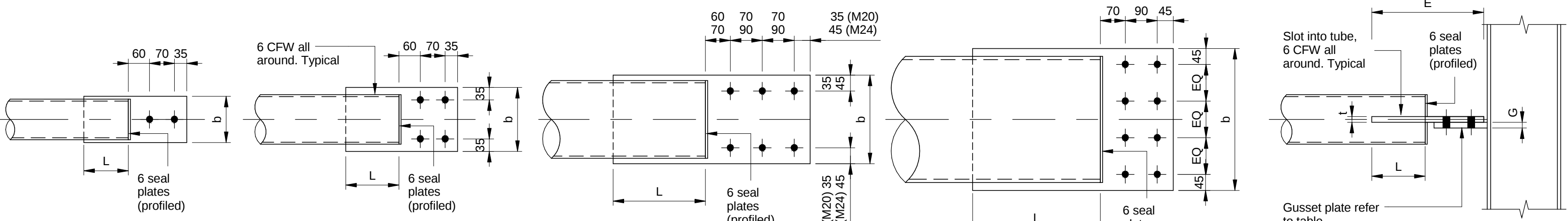


Typical Fin Plate Connection into Side of SHS Column Detail
Scale 1 : 10



Typical Cap Plate Connection to Top of Column Detail
Scale 1 : 10

Section B
Scale 1:10



Typical 2 Bolt Type
Scale 1 : 10

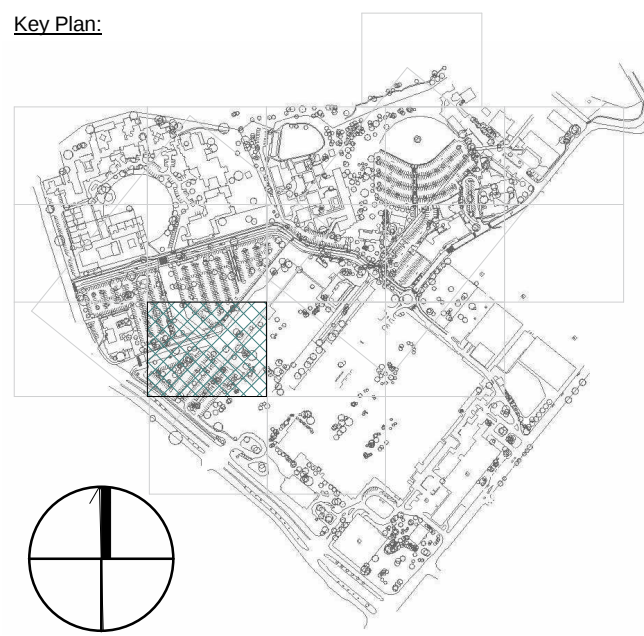
Typical 4 Bolt Type
Scale 1 : 10

Typical 6 Bolt Type
Scale 1 : 10

Typical 8 Bolt Type
Scale 1 : 10

CHS End Preparation Detail
Scale 1 : 10

CHS End Connections					
CHS Size	Dimensions				Grade 8.8/S
	b	G	L	t	
76 OD	100	10	100	10	2 M20
89 OD	110	12	110	12	2 M20
102 OD	130	12	120	12	2 M20
114 OD	130	16	125	16	2 M20
140 OD	180	16	150	16	4 M20
168 OD	200	20	185	20	6 M20
219 OD	250	25	260	25	6 M24
273 OD*	330	25	275	25	8 M24
324 OD*	360	25	325	25	8 M24
356 OD*	400	25	360	25	8 M24
* Denotes 10 CFW					



REV	DESCRIPTION	DRAWN	CHECK	DATE
A	Preliminary Issue	KC	NM	06/11/15

6/11/2015 4:07:34 PM

Project Status

FOR TENDER

CLIENT:
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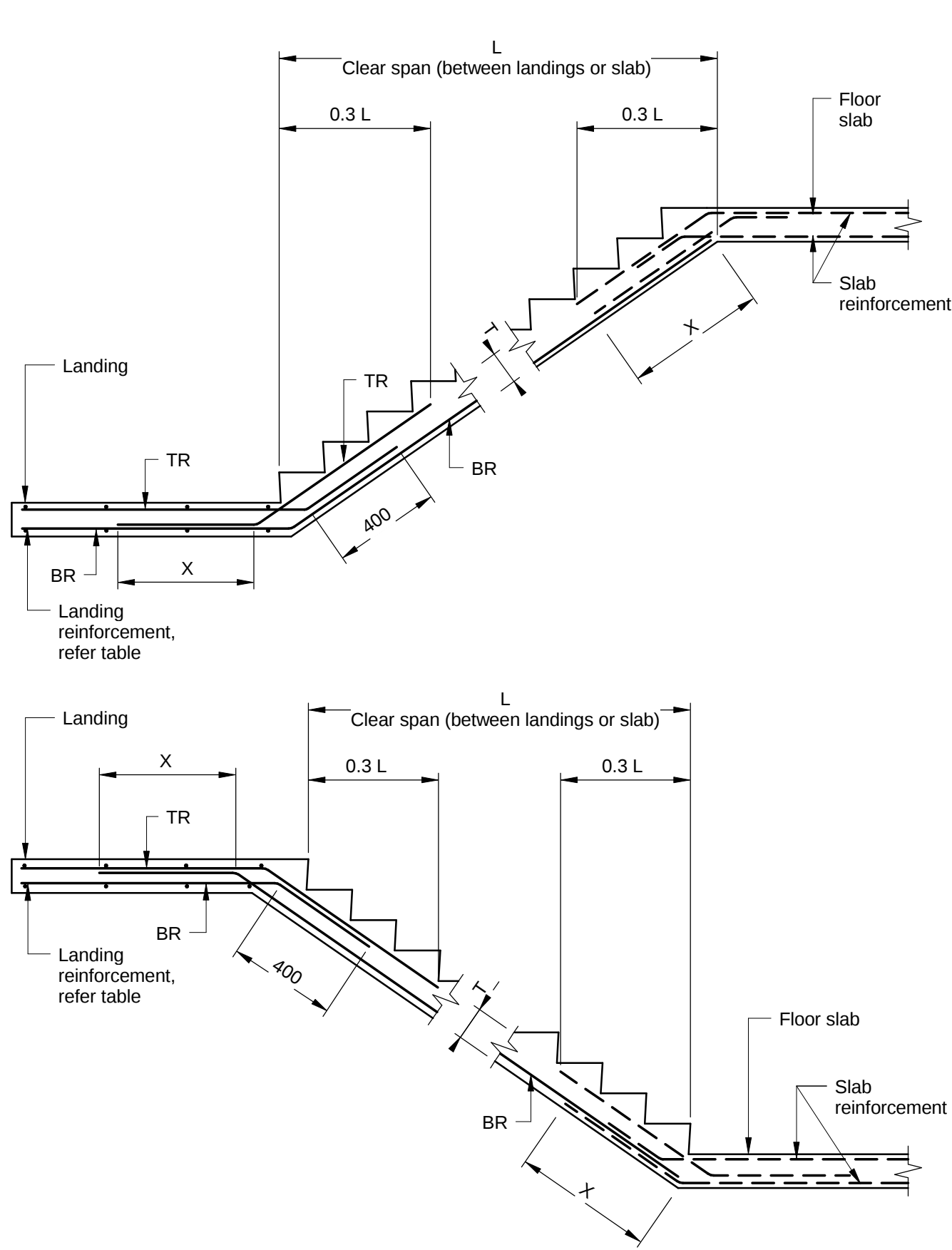
LEAD ARCHITECT:
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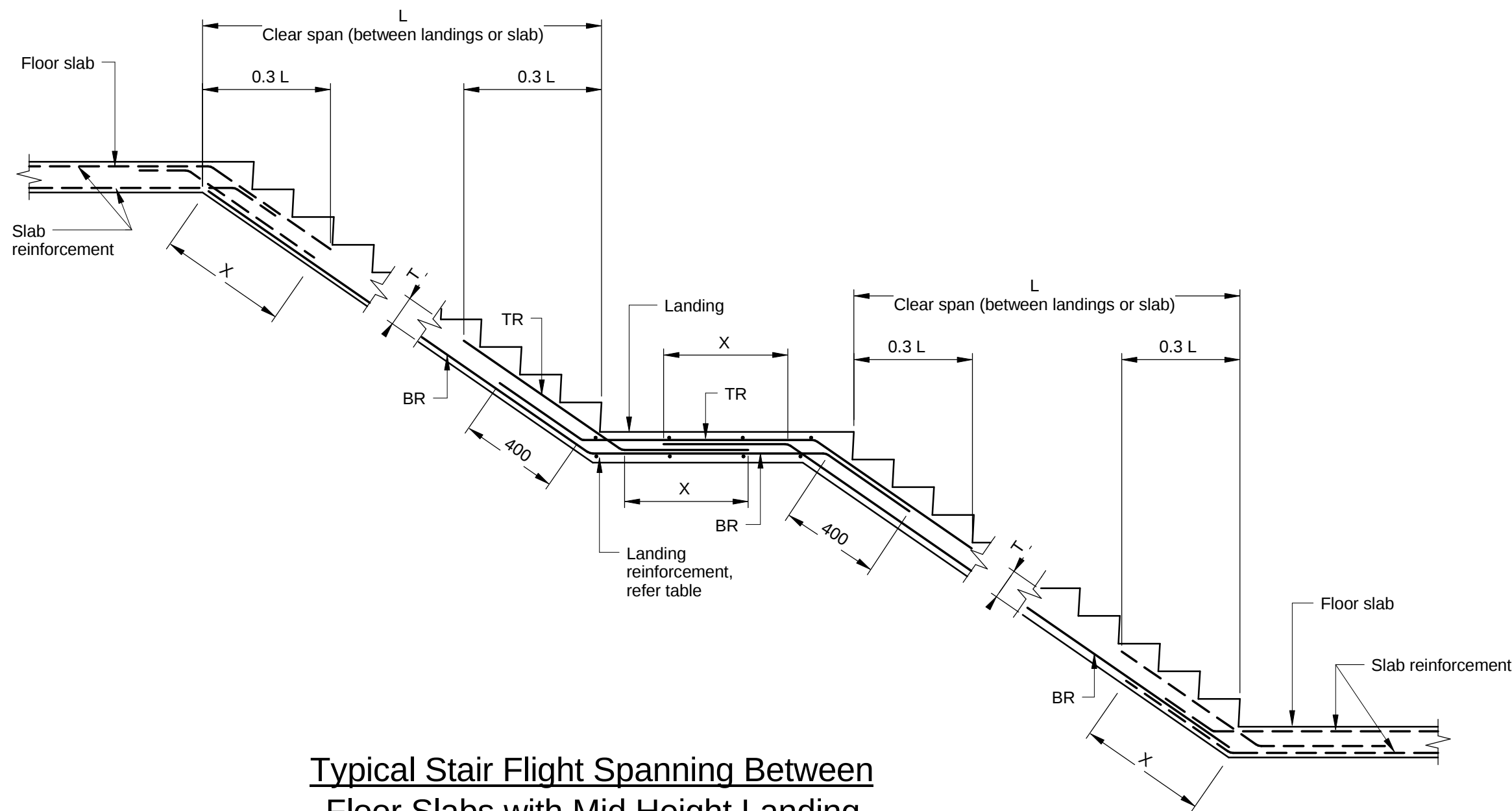
WESTMEAD MULTI DECK CARPARK
Cnr Hawkesbury Road and Darcy Road
Westmead NSW 2145
WESTMEAD HOSPITAL REDEVELOPMENT
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DRAWING TITLE:
Typical Steelwork Details - Sheet 2

SCALE: 1 : 10
PROJECT NUMBER: 236482
DRAWING NUMBER: MSC-ARP-ST-DG-0024 A
DOHS NUMBER: 5335
CHECKED: NM
ISSUE:



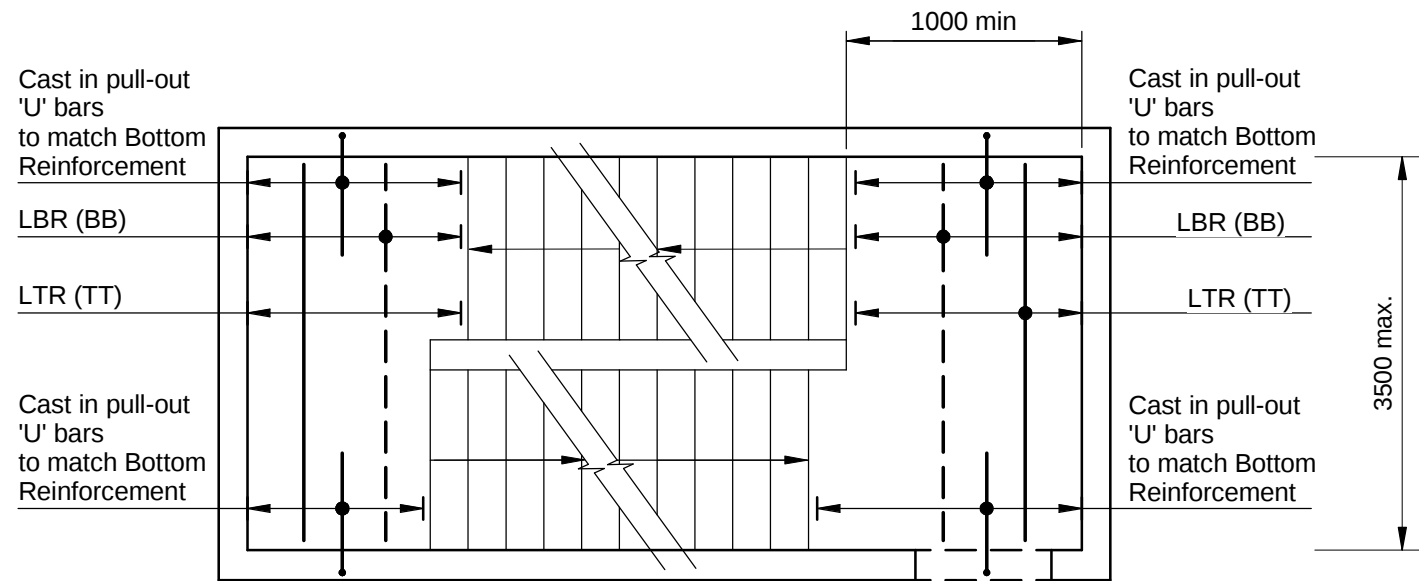
Typical Stair Flight Spanning Between Landings or Floor Slabs
Scale 1:20



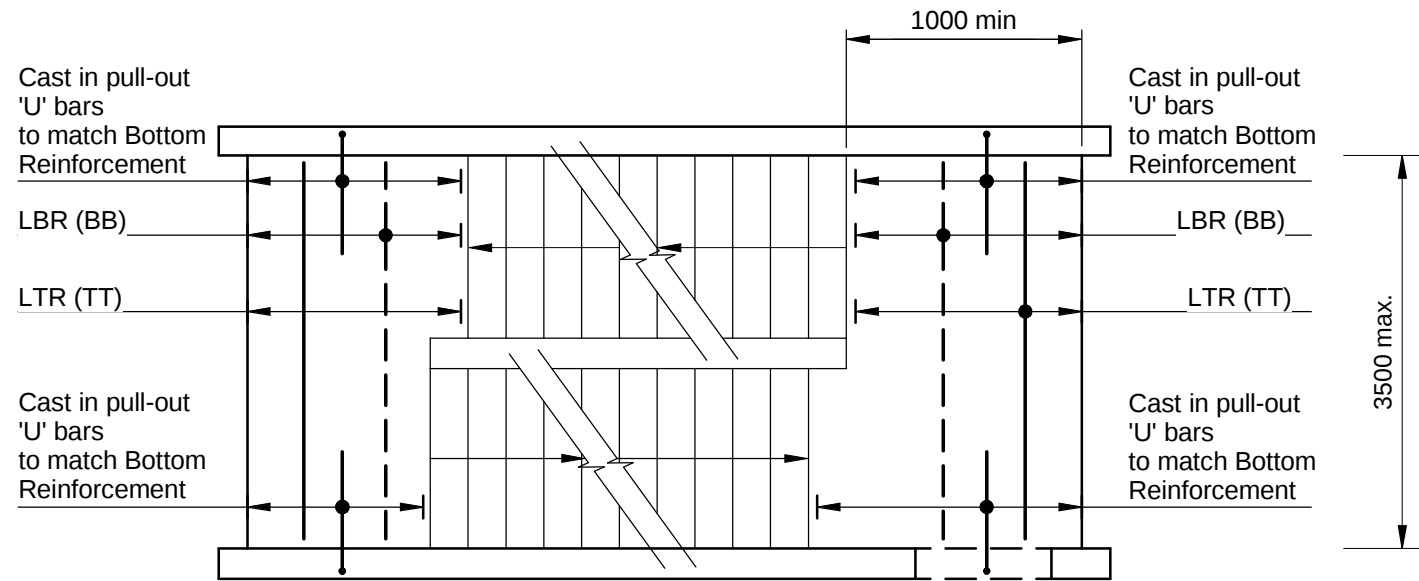
Typical Stair Flight Spanning Between Floor Slabs with Mid Height Landing
Scale 1:20

Stair Schedule - Stair Spanning Between Walls			
Clear Span, L (mm)	Stair Waist (mm)	Stair Reinforcement	
		BR	TR
Less Than 3500	150	N12-200	N12-200
3550 - 4000	175	N12-200	N12-200
4050 - 4600	200	N16-200	N16-200
4650 - 5100	225	N16-200	N16-200
5100 - 5600	250	N20-200	N20-200

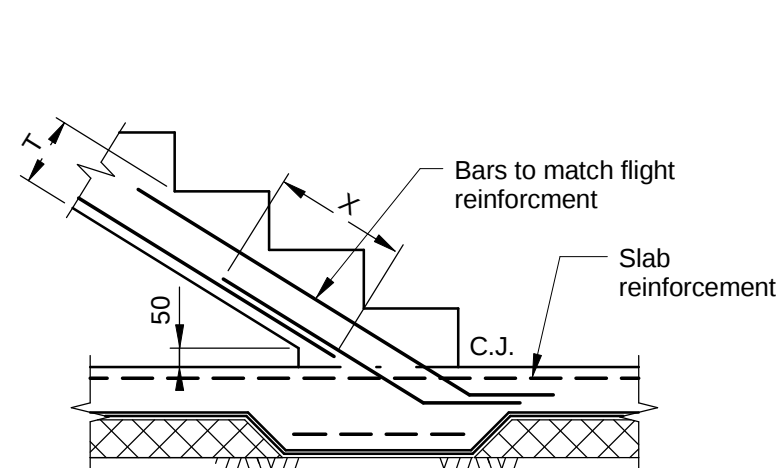
Stair Schedule - Stair Spanning Between Landings and/or Slab						
Clear Span, L (mm)	Stair Waist (mm)	Stair Reinforcement		Landing Thickness (mm)	Landing Reinforcement	
		BR	TR		LBR	LTR
Less Than 2500	150	N12-200	N12-200	250	N16-200	N12-200
2550 - 3000	175	N12-200	N12-200	250	N16-200	N12-200
3050 - 3600	200	N16-200	N16-200	250	N16-200	N12-200
3650 - 4100	225	N16-200	N16-200	250	N20-200	N12-200
4100 - 4600	250	N20-200	N20-200	250	N20-200	N12-200



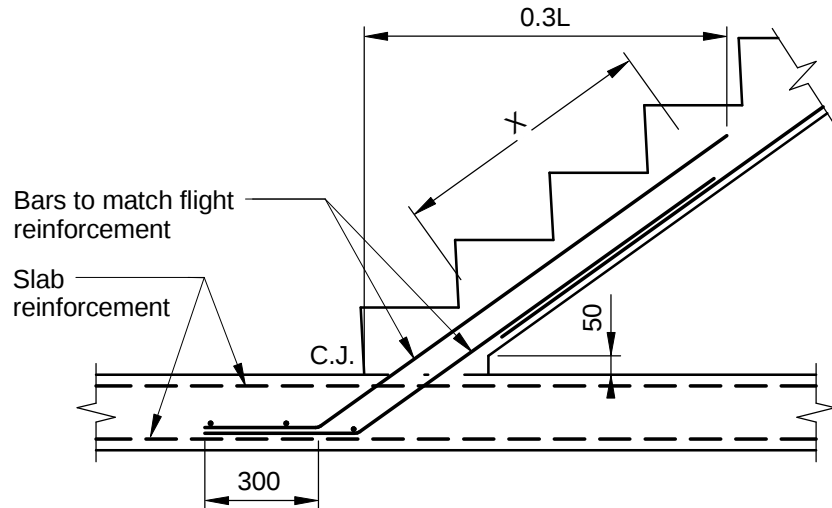
Typical Landing Reinforcement For Stair Spanning Between Walls
Scale 1:50



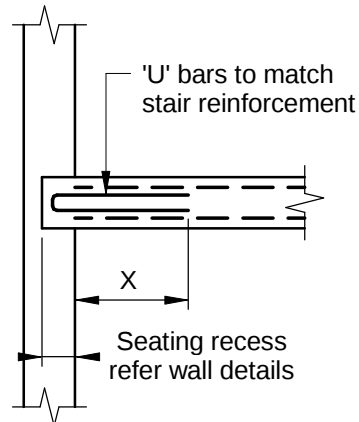
Typical Landing Reinforcement For Stair Spanning Between Landings
Scale 1:50



Typical Stair Slab on Ground Starter Detail
Scale 1:20

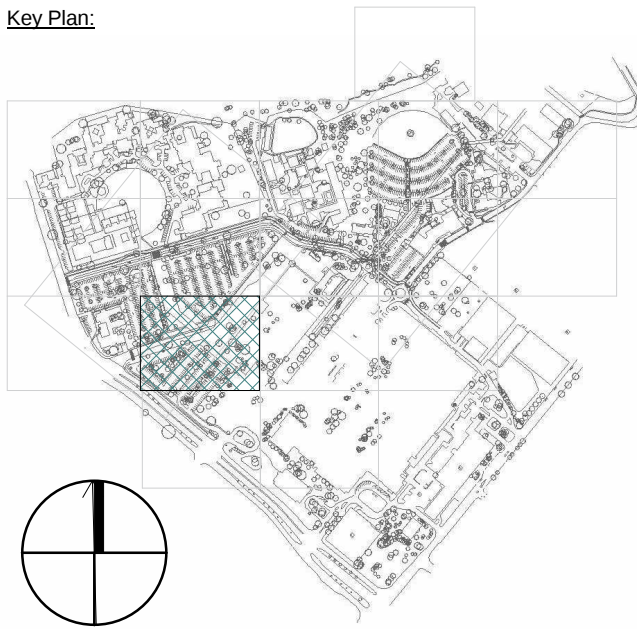


Typical Stair Suspended Slab Starter Detail
Scale 1:20



Typical End Details - Pull-Out 'U' bars

Note:
"BR" denotes bottom reinforcement
"TR" denotes top reinforcement.
"T" denotes stair thickness.
(For "BR", "TR" & "T" refer reinforcement schedule.
Provide N12-300 distance bars top and bottom.
Where proprietary pullout bars are used they shall be tempore bars.



REV	DESCRIPTION	DRAWN	CHECK	DATE
A	Preliminary Issue	KC	NM	06/11/15

Project Status

FOR TENDER

CLIENT:
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North Sydney NSW 2060
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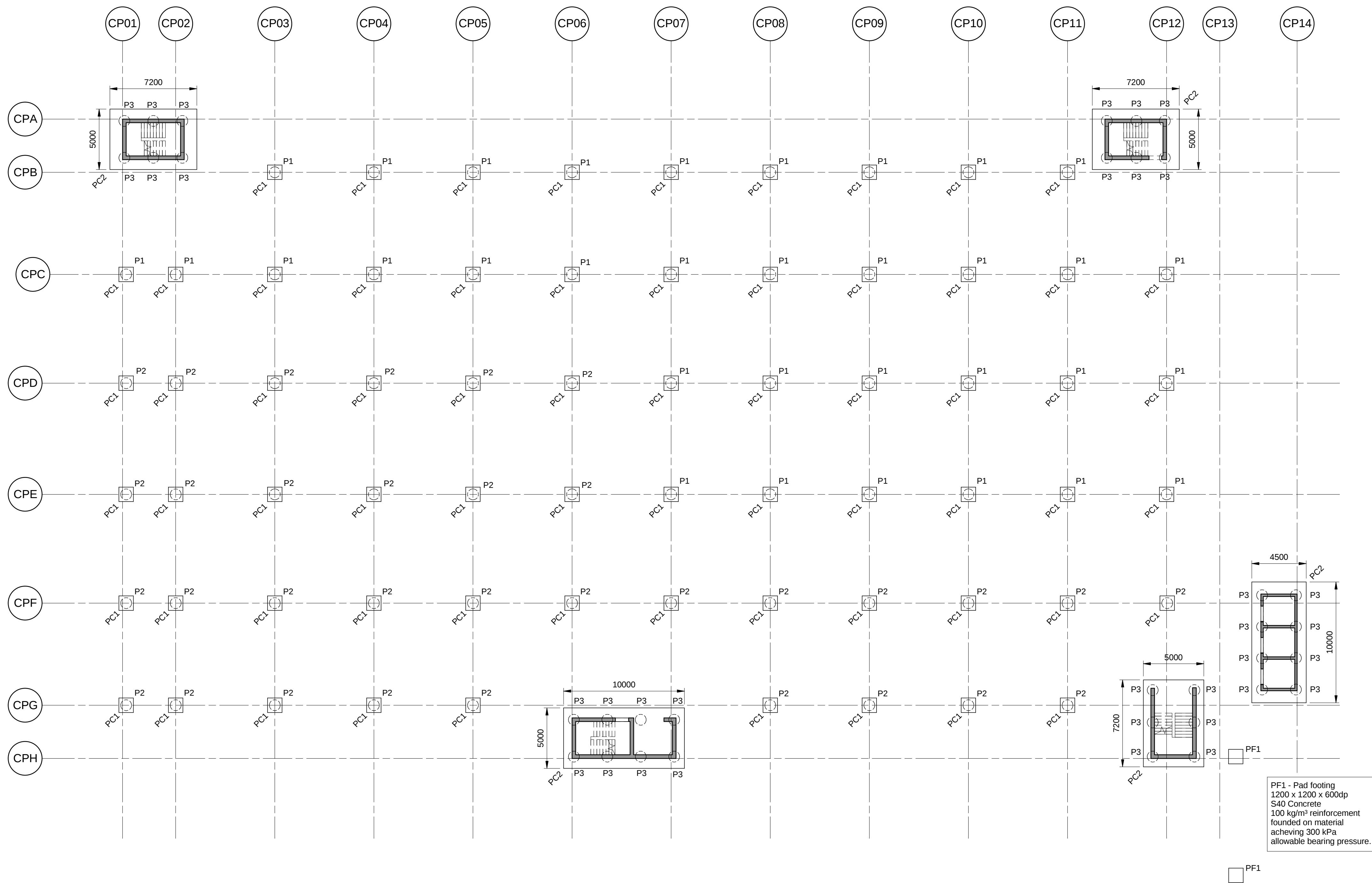
ARUP
Level 10, 201 Kent Street,
Sydney NSW 2000
www.arup.com

WESTMEAD MULTI DECK CARPARK
Cnr Hawkesbury Road and Darcy Road
Westmead NSW 2145

WESTMEAD HOSPITAL REDEVELOPMENT
Building health. Transforming lives.

DRAWING TITLE:
Typical Stair Details

SCALE: As indicated
DOCS NUMBER: **5335**
CHECKED: NM
PROJECT NUMBER: **236482**
DRAWING NUMBER: **MSC-ARP-ST-DG-0025 A**
ISSUE:



1 : 200

Pile Schedule			
Mark	Pile Dia. (mm)	Assumed Material Thickness and Shale Class	Estimated Pile Length (m)
P1	900	2.5m Class V + 0.5m Class II	6.0
P2	900	1.1m Class V + 6.3m Class III	9.0
P3	900	2.5m Class V + 5.7m Class II	11.2

Pile Cap Schedule		
Mark	Pile Cap Size (mm)	Pile Cap Depth (mm)
PC1	1050 x 1050	800
PC2	Refer to Plan	1200

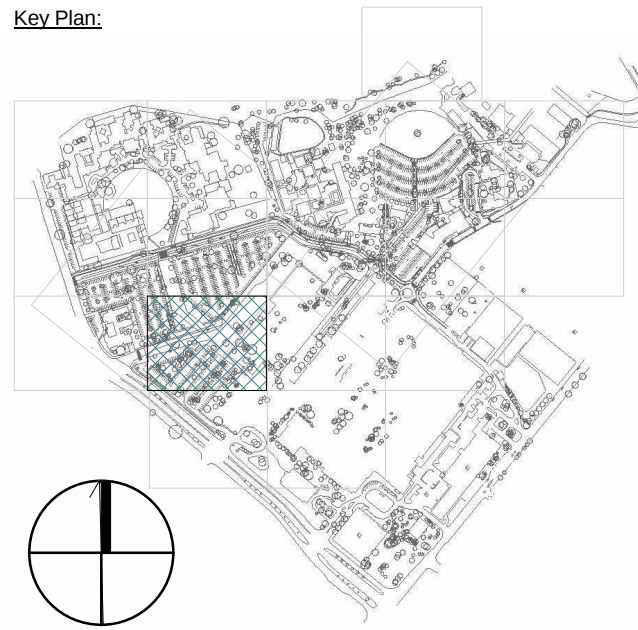
Legend

-  Denotes Insitu Concrete Element
 Denotes Element Under
 Denotes Penetration

Notes:

1. Refer to Drawing DG-0001 For General Notes
2. Refer to Drawing DG-0002 For Costing Notes
3. Refer to Drawing DG-0003 - DG-0014 for Typical Details
4. Refer to Level LG Plan for Retaining Walls.

Key Plan:

[illegible]

Project Status

FOR TENDER

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DRAWING TITLE:

Footings General Arrangement Plan

SCALE:	DOHS NUMBER:	CHECKED
As indicated	5335	NM

PROJECT NUMBER:	DRAWING NUMBER:	ISSUE:
236482	MSC-ARP-ST-DG-0200 A	